Volume 16 – Number 2

May 2012
(Content current as of May 18)

VACCINATE ADULTS!

from the Immunization Action Coalition — www.immunize.org

What's Inside

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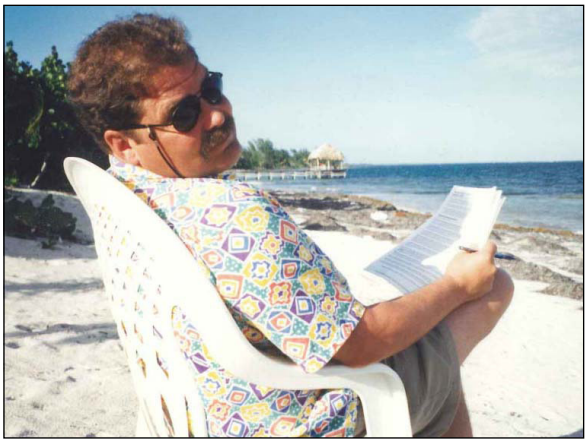
Dr. William L. Atkinson, Immunization Legend, Retiring from CDC

After 25 years of service, Dr. William (Bill) L. Atkinson will be retiring from the Centers for Disease Control and Prevention's (CDC) National Center for Immunization and Respiratory Diseases (NCIRD) at the end of June. Well known to readers of the *Vaccinate Adults* and *Needle Tips* columns "Ask the Experts," Dr. Atkinson has had tremendous impact on the U.S. immunization program during his career. The following tributes from Dr. Larry K. Pickering and Dr. Deborah L. Wexler attest to the significance of Dr. Atkinson's tenure of service at CDC.

Larry K. Pickering, MD, FAAP, senior advisor to the director of NCIRD and executive secretary of the Advisory Committee on Immunization Practices (ACIP), honored Dr. Atkinson at the February 2012 ACIP meeting. The following paragraphs are adapted from Dr. Pickering's speech at ACIP. Dr. Wexler's accolades follow Dr. Pickering's.

Following training in psychology, medicine, and epidemiology, and board certification in internal medicine and preventive medicine, Bill arrived at CDC in 1983 as an Epidemic Intelligence Service (EIS) officer. Following his two-year assignment as an EIS officer, he served at the Louisiana State Health Department in New Orleans and was on the faculty of the Tulane University School of Public Health and Tropical Medicine until 1989, when he moved to Atlanta.



On the beach reviewing "Ask the Experts," Xcalak, Mexico, Dec. 1999

From 1989 through 1994, he was responsible for measles surveillance and outbreak investigation for what was then known as the National Immunization Program. He was the point person for measles during the major resurgence of 1989 through 1991.

The first ACIP statement Bill wrote was the noteworthy 1989 recommendation on measles prevention. It made a significant change in the childhood immunization schedule by recommending two doses of measles-containing

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Ask the Experts

IAC extends thanks to our experts, medical epidemiologist Andrew T. Kroger, MD, MPH; nurse educator Donna L. Weaver, RN, MN; medical officer Iyabode Akinsanya-Beysolow, MD, MPH; and medical epidemiologist William L. Atkinson, MD, MPH. All are with the National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC).

Immunization questions?

- Call the CDC-INFO Contact Center at (800) 232-4636 or (800) CDC-INFO
- Email nipinfo@cdc.gov
- Call your state health dept. (phone numbers at www.immunize.org/coordinators)

Immunization questions

Please review the new recommendations for the use of Tdap in people 65 years and older.

At its February 2012 meeting, the Advisory Committee on Immunization Practices (ACIP) voted to recommend Tdap for adults age 65 years and older. CDC posted the provisional recommendations on its website on March 21 at www.cdc.gov/vaccines/recs/provisional/downloads/Tdap-feb2012.pdf.

Two Tdap vaccines are currently licensed in the United States. They are Boostrix (GSK), approved for use in people age 10 years and older, and Adacel (sanofi pasteur) approved for use in people age 11 through 64 years.

The provisional recommendations state the following:

- Give a single dose of Tdap to previously unvaccinated adults age 19 years and older.
- Give the Tdap dose regardless of the interval since the person last received a tetanus or diphtheria toxoid-containing vaccine.
- Give the Tdap dose to adults for whom it is recommended if no record of previous administration exists.

Do not miss an opportunity to give Tdap to people age 65 years and older. Administer the vaccine you have available—either Boostrix or Adacel. When feasible, give Boostrix to adults age 65 and older. However, either vaccine product provides

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Vaccinate Adults is a publication of the Immunization Action Coalition (IAC) written for health professionals. Content is reviewed by the Centers for Disease Control and Prevention (CDC) for technical accuracy. This publication is supported by CDC Grant No. U38IP000589. The content is solely the responsibility of IAC and does not necessarily represent the official views of CDC. ISSN 1526-1824.

