

VACCINATE ADULTS!

from the Immunization Action Coalition — www.immunize.org

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Ask the Experts

The Immunization Action Coalition extends thanks to our experts, medical officer Andrew T. Kroger, MD, MPH, and nurse educator Donna L. Weaver, RN, MN, both with the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention (CDC).

Tdap and Td vaccines

For a person entering a long-term-care facility at age 70 or older, if we cannot document that the resident has had a primary series of three doses of tetanus-containing vaccine, is the right course of action upon admission to give a Tdap first, then a Td in 1 to 2 months, followed by a Td in 6 to 12 months, and then a Td booster every 10 years?

Your understanding of the general Td/Tdap recommendation is correct, and this is the schedule that should be followed for persons 7 years old and older who have never received tetanus-containing vaccine or who cannot provide documentation of prior vaccination. Be sure to document doses administered so a primary series does not need to be repeated in the future.

Use Standing Orders to Increase Coverage Rates and Protect Patients

Using standing orders protocols for vaccination in your medical practice allows appropriately trained healthcare professionals – who are permitted to do so under state law – to assess a patient's need for vaccination, determine if there are contraindications or precautions, and then to administer vaccine without obtaining a physician's written or verbal order for an individual patient.

Numerous studies have shown that standing orders, carried out by nurses or other qualified healthcare professionals, are one of the most consistently effective means for increasing vaccination rates and reducing missed opportunities for vaccination, thereby improving quality of care.

CDC's Advisory Committee on Immunization Practices (ACIP) has recommended the use of standing orders to increase adult vaccination rates since 2000. See www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a2.htm.

The Community Preventive Services Task Force (Task Force) recommends standing orders for vaccinations based on strong evidence of effectiveness in improving vaccination rates among adults and children, when used alone or with additional interventions, and across a range of settings and populations. See www.thecommunityguide.org/vaccines/standingorders.html.

Exactly who is authorized to administer vaccines under standing orders varies by state law. To find out which medical personnel are permitted to administer vaccines under standing orders in your state, contact your state immunization program manager. Contact information is available at www.immunize.org/coordinators.

If you are interested in starting a standing orders program in your practice setting, the Immunization Action Coalition (IAC) has materials

available that help make standing orders easy to implement. "Using Standing Orders for Administering Vaccines: What You Should Know" is a one-page article describing the basics of standing orders. See www.immunize.org/catg.d/p3066.pdf.

Standing Orders Templates for Routinely Recommended Vaccines Are Available on IAC's Website

IAC has created standing orders templates for all routinely recommended vaccines for administration to children, teens, and adults. They are all available online and are modifiable in any way you choose to suit your practice's needs. These standing orders templates are based on ACIP vaccine recommendations and are reviewed for technical accuracy by CDC staff. IAC updates its standing orders protocols whenever ACIP makes changes in vaccine recommendations.

You can find IAC's standing orders templates on IAC's Standing Orders web page at www.immunize.org/standing-orders. A few examples follow:

- "Standing Orders for Administering Influenza Vaccine to Adults" (www.immunize.org/catg.d/p3074.pdf)
- "Standing Orders for Administering Influenza Vaccine to Children and Adolescents" (www.immunize.org/catg.d/p3074a.pdf)
- "Standing Orders for Administering Tdap/Td Vaccine to Adults" (www.immunize.org/catg.d/p3078.pdf)
- "Medical Management of Vaccine Reactions in Children and Teens" (www.immunize.org/catg.d/p3082a.pdf)
- "Medical Management of Vaccine Reactions in Adult Patients" (www.immunize.org/catg.d/p3082.pdf)

Access all IAC's standing orders templates at www.immunize.org/standing-orders.

To be notified when new or revised templates become available, subscribe to IAC's free weekly news service, *IAC Express*, at www.immunize.org/subscribe, which is sent to more than 50,000 healthcare professionals every Wednesday. ♦

Immunization questions?

- ▶ Email nipinfo@cdc.gov
- ▶ Call your state health department (phone numbers at www.immunize.org/coordinators)

If a patient is receiving a tetanus-containing vaccine after an injury and there is no history of any prior tetanus vaccine (e.g., an Amish person who has previously declined vaccination), how much tetanus protection will one dose provide? Also, what is the time frame that the tetanus toxoid needs to be given following an injury?

One dose of tetanus toxoid-containing vaccine (Tdap or Td) provides little or no protection. That is why tetanus immune globulin (TIG) is also recommended in this situation. See "The Pink Book" section titled Wound Management at www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html. As

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Vaccinate Adults!

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far as timing, the toxoid and TIG should be given as soon as possible.

Hepatitis B vaccine

I work in occupational health and have some patients who are off schedule for their hepatitis B vaccine series. They came back for dose #2 in 4 to 6 months rather than getting it 1 month later. In this situation, what is the correct timing for dose #3? And how long must the interval be between doses before I am required to restart the series?

The minimal intervals for hepatitis B vaccine are at least 4 weeks between doses #1 and #2, at least 8 weeks between doses #2 and #3, and at least 16 weeks between doses #1 and #3. Since in your cases 16 weeks or more have elapsed since dose #1, you should schedule dose #3 to be given 8 weeks after dose #2. It is not necessary to restart the series because of an extended interval between doses, no matter how long.

MMR vaccine

Would you consider a healthcare worker with two documented doses of MMR vaccine to be immune, even if the serology for one or more of the antigens comes back negative?

Yes. Healthcare personnel (HCP) with two documented doses of MMR vaccine are considered to be immune, regardless of the results of a subsequent serologic test for measles, mumps, or rubella. Documented age-appropriate vaccination supersedes the results of subsequent serologic testing. HCP who do not have documentation of MMR vaccination and whose serologic test is interpreted as "indeterminate" or "equivocal" should be considered not immune and should receive two doses of MMR. ACIP does not recommend serologic testing after vaccination. For more information, see ACIP's recommendations on the use of MMR at www.cdc.gov/mmwr/pdf/tr/rr6204.pdf, page 22.

Meningococcal vaccines

I have an otherwise healthy 26-year-old patient with HIV infection who received one dose of meningococcal conjugate vaccine (MCV4, MenACWY:

Menactra, Sanofi Pasteur; Menveo, GSK) three years ago. Should he receive one or two doses now? Will he need booster doses later?

It is not necessary to start the MenACWY series again. Give the person one dose of MenACWY vaccine now. This dose represents a delayed second dose in the primary series, which is recommended in patients with HIV regardless of the presence of another condition that increases the risk of meningococcal disease. In the absence of another condition that increases the risk of meningococcal disease (such as asplenia), booster doses are not recommended.

Are microbiologists recommended to receive meningococcal B vaccine? And if so, how frequently?

ACIP recommends that microbiologists who work with meningococcus bacteria in a laboratory receive both MenB vaccine and MenACWY vaccine. MenB can be given at the same time as any other vaccine. You can administer either two doses of Bexsero 4 weeks apart, or three doses of Trumenba on a 0-, 1-2-, and 6-month schedule. In April 2016, the FDA also approved a 2-dose schedule for Trumenba with doses given at 0 and 6 months. There is currently no recommendation for a booster dose of MenB vaccine for any age or risk group.

Pneumococcal vaccines

Does a patient younger than age 65 years who smokes marijuana on a daily basis, but doesn't smoke cigarettes, need to receive pneumococcal polysaccharide (PPSV) vaccine?

No. ACIP does not identify people who smoke marijuana but not cigarettes as being at increased risk for pneumococcal disease or as being in a risk group for PPSV (Pneumovax 23, Merck) vaccination.

Is a patient younger than age 65 years who recently had a prostatectomy with lymph node dissection for prostate cancer a candidate for PPSV? The patient is believed to be cancer-free and is on no chemotherapy.

In the absence of "generalized malignancy" (which is generally considered to mean disseminated cancer) or immunosuppression, a recent history of prostate cancer surgery alone is not an indication for PPSV.

Ask the Experts...continued on page 3 ►

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IAC's "Ask the Experts" team from the Centers for Disease Control and Prevention



Andrew T. Kroger, MD, MPH



Donna L. Weaver, RN, MN

I have patients who are in their 70s and 80s and remember getting a pneumococcal vaccine a few years ago. Should we assume that this was PPSV? Should I assume that it was given before the 65th birthday?

You can accept a patient's verbal report of PPSV* and it is reasonable to assume that PPSV was the pneumococcal vaccine that was administered. If the patient's history suggests that this dose was given on or after age 65 years, it can be counted as the one dose recommended for this age group. If it has been a year or longer since this dose, pneumococcal conjugate vaccine (PCV, Prevnar 13, Pfizer) should be administered now. If there is any question about the age at which the dose was given, it is reasonable to give PCV now then give a dose of PPSV in 1 year.

*Note: a personal report (undocumented) of receipt of a vaccination is acceptable only for PPSV and influenza vaccines. All other vaccines must be documented with a written, dated record.

Zoster vaccine

If a patient received dose #1 of varicella vaccine at age 60 years, should we administer zoster vaccine as dose #2?

The action taken depends on why varicella vaccine was given in the first place. If it was given because the

person tested negative for varicella antibody, then the next dose should be varicella vaccine. If the varicella vaccine was given in error (i.e., without serologic testing), then zoster vaccine (Zostavax, Merck) should be given.

A dose of zoster vaccine was inadvertently given to a patient receiving chemotherapy for colon cancer. We realize this was an error, so please advise us on what to do now.

Zoster vaccine is given to people who presumably had chickenpox earlier in life and so have immunity to varicella virus. The cancer chemotherapy will not change the person's immunity to varicella virus. However, the patient should be monitored for the next two weeks for symptoms that might indicate an adverse reaction, such as fever and rash. If symptoms suggestive of varicella develop, the patient can be started on antiviral therapy, such as acyclovir.

Healthcare personnel

Which vaccines are recommended for healthcare personnel (HCP)?

ACIP recommends that people working in healthcare settings be vaccinated against influenza, hepatitis B, measles, mumps, rubella, varicella, and pertussis. For measles, mumps, rubella, and varicella, serologic evidence of immunity is an acceptable substitute for documentation of vaccination. In addition, microbiologists working in a laboratory should receive meningococcal conjugate and meningococcal serogroup B vaccines. In rare cases, some laboratory personnel should also receive polio and typhoid vaccines. For more information, see www.cdc.gov/mmwr/pdf/rr/r6007.pdf.

Should HCP be vaccinated routinely against hepatitis A?

No. A number of studies have shown that HCP are not at increased risk of hepatitis A virus (HAV) infection because of their occupation. However, if he/she is going to work (or vacation) in a country with a high or intermediate endemic rate of HAV infection, he/she is at risk of HAV infection and should be vaccinated. The only HCP for whom hepatitis A vaccine is routinely recommended are those who work with primates or live HAV.

I am a nurse who received the hepatitis B vaccine series more than 10 years ago and had a positive follow-up antibody titer for anti-HBs (at least 10 mIU/mL) at that time. At present, my titer is negative (less than 10 mIU/mL). What should I do now?

Nothing needs to be done. Data show that vaccine-induced anti-HBs levels might decline over time; however, immune memory (anamnesic anti-HBs response) remains intact following immunization. People with anti-HBs concentrations that decline to less than 10 mIU/mL are still protected against HBV infection. For HCP with normal immune status who

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Ask the Experts...continued from page 4

have demonstrated adequate anti-HBs (at least 10 mIU/mL) following full vaccination, booster doses of vaccine or periodic anti-HBs testing are not recommended.

Storage and handling

How long is a vaccine viable if it has been stored in the refrigerator in a syringe?

Disposable syringes are meant for administration of immunobiologics, not for storage. CDC recommends that vaccines that have been drawn into syringes in the work setting be discarded at the end of the clinic day. Manufacturer-filled syringes that have not been activated (i.e., have not had the needle guard removed or a needle attached) may be kept and used until their expiration date.

Miscellaneous questions

I understand that certain vaccines contain aluminum and/or formaldehyde. Could you

provide me with the research showing the “safe” amounts of aluminum and formaldehyde that can be injected per pound of body weight?

Aluminum is common in the environment and is ingested every day in larger amounts than the amount in vaccines. Formaldehyde is a compound that the human body normally produces in higher amounts than are injected with vaccines.

The FDA performed two studies directly related to your question which demonstrate the amounts injected with vaccines are well below what are considered toxic levels. The following citation is about aluminum in vaccines: www.fda.gov/Biologics-BloodVaccines/ScienceResearch/ucm284520.htm

Regarding formaldehyde, the FDA did the following study, and estimated that less formaldehyde is received from vaccines by infants than infants produce themselves: www.accessdata.fda.gov/scripts/publications/search_result_record.cfm?id=45918.

Information on vaccine additives is available on the CDC website at www.cdc.gov/vaccines/vac-gen/additives.htm and on the FDA website at www.fda.gov/biologicsbloodvaccines/safetyavailability/vaccinesafety/ucm187810.htm. ♦

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About IAC's Question of the Week

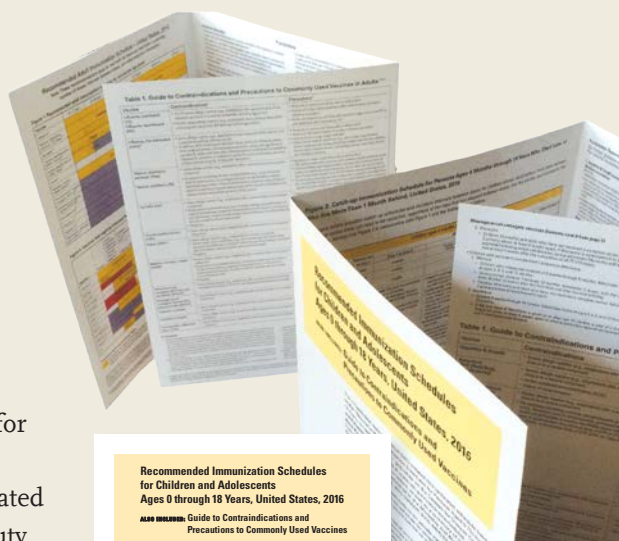
Each week, *IAC Express* highlights a new, topical, or important-to-reiterate Q&A. This feature is a cooperative venture between IAC and CDC. William L. Atkinson, MD, MPH, IAC's associate director for immunization education, chooses a new Q&A to feature every week from a set of Q&As prepared by experts at CDC's National Center for Immunization and Respiratory Diseases.

Please encourage your healthcare professional colleagues to sign up to receive *IAC Express* at www.immunize.org/subscribe.

Laminated U.S. Immunization Schedules

Purchase IAC's laminated versions of the 2016 U.S. immunization schedules for adults and children (0–18 years old). Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading.

More information and discount pricing options are available online at www.immunize.org/shop/laminated-schedules.asp or see the order form on page 16.



Recommended Immunization Schedules for Children and Adolescents Ages 0 through 18 years, United States, 2016
Also includes: Guide to Contraindications and Precautions to Commonly Used Vaccines

Recommended Adult Immunization Schedule United States, 2016

Also includes: Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults



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The most current version of this immunization schedule is available at www.immunize.org. For more information, contact the National Center for Immunization and Respiratory Diseases (NCIRD) at www.cdc.gov/ncird.

To submit an “Ask the Experts” question...

You can email your questions about immunization to us at admin@immunize.org. IAC will respond to your inquiry. Because we receive hundreds of emails each month, we cannot guarantee that we will use your question in “Ask the Experts.” IAC works with CDC to compile new Q&As for our publications based on commonly asked questions. Most of the questions are thus a composite of several inquiries.

Vaccinate Adults correction policy

If you find an error, please notify us immediately by sending an email message to admin@immunize.org. We publish notification of significant errors in our email announcement service, *IAC Express*. Be sure you're signed up for this service. To subscribe, visit www.immunize.org/subscribe.

Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information in Vaccine Highlights is current as of May 23, 2016.

Next ACIP meetings

The Advisory Committee on Immunization Practices (ACIP) is comprised of 15 national experts who advise CDC on the appropriate use of vaccines.

ACIP meets three times a year in Atlanta; meetings are open to the public and viewable online via live webcast. The next meetings will be held on June 22–23 and Oct. 19–20. For more information, visit www.cdc.gov/vaccines/acip.

ACIP periodically issues recommendations on the use of vaccines; they are published and readily available in the *Morbidity and Mortality Weekly Report (MMWR)*. Clinicians who vaccinate should have a current set for reference. Here are sources:

- Download from IAC's website: www.immunize.org/acip
- Download from CDC's website: www.cdc.gov/vaccines/hcp/acip-recs

VIS news

On March 31, CDC released final versions of the HPV9 (Gardasil 9) and the Meningococcal ACWY Vaccine Information Statements (VISs). Neither differs significantly from the previous VIS, but both are now final, rather than interim, editions. CDC encourages providers to begin using these VISs immediately, but stocks of the previous editions may still be used until supplies are exhausted. The two new VISs, along with many translations, are available here:

- HPV 9 – www.immunize.org/vis/vis_hpv_gardasil_9.asp
- Meningococcal ACWY – www.immunize.org/vis/vis_meningococcal_mcv_mpsv.asp

To access all VISs in more than 35 languages, visit IAC's VIS web section at www.immunize.org/vis.

FDA vaccine news

On April 14, FDA approved a change for Trumenba MenB vaccine (Pfizer) to include a two-dose schedule (doses administered at 0 and 6 months) as well as a modification of the three-dose schedule from administration at 0, 2, and 6 months to administration at 0, 1–2, and 6 months. Trumenba is approved for use in individuals age 10 through 25 years for active immunization to prevent invasive disease caused by *Neisseria meningitidis* serogroup B. The updated package insert is available at <http://labeling.pfizer.com/ShowLabeling.aspx?id=1796>.

In April, FDA published an update on distribution of yellow fever vaccine during the current shortage. According to the FDA's "CBER-Regulated Products: Current Shortages" website, YF-VAX (Sanofi Pasteur) is being provided only to customers who have patients planning to travel within 30 days to an area where yellow fever vaccine is required or recommended. This measure is necessary to responsibly manage the limited U.S. supply of YF-VAX. To obtain vaccine, providers must call Sanofi Pasteur (800-822-2463) and speak to a customer service representative.

CDC news

CDC's 47th National Immunization Conference will be held Sept. 13–15, in Atlanta. For more information, visit www.cdc.gov/vaccines/events/nic/index.html.

Measles outbreak news

As of the time of this writing (May 10), the measles outbreak in Shelby County (Memphis), Tennessee, stands at seven cases. On April 21, the Shelby County Health Department (SCHD) received confirmation of measles infection in two county residents who both developed rash on April 9 and were hospitalized briefly before recovering. The two local patients lived in different parts of the county and had no connection to one another; neither had traveled or reported contact with any ill travelers in the weeks prior to illness onset. Genotyping of the virus suggested the same source. Since then, five additional persons have been diagnosed with measles; four of the five were known contacts of the two initial cases.

The date of rash onset and isolation of the most recent case was May 4; known contacts to this case will be monitored through May 25. Of the cases, SCHD reports that six were unimmunized; one had received one dose of vaccine.

SCHD, with assistance from the Tennessee Department of Health, has followed up on hundreds of contacts exposed in healthcare and other settings. SCHD has set up a hotline for public calls, posted measles educational information to its website, and begun auditing student records in area school systems in preparation for the possibility of a school exposure. Education efforts also have been aimed at ensuring healthcare providers recognize and respond properly to a suspected measles case and that they have appropriate documentation of immunity to measles before an occupational exposure occurs.

For more information, visit www.schdresponse.com/content/measlesoutbreak. ♦

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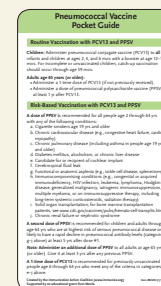
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Current VIS dates

Check the dates on your supply of Vaccine Information Statements (VISs). If they are out of date and need to be replaced, obtain the most up-to-date versions as well as VIS translations in more than 30 languages at www.immunize.org/vis.

| | | | |
|----------------------|----------|---------------------|---------|
| Adenovirus | 6/11/14 | MMR..... | 4/20/12 |
| Anthrax | 3/10/10 | MMRV..... | 5/21/10 |
| Chickenpox..... | 3/13/08 | Multi-vaccine | 11/5/15 |
| DTaP..... | 5/17/07 | PCV13 | 11/5/15 |
| Hib | 4/2/15 | PPSV | 4/24/15 |
| Hepatitis A | 10/25/11 | Polio | 11/8/11 |
| Hepatitis B | 2/2/12 | Rabies | 10/6/09 |
| HPV-Cervarix | 5/3/11 | Rotavirus..... | 4/15/15 |
| HPV-Gardasil | 5/17/13 | Shingles | 10/6/09 |
| HPV-Gardasil 9 | 3/31/16 | Td..... | 2/24/15 |
| Influenza..... | 8/7/15 | Tdap | 2/24/15 |
| Japanese enceph..... | 1/24/14 | Typhoid | 5/29/12 |
| MCV4/MPV4..... | 3/31/16 | Yellow fever | 3/30/11 |
| MenB | 8/14/15 | | |

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Recommended Adult Immunization Schedule – United States, 2016

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 immunization schedule for adults ages 19 years and older, by vaccine and age group¹

| Vaccine | 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 Tdap for Td once, then Td booster 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 depending on indication | | | | | |
| Pneumococcal 13-valent conjugate (PCV13) ^{8,*} | | | | | | 1 dose |
| Pneumococcal 23-valent polysaccharide (PPSV23) ⁸ | 1 or 2 doses depending on indication | | | | | 1 dose |
| Hepatitis A ^{9,*} | 2 or 3 doses depending on vaccine | | | | | |
| Hepatitis B ^{10,*} | 3 doses | | | | | |
| Meningococcal 4-valent conjugate (MenACWY) or polysaccharide (MPSV4) ^{11,*} | 1 or more doses depending on indication | | | | | |
| Meningococcal B (MenB) ¹¹ | 2 or 3 doses depending on vaccine | | | | | |
| <i>Haemophilus influenzae</i> type b (Hib) ^{12,*} | 1 or 3 doses depending on indication | | | | | |

Figure 2. Vaccines that might be indicated for adults ages 19 years and older based on medical and other indications¹

| Indication ► | | Immuno-compromising conditions (excluding HIV infection) ^{4,6,7,8,13} | HIV infection CD4+ count (cells/μL) ^{4,6,7,8,13} | | | Kidney failure, end-stage renal disease, on hemodialysis | Heart disease, chronic lung disease, chronic alcoholism | Asplenia and persistent complement component deficiencies ^{8,11,12} | | | |
|----------------------------------|---|--|---|--------------------------------------|--|--|---|--|-----------------------|----------|----------------------|
| Vaccine ▼ | Pregnancy | | <200 | ≥200 | Men who have sex with men (MSM) | | | | Chronic liver disease | Diabetes | Healthcare personnel |
| Influenza ^{2,*} | 1 dose annually | | | | | | | | | | |
| Td/Tdap ^{3,*} | 1 dose Tdap each pregnancy | Substitute Tdap for Td once, then Td booster every 10 yrs | | | | | | | | | |
| Varicella ^{4,*} | Contraindicated | | | 2 doses | | | | | | | |
| HPV Female ^{5,*} | | 3 doses through age 26 yrs | | | | 3 doses through age 26 yrs | | | | | |
| HPV Male ^{5,*} | | 3 doses through age 26 yrs | | | | 3 doses through age 21 yrs | | | | | |
| Zoster ⁶ | Contraindicated | | | | 1 dose | | | | | | |
| MMR ^{7,*} | Contraindicated | | | 1 or 2 doses depending on indication | | | | | | | |
| PCV13 ^{8,*} | | | | | | 1 dose | | | | | |
| PPSV23 ⁸ | | | | | 1, 2, or 3 doses depending on indication | | | | | | |
| Hepatitis A ^{9,*} | | | | 2 or 3 doses depending on vaccine | | | | | | | |
| Hepatitis B ^{10,*} | | | | | | | 3 doses | | | | |
| MenACWY or MPSV4 ^{11,*} | 1 or more doses depending on indication | | | | | | | | | | |
| MenB ¹¹ | | 2 or 3 doses depending on vaccine | | | | | | | | | |
| Hib ^{12,*} | | 3 doses post-HSCT recipients only | 1 dose | | | | | | | | |

*Covered by the Vaccine Injury Compensation Program.

Recommended for all persons who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection; zoster vaccine recommended regardless of past episode of zoster

Recommended for persons with a risk factor (medical, occupational, lifestyle, or other indication)

No recommendation

Contraindicated

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly recommended for adults ages 19 years and older, as of February 2016. 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), the American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG), and American College of Nurse-Midwives (ACNM).

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 age 6 months or older. A list of currently available influenza vaccines can be found at www.cdc.gov/flu/protect/vaccine/vaccines.htm.
- Persons age 6 months and older, including pregnant women can receive the inactivated influenza vaccine (IIV). An age-appropriate IIV formulation should be used.
- Intradermal IIV is an option for persons ages 18 through 64 years.
- High-dose IIV is an option for persons ages 65 years or older.
- Live-attenuated influenza vaccine (LAIV [FluMist]) is an option for healthy, non-pregnant persons ages 2 through 49 years.
- Recombinant influenza vaccine (RIV [Flublok]) is approved for persons ages 18 years or older.
- RIV, which does not contain any egg protein, may be administered to persons ages 18 years or older with egg allergy of any severity; IIV may be used with additional safety measures for persons with hives-only allergy to eggs.
- Health care personnel who care for severely immunocompromised persons who require care in a protected environment should receive IIV or RIV; health care personnel who receive LAIV should avoid providing care for severely immunosuppressed persons for 7 days after vaccination.

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

- Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferably during 27 to 36 weeks' gestation), regardless of interval since prior Td or Tdap vaccination.
- Persons age 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: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980, except health care personnel and pregnant women; 3) history of varicella based on diagnosis or verification of varicella disease by a health care provider; 4) history of herpes zoster based on diagnosis or verification of herpes zoster disease by a health care provider; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

5. Human papillomavirus (HPV) vaccination.

- Three HPV vaccines are licensed for use in females (bivalent HPV vaccine [HPV2], quadrivalent HPV vaccine [HPV4], and 9-valent HPV vaccine [HPV9]), and two HPV vaccines are licensed for use in males (HPV4 and HPV9).
- For females, HPV2, HPV4 or HPV9 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years, and for those age 13 through 26 years, if not previously vaccinated.
- For males, HPV4 or HPV9 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those age 13 through 21 years, if not previously vaccinated. Males age 22 through 26 years may be vaccinated.
- HPV vaccination is recommended for men who have sex with men through age 26 years 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 HPV vaccination series 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 or termination of pregnancy.

6. Zoster vaccination.

- A single dose of zoster vaccine is recommended for adults age 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 age 50 years or older, ACIP recommends that vaccination begin at age 60 years.
- Persons age 60 years and 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 three 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: 1) are students in postsecondary educational institutions, 2) work in a health care facility, or 3) plan to travel internationally. Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type from 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: 1) are students in a postsecondary educational institution, 2) work in a health care facility, or 3) 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 vaccination.

- General information
 - Adults are recommended to receive 1 dose of 13-valent pneumococcal conjugate vaccine (PCV13) and 1, 2, or 3 doses (depending on indication of 23-valent pneumococcal polysaccharide vaccine (PPSV23)).
 - PCV13 should be administered at least 1 year after PPSV23.
 - PPSV23 should be administered at least 1 year after PCV13, except among adults with immunocompromising conditions, anatomical or functional asplenia, or cerebrospinal fluid leak or cochlear implant, for whom the interval is at least 8 weeks; the interval between PPSV23 is at least 5 years.
 - No additional dose of PPSV23 is indicated for adults vaccinated with PPSV23 at age 65 years or older.
 - When indicated, PCV13 and PPSV23 should be administered to adults whose pneumococcal vaccination history is incomplete or unknown.
- Adults age 65 years and older (immunocompetent) who
 - Have not received PCV13 or PPSV23: Administer PCV13 followed by PPSV23 at least 1 year after PCV13.
 - Have not received PCV13 but have received a dose of PPSV23 at age 65 years or older: Administer PCV13 at least 1 year after PPSV23.
 - Have not received PCV13 but have received 1 or more doses of PPSV23 before age 65 years: Administer PCV13 at least 1 year after the most recent dose of PPSV23. Administer a dose of PPSV23 at least 1 year after PCV13 and at least 5 years after most recent dose of PPSV23.
 - Have received PCV13 but not PPSV23 before age 65 years: Administer PPSV23 at least 1 year after PCV13.
 - Have received PCV13 and 1 or more doses of PPSV23 before age 65 years: Administer PPSV23 at least 1 year after PCV13 and at least 5 years after the most recent dose of PPSV23.
- Adults age 19 years or older with immunocompromising conditions or anatomical or functional asplenia (defined below) who
 - Have not received PCV13 or PPSV23: Administer PCV13 followed by PPSV23 at least 8 weeks after PCV13. Administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23.
 - Have not received PCV13 but have received 1 dose of PPSV23: Administer PCV13 at least 1 year after the PPSV23. Administer a second dose of PPSV23 at least 8 weeks after PCV13 and at least 5 years after the first dose of PPSV23.
 - Have not received PCV13 but have received 2 doses of PPSV23: Administer PCV13 at least 1 year after the most recent dose of PPSV23.
 - Have received PCV13 but not PPSV23: Administer PPSV23 at least 8

weeks after PCV13. Administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23.

- Have received PCV13 and 1 dose of PPSV23: Administer a second dose of PPSV23 at least 8 weeks after PCV13 and at least 5 years after the first dose of PPSV23.
- If the most recent dose of PPSV23 was administered before age 65 years, at age 65 years or older, administer a dose of PPSV23 at least 8 weeks after PCV13 and at least 5 years after the last dose of PPSV23.

Immunocompromising conditions that are indications for pneumococcal vaccination are: Congenital or acquired immunodeficiency (including B- or T-lymphocyte deficiency, complement deficiencies, and phagocytic disorders excluding chronic granulomatous disease), HIV infection, chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, multiple myeloma, solid organ transplant, and iatrogenic immunosuppression (including long-term systemic corticosteroids and radiation therapy).

Anatomical or functional asplenia that are indications for pneumococcal vaccination are: Sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, and splenectomy. Administer pneumococcal vaccines at least 2 weeks before immunosuppressive therapy or an elective splenectomy, and as soon as possible to adults who are newly diagnosed with asymptomatic or symptomatic HIV infection.

- Adults age 19 years and older with cerebrospinal fluid leaks or cochlear implants: administer PCV13 followed by PPSV23 at least 8 weeks after PCV13; no additional dose of PPSV23 is indicated if age is younger than 65 years. If PPSV23 was administered before age 65 years, at age 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose of PPSV23.
- Adults age 19 through 64 years who have chronic heart disease (including congestive heart failure and cardiomyopathies, excluding hypertension), chronic lung disease (including chronic obstructive lung disease, emphysema, and asthma), chronic liver disease (including cirrhosis), alcoholism, or diabetes mellitus, or who smoke cigarettes: administer PPSV23. At age 65 years or older, administer PCV13 at least 1 year after PPSV23, followed by another dose of PPSV23 at least 1 year after PCV13 and at least 5 years after the last dose of PPSV23.
- Routine pneumococcal vaccination is not recommended for American Indian/Alaska Native or other adults unless they have the indications as above; however, public health authorities may consider recommending the use of pneumococcal vaccines for American Indians/Alaska Natives or other adults who live in areas with increased risk for invasive pneumococcal disease.

9. 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
 - 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 (see footnote 1); 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 of hepatitis A (see footnote 1). 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 6–18 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 21–30, followed by a booster dose at 12 months.

10. Hepatitis B vaccination.

- Vaccinate any person seeking protection from hepatitis B virus (HBV) infection and persons with any of the following indications:
 - 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 who are younger than age 60 years with diabetes 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 regions with high or intermediate levels of endemic HBV infection (see footnote 1); 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 at least 1 month after the first dose; the third dose should be administered 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 may be used, administered on days 0, 7, and 21–30, followed by a booster dose at 12 months.
- 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.

11. Meningococcal vaccination.

- General information
 - Serogroup A, C, W, and Y meningococcal vaccine is available as a conjugate (MenACWY [Menactra, Menveo]) or a polysaccharide (MPSV4 [Menomune]) vaccine.
 - Serogroup B meningococcal (MenB) vaccine is available as a 2-dose series of MenB-4C vaccine (Bexsero) administered at least 1 month apart or a 3-dose series of MenB-FHbp (Trumenba) vaccine administered at 0, 2, and 6 months; the two MenB vaccines are not interchangeable (i.e., the same MenB vaccine product must be used for all doses).
 - MenACWY vaccine is preferred for adults with serogroup A, C, W, and Y meningococcal vaccine indications who are age 55 years or younger and for adults age 56 years or older 1) who were vaccinated previously with MenACWY vaccine and are recommended for revaccination or 2) for whom multiple doses of vaccine are anticipated; MPSV4 vaccine is

preferred for adults age 56 years or older who have not received MenACWY vaccine previously and who require a single dose only (e.g., persons at risk because of an outbreak).

- Revaccination with MenACWY vaccine every 5 years is recommended for adults previously vaccinated with MenACWY or MPSV4 vaccine who remain at increased risk for infection (e.g., adults with anatomical or functional asplenia or persistent complement component deficiencies, or microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*.)
- MenB vaccine is approved for use in persons ages 10 through 25 years; however, because there is no theoretical difference in safety for persons older than age 25 years compared to those ages 10 through 25 years, MenB vaccine is recommended for routine use in persons ages 10 years and older who are at increased risk for serogroup B meningococcal disease.
- There is no recommendation for MenB revaccination at this time.
- MenB vaccine may be administered concomitantly with MenACWY vaccine, but at a different anatomic site, if feasible.
- HIV infection is not an indication for routine vaccination with MenACWY or MenB vaccine; if an HIV-infected person of any age is to be vaccinated, administer 2 doses of MenACWY vaccine at least 2 months apart.
- Adults with anatomical or functional asplenia or persistent complement component deficiencies: Administer 2 doses of MenACWY vaccine at least 2 months apart and revaccinate every 5 years. Also, administer a series of MenB vaccine.
- Microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*: Administer a single dose of MenACWY vaccine; revaccinate with MenACWY vaccine every 5 years if the person remains at risk for infection. In addition, administer a series of Men B vaccine.
- Persons at risk because of a meningococcal disease outbreak: If the outbreak is attributable to serogroup A, C, W, or Y, administer a single dose of MenACWY vaccine; if the outbreak is attributable to serogroup B, administer a series of MenB vaccine.
- Persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic: Administer a single dose of MenACWY vaccine and revaccinate with MenACWY vaccine every 5 years if an increased risk of infection remains (see footnote 1); MenB vaccine is not recommended because meningococcal disease in these countries is generally not caused by serogroup B.
- Military recruits: Administer a single dose of MenACWY vaccine.
- First-year college students ages 21 years or younger who live in residence halls: Administer a single dose of MenACWY vaccine if they have not received a dose on or after their 16th birthday.
- Young adults ages 16 through 23 years (preferred age range is 16 through 18 years): May be vaccinated with a series of MenB vaccine to provide short-term protection against most strains of serogroup B meningococcal disease.

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

- One dose of Hib vaccine should be administered to persons who have anatomical or functional 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 hematopoietic stem cell transplant (HSCT) should be vaccinated with a 3-dose regimen 6–12 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.

13. Immunocompromising conditions.

Inactivated vaccines (e.g., pneumococcal, meningococcal, and inactivated influenza vaccines) generally are acceptable and live vaccines generally should be avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults^{1,*†}

| Vaccine | Contraindications ¹ | Precautions ¹ |
|--|--|--|
| Influenza, inactivated (IIV)² Influenza, recombinant (RIV)² | <ul style="list-style-type: none"> For IIV, severe allergic reaction (e.g., anaphylaxis) after a previous dose of any influenza vaccine; or to a vaccine component, including egg protein For RIV, severe allergic reaction (e.g., anaphylaxis) after a previous dose of RIV or to a vaccine component. RIV does not contain any egg protein² | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever History of Guillain-Barré Syndrome (GBS) within 6 weeks of previous influenza vaccination Adults with egg allergy of any severity may receive RIV; adults with hives-only allergy to eggs may receive IIV with additional safety measures² |
| Influenza, live attenuated (LAIV)^{2,3} | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, or to a previous dose of any influenza vaccine In addition, ACIP recommends that LAIV not be used in the following populations: pregnant women; immunosuppressed adults; adults with egg allergy of any severity; adults who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever History of GBS within 6 weeks of previous influenza vaccination Asthma in persons age 5 years and older Other chronic medical conditions (e.g., other chronic lung diseases, chronic cardiovascular disease [excluding isolated hypertension], diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders) |
| Tetanus, diphtheria, pertussis (Tdap) Tetanus, diphtheria (Td) | <ul style="list-style-type: none"> 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, diphtheria and tetanus toxoids and pertussis (DTP), or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever GBS 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 (Var)³ | <ul style="list-style-type: none"> 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 therapy⁴ or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised) Pregnancy | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)⁵ 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) | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Pregnancy |
| Zoster (HZV)³ | <ul style="list-style-type: none"> 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,⁴ or patients with HIV infection who are severely immunocompromised) Pregnancy | <ul style="list-style-type: none"> 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)³ | <ul style="list-style-type: none"> 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,⁴ or patients with HIV infection who are severely immunocompromised) Pregnancy | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)⁵ History of thrombocytopenia or thrombocytopenic purpura Need for tuberculin skin testing⁶ |
| Pneumococcal: conjugate (PCV13), polysaccharide (PPSV23) | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component (including, for PCV13, to any vaccine containing diphtheria toxoid-containing vaccine) | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever |
| Hepatitis A (HepA) Hepatitis B (HepB) | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever |
| Meningococcal: conjugate (MenACWY), serogroup B (MenB), polysaccharide (MPSV4) | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever |
| Haemophilus influenzae type b (Hib) | <ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component | <ul style="list-style-type: none"> Moderate or severe acute illness with or without fever |

FOOTNOTES

- 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 of and risks for 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 CDC considers to be reasons to avoid receiving LAIV, see CDC. "Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP)—United States, 2015–16 Influenza Season." *MMWR* 2015;64(30):818–25.
- 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 or more weeks of daily receipt of 20 mg 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 on 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 Table 5 in CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices [ACIP]." *MMWR* 2011;60(No. RR-2), 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.

* Adapted from "Table 6. Contraindications and Precautions to Commonly Used Vaccines" found in: CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)." *MMWR* 2011;60(No. RR-2), p. 40–41, and from Hamborsky J, Kroger A, Wolfe C, eds. *Appendix A. Epidemiology and Prevention of Vaccine-Preventable Diseases*, 13th ed. Washington, DC: Public Health Foundation, 2015, available at www.cdc.gov/vaccines/pubs/pinkbook/index.html.

† Regarding latex allergy, consult the package insert for any vaccine administered.

Technical content reviewed by the Centers for Disease Control and Prevention

Patient Schedules for All Adults and for High-Risk Adults

These documents reflect current ACIP recommendations. Download, make copies, and hand them to your patients.

Vaccinations for Adults

You're never too old to get immunized!

Getting immunized is a lifelong, life-protecting job. Don't leave your healthcare provider's office without making sure you've had all the vaccinations you need.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Maybe. You need this vaccine if you have a specific risk factor for hepatitis A. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Maybe. You need this vaccine if you have a specific risk factor for hepatitis B. The vaccine is given in 3 doses, usually over 6 months. |
| Human papillomavirus (HPV) | Maybe. You need this vaccine if you are a woman age 26 years or younger. Men age 22 through 26 years with a risk condition* also need vaccine through 26 who wants to be protected from HPV may receive it, too. The over a 6-month period. |
| Influenza | Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. You need at least 1 dose of MMR if you were born in 1957 or later. You need a second dose.* |
| Meningococcal (MenACWY [MCV4], MenB, MPSV4) | Maybe. You may need MenACWY and/or MenB vaccine if you have one of the following: if you don't have a functioning spleen. You need MenACWY if you are a first-year college student living in a residence hall and you either have been vaccinated before age 16.* You should consider MenB if you are age 16 or older and have a high-risk medical condition). |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Maybe. If you are age 65 years (or older), you need both pneumococcal vaccines (at least 1) and Pneumovax. Get Prevnar first and then get Pneumovax. If you are age 65 and have certain high-risk conditions (for example, asthma, heart, kidney disease, immunosuppression, or lack of a functioning spleen, or are a smoker),* you need both. Talk to your healthcare provider to find out when you need them.* |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults who have not yet received a dose of Tdap, as an adolescent vaccine (the adult whooping cough vaccine). And, all women need to get a booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. If you've never had chickenpox or were vaccinated but received one dose, you should get a second dose.* |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine. |
| Hib (Haemophilus influenzae type b) | Maybe. Some adults with certain high-risk conditions, for example, lack of a functioning spleen or if you have a deep or dirty wound. |

* Consult your healthcare provider to determine your level of risk for infection and your need for this vaccine.



Vaccinations for Men Who Have Sex with Men

The table below shows which vaccinations you should have to protect your health if you are a man who has sex with other men. Make sure you and your healthcare provider keep your vaccinations up to date.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Yes! Men who have sex with men (MSM) need this vaccine to provide protection against hepatitis A virus, a serious infection of the liver that can be fatal. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Yes! Because you have sex with other men, you are at a higher risk for hepatitis B virus infection. If you've never had a series of hepatitis B vaccinations, you need to receive 3 doses. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B. |
| Human papillomavirus (HPV) | Maybe.* You should be vaccinated against HPV if you are age 26 years or younger. The vaccine is given in 3 doses over a 6-month period. |
| Influenza | Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. Most adults are already protected because they got MMR vaccine or were infected with measles, mumps, and rubella as children. If you weren't previously vaccinated or were born in 1957 or later, you need at least 1 dose of MMR. You may also need a second dose.* |
| Meningococcal (MenACWY [MCV4], MenB, MPSV4) | Maybe. You may need MenACWY and/or MenB if you have one of several health conditions,* for example, if you do not have a functioning spleen. You need MenACWY if you are age 21 or younger and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16. You should consider MenB if you are age 21 or younger (even if you don't have a high-risk medical condition). |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Maybe. If you are age 65 years (or older), you need both pneumococcal vaccines, Prevnar (if you haven't had it before) and Pneumovax. Get Prevnar first and then get Pneumovax 1 year later. If you are younger than age 65 and have certain high-risk conditions (for example, asthma, heart, lung, or kidney disease, immunosuppression, or lack of a functioning spleen, or are a smoker),* you need one or both vaccines. Talk to your healthcare provider to find out when you need them.* |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine) and women need to get a booster dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but received only 1 dose, talk to your healthcare providers about getting this vaccine.* |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine now. |
| Hib (Haemophilus influenzae type b) | Maybe. Some adults with certain high-risk conditions need vaccination with Hib vaccine. Talk to your healthcare provider to find out if you need this vaccine. |

* Consult your healthcare provider to determine your level of risk for infection and your need for this vaccine.

Are you planning to travel outside the United States? Visit the Centers for Disease Control and Prevention's (CDC) website at www.cdc.gov/travel for travel information, or consult a travel clinic.



St. Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

Are you planning to travel outside the United States? Visit the Centers for Disease Control and Prevention's (CDC) website at www.cdc.gov/travel for travel information, or consult a travel clinic.

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www.immunize.org/catg.d/p4030.pdf • Item #P4030 (3/16)

Vaccinations for Adults without a Spleen

The table below shows which vaccinations you should have to protect your health if you do not have a functioning spleen. Make sure you and your healthcare provider keep your vaccinations up to date.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Maybe. You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Maybe. You need this vaccine if you have a specific risk factor for hepatitis B virus infection* or simply want to be protected from this disease. The vaccine is given in 3 doses, usually over 6 months. |
| Hib (Haemophilus influenzae type b) | Yes! You are at an increased risk for Hib disease because you do not have a functioning spleen. If you have never received Hib vaccination (or don't know if you received it) you should receive 1 dose now. |
| Human papillomavirus (HPV) | Maybe. You need this vaccine if you are a woman age 26 or younger or a man age 21 or younger. Men age 22 through 26 with a risk condition* also need vaccination. Any man age 22 through 26 who wants to be protected from HPV may receive it, too. The vaccine is given in 3 doses over a 6-month period. |
| Influenza | Yes! You need a flu shot every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. Most adults are already protected because they got MMR vaccine or were infected with measles, mumps, and rubella as children. If you weren't previously vaccinated or were born in 1957 or later, you need at least 1 dose of MMR. Some people, such as international travelers and people who work in health care, need a second dose about a month after the first dose.* |
| Meningococcal (MenACWY [MCV4], MenB) | Yes! You are at an increased risk for meningococcal disease because you do not have a functioning spleen. If you have never received MenACWY vaccine, you should receive 2 doses separated by 8 weeks, then a booster dose every 5 years thereafter. You also need to complete a series of MenB 2 or 3 doses, depending on the brand. |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Yes! Both types of pneumococcal vaccine (Prevnar and Pneumovax) are recommended for you because you do not have a functioning spleen. If you haven't received both vaccines, call your healthcare provider and schedule them now. The dose of Prevnar is given first, followed by 1 dose of Pneumovax at least 8 weeks later. You will need a booster dose of Pneumovax 5 years after your first dose. Additionally, if you received 1 or 2 doses of Pneumovax when you were younger than age 65, you will need another dose at age 65 or older, provided at least 5 years have passed since your previous dose of Pneumovax. |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine) and women need to get a booster dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. Most adults are already protected because they had chickenpox as children. However, if you are an adult born in the U.S. in 1980 or later and have never had chickenpox or the vaccine, you can be vaccinated with this 2-dose series. Talk to your healthcare provider. |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine now. |

* Consult your healthcare provider to determine your level of risk for infection and your need for this vaccine.

Are you planning to travel outside the United States? Visit the Centers for Disease Control and Prevention's (CDC) website at www.cdc.gov/travel for travel information, or consult a travel clinic.



St. Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

Vaccinations for Adults – You're Never Too Old to Get Immunized

www.immunize.org/catg.d/p4030.pdf

Vaccinations for Men Who Have Sex with Men

www.immunize.org/catg.d/p4046.pdf

Vaccinations for Adults without a Spleen

www.immunize.org/catg.d/p4047.pdf

Vaccinations for Adults with HIV Infection

www.immunize.org/catg.d/p4041.pdf

Vaccinations for Adults with Hepatitis C Infection

www.immunize.org/catg.d/p4042.pdf

Vaccinations for Adults with Diabetes

www.immunize.org/catg.d/p4043.pdf

Vaccinations for Adults with Heart Disease

www.immunize.org/catg.d/p4044.pdf

Vaccinations for Adults with Lung Disease

www.immunize.org/catg.d/p4045.pdf

Vaccinations for Adults with HIV Infection

The table below shows which vaccinations you should have to protect your health if you have HIV infection. Make sure you and your healthcare provider keep your vaccinations up to date.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Yes! You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Yes! Because you have sex with other men, you are at a higher risk for hepatitis B virus infection. If you've never had a series of hepatitis B vaccinations, you need to receive 3 doses. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B. |
| Human papillomavirus (HPV) | Maybe.* You should be vaccinated against HPV if you are age 26 years or younger. The vaccine is given in 3 doses over a 6-month period. |
| Influenza | Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. Most adults are already protected because they got MMR vaccine or were infected with measles, mumps, and rubella as children. If you weren't previously vaccinated or were born in 1957 or later, you need at least 1 dose of MMR. You may also need a second dose.* |
| Meningococcal (MenACWY [MCV4], MenB, MPSV4) | Maybe. You may need MenACWY and/or MenB if you have one of several health conditions,* for example, if you do not have a functioning spleen. You need MenACWY if you are age 21 or younger and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16. You should consider MenB if you are age 21 or younger (even if you don't have a high-risk medical condition). |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Maybe. If you are age 65 years (or older), you need both pneumococcal vaccines, Prevnar (if you haven't had it before) and Pneumovax. Get Prevnar first and then get Pneumovax 1 year later. If you are younger than age 65 and have certain high-risk conditions (for example, asthma, heart, lung, or kidney disease, immunosuppression, or lack of a functioning spleen, or are a smoker),* you need one or both vaccines. Talk to your healthcare provider to find out when you need them.* |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine) and women need to get a booster dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but received only 1 dose, talk to your healthcare providers about getting this vaccine.* |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine now. |
| Hib (Haemophilus influenzae type b) | Maybe. Some adults with certain high-risk conditions need vaccination with Hib vaccine. Talk to your healthcare provider to find out if you need this vaccine. |



Vaccinations for Adults with Hepatitis C Infection

This table shows which vaccinations you should have to protect your health if you have hepatitis C. Make sure you and your healthcare provider keep your vaccinations up to date.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Yes! You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Yes! Because you have sex with other men, you are at a higher risk for hepatitis B virus infection. If you've never had a series of hepatitis B vaccinations, you need to receive 3 doses. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B. |
| Human papillomavirus (HPV) | Maybe.* You should be vaccinated against HPV if you are age 26 years or younger. The vaccine is given in 3 doses over a 6-month period. |
| Influenza | Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. Most adults are already protected because they got MMR vaccine or were infected with measles, mumps, and rubella as children. If you weren't previously vaccinated or were born in 1957 or later, you need at least 1 dose of MMR. You may also need a second dose.* |
| Meningococcal (MenACWY [MCV4], MenB, MPSV4) | Maybe. You may need MenACWY and/or MenB if you have one of several health conditions,* for example, if you do not have a functioning spleen. You need MenACWY if you are age 21 or younger and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16. You should consider MenB if you are age 21 or younger (even if you don't have a high-risk medical condition). |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Maybe. If you are age 65 years (or older), you need both pneumococcal vaccines, Prevnar (if you haven't had it before) and Pneumovax. Get Prevnar first and then get Pneumovax 1 year later. If you are younger than age 65 and have certain high-risk conditions (for example, asthma, heart, lung, or kidney disease, immunosuppression, or lack of a functioning spleen, or are a smoker),* you need one or both vaccines. Talk to your healthcare provider to find out when you need them.* |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine) and women need to get a booster dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but received only 1 dose, talk to your healthcare providers about getting this vaccine.* |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine now. |
| Hib (Haemophilus influenzae type b) | Maybe. Some adults with certain high-risk conditions need vaccination with Hib vaccine. Talk to your healthcare provider to find out if you need this vaccine. |



Vaccinations for Adults with Lung Disease

The table below shows which vaccinations you should have to protect your health if you have lung disease. Make sure you and your healthcare provider keep your vaccinations up to date.

| Vaccine | Do you need it? |
|---|--|
| Hepatitis A (HepA) | Yes! You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart. |
| Hepatitis B (HepB) | Yes! Because you have sex with other men, you are at a higher risk for hepatitis B virus infection. If you've never had a series of hepatitis B vaccinations, you need to receive 3 doses. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B. |
| Human papillomavirus (HPV) | Maybe.* You should be vaccinated against HPV if you are age 26 years or younger. The vaccine is given in 3 doses over a 6-month period. |
| Influenza | Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you. |
| Measles, mumps, rubella (MMR) | Maybe. Most adults are already protected because they got MMR vaccine or were infected with measles, mumps, and rubella as children. If you weren't previously vaccinated or were born in 1957 or later, you need at least 1 dose of MMR. You may also need a second dose.* |
| Meningococcal (MenACWY [MCV4], MenB, MPSV4) | Maybe. You may need MenACWY and/or MenB if you have one of several health conditions,* for example, if you do not have a functioning spleen. You need MenACWY if you are age 21 or younger and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16. You should consider MenB if you are age 21 or younger (even if you don't have a high-risk medical condition). |
| Pneumococcal (Pneumovax [polysaccharide vaccine, PPV23], Prevnar [conjugate vaccine, PCV]) | Maybe. If you are age 65 years (or older), you need both pneumococcal vaccines, Prevnar (if you haven't had it before) and Pneumovax. Get Prevnar first and then get Pneumovax 1 year later. If you are younger than age 65 and have certain high-risk conditions (for example, asthma, heart, lung, or kidney disease, immunosuppression, or lack of a functioning spleen, or are a smoker),* you need one or both vaccines. Talk to your healthcare provider to find out when you need them.* |
| Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td) | Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine) and women need to get a booster dose during each pregnancy. After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus and diphtheria toxoid-containing shots sometime in your life or if you have a deep or dirty wound. |
| Varicella (Chickenpox) | Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but received only 1 dose, talk to your healthcare providers about getting this vaccine.* |
| Zoster (shingles) | Maybe.* If you are age 60 years or older, you should get a 1-time dose of this vaccine now. |
| Hib (Haemophilus influenzae type b) | Maybe. Some adults with certain high-risk conditions need vaccination with Hib vaccine. Talk to your healthcare provider to find out if you need this vaccine. |



IAC's Popular Summary of ACIP Recommendations for Adult Immunization

Make copies on cardstock and keep as handy references in exam rooms!

For more than 20 years, IAC has been publishing its summary of ACIP adult vaccine recommendations, updating it yearly or more often, and sending it to CDC for technical review. The adult summary has been reprinted in state immunization newsletters, textbooks, and is one of the most frequently downloaded documents from IAC's website. If you haven't seen it or used it, please try it out!

Summary of Recommendations for Adult Immunization (Age 19 years and older)

(Page 1 of 5)

| Vaccine name and route | People for whom vaccination is recommended | Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted) | Contraindications and precautions (mild illness is not a contraindication) |
|---|--|--|---|
| Influenza Inactivated Influenza vaccine (IIV*) <i>Give IM or ID (intradermally)</i> * includes recombinant influenza vaccine (RIV3) Live attenuated influenza vaccine (LAIV) <i>Give NAS (intranasally)</i> | For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • Vaccination is recommended for all adults. • LAIV (Flumist) is approved only for healthy nonpregnant people age 2–49 yrs. • Adults age 18 through 64 yrs may be given any intramuscular IIV product (Fluzone, Fluvirin, Afluria, Flucelvax), or the intradermal IIV product (Fluzone Intradermal), or RIV3 (FluBlok). • Adults age 18 through 64 yrs may be given intramuscular IIV (Afluria) with a needle and syringe or using a jet injector (Stratis). • Adults age 65 yrs and older may be given standard-dose IIV, or high-dose IIV (Fluzone High-Dose), or RIV3. NOTE: Health care personnel who care for severely immunocompromised persons (i.e., those who require care in a protective environment) should receive IIV rather than LAIV. For information on other contraindications and precautions to LAIV, see far right column. | • Give 1 dose every year in the fall or winter. • Begin vaccination services as soon as vaccine is available and continue until the supply is depleted. • Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists. • If 2 or more of the following live virus vaccines are to be given – LAIV, MMR, Var, HZV, and/or yellow fever – they should be given on the same day. If they are not given on the same day, space them by at least 28d. | Contraindications • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine, to any of its components, including egg protein. Adults with egg allergy of any severity may receive RIV or, adults who experience only hives with exposure to eggs may receive other IIV with additional safety precautions (i.e., observe patient for 30 minutes after receipt of vaccine for signs of a reaction). • For LAIV only: pregnancy; immunosuppression; receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48hrs. Avoid use of these anti-viral drugs for 14d after vaccination. Precautions • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6 wks following previous influenza vaccination. • For LAIV only: Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurologic, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV). |
| Td, Tdap (Tetanus, diphtheria, pertussis) <i>Give IM</i> | For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • All people who lack written documentation of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine. • A booster dose of Td or Tdap may be needed for wound management, so consult ACIP recommendations. ¹ For Tdap only • Adults who have not already received Tdap or whose Tdap history is not known. • Health care personnel of all ages. • Give Tdap to pregnant women during each pregnancy (preferred during 27–36 weeks' gestation), regardless of the interval since prior Td or Tdap. | • For people who are unvaccinated or behind, complete the primary Td series (3 doses with an interval of 1–2m between dose #1 and #2, and an interval of 6–12m between dose #2 and #3); substitute a one-time dose of Tdap for one of the doses in the series, preferably the first. • Give Td booster every 10 yrs after the primary series has been completed. • Tdap should be given regardless of interval since previous Td. | Contraindications • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. • For Tdap only, history of encephalopathy not attributable to an identifiable cause, within 7d following DTP/DTaP, or Tdap. Precautions • Moderate or severe acute illness. • History of Guillain-Barré syndrome within 6wks following previous dose of tetanus-toxoid-containing vaccine. • History of arthus reaction following a prior dose of tetanus- or diphtheria-toxoid-containing vaccine (including MCV4); defer vaccination until at least 10 yrs have elapsed since the last tetanus toxoid-containing vaccine. • For pertussis-containing vaccines only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized. |

1 CDC. Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine. Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55(RR-17):25.

This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/ACIP-recs/index.html or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip.

This table is revised periodically. Visit IAC's website at www.immunize.org/adultrules to make sure you have the most current version.

For the purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.
A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses.

The form is
5 pages in length

Visit:

Summary of Recommendations
for Adult Immunization

www.immunize.org/catg.d/p2011.pdf

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- Targeted populations to be vaccinated
- Technical details for vaccine administration
- Talking points for conversations with patients

Pneumococcal Vaccine Pocket Guide

Routine Vaccination with PCV13 and PPSV

Children: Administer pneumococcal conjugate vaccine (PCV13) to all infants and children at ages 2, 4, and 6 mos with a booster at age 12–15 mos. For incomplete or unvaccinated children, catch-up vaccination should occur through age 59 mos.

Adults age 65 years (or older):

- Administer a 1-time dose of PCV13 (if not previously received).
- Administer a dose of pneumococcal polysaccharide vaccine (PPSV) at least 1 yr after PCV13.

Risk-Based Vaccination with PCV13 and PPSV

A dose of PPSV is recommended for all people age 2 through 64 yrs with any of the following conditions:

- Cigarette smokers age 19 yrs and older
- Chronic cardiovascular disease (e.g., congestive heart failure, cardiomyopathy)
- Chronic pulmonary disease (including asthma in people age 19 yrs and older)
- Diabetes mellitus, alcoholism, or chronic liver disease
- Candidate for or recipient of cochlear implant
- Cerebrospinal fluid leak
- Functional or anatomic asplenia (e.g., sickle cell disease, splenectomy)
- Immunocompromising conditions (e.g., congenital or acquired immunodeficiency, HIV infection, leukemia, lymphoma, Hodgkin disease, generalized malignancy, iatrogenic immunosuppression, multiple myeloma, or on immunosuppressive therapy, including long-term systemic corticosteroids, radiation therapy)
- Solid organ transplantation; for bone marrow transplantation patients, see www.cdc.gov/vaccines/pubs/hemato-cell-transplts.htm
- Chronic renal failure or nephrotic syndrome

A second dose of PPSV is recommended for children and adults through age 64 yrs who are at highest risk of serious pneumococcal disease or likely to have a rapid decline in pneumococcal antibody levels (categories g–j above) at least 5 yrs after dose #1.

Note: Administer an additional dose of PPSV to all adults at age 65 yrs (or older). Give it at least 5 yrs after any previous PPSV.

A 1-time dose of PCV13 is recommended for previously unvaccinated people age 6 through 64 yrs who meet any of the criteria in categories e–j above.

Created by the Immunization Action Coalition (www.immunize.org)
 Supported by an educational grant from Merck.

Item #R2203 (1/16)

- Both pneumococcal vaccines are covered under Medicare Part B for people 65 yrs and older when given at least 1 yr apart.

Herpes Zoster (Shingles) Vaccine Pocket Guide

Who Should Be Vaccinated

A one-time vaccination against herpes zoster (also known as shingles) is routinely recommended for all people age 60 yrs and older who do not have a valid contraindication to the vaccine.

Talking Points with Patients

At risk for developing shingles if they have had an earlier episode of chickenpox. Studies have shown that over 99% of adults age 60 yrs and older have been previously infected with varicella-zoster virus, whether or not they recall the episode.

Most people will develop shingles at some time in their lives and are vaccinated against it. The older you are, the greater the risk of developing shingles.

Shingles usually starts as a blistering rash which can become severe. It can be extremely painful and can cause serious problems, especially if it affects the eye. Other serious problems that may include skin infections, muscle weakness, and loss of hearing.

Shingles can experience long-term nerve pain that can last for months, and can interfere with eating and sleeping, and be debilitating.

Points for Healthcare Providers

The vaccine is used by the reactivation of the dormant chickenpox virus in people who have been infected with chickenpox. The zoster vaccine efficacy decreases with age, getting vaccinated significantly reduces the risk of developing post-herpetic neuralgia. The oldest adults are at the highest risk of post-herpetic neuralgia, and they are least able to tolerate the condition or its use to control pain.

The vaccine is routinely recommended for people age 60 and older. It should be covered by most health insurance plans. For people in Medicare, it is currently available under Part D, the drug benefit.

Encourage patients to purchase the vaccine from their pharmacy and bring it to your office for administration. This "brown bag" approach significantly jeopardize the stability of the vaccine.

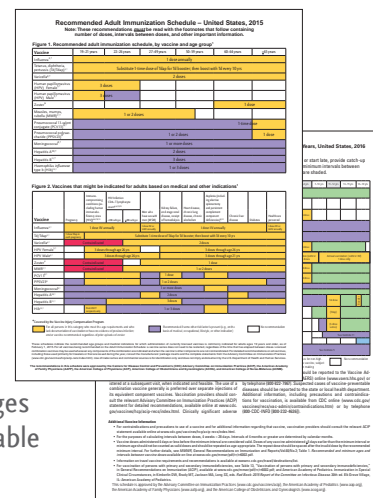
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Item #R2205 (1/16)

NOTE: These technical guides are for staff use only and are not suitable for use by patients.

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NEW for 2016! The ACIP/AAFP/ACOG/ACNM-approved immunization schedule for adults (8-sided) and the ACIP/AAP/AAFP-approved immunization schedule for people ages 0 through 18 years (8-sided). Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading.



The image displays three overlapping immunization record forms. The topmost form is orange and titled 'CHILD & TEEN IMMUNIZATION RECORD'. Below it is a green form titled 'LIFETIME IMMUNIZATION RECORD', and at the bottom is a yellow form titled 'ADULT IMMUNIZATION RECORD'. Each form contains sections for personal information (name, date of birth, sex, address, phone), a table for recording immunizations (with columns for vaccine name, date, and provider), and a section for provider information (name, address, phone, fax, email). The forms are designed to be used by healthcare providers to track a patient's immunization status over time.

Record Cards: Now you can give any patient a permanent vaccination record card designed specifically for their age group: adult, child and teen, or lifetime. These brightly colored cards are printed on durable rip-, smudge-, and water-proof paper. Each box contains 250 cards.

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Training Video: “Immunization Techniques – Best Practices with Infants, Children, and Adults”

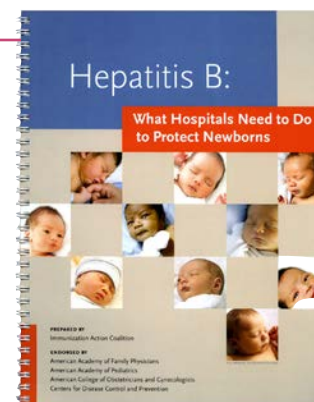
The California Department of Public Health, Immunization Branch, updated its award-winning training video, “Immunization Techniques: Best Practices with Infants, Children, and Adults.” The 25-minute DVD can be used to train new employees and to refresh the skills of experienced staff on administering injectable, oral, and nasal-spray vaccines to children, teens, and adults.

For healthcare settings in California, contact your local health department immunization program for a free copy.

▶ To order, visit www.immunize.org/shop.
Contact admininfo@immunize.org if you
have questions.

IAC's comprehensive guidebook is a complete resource for helping hospitals and birthing centers establish, implement, and optimize their hepatitis B vaccine birth dose policies.

AAFP, AAP, ACOG, and CDC endorse administering hepatitis B vaccine at birth prior to hospital discharge, and all four provided a review of this guide.



The Vaccine Handbook: A Practical Guide for Clinicians

This fifth edition is an extensive update for 2015.

The Vaccine Handbook: A Practical Guide for Clinicians ("The Purple Book") is a uniquely comprehensive source of practical, up-to-date information for vaccine providers and educators. Its author, Gary S. Marshall, MD, has drawn together the latest vaccine science and guidance into a concise, user-friendly, practical resource for the private office, public health clinic, academic medical center, and hospital.

The Vaccine Handbook provides

- Information on every licensed vaccine in the United States;
- Rationale behind authoritative vaccine recommendations;
- Contingencies encountered in everyday practice;
- A chapter dedicated to addressing vaccine concerns;
- Background on how vaccine policy is made;
- Standards and regulations;
- Office logistics, including billing procedures, and much more.

The fifth edition contains a foreword by Deborah L. Wexler, MD, executive director, Immunization Action Coalition, which has partnered with the publisher, Professional Communications, Inc. (PCI), to promote **The Vaccine Handbook**.



FROM THE FOREWORD:

The Purple Book belongs in the hands of every medical student, physician-in-training, doctor, nursing student, and nurse who provides vaccines to patients, regardless of patient age or medical specialty. It is my honor to introduce the Fifth Edition to you. This essential reference beautifully supports all of us in our efforts to move forward in protecting our patients from the consequences of preventable diseases.

DEBORAH L. WEXLER, MD
Executive Director
Immunization Action Coalition

About the Author



Gary Marshall, MD, is professor of pediatrics at the University of Louisville School of Medicine in Kentucky, where he serves as chief of the division of pediatric infectious diseases and director of the Pediatric Clinical Trials Unit. In addition to being a busy clinician, he is nationally known for his work in the areas of vaccine research, advocacy, and education.

The Reviews

This book gives clinicians a well-organized and efficient one-stop source for information on immunizations and vaccine preventable diseases.

— KEVIN J. DOWNES, MD
Cincinnati Children's Hospital
Medical Center

During my more than 20 years in the field of immunization education, I have not seen another book that is so brimming with state-of-the-science information.

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Mayo Foundation for Medical
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The Vaccine Handbook is a wonderful, thorough collection of valuable information for all clinicians who vaccinate children.

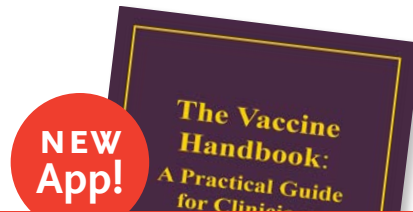
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IAC has two laminated immunization schedules for 2016 – one for adults and one for children/teens. Based on CDC's immunization schedules, these laminated schedules are covered with a tough, washable coating. This allows them to stand up to a year's worth of use as at-your-fingertips guides to immunization and as teaching tools you can use to give patients and parents authoritative information. Plus,

each schedule includes a guide to vaccine contraindications and precautions, an additional feature that will help you make on-the-spot determinations about the safety of vaccinating patients of any age. ■ To order any of our essential immunization resources listed below, print out and mail or fax this page, or place your order online at www.immunize.org/shop.

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