Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014*

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Vaccines are recommended for adults on the basis of their age, prior vaccinations, health conditions, lifestyle, occupation, and travel. Reasons for current low levels of vaccination coverage for adult vaccines are multifactorial and include limited awareness among the public about vaccines for adults and gaps in incorporation of regular assessments of vaccine needs and vaccination into routine medical care (1–4). Updated standards for immunization of adults were approved by the National Vaccine Advisory Committee (NVAC) in September 2013 (5). These standards acknowledge the current low levels of vaccine coverage among adults and the role that all health care providers, including those who do not offer all recommended adult vaccines in their practices, have in ensuring that their patients are up-to-date on recommended vaccines. The NVAC recommends that providers assess vaccination needs for their patients at each visit; recommend needed vaccines; and then, ideally, offer the vaccine or, if the provider does not stock the needed vaccines, refer the patient to a provider who does vaccinate. Vaccinating providers should also ensure that patients and their referring providers have documentation of the vaccination.

A recommendation by a patient's provider for needed vaccines is a strong predictor of patients receiving recommended vaccines (6, 7). Other interventions to improve vaccination rates have been summarized in the Community Guide (www.thecommunityguide.org/vaccines/index.html) and include systems changes, such as routine screening and offering of vaccines and implementation of reminder/recall systems (8).

Because many adult patients might consult more than 1 health care provider and also might be vaccinated at the workplace, pharmacy, or other location, documentation of vaccinations in immunization information systems (that is, vaccine registries) is important to ensure that patients' complete vaccination history is available to all of their providers. In addition, some vaccines require more than 1 dose with specified time intervals between doses (for example, hepatitis B vaccine 3-dose series) and are recommended for certain adult populations only if adults were not vaccinated as children (for example, measles, mumps, rubella [MMR] vaccine). Immunization information systems are managed by state or city immunization programs; contact information about these systems can be found at www.cdc.gov/vaccines/programs/iis/contacts-registry-staff.html.

The Advisory Committee on Immunization Practices (ACIP) annually reviews and updates the Adult Immunization Schedule. This schedule provides a brief summary of ACIP recommendations for the use of vaccines routinely recommended for adults in the form of 2 figures (**Figures 1** and **2**), footnotes for each vaccine, and a table that includes the primary contraindications and precautions (**Table**).

In October 2013, ACIP approved the Adult Immunization Schedule for 2014. This schedule was also reviewed and approved by the American Academy of Family Physicians, American College of Physicians, American College of Obstetricians and Gynecologists, and American College of Nurse-Midwives. The primary updates for the 2014 schedule include adding *Haemophilus influenzae* type b (Hib) vaccine to the figures and updating information in the footnote about persons for whom Hib vaccine is recommended; adding information to the influenza vaccine footnote and contraindications table regarding the newly licensed recombinant influenza vaccine (RIV) and information about the use of RIV and inactivated influenza vaccine (IIV) among persons with egg allergies; moving the footnote for pneumococcal conjugate vaccine (PCV13) recommendations before the pneumococcal polysaccharide vaccine (PPSV23) recommendations because PCV13 should be administered first among persons for whom both vaccines are recommended; and clarifying information about the timing of the second and third doses of human

See also:

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* The 2014 ACIP Adult Immunization Schedule appeared in *Annals of Internal Medicine* and on the Centers for Disease Control and Prevention Web site at www.cdc.gov/vaccines. The introduction to the changes in the 2014 schedule is published simultaneously in the *MMWR Morbidity and Mortality Weekly Report*. Readers who wish to cite the schedule should use the following citation: Advisory Committee on Immunization Practices. Advisory Committee on Immunization Practices (ACIP) recommended immunization schedules for adults aged 19 years or older: United States, 2014. Ann Intern Med. 2014:160:190-197.