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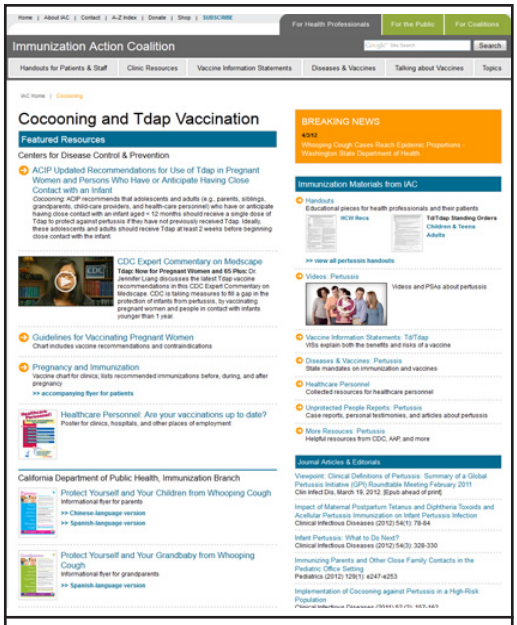
New! "Cocooning and Tdap Vaccination" Web Section on immunize.org

Newborns have the highest rates of death from pertussis (whooping cough) because they are too young to be vaccinated against the disease. A vaccination strategy called "cocooning" involves protecting newborns by vaccinating their close contacts against pertussis with Tdap vaccine. Close contacts include parents, siblings, grandparents, other family members, family friends, child care providers, and healthcare staff. To provide one-step access to information on cocooning, IAC has developed a web section titled Cocooning and Tdap Vaccination.

IAC's new web section brings together resources from multiple sources, including the Centers for Disease Control and Prevention (CDC), state health departments, professional societies, medical journals, and blogs. You'll find helpful vaccination-related resources, such as Advisory Committee on Immunization Practices (ACIP) recommendations, a cocooning handbook for healthcare providers, pertussis videos, selected journal articles, patient handouts, PowerPoint presentations, and much more. You can access the new cocooning web section from the index at the bottom of IAC's home page, "Guide to immunize.org," or by using IAC's search engine.



www.immunize.org/cocooning

PERTUSSIS VIDEOS

Because video is such a compelling and popular medium, IAC is featuring a collection of videos about pertussis and the importance of Tdap vaccination. The pertussis-related videos include videos of pertussis cough in infants and children; educational information for healthcare professionals from expert commentators; personal testimonies from parents who have suffered the tragic loss of their babies to pertussis; recent broadcast news coverage; and public service announcements about the importance of Tdap vaccination for the close contacts of infants. The featured videos are from the following organizations: California Immunization Coalition's Shot-by-Shot website, CDC, March of Dimes, Medscape, Michigan Department of Community Health, PKIDs, and Texas Department of State Health Services.

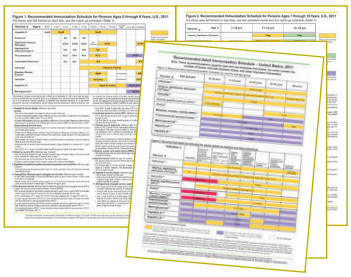
JOURNAL ARTICLES AND BLOGS

Be sure to check out IAC's selection of key medical journal articles on cocooning, as well as two timely blog postings. One post (PKIDs.org), which covers the diagnosis of pertussis, is written by James Cherry, MD, MSc, Distinguished Professor of Pediatrics, David Geffen School of Medicine at UCLA. The second blog, Seattle Mama Doc, is written by Wendy Sue Swanson, MD. It offers an email message template for parents to send to family and friends on the importance of getting a Tdap vaccination well ahead of visiting their new infant.

We also suggest you subscribe to our weekly email news service, *IAC Express*. Once you complete the sign-up form at www.immunize.org/subscribe, you'll start receiving email announcements about important developments related to immunization.

Visit the Immunization Action Coalition's website often! www.immunize.org

New Laminated adult and child immunization schedules Order one of each for every exam room



Here are the ACIP/AAFP/ACP/ACOG/ACNM-approved schedule for adults and the ACIP/AAP/AAFP-approved immunization schedule for people ages 0 through 18 years. Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading. The cost is $7.50 for each schedule and only $5.50 each for five or more copies.

To order, visit www.immunize.org/shop, or use the order form on page 12.
For 20 or more copies, contact us for discount pricing: admininfo@immunize.org

Wallet-sized immunization record cards for all ages: For adults, children & teens, and for a lifetime!

Now you can give any patient a permanent vaccination record card designed specifically for their age group: adult, child & teen, or lifetime. These brightly colored cards are printed on durable rip-, smudge-, and water-proof paper. To view the cards or for more details, go to www.immunize.org/shop and click on the images.

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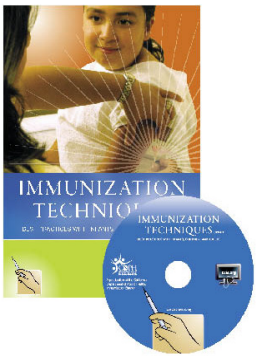
To receive sample cards, contact us: admininfo@immunize.org

"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. Make sure your healthcare setting has the 2010 edition!

The cost is $17 each for 1–9 copies; $10.25 each for 10–24 copies; $7 each for 25–49 copies; $5.75 each for 50–99 copies.

To order, visit www.immunize.org/shop, or use the order form on page 12.
For 100 or more copies, contact us for discount pricing: admininfo@immunize.org

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

Vaccine Highlights

Recommendations, schedules, and more

CDC vaccine news

On March 21, CDC posted "ACIP Provisional Tdap Recommendations." They reflect ACIP's February 22 vote to extend the age for Tdap vaccination to include all adults age 65 years and older. For details, see "Ask the Experts" on page 1.

To access the provisional recommendations, go to www.cdc.gov/vaccines/recs/provisional/Tdap-feb2012.htm. ACIP provisional recommendations become CDC recommendations once they are accepted by the director of CDC and the Secretary of Health and Human Services and are published in *MMWR*.

On Feb. 3, CDC published "Recommended Adult Immunization Schedule—U.S., 2012." Issued jointly by ACIP, AAFP, ACOG, ACP, and ACNM, it is available at www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm. This issue of *Vaccinate Adults* includes a reformatted version on pages 6–8.

