The Advisory Committee on Immunization Practices (ACIP) annually reviews the Recommended Adult Immunization Schedule (Figure) to ensure that the schedule reflects current recommendations for the licensed vaccines. In October 2009, ACIP approved the Adult Immunization Schedule for 2010, which includes several changes. A bivalent human papillomavirus vaccine (HPV2) was licensed for use in females in October 2009. The ACIP recommends vaccination of females with either HPV2 or the quadrivalent human papillomavirus vaccine (HPV4). HPV4 was licensed for use in males, and the ACIP used a permissive recommendation for use of this vaccine in males. Introductory sentences were added to the footnotes for measles, mumps, rubella, influenza, pneumococcal, hepatitis A, hepatitis B, and meningococcal vaccines. Clarifications were made to the footnotes for measles, mumps, rubella, influenza, pneumococcal, Haemophilus influenzae type B (Hib) vaccines, and schedule information was added to the hepatitis B vaccine footnote.

This schedule has also been approved by the American Academy of Family Physicians, American College of Obstetricians and Gynecologists, and American College of Physicians.

**Changes in the Schedule for 2010**

The 2010 schedule differs from the previous schedule as follows:

The HPV footnote (footnote 2) has been revised to include language that a bivalent HPV vaccine (HPV2) has been licensed for use in females. Either HPV2 or HPV4 can be used for vaccination of females aged 19 through 26 years. In addition, language has been added to indicate that ACIP used a permissive recommendation for use of HPV4 in males.

To reduce redundancy, the measles, mumps, rubella (MMR) footnote (footnote 5) has been revised by moving sentences from the measles and mumps components-specific sections, indicating that adults born before 1957 generally are immune, to the beginning of the MMR footnote. The MMR footnote has been revised to clarify which adults born during or after 1957 do not need 1 or more doses of MMR for the measles and mumps components. Interval dosing information has been added to indicate that a second dose of MMR should be administered 4 weeks after the first dose. The MMR footnote has been revised to clarify that women who do not have documentation of rubella vaccination should receive a dose of MMR. A section has been added to highlight recommendations for vaccinating health care personnel born before 1957 routinely and during outbreaks.

The influenza footnote (footnote 6) has been revised to distinguish between seasonal and pandemic influenza by adding the term seasonal.

The hepatitis A footnote (footnote 9) has been revised to include an indication for the hepatitis A vaccine for unvaccinated persons who anticipate close contact with an international adoptee.

The hepatitis B footnote (footnote 10) has been revised to include schedule information for the 3-dose hepatitis B vaccine.

The meningococcal vaccine footnote (footnote 11) has been revised to clarify that the meningococcal conjugate vaccine (MCV4) is preferred for adults aged 55 years or younger and that the meningococcal polysaccharide vaccine (MPSV4) is preferred for adults aged 56 years or older. The footnote has been revised to clarify that revaccination with MCV4 is recommended for adults previously vaccinated with MCV4 or MPSV4 and a new example of who is at increased risk is provided. Information has been added on who does not need to be revaccinated.

The selected conditions for Hib footnote (footnote 12) has been revised to clarify which high-risk persons can receive 1 dose of Hib vaccine.

The Adult Immunization Schedule is available in English and Spanish at www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm. General information about adult vaccination is available at www.cdc.gov/vaccines/default.htm. The ACIP statements for specific vaccines are available at www.cdc.gov/vaccine/pubs/acip-list.htm. Instructions for reporting adverse events to the Vaccine Adverse Event Reporting System are available at www.vaers.hhs.gov or by telephone (800-822-7967).

From the Centers for Disease Control and Prevention, Atlanta, Georgia.
**Figure. Recommended Adult Immunization Schedule: United States, 2010.**

**Recommended adult immunization schedule, by vaccine and age group**

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>AGE GROUP</th>
<th>19-26 years</th>
<th>27-49 years</th>
<th>50-59 years</th>
<th>60-64 years</th>
<th>&gt;65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Td, diphtheria, tetanus, pertussis</td>
<td>Td booster</td>
<td>3 doses (females)</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1 or 2 doses</td>
<td></td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (polysaccharide)</td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningoococcal</td>
<td>1 or more doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program.*

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**Vaccines that might be indicated for adults based on medical and other indications**

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>INDICATION</th>
<th>Td booster</th>
<th>3 doses for females through age 26 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Td, diphtheria, tetanus, pertussis</td>
<td>Pregnancy</td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Varicella</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Zoster</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Influenza</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Pneumococcal (polysaccharide)</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
<tr>
<td>Meningoococcal</td>
<td>Contraindicated</td>
<td></td>
<td>3 doses for females through age 26 yrs</td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program.*

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The recommended adult immunization schedule for 2010 is based on the recommendations of the Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), the American College of Physicians (ACP), and the Infectious Diseases Society of America (IDSA). The ACIP is an advisory committee to the U.S. Department of Health and Human Services (HHS). The recommendations are published in the *Annals of Internal Medicine* and updated annually. For more information, visit the ACIP website at www.cdc.gov/vaccines/acip/index.html.

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This schedule is for the United States and may not apply to other countries. For other countries, consult the relevant national public health agency or WHO regional office. For more information, visit the WHO website at www.who.int/immunization/country_information/en/.

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The recommendations in this schedule are based on the best available evidence and are subject to change as new evidence becomes available. For the most current recommendations, please visit the ACIP website at www.cdc.gov/vaccines/acip/index.html.

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*Covered by the Vaccine Injury Compensation Program.*

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For all persons in this category who meet the age requirements and who have evidence of previous vaccination or have evidence of prior infection:

For all persons in this category who meet the age requirements and who have evidence of previous vaccination or have evidence of prior infection:

Recommended if some other risk factor is present (e.g., in the case of medical, occupational, or other indications) or if the individual is at risk for complications of infection:

No recommendation.
2. Human papillomavirus (HPV) vaccination

HPV vaccination is recommended at age 11 or 12 years with at least 3 doses through age 26 years.

Sexually active females who have not been infected with any of the four HPV vaccine types (types 6, 11, 16, 18) or HPV types 16 and 18 (which HPV vaccine prevents) receive the full benefit of the vaccination. Vaccination is less beneficial for females who have already been infected with one or more HPV types. HPV vaccine should be given to persons with a history of genital warts, severe allergic reaction (anaphylaxis), previous failure of a vaccine component, absence of Papanicolaou test, or positive HPV DNA test, as these conditions are not evidence of prior infection with all HPV types.

HPV may be given to males aged 16 through 26 years to prevent their likelihood of acquiring genital warts.

Vaccination should be continued after 26 years of age. A complete series of either HPV 11 or 16 or 18 may be given to persons aged 13 through 26 years who have not received prior doses of HPV vaccine.

3. Varicella vaccination

Varicella vaccine is recommended for adults born during or after 1957 if they have not previously received the vaccine. More than 50 million people are estimated to have had chickenpox. If not previously vaccinated, adults should receive 2 doses of live varicella vaccine at least 4 weeks (or more preferably 12 months) apart. Vaccination is not beneficial for persons who have already had varicella or who have laboratory evidence of immunity. Groups that should receive 2 doses of varicella vaccine include:

- Healthcare personnel, including those employed by long-term care and assisted-living facilities, and caregivers of children with chronic medical conditions
- Persons who have had chickenpox and are at increased risk for severe disease (e.g., individuals with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with aplastic anemia)

4. Pneumococcal polysaccharide (PPSV) vaccination

Vaccination of all persons with the following indications.

- Medical: Chronic lung diseases (including asthma), chronic cardiovascular diseases, diabetes mellitus, chronic liver diseases, synovitis, chronic arthritis, functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinated at least 1 month before surgery])
- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

5. Hepatitis A (HepA) vaccination

- Medical: Persons with the following indications or any person seeking protection from hepatitis A virus (HepA):

- Chronic liver disease
- Human immunodeficiency virus (HIV); cognitive, neurologic or neuromuscular disorders; and pregnancy

- Immunocompromising conditions (including immunocompromising conditions caused by medications or lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, vaccination with 2 doses of MMR vaccine, or laboratory confirmation of disease or splenectomy [if elective splenectomy is planned, vaccinated at least 2 weeks before surgery])

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

6. Seasonal influenza vaccination

Vaccination of all persons age 50 years and older as well as any younger persons who would like to decrease their risk of getting influenza. Vaccinate persons 19 through 48 years old with any of the following indications, use of immunosuppressive or chronic medications (e.g., persons with renal or pulmonary diseases, including asthma, chronic or metabolic diseases, including diabetes mellitus, renal or hepatic dysfunctions, hemoglobinopathies, or other hematologic disorders; carcinoma or other immune-deficiency conditions [including immunocompromising conditions caused by medications or lack laboratory evidence of immunity] (HIV); cognitive, neurologic or neuromuscular disease; and pregnancy

7. Revaccination with PPSV

One-time revaccination after 5 years is recommended for persons with chronic renal failure or nephritic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinated at least 1 month before surgery])

8. Revaccination with HepA

- Medical: Persons with the following indications or any person seeking protection from hepatitis A virus (HepA)

- Chronic liver disease
- Human immunodeficiency virus (HIV); cognitive, neurologic or neuromuscular disorders; and pregnancy

- Immunocompromising conditions (including immunocompromising conditions caused by medications or lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

9. Hepatitis B (HepB) vaccination

- Medical: Persons with the following indications and any person seeking protection from hepatitis B virus (HepB) infection

- Chronic liver disease
- Human immunodeficiency virus (HIV); cognitive, neurologic or neuromuscular disorders; and pregnancy

10. Menomereccoccal vaccination

- Medical: Adults with end-stage renal disease, including patients undergoing hemodialysis; persons with HIV infection; and persons with chronic HBV infection

- Occupational: Healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

11. Nongonococcal meningitis

- Medical: Adults with end-stage renal disease, including patients undergoing hemodialysis; persons with HIV infection; and persons with chronic HBV infection

- Occupational: Healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

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

- Medical: Adults with end-stage renal disease, including patients undergoing hemodialysis; persons with HIV infection; and persons with chronic HBV infection

- Occupational: Healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
- Vaccinate at close of immune intervals or who lack laboratory evidence of immunity; or documentation of physician-diagnosed mumps.
- Other: Medical: Persons with chronic renal failure illnesses and conditions that are treatable with immunocompromising conditions, for persons age 65 years and older, one-time revaccination is recommended if they were vaccinated 5 or more years prior to age 65 years.

13. Immunocompromising conditions

- Medical: Adults with end-stage renal disease, including patients undergoing hemodialysis; persons with HIV infection; and persons with chronic HBV infection

- Occupational: Healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids

- Immunocompromising conditions including chronic renal failure, systemic lupus erythematosus, and connective tissue and central nervous system (CNS) disorders:
Potential Conflicts of Interest: To assure the integrity of the 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 the conflict involves the vaccine or biologic being voted upon. Members of the ACIP have disclosed the following: Grants received: J. Englund (MedImmune, Sanofi Pasteur, Novartis); W.A. Keitel (Novartis). Payments made to Tufts Medical Center for participation in clinical trials: C.H. Meissner (MedImmune, Wyeth).

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