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Figure 1. **Recommended adult immunization schedule, by vaccine and age group.**

Recommended Adult Immunization Schedule—United States • 2014

Note: These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

Figure 1. Recommended adult immunization schedule, by vaccine and age group[1]

VACCINE ▼ / AGE GROUP ▶	19–21 years	22–26 years	27–49 years	50–59 years	60–64 years	≥65 years
Influenza [2,*]	1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap) [3,*]	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					
Varicella [4,*]	2 doses					
Human papillomavirus (HPV) Female [5,*]	3 doses					
Human papillomavirus (HPV) Male [5,*]	3 doses					
Zoster [6]					1 dose	
Measles, mumps, rubella (MMR) [7,*]	1 or 2 doses					
Pneumococcal 13-valent conjugate (PCV13) [8,*]	1 dose					
Pneumococcal polysaccharide (PPSV23) [9,10]	1 or 2 doses					1 dose
Meningococcal [11,*]	1 or more doses					
Hepatitis A [12,*]	2 doses					
Hepatitis B [13,*]	3 doses					
Haemophilus influenzae type b (Hib) [14,*]	1 or 3 doses					

*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indication)

No recommendation

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, 8:00 a.m. – 8:00 p.m. Eastern Time, Monday – Friday, excluding holidays.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), American Academy of Family Physicians (AAFP), American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG), and American College of Nurse-Midwives (ACNM).

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papillomavirus (HPV) vaccine, use of meningococcal vaccines among adults, and recommendations for tetanus, diphtheria, acellular pertussis (Tdap) and tetanus, diphtheria (Td) vaccines (9, 10).

Because of space limitations, many details of the full ACIP recommendations for each vaccine are not included in the schedule and interested providers should refer to the full ACIP recommendations. In addition, changes in recommendations for specific vaccines might occur between annual updates to the adult immunization schedule. Recommendations from ACIP for specific vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/index.html. Information on reporting vaccine-related adverse events is available at www.vaers.hhs.gov or by telephone at 800-822-7967.

This year, the figures, footnotes, and table are not being published simultaneously in the *MMWR Recommendations and Reports*. Instead, the *MMWR Morbidity and Mortality Weekly Report* will be publishing only the introduction, with the full schedule posted and maintained on the Centers for Disease Control and Prevention (CDC) Web site at www.cdc.gov/vaccines/schedules to facilitate updating the schedule during the year, if needed. If errors or omissions are detected after publication of the pediatric or adult immunizations schedules, the CDC posts revised versions. The CDC encourages organizations that have

Figure 2. **Vaccines that might be indicated for adults based on medical and other indications.**

Recommended Adult Immunization Schedule—United States • 2014

Note: These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

Figure 2. Vaccines that might be indicated for adults based on medical and other indications[1]

VACCINE ▼ INDICATION ▶	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV])[4,6,7,8,15]	HIV infection CD4+ T lymphocyte count[4,7,8,15] <200 cells/μL	HIV infection CD4+ T lymphocyte count[4,7,8,15] ≥200 cells/μL	Men who have sex with men (MSM)	Kidney failure, end-stage renal disease, receipt of hemodialysis	Heart disease, chronic lung disease, chronic alcoholism	Asplenia (including elective splenectomy and persistent complement component deficiencies)[8,14]	Chronic liver disease	Diabetes	Health care personnel
Influenza[2,*]	1 dose IIV annually				1 dose IIV or LAIV annually	1 dose IIV annually					1 dose IIV or LAIV annually
Tetanus, diphtheria, pertussis (Td/Tdap)[3,*]	1 dose Tdap each pregnancy	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs									
Varicella[4,*]	Contraindicated			2 doses							
Human papillomavirus (HPV) Female[5,*]		3 doses through age 26 yrs				3 doses through age 26 yrs					
Human papillomavirus (HPV) Male[5,*]		3 doses through age 26 yrs				3 doses through age 21 yrs					
Zoster[6]	Contraindicated				1 dose						
Measles, mumps, rubella (MMR)[7,*]	Contraindicated			1 or 2 doses							
Pneumococcal 13-valent conjugate (PCV13)[8,*]		1 dose									
Pneumococcal polysaccharide (PPSV23)[9,10]		1 or 2 doses									
Meningococcal[11,*]	1 or more doses										
Hepatitis A[12,*]	2 doses										
Hepatitis B[13,*]	3 doses										
Haemophilus influenzae type b (Hib)[14,*]		post-HSCT recipients only	1 or 3 doses								

*Covered by the Vaccine Injury Compensation Program

- For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster
- Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)
- No recommendation

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These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of February 1, 2014. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. 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/hcp/acip-recs/index.html). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG), and American College of Nurse-Midwives (ACNM).

previously relied on copying and posting PDF files of the schedules to their Web sites to instead use "content syndication" to ensure that current and accurate immunization schedule information appears on each organization's Web site. This one-time step ensures that Web sites display current yearly schedules as soon as they are published or revised. Instructions for copying and placing syndication code are available at www.cdc.gov/vaccines/schedules/syndicate.html. The CDC offers technical assistance for organizations implementing this form of content syndication. For assistance, readers can complete the e-mail form on the CDC's National Center for Immunization and Respiratory Diseases (NCIRD) Web support page (www.cdc.gov/vaccines/about/contact/web_problem_form.html), and an NCIRD Web team staff member will contact them to provide assistance.

Changes to the Footnotes for 2014

The Hib vaccine recommendations were updated. The vaccine is recommended for certain adults at increased risk for Hib who have not received the vaccine before. Adults who have had a successful hematopoietic stem cell transplant are recommended to receive a 3-dose series of Hib vaccine 6 to 12 months after the transplant regardless of prior Hib vaccination status. Prior Hib vaccine guidance recommended that Hib vaccination of persons infected with HIV be considered, but updated guidance no longer

Table. **Contraindications and Precautions to Commonly Used Vaccines in Adults*†‡**

Vaccine	Contraindications	Precautions
Influenza, inactivated (IIV)§	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IIV or LAIV or to a vaccine component, including egg protein.	Moderate or severe acute illness with or without fever. History of Guillain-Barré syndrome within 6 weeks of previous influenza vaccination. Persons who experience only hives with exposure to eggs may receive RIV (if aged 18–49 years) or, with additional safety precautions, IIV.§
Influenza, recombinant (RIV)	Severe allergic reaction (e.g., anaphylaxis) after previous dose of RIV or to a vaccine component. RIV does not contain any egg protein.§	Moderate or severe acute illness with or without fever. History of Guillain-Barré syndrome within 6 weeks of previous influenza vaccination.
Influenza, live attenuated (LAIV)§‖	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IIV or LAIV or to a vaccine component, including egg protein. Conditions for which the Advisory Committee on Immunization Practices (ACIP) recommends against use but which are not contraindications in vaccine package insert: immune suppression, certain chronic medical conditions (such as asthma, diabetes, or heart or kidney disease), and pregnancy.§‖	Moderate or severe acute illness with or without fever. History of Guillain-Barré syndrome within 6 weeks of previous influenza vaccination. Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) within 48 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Tetanus, diphtheria, pertussis (Tdap); tetanus, diphtheria (Td)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of Tdap or diphtheria and tetanus toxoids and pertussis (DTP) or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.	Moderate or severe acute illness with or without fever. Guillain-Barré syndrome within 6 weeks after a previous dose of tetanus toxoid–containing vaccine. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid–containing vaccine. For pertussis-containing vaccines: progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Varicella‖	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy¶ or patients with HIV infection who are severely immunocompromised). Pregnancy.	Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product).** Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Human papillomavirus (HPV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Zoster‖	Severe allergic reaction (e.g., anaphylaxis) to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy¶ or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Measles, mumps, rubella (MMR)‖	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy¶ or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product).** History of thrombocytopenia or thrombocytopenic purpura. Need for tuberculin skin testing.††
Pneumococcal conjugate (PCV13)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including to any vaccine containing diphtheria toxoid.	Moderate or severe acute illness with or without fever.
Pneumococcal polysaccharide (PPSV23)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Meningococcal conjugate (MenACWY); meningococcal polysaccharide (MPSV4)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Hepatitis A	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.

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Table—Continued

Vaccine	Contraindications	Precautions
Hepatitis B	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Haemophilus influenzae type b (Hib)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.

* Adapted from "Table 6. Contraindications and Precautions to Commonly Used Vaccines." found in: General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices. MMWR. 2011;60(RR-2):40-1; and Appendix A in "The Pink Book": Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine Preventable Diseases, 12th Edition (2011), at www.cdc.gov/vaccines/pubs/pinkbook/index.html.
† Regarding latex allergy: Consult the package insert for any vaccine administered.
‡ Vaccine package inserts and the full ACIP recommendations for these vaccines should be consulted for additional information on vaccine-related contraindications and precautions and for more information on vaccine excipients. Events or conditions listed as precautions should be reviewed carefully. Benefits and risks of administering a specific vaccine to a person under these circumstances should be considered. If the risk from the vaccine is believed to outweigh the benefit, the vaccine should not be administered. If the benefit of vaccination is believed to outweigh the risk, the vaccine should be administered. A contraindication is a condition in a recipient that increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present.
§ For more information on use of influenza vaccines among persons with egg allergies and a complete list of conditions that the Centers for Disease Control and Prevention considers to be reasons to avoid receiving LAIV, see Centers for Disease Control and Prevention. Prevention and control of seasonal influenza with vaccines. Recommendations of the Advisory Committee on Immunization Practices (ACIP)—United States, 2013-2014. MMWR Recomm Rep. 2013;62(RR-07):1-43.
‖ LAIV, MMR, varicella, or zoster vaccines can be administered on the same day. If not administered on the same day, live vaccines should be separated by at least 28 days.
¶ Immunosuppressive steroid dose is considered to be ≥2 weeks of daily receipt of 20 mg of prednisone or the equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons receiving immune-suppressing medications or with immune suppression because of other reasons.
** Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered. See CDC. General recommendations on immunization–recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep. 2011;60(RR-02):1-64; available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
†† Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test, do so with the understanding that reactivity might be reduced by the vaccine.

recommends Hib vaccination of previously unvaccinated adults with HIV infection because their risk for Hib infection is low.

Information on the RIV and the use of RIV and IIV among egg-allergic patients was added to the footnote and indicates that RIV or IIV can be used among persons with hives-only allergy to eggs. The RIV contains no egg protein and can be used among persons aged 18 to 49 years who have egg allergy of any severity.

The Td/Tdap vaccine footnote was edited to harmonize with the language used in the pediatric immunization schedule. A single dose of Tdap vaccine is recommended for previously unvaccinated persons aged 11 years or older, and Td booster should be administered every 10 years thereafter. Pregnant women continue to be recommended to receive a dose of Tdap vaccine during each pregnancy, preferably during 27 to 36 weeks' gestation, regardless of the interval since the prior dose of Tdap or Td vaccination.

Information was added to the HPV vaccine footnote to clarify the timing between the second and third doses and to harmonize language between the pediatric and adult immunization schedules; no changes in recommendations were made.

Both the HPV vaccine footnote and the zoster footnote were simplified, with removal of the bullet regarding health care personnel (HCP). Being a health care worker is not a specific indication for these vaccines, but they should be given to HCP and others who meet age and other indications for these vaccines. Information on HCP vaccination for all vaccines can be found at www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm.

Because PCV13 is recommended to be administered before PPSV23 among persons for whom both vaccines are recommended, the PCV13 footnote now precedes the PPSV23 footnote and includes wording to remind providers of the appropriate order of these vaccines when both are indicated.

The meningococcal vaccine footnote was edited to clarify which persons need either 1 or 2 doses of vaccine and to provide greater clarity regarding which patients should receive the meningococcal conjugate (MenACWY) versus the meningococcal polysaccharide (MPSV4) quadrivalent vaccines.

No changes or minor clarifications were made to the footnotes for the MMR, hepatitis A, or hepatitis B vaccines; no changes in recommendations were made.

Changes to the Figures for 2014

For **Figures 1** and **2**, a row for Hib vaccine was added and the PCV13 vaccine row was moved before PPSV23 as a reminder that PCV13 vaccines should be administered first among patients for whom both vaccines are recommended.

Footnotes

Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014

1. Additional information

Additional guidance for the use of the vaccines described in this supplement is available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

Information on vaccination recommendations when vaccination status is unknown and other general immunization information can be found in the General Recommendations on Immunization at www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm.

Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) is available at wwwnc.cdc.gov/travel/destinations.list.

Additional information and resources regarding vaccination of pregnant women can be found at www.cdc.gov/vaccines/adults/rec-vac/pregnant.html.

2. Influenza vaccination

Annual vaccination against influenza is recommended for all persons aged 6 months and older.

Persons aged 6 months and older, including pregnant women and persons with hives-only allergy to eggs, can receive the inactivated influenza vaccine (IIV). An age-appropriate IIV formulation should be used.

Adults aged 18 to 49 years can receive the recombinant influenza vaccine (RIV) (FluBlok). RIV does not contain any egg protein.

Healthy, nonpregnant persons aged 2 to 49 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or IIV. Health care personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive IIV or RIV rather than LAIV.

The intramuscularly or intradermally administered IIV are options for adults aged 18 to 64 years.

Adults aged 65 years or older can receive the standard-dose IIV or the high-dose IIV (Fluzone High-Dose).

3. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination

Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferred during 27 to 36 weeks' gestation) regardless of interval since prior Td or Tdap vaccination.

Persons aged 11 years or older who have not received Tdap vaccine or for whom vaccine status is unknown should receive a dose of Tdap followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter. Tdap can be administered regardless of interval since the most recent tetanus or diphtheria-toxoid containing vaccine.

Adults with an unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series including a Tdap dose.

For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6 to 12 months after the second.

For incompletely vaccinated (i.e., less than 3 doses) adults, administer remaining doses.

Refer to the ACIP statement for recommendations for administering Td/Tdap as prophylaxis in wound management (see footnote 1).

4. Varicella vaccination

All adults without evidence of immunity to varicella (as defined below) should receive 2 doses of single-antigen varicella vaccine or a second dose if they have received only 1 dose.

Vaccination should be emphasized for those who have close contact with persons at high risk for severe disease (e.g., health care personnel and family contacts of persons with immunocompromising conditions) or 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).

Pregnant women should be assessed 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 to 8 weeks after the first dose.

Evidence of immunity to varicella in adults includes any of the following:

— documentation of 2 doses of varicella vaccine at least 4 weeks apart;

— U.S.-born before 1980, except health care personnel and pregnant women;

— history of varicella based on diagnosis or verification of varicella disease by a health care provider;

— history of herpes zoster based on diagnosis or verification of herpes zoster disease by a health care provider; or

— laboratory evidence of immunity or laboratory confirmation of disease.

5. Human papillomavirus (HPV) vaccination

Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).

For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 26 years, if not previously vaccinated.

For males, HPV4 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 21 years, if not previously vaccinated. Males aged 22 through 26 years may be vaccinated.

HPV4 is recommended for men who have sex with men through age 26 years for those who did not get any or all doses when they were younger.

Vaccination is recommended for immunocompromised persons (including those with HIV infection) through age 26 years for those who did not get any or all doses when they were younger.

A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 4 to 8 weeks (minimum interval of 4 weeks) after the first dose; the third dose should be administered 24 weeks after the first dose and 16 weeks after the second dose (minimum interval of at least 12 weeks).

HPV vaccines are not recommended for use in pregnant women. However, pregnancy testing is not needed before vaccination. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remainder of the 3-dose series should be delayed until completion of pregnancy.

6. Zoster vaccination

A single dose of zoster vaccine is recommended for adults aged 60 years or older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends that vaccination begin at age 60 years.

Persons aged 60 years or older with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.

7. Measles, mumps, rubella (MMR) vaccination

Adults born before 1957 are generally considered immune to measles and mumps. All adults born in 1957 or later should have documentation of 1 or more doses of MMR vaccine unless they have a medical contraindication to the vaccine or laboratory evidence of immunity to each of the 3 diseases. Documentation of provider-diagnosed disease is not considered acceptable evidence of immunity for measles, mumps, or rubella.

Measles component:

A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:

— are students in postsecondary educational institutions;

— work in a health care facility; or

— plan to travel internationally.

Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type during 1963–1967 should be revaccinated with 2 doses of MMR vaccine.

Mumps component:

A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:

— are students in postsecondary educational institutions;

— work in a health care facility; or

— plan to travel internationally.

Persons vaccinated before 1979 with either killed mumps vaccine or mumps vaccine of unknown type who are at high risk for mumps infection (e.g., persons who are working in a health care facility) should be considered for revaccination with 2 doses of MMR vaccine.

Rubella component:

For women of childbearing age, regardless of birth year, rubella immunity should be determined. If there is no evidence of immunity, women who are not pregnant should be vaccinated. Pregnant 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.

Health care personnel born before 1957:

For unvaccinated health care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health care facilities should consider vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

8. Pneumococcal conjugate (PCV13) vaccination

Adults aged 19 years or older with immunocompromising conditions (including chronic renal failure and nephrotic syndrome), functional or anatomic asplenia, cerebrospinal fluid leaks, or cochlear implants who have not previously received PCV13 or PPSV23 should receive a single dose of PCV13 followed by a dose of PPSV23 at least 8 weeks later.

Adults aged 19 years or older with the aforementioned conditions who have previously received 1 or more doses of PPSV23 should receive a dose of PCV13 one or more years after the last PPSV23 dose was received. For adults who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years after the most recent dose of PPSV23.

When indicated, PCV13 should be administered to patients who are uncertain of their vaccination status history and have no record of previous vaccination.

Although PCV13 is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends PCV13 for adults aged 19 years or older with the specific medical conditions noted above.

9. Pneumococcal polysaccharide (PPSV23) vaccination

When PCV13 is also indicated, PCV13 should be given first (see footnote 8).

Vaccinate all persons with the following indications:

— all adults aged 65 years or older;

— adults younger than 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma), chronic cardiovascular diseases, diabetes mellitus, chronic renal failure, nephrotic syndrome, chronic liver disease (including cirrhosis), alcoholism, cochlear implants, cerebrospinal fluid leaks, immunocompromising conditions, and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);

— residents of nursing homes or long-term care facilities; and

— adults who smoke cigarettes.

Persons with immunocompromising conditions and other selected conditions are recommended to receive PCV13 and PPSV23 vaccines. See footnote 8 for information on timing of PCV13 and PPSV23 vaccinations.

Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.

When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.

Routine use of PPSV23 vaccine is not recommended for American Indians/Alaska Natives or other persons younger than 65 years unless they have underlying medical conditions that are PPSV23 indications. However, public health authorities may consider recommending PPSV23 for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.

When indicated, PPSV23 vaccine should be administered to patients who are uncertain of their vaccination status and have no record of vaccination.

10. Revaccination with PPSV23

One-time revaccination 5 years after the first dose of PPSV23 is recommended for persons aged 19 through 64 years with chronic renal failure or nephrotic syndrome, functional or anatomic asplenia (e.g., sickle cell disease or splenectomy), or immunocompromising conditions.

Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.

No further doses of PPSV23 are needed for persons vaccinated with PPSV23 at or after age 65 years.

11. Meningococcal vaccination

Administer 2 doses of quadrivalent meningococcal conjugate vaccine (MenACWY [Menactra, Menveo]) at least 2 months apart to adults of all ages with functional asplenia or persistent complement component deficiencies. HIV infection is not an indication for routine vaccination with MenACWY. If an HIV-infected person of any age is vaccinated, 2 doses of MenACWY should be administered at least 2 months apart.

Administer a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of *Neisseria meningitidis*, military recruits, persons at risk during an outbreak attributable to a vaccine serogroup, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.

First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.

MenACWY is preferred for adults with any of the preceding indications who are aged 55 years or younger as well as for adults aged 56 years or older who a) were vaccinated previously with MenACWY and are recommended for revaccination, or b) for whom multiple doses are anticipated. Meningococcal polysaccharide vaccine (MPSV4 [Menomune]) is preferred for adults aged 56 years or older who have not received MenACWY previously and who require a single dose only (e.g., travelers).

Revaccination with MenACWY every 5 years is recommended for adults previously vaccinated with MenACWY or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia, those with persistent complement component deficiencies, or microbiologists).

12. Hepatitis A vaccination

Vaccinate any person seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:

— men who have sex with men and persons who use injection or noninjection illicit drugs;

— persons working with HAV-infected primates or with HAV in a research laboratory setting;

— persons with chronic liver disease and persons who receive clotting factor concentrates;

— persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and

— unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. (See footnote 1 for more information on travel recommendations.) The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.

Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6 to 12 months (Havrix), or 0 and 6 to 18 months (Vaqta). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule may be used, administered on days 0, 7, and 21 to 30 followed by a booster dose at month 12.

13. Hepatitis B vaccination

Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:

— sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than 1 sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection drug users; and men who have sex with men;

— health care personnel and public safety workers who are potentially exposed to blood or other infectious body fluids;

— persons with diabetes who are younger than age 60 years as soon as feasible after diagnosis; persons with diabetes who are age 60 years or older at the discretion of the treating clinician based on the likelihood of acquiring HBV infection, including the risk posed by an increased need for assisted blood glucose monitoring in long-term care facilities, the likelihood of experiencing chronic sequelae if infected with HBV, and the likelihood of immune response to vaccination;

— persons with end-stage renal disease, including patients receiving hemodialysis, persons with HIV infection, and persons with chronic liver disease;

— household contacts and sex partners of hepatitis B surface antigen–positive persons, clients and staff members of institutions for persons with developmental disabilities, and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and

— all adults in the following settings: 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.

Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. The second dose should be administered 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, administered on days 0, 7, and 21 to 30 followed by a booster dose at month 12 may be used.

Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 mcg/mL (Recombivax HB) administered on a 3-dose schedule at 0, 1, and 6 months or 2 doses of 20 mcg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

14. *Haemophilus influenzae* type b (Hib) vaccination

One dose of Hib vaccine should be administered to persons who have functional or anatomic asplenia or sickle cell disease or are undergoing elective splenectomy if they have not previously received Hib vaccine. Hib vaccination 14 or more days before splenectomy is suggested.

Recipients of a hematopoietic stem cell transplant should be vaccinated with a 3-dose regimen 6 to 12 months after a successful transplant, regardless of vaccination history; at least 4 weeks should separate doses.

Hib vaccine is not recommended for adults with HIV infection since their risk for Hib infection is low.

15. Immunocompromising conditions

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

Changes to the Contraindications and Precautions Table for 2014

The contraindications and precautions table was updated to include information on RIV, an influenza vaccine that contains no egg protein and is indicated for persons aged 18 to 49 years.

The Hib vaccine was added to the table.

From the Centers for Disease Control and Prevention, Atlanta, Georgia.

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 adherence to 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 biological being voted on. Disclosures can be viewed at www.acponline.org/authors/icmje/ConflictOfInterestForms.do?msNum=M13-2826.

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Correction

Correction: Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014

A recent clinical guideline (1) had the following errors:

Page 4, Table, second row from bottom: "MenACWY-D" should be "MenACWY", and "MenACWY-CRM" should be "MPSV4".

Page 5, right column, second paragraph: "MenACWY-D" should be "MenACWY", and "MenACWY-CRM" should be "MPSV4".

Page 7, right column, footnote 11, first paragraph: all 3 instances of "MenACWY-D" should be "MenACWY", and "Menactra" should be "Menactra, Menveo"; fourth paragraph: all 3 instances of "MenACWY-D" should be "MenACWY", "MenACWY-CRM" should be "MPSV4", and "Menveo" should be "Menomune"; fifth paragraph: both instances of "MenACWY-D" should be "MenACWY", and "MenACWY-CRM" should be "MPSV4".

This has been corrected in the online version.

Reference

1. Bridges CB, Coyne-Beasley T; Advisory Committee on Immunization Practices. Advisory Committee on Immunization Practices Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014. Ann Intern Med. 2014; 160:190-7.