IAC has developed laminated 6-page color versions of both 2012 immunization schedules, the child and teen as well as the adult. They are available for purchase. For more information, visit www.immunize.org/shop/laminated-schedules.asp.

VIS news

On April 20, CDC released an updated edition of the VIS for MMR vaccine. To access it and its 9 new translations, go to www.immunize.org/vis/vis_mmr.asp.

On Feb. 22, CDC released an updated VIS for Gardasil quadrivalent human papillomavirus (HPV; Merck) vaccine. (The VIS for Cervarix bivalent HPV vaccine [GSK] has not been updated.) To access the VIS for Gardasil vaccine and its 13 new translations, go to www.immunize.org/vis/vis_hpv_gardasil.asp.

Vaccine Information Statements (VISs) are available in several languages. Visit www.immunize.org/vis

On Feb. 2, CDC released a revised interim edition of the VIS for hepatitis B vaccine. The revision includes the new ACIP recommendations for vaccinating adults with diabetes. To access it and its 12 new translations, go to www.immunize.org/vis/vis_hepatitis_b.asp.

FDA vaccine news

On Feb. 29, FDA issued a press release announcing that it has approved the first quadrivalent vaccine to prevent seasonal influenza. A live attenuated vaccine, FluMist Quadrivalent (manufactured by MedImmune) contains four strains of the influenza virus— two influenza A strains and two influenza B strains. It is approved for use in people age 2 through 49 years. The FDA press release is available at www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm294057.htm.

Dr. William L. Atkinson, Immunization Legend, Retiring . . . *continued from page 1*

vaccine rather than one. Since then, Bill has made major contributions to numerous ACIP recommendations. In 1998, he assumed the lead in writing ACIP's *General Recommendations on Immunization,* a critically important reference and teaching guide on immunization techniques and concepts. Bill continued to be an author on subsequent editions, including the 2011 version. Over the past 15 years, Bill has served as a member of almost every ACIP work group, providing useful input based on his extensive interaction with front-line clinicians.

Bill has been a trailblazer throughout his career:

- In 1995, he pioneered the use of satellite and broadcast technology to bring immunization education to thousands of immunization providers simultaneously. Since 1995, he produced, wrote, and/or appeared in more than 100 broadcasts and webcasts that were viewed by more than 300,000 healthcare providers.
- In 1995, Bill conceived, developed, and took the lead in writing one of CDC's most widely sought-after books, *Epidemiology and Prevention of Vaccine-Preventable Diseases* (aka the Pink Book). The book is now in its twelfth edition, and more than 400,000 copies have been distributed.
- In 1995, Bill developed nipinfo@cdc.gov, one of the first and most long-lived program-specific email services at CDC. NIPINFO, which provides access to CDC immunization experts, is run by Bill and other staff of CDC's Immunization Services Division. Since 1995, NIPINFO has responded to between 5,000 and 10,000 queries per year.

Bill's talent as a speaker is legendary within the immunization community. He is in constant demand for live presentations. During his tenure at CDC, he gave more than 600 invited lectures and taught more than 100 two-day training courses across the United States, addressing more than 150,000 attendees.

The recipient of numerous awards, Bill was the first recipient of CDC's highest immunization honor, the Phil Horne Award, which is given to recognize NCIRD staff members who have demonstrated high ideals, innovation, and commitment to immunization practices, and whose accomplishments and work performance have had a significant impact on achieving NCIRD's mission. He was also the 2001 recipient of the Bill Watson Medal of Excellence, the highest award given to a CDC employee.

Throughout his career, Bill has used his creativity, dynamic personality, and exceptional teaching abilities to the benefit of the immunization community. His numerous accomplishments serve as an inspiration to all of us.

Deborah L. Wexler, MD, executive director of the Immunization Action Coalition (IAC), recalled the first time she heard Bill speak at an immunization conference. "He was breathtaking. His style was completely engaging, entertaining, and energizing. His content was factual and practical. I'd never heard anyone give a presentation about immunization as dynamically as Bill did. Nor had I ever met anyone with the depth and breadth of knowledge about immunization that Bill had.

"Bill's contributions to IAC have been immeasurable. From writing his first "Ask the Experts"column for IAC in 1995 to reviewing IAC's educational materials, he has been an enormously valued partner to IAC for nearly 20 years. He was IAC's CDC project officer from 2000 to 2004, a time of critical expansion for IAC. Since then, he has consistently helped to clarify and sharpen our work. As IAC's founder, I am so appreciative of all that Bill has contributed."

All of us at IAC are grateful to Dr. Atkinson for his enduring leadership and dedication. We wish him great happiness in retirement and hope the immunization community can continue to engage his boundless talents!

CDC's "Ask the Experts" team answers your immunization questions


Andrew T. Kroger, MD, MPH


Donna L. Weaver, RN, MN


Iyabode Akinsanya-Beysolow, MD, MPH


William L. Atkinson, MD, MPH

protection and is considered valid for use in people in this age group.

Is there an upper age limit for Tdap administration? For example, should I vaccinate an 85-year-old?

There is no upper age limit for Tdap vaccination. A one-time dose of Tdap is recommended for all adults.

If HPV vaccine is given subcutaneously (SC) instead of intramuscularly (IM), does the dose need to be repeated?

Yes. No data exist on the efficacy or safety of HPV vaccine given by the subcutaneous route. All data on efficacy and duration of protection are based on a 3-dose series given on the approved schedule and administered by the intramuscular route. In the absence of data on subcutaneous administration, CDC and the manufacturers recommend that a dose of HPV vaccine given by any route other than intramuscular be repeated. There is no minimum interval between the invalid (subcutaneous) dose and the repeat dose.

Editor's note: The question above is identical to a question that appeared in "Ask the Experts" in the February 2012 issue of Vaccinate Adults. *The answer, however, is different. The answer given in February generated significant discussion, which led CDC experts to modify the answer.*

Which adults need to receive PPSV prior to age 65 years?

PPSV is recommended for adults age 19 through 64 years who currently smoke cigarettes; reside in nursing homes or long-term care facilities; have chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver disease (including cirrhosis); alcoholism; cochlear implants; cerebrospinal fluid leaks; immunocompromising conditions; and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); asymptomatic or symptomatic HIV (vaccinate as soon as possible after diagnosis). Public health authorities may consider recommending PPSV for American Indians/Alaska Natives who live in areas where the risk for invasive pneumococcal disease is increased. Please see IAC's "Pneumococcal Polysaccharide Vaccine: CDC answers your questions" at www.immunize.org/catg.d/p2015.pdf.

Editor's note: The next Q&A explains which adults need a second dose of PPSV.

Which adults should receive a second dose of PPSV?

One-time revaccination 5 years after the first dose is recommended for people age 19 through 64 years who have functional or anatomic asplenia (including persons with sickle cell disease or splenectomy patients); chronic renal failure (including dialysis patients) or nephrotic syndrome; are immunocompromised, including those with HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy; are receiving immunosuppressive therapy (including long-term systemic corticosteroids or radiation therapy); or who have received an organ or bone marrow transplant.

Adults who receive their first PPSV at or after age 65 years should receive only a single dose, regardless of their health status. Please see IAC's "Pneumococcal Polysaccharide Vaccine: CDC answers your questions" at www.immunize.org/catg.d/p2015.pdf.

PCV13 is now licensed for use in adults, but I don't see anything about it in the 2012 adult immunization schedule. How should it be used?

FDA licensed PCV13 (Prevnar13; Pfizer) for adults age 50 years and older in December 2011. At its February 2012 meeting, ACIP reviewed the evidence for the use of PCV13 in adults but did not vote on recommendations for its use in adults. As always, physicians can use their clinical judgment and use FDA-licensed vaccines if they would like to do so.

What are the minimum intervals for giving the 3-dose series of Twinrix (hepatitis A-hepatitis B vaccine; GSK)?

Minimum intervals for Twinrix are 4 weeks between dose #1 and dose #2, and 5 months between dose #2 and dose #3.

When reconstituting a vaccine with the manufacturer-supplied diluent, should the clinic nurse administer exactly 0.5 mL and then discard the rest?

No. The nurse should administer the entire volume supplied. The package inserts include this information.

Should we fill out a report with the Vaccine Adverse Event Reporting System (VAERS) if a patient faints after getting a vaccination, even if no injury or complication resulted?

Yes. VAERS looks for trends, so such information is helpful. To find out about VAERS and the kinds of events you should report to the system, visit vaers.hhs.gov/index.

Should a healthcare worker who has just received a dose of a live virus vaccine (varicella, MMR, LAIV, yellow fever) stay away from work for a certain number of days?

No. Healthcare workers should not refrain from working after receiving live virus vaccines or any other vaccine.

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.

Recommended Adult Immunization Schedule – United States, 2012

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

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

Vaccine ▼ / Age group ▶	19–21 years	22–26 years	27–49 years	50–59 years	60–64 years	≥65 years
Influenza[2,*]	1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap)[3,*]	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					Td/Tdap[3]
Varicella[4,*]	2 doses					
Human papillomavirus (HPV)[5,*] Females	3 doses					
Human papillomavirus (HPV)[5,*] Males	3 doses					
Zoster[6]					1 dose	
Measles, mumps, rubella (MMR)[7,*]	1 or 2 doses				1 dose	
Pneumococcal (polysaccharide)[8,9]	1 or 2 doses					1 dose
Meningococcal[10,*]	1 or more doses					
Hepatitis A[11,*]	2 doses					
Hepatitis B[12,*]	3 doses					

*Covered by the Vaccine Injury Compensation Program.

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

Vaccine ▼ / Indication ▶	Pregnancy	Immunocompromising conditions (excluding human immunodeficiency virus [HIV])[4,6,7,14]	HIV infection[4,7,13,14] CD4+ T lymphocyte count <200 cells/μL	HIV infection[4,7,13,14] CD4+ T lymphocyte count ≥200 cells/μL	Men who have sex with men (MSM)	Heart disease, chronic lung disease, chronic alcoholism	Asplenia[13] (including elective splenectomy and persistent complement component deficiencies)	Chronic liver disease	Diabetes, kidney failure, end-stage renal disease, receipt of hemodialysis	Healthcare personnel
Influenza[2,*]	1 dose TIV annually				1 dose TIV or LAIV annually	1 dose TIV annually				1 dose TIV or LAIV annually
Tetanus, diphtheria, pertussis (Td/Tdap)[3,*]	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs									
Varicella[4,*]	Contraindicated			2 doses						
Human papillomavirus (HPV)[5,*] Females		3 doses through age 26 years				3 doses through age 26 years				
Human papillomavirus (HPV)[5,*] Males		3 doses through age 26 years				3 doses through age 21 years				
Zoster[6]	Contraindicated				1 dose					
Measles, mumps, rubella (MMR)[7,*]	Contraindicated			1 or 2 doses						
Pneumococcal (polysaccharide)[8,9]		1 or 2 doses								
Meningococcal[10,*]		1 or more doses								
Hepatitis A[11,*]		2 doses								
Hepatitis B[12,*]		3 doses								

*Covered by the Vaccine Injury Compensation Program.

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection

Tdap recommended for ≥65 if contact with <12 month old child. Either Td or Tdap can be used if no infant contact.

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

No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages19 years and older, as of January 1, 2012. 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/pubs/acip-list.htm).

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

Footnotes

1. Additional Information: Advisory Committee on Immunization Practices (ACIP) vaccine recommendations and additional information are available at www.cdc.gov/vaccines/pubs/acip-list.htm. Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) are available at wwwnc.cdc.gov/travel/page/vaccinations.htm.

2. Influenza vaccination.

- Annual vaccination against influenza is recommended for all persons age 6 months and older.
- Persons age 6 months and older, including pregnant women, can receive the trivalent inactivated vaccine (TIV).
- Healthy, nonpregnant adults younger than age 50 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or TIV. Healthcare personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive TIV rather than LAIV. Other persons should receive TIV.
- The intramuscular or intradermal administered TIV are options for adults age 18–64 years.
- Adults age 65 years and older can receive the standard dose TIV or the high-dose TIV (Fluzone High-Dose).

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

- Give a one-time dose of Tdap to adults younger than age 65 years who have not received Tdap previously or for whom vaccine status is unknown to replace one of the 10-year Td boosters.
- Tdap is specifically recommended for the following persons: 1) pregnant women more than 20 weeks' gestation, 2) adults, regardless of age, who are close contacts of infants younger than age 12 months (e.g., parents, grandparents, or child care providers), and 3) healthcare personnel.
- Tdap can be given regardless of interval since the most recent tetanus or diphtheria-containing vaccine.
- Pregnant women not vaccinated during pregnancy should receive Tdap immediately postpartum.
- Adults age 65 years and older who do not have contact with an infant younger than age 12 months may also receive Tdap.
- Adults with unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series. Tdap should be substituted for a single dose of Td in the vaccination series, with Tdap preferred as the first dose.
- For unvaccinated adults, give the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second.
- If incompletely vaccinated (i.e., less than 3 doses), give remaining doses.

Refer to the ACIP statement for recommendations for giving 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.
- Special consideration for vaccination should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., healthcare personnel and family contacts of persons with immunocompromising conditions) or 2) are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).
- 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 healthcare facility. The second dose should be given 4–8 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 (although for healthcare personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a healthcare provider (for a patient reporting a history of or having an atypical case, a mild case, or both, healthcare providers should seek either an epidemiologic link to a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on diagnosis or verification of herpes zoster by a healthcare provider; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

5. Human papillomavirus (HPV) vaccination.

- Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).
- For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years, and for those age 13 through 26 years, if not previously vaccinated.
- For males, HPV4 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years, and for those age 13 through 21 years, if not previously vaccinated. Males age 22 through 26 years may be vaccinated.
- HPV vaccines are not live vaccines and can be given to persons who are immunocompromised as a result of infection (including HIV infection), disease, or medications. Vaccine is recommended for immunocompromised persons through age 26 years who did not get any or all doses when they were younger. The immune response and vaccine efficacy might be less than that in immunocompetent persons.
- Men who have sex with men (MSM) may especially benefit from vaccination to prevent condyloma and anal cancer. HPV4 is recommended for MSM through age 26 years who did not get any or all doses when they were younger.
- Ideally, vaccine should be given before potential exposure to HPV through sexual activity; however, persons who are sexually active should still be vaccinated consistent with age-based recommendations. HPV vaccine can be given to persons with a history of genital warts, abnormal Papanicolaou test, or positive HPV DNA test.
- A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be given 1–2 months after the first dose; the third dose should be given 6 months after the first dose (at least 24 weeks after the first dose).
- Although HPV vaccination is not specifically recommended for healthcare personnel (HCP) based on their occupation, HCP should receive the HPV vaccine if they are in the recommended age group.

6. Zoster vaccination.

- A single dose of zoster vaccine is recommended for adults age 60 years and older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons age 50 years and older, ACIP recommends that vaccination begins at age 60 years.
- Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
- Although zoster vaccination is not specifically recommended for healthcare personnel (HCP), HCP should receive the vaccine if they are in the recommended age group.

7. Measles, mumps, rubella (MMR) vaccination.

- Adults born before 1957 generally are 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, laboratory evidence of immunity to each of the three diseases, or documentation of provider-diagnosed measles or mumps disease. For rubella, documentation of provider-diagnosed disease is not considered acceptable evidence of immunity.
- *Measles component:* A routine second dose of MMR vaccine, given 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 healthcare facility; or 3) plan to travel internationally. Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type from 1963 to 1967 should be revaccinated with 2 doses of MMR vaccine.
- *Mumps component:* A routine second dose of MMR vaccine, given 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 healthcare 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 healthcare 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 healthcare facility.
- *Healthcare personnel born before 1957:* For unvaccinated healthcare personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, healthcare facilities should consider routinely vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

Footnotes (continued)

8. Pneumococcal polysaccharide (PPSV) vaccination.

- Vaccinate all persons with the following indications:
  - age 65 years and older without a history of PPSV vaccination;
  - adults younger than age 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver disease (including cirrhosis); alcoholism; cochlear implants; cerebrospinal fluid leaks; immunocompromising conditions; and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);
  - residents of nursing homes or long-term care facilities; and
  - adults who smoke cigarettes.
- Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.
- When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
- Routine use of PPSV is not recommended for American Indians/Alaska Natives or persons younger than age 65 years unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.

9. Revaccination with PPSV.

- One-time revaccination 5 years after the first dose is recommended for persons ages 19 through 64 years with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions.
- Persons who received PPSV before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses are needed for persons vaccinated with PPSV at or after age 65 years.

10. Meningococcal vaccination.

- Give 2 doses of meningococcal conjugate vaccine quadrivalent (MCV4) at least 2 months apart to adults with functional asplenia or persistent complement component deficiencies.
- HIV-infected persons who are vaccinated should also receive 2 doses.
- Give a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of *Neisseria meningitidis,* military recruits, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.
- First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
- MCV4 is preferred for adults with any of the preceding indications who are age 55 years and younger; meningococcal polysaccharide vaccine (MPSV4) is preferred for adults age 56 years and older.
- Revaccination with MCV4 every 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia, persistent complement component deficiencies).

11. Hepatitis A vaccination.

- Vaccinate any person seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:
  - men who have sex with men and persons who use injection drugs;
  - persons working with HAV-infected primates or with HAV in a research laboratory setting;
  - persons with chronic liver disease and persons who receive clotting factor concentrates;
  - persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and
  - unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival of the adoptee in the United States from a country with high or intermediate endemicity (see footnote 1 for more information on travel recommendations).The first dose of the 2-dose hepatitis A vaccine series should be given as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.
- Single-antigen vaccine formulations should be given in a 2-dose schedule at either 0 and 6–12 months (Havrix), or 0 and 6–18 months (Vaqta). 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 schedule may be used, given on days 0, 7, and 21–30, followed by a booster dose at month 12.

12. Hepatitis B vaccination.

- Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:
  - sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one 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;
  - healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids;
  - persons with diabetes younger than age 60 years as soon as feasible after diagnosis; persons with diabetes who are age 60 years or older at the discretion of the treating clinician based on increased need for assisted blood glucose monitoring in long-term care facilities, likelihood of acquiring hepatitis B infection, its complications, or chronic sequelae, and 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 persons with chronic HBV infection; clients and staff members of institutions for persons with developmental disabilities; and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and
  - all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; healthcare 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 daycare facilities for persons with developmental disabilities.
- Give 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 given 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, given on days 0, 7, and 21–30, followed by a booster dose at month 12, may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 μg/mL (Recombivax HB) given on a 3-dose schedule or 2 doses of 20 μg/mL (Engerix-B) given simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

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

- 1 dose of Hib vaccine should be considered for persons who have sickle cell disease, leukemia, or HIV infection, or who have anatomic or functional asplenia if they have not previously received Hib vaccine.

14. Immunocompromising conditions.

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

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. Information about filing a claim for vaccine injury is available through the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. – 8:00 p.m. Eastern Time, Monday – Friday, excluding holidays.

Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults[1,*,†]

Vaccine	Contraindications[1]	Precautions[1]
Influenza, injectable trivalent (TIV)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine or to a vaccine component, including egg protein	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome (GBS) within 6 wks of previous influenza vaccination
Influenza, live attenuated (LAIV)[2]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose of any influenza vaccine or to a vaccine component, including egg protein • Immune suppression • Certain chronic medical conditions such as asthma, diabetes, heart or kidney disease.[3] • Pregnancy	• Moderate or severe acute illness with or without fever • History of GBS within 6 wks of previous influenza vaccination • Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48 hours before vaccination, if possible; avoid use of these antiviral drugs for 14 days after vaccination
Tetanus, diphtheria, pertussis (Tdap) **Tetanus, diphtheria (Td)**	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • **For Tdap only:** 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 DTP, DTaP, or Tdap	• 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 Tdap only:** Progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized
Varicella (Var)[2]	• 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	• 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, if possible; delay resumption of these antiviral drugs for 14 days after vaccination
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever • Pregnancy
Zoster (Zos)	• 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	• Moderate or severe acute illness with or without fever • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination, if possible; avoid use of these antiviral drugs for 14 days after vaccination
Measles, mumps, rubella (MMR)[2]	• 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, long-term immunosuppressive therapy[4] or patients with HIV infection who are severely immunocompromised) • Pregnancy	• Moderate or severe acute illness with or without fever • Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)[5] • History of thrombocytopenia or thrombocytopenic purpura • Need for tuberculin skin testing[6]
Pneumococcal polysaccharide (PPSV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever
Meningococcal: conjugate (MCV4); polysaccharide (MPSV4)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever • Pregnancy
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever

Footnotes

1. 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.
2. LAIV, MMR, and varicella vaccines can be administered on the same day. If not administered on the same day, these live vaccines should be separated by at least 28 days.
3. For details, see CDC. Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010. *MMWR* 2010;59(No. RR-8), available at www.cdc.gov/vaccines/pubs/acip-list.htm.
4. Substantially immunosuppressive steroid dose is considered to be 2 weeks or more of daily receipt of 20 mg (or 2 mg/kg body weight) of prednisone or equivalent.
5. 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]" at www.cdc.gov/vaccines/pubs/acip-list.htm).
6. Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine can 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 CDC. Table 6. Contraindications and Precautions to Commonly Used Vaccines. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices." *MMWR* 2011; 60(No. RR-2):40–41, and from Atkinson W, Wolfe S, Hamborsky J, eds. Appendix A. Epidemiology and Prevention of Vaccine-Preventable Diseases at www.cdc.gov/vaccines/pubs/pinkbook/index.html.

†Regarding latex allergy: some types of prefilled syringes contain natural rubber latex or dry natural latex rubber. Consult the package insert for any vaccine given.

More information on vaccine components, contraindications, and precautions also is available from specific vaccine package inserts and ACIP recommendations for specific vaccines, and is summarized in Atkinson W, Wolfe S, Hamborsky J, eds. Epidemiology and Prevention of Vaccine-Preventable Diseases. 12th ed. Washington, DC: Public Health Foundations, 2011 (www.cdc.gov/vaccines/pubs/pinkbook/index.html).

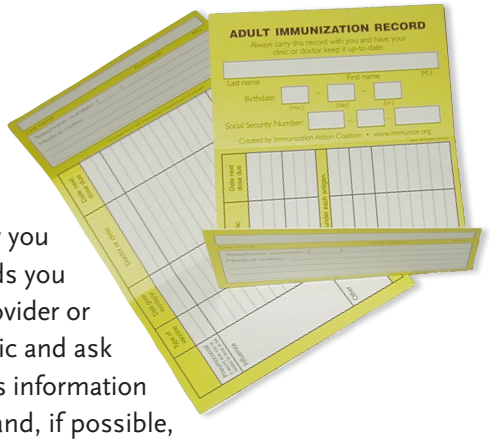
Technical content reviewed by the Centers for Disease Control and Prevention, March 2012.

Tips for Locating Old Immunization Records

Immunization records often are needed for entry into child-care, kindergarten, school, summer camp, and college or other post-high school training, as well as for future employment and international travel. If you are seeing a new healthcare provider, you will need this information to ensure you receive proper medical care. Providers usually count only those vaccine doses that are documented on a written record or available on a local computerized immunization information system. Unfortunately, no national organization maintains this information. So, if immunization records are lost or not available, you or your child may have to repeat vaccine doses. Piecing together old immunization information can be difficult and time-consuming. Here are some ideas that might help you reconstruct this information.

PLACES YOU MAY WANT TO CHECK:

- **All previous healthcare providers** – Don't forget vaccination visits you made to local public health departments or neighborhood clinics. Sometimes when physicians retire or a medical practice changes hands, old patient records are sent to a medical record storage company. You may be able to obtain records directly from the company, but you may have to pay a fee.
- **Your home** – Look through your old papers, including baby books and school or camp forms. If you're an adult, don't forget to ask your mother or father if they still have your childhood records.
- **Schools and colleges or other post-secondary institutions** you or your child attended.
- **Previous employers**, including the military.
- **Local immunization registry** – Most states and some cities have centralized registries of vaccines given by local providers. Although a registry may not have all records, this still can be a great place to check. The Centers for Disease Control and Prevention (CDC) has a listing of registry contacts and websites at www.cdc.gov/vaccines/programs/iis/contacts-state-iis.htm. Or to find the phone number of your local health department, call 800-CDC-INFO (232-4636).



WHEN YOU FIND YOUR RECORDS

Congratulations! Now you should take the records you have found to your provider or local public health clinic and ask them to document this information on an official record, and, if possible, in the state or local immunization registry. Many schools, camps, etc., will accept only this type of "provider-verified" record because this ensures the information has been evaluated and corroborated by a medical professional. But if you're unable to visit your provider or clinic, your next best option is to consolidate this information on an immunization record card, available through your state health department or at www.immunize.org/recordcards. You should document the name of the vaccine, the date it was given, the name of the provider or clinic that administered it, and any additional information found on the record. Be sure to place all your supporting documentation in a safe place where you can find it.

WHAT IF YOU DON'T FIND YOUR RECORDS?

In general, both children and adults will need to repeat some vaccines. Although this is time-consuming and inconvenient, it is not harmful to receive additional vaccine doses. For a few vaccines, blood tests can help determine if you're already immune to certain diseases. Your healthcare provider can help you determine exactly what's best for you.

FOR THE FUTURE...

To avoid hunting for old records and possibly repeating undocumented vaccinations, remember to bring your or your child's immunization record card to EVERY medical appointment. Keep your personal record in your wallet, a vinyl sleeve, or a Ziploc bag. It is also a good idea to keep a back-up copy where you store your important papers. Make sure all vaccines you are given are documented on this card or a supplemental record. Ask that your vaccines also be documented in an immunization registry, whenever possible. Remember, you need to rely on YOU to keep these records. This will help you save time, reduce hassles, and be ready to provide your immunization history whenever it's needed in the future!

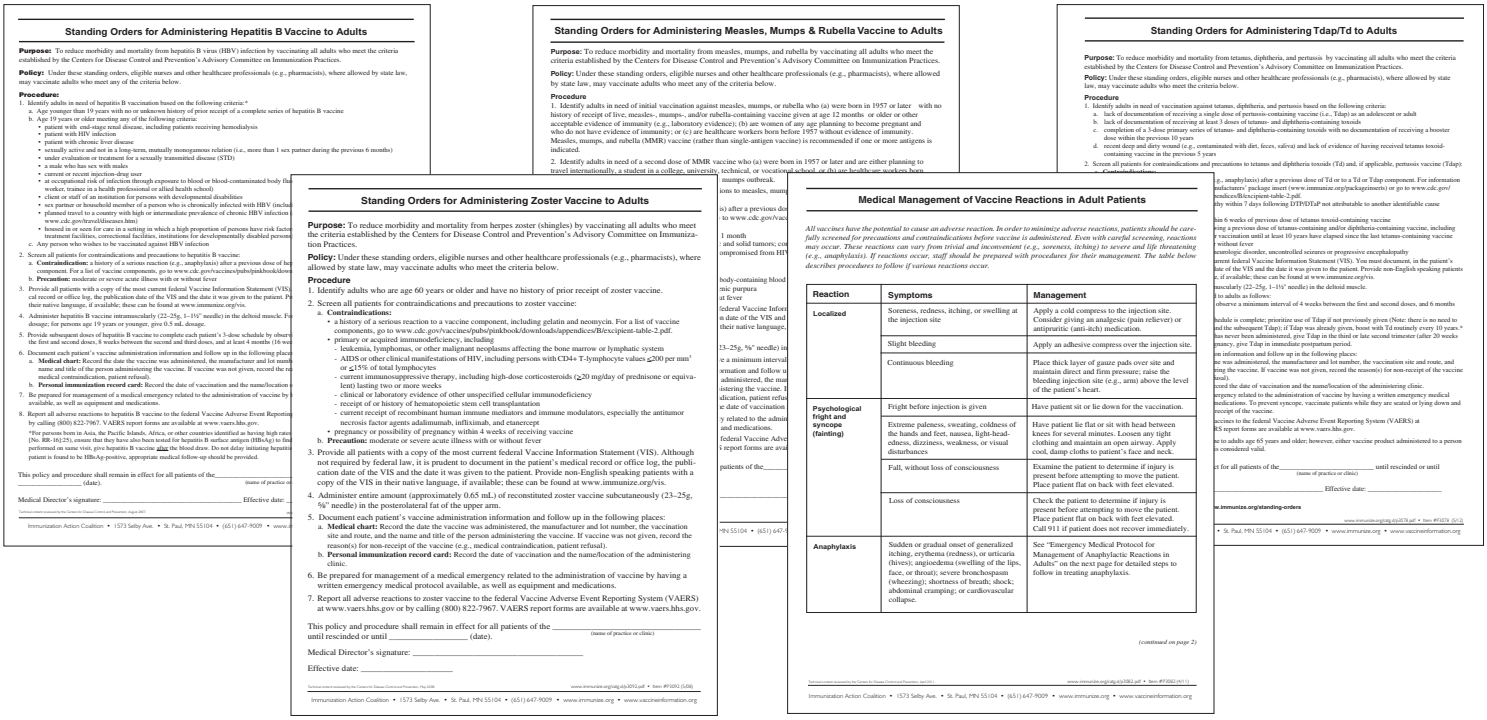
Technical content reviewed by the Centers for Disease Control and Prevention

IMMUNIZATION ACTION COALITION 1573 Selby Avenue • St. Paul, MN 55104 • 651 647-9009 • www.vaccineinformation.org • www.immunize.org

www.immunize.org/catg.d/p3065.pdf • Item #P3065 (4/12)

Standing Orders for Administering Vaccines

Free and CDC-reviewed, they're ready for you to download, copy, and use!



Standing Orders for Administering Hepatitis B Vaccine to Adults

Purpose: To reduce morbidity and mortality from hepatitis B virus (HBV) infection by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy: Under these standing orders, eligible nurses and other healthcare professionals (e.g., pharmacists), where allowed by state law, may vaccinate adults who meet any of the criteria below.

Procedure:

1. Identify adults in need of hepatitis B vaccination based on the following criteria:*
   a. Age younger than 19 years with no or unknown history of prior receipt of a complete series of hepatitis B vaccine
   b. Age 19 years or older meeting any of the following criteria:
   - patient with end-stage renal disease, including patients receiving hemodialysis
   - patient with HIV infection
   - patient with chronic liver disease
   - sexually active and not in a long-term, mutually monogamous relation (i.e., more than 1 sex partner during the previous 6 months)
   - under evaluation or treatment for a sexually transmitted disease (STD)
   - a male who has sex with males
   - current or recent injection-drug user
   - at occupational risk of infection through exposure to blood or blood-contaminated body fluids (e.g., public safety worker, trainee in a health professional or allied health school)
   - client or staff of an institution for persons with developmental disabilities
   - sex partner or household member of a person who is chronically infected with HBV (including infants born to HBV-infected women)
   - planned travel to a country with high or intermediate prevalence of chronic HBV infection (see www.cdc.gov/travel/diseases.htm)
   - housed in or soon for care in a setting in which a high proportion of persons have risk factors for HBV infection (e.g., correctional facilities, institutions for developmentally disabled persons)
   c. Any person who wishes to be vaccinated against HBV infection
2. Screen all patients for contraindications and precautions to hepatitis B vaccine:
   a. **Contraindication:** a history of a serious reaction (e.g., anaphylaxis) after a previous dose of hepatitis B vaccine or to any component. For a list of vaccine components, go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
   b. **Precaution:** moderate or severe acute illness with or without fever
3. Provide all patients with a copy of the most current federal Vaccine Information Statement (VIS). Although not required by federal law, it is prudent to document in the patient's medical record or office log, the publication date of the VIS and the date it was given to the patient. Provide non-English speaking patients with a copy of the VIS in their native language, if available; these can be found at www.immunize.org/vis.
4. Administer hepatitis B vaccine intramuscularly (22–25g, 1–1½" needle) in the deltoid muscle. For dosage; for persons age 19 years or younger, give 0.5 mL dosage.
5. Provide subsequent doses of hepatitis B vaccine to complete each patient's 3-dose schedule by the first and second doses, 8 weeks between the second and third doses, and at least 4 months (16 weeks) after the first dose.
6. Document each patient's vaccine administration information and follow up in the following places:
   a. **Medical chart:** Record the date the vaccine was administered, the manufacturer and lot number, the vaccination site and route, and the name and title of the person administering the vaccine. If vaccine was not given, record the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).
   b. **Personal immunization record card:** Record the date of vaccination and the name/location of the administering clinic.
7. Be prepared for management of a medical emergency related to the administration of vaccine by having a written emergency medical protocol available, as well as equipment and medications.
8. Report all adverse reactions to hepatitis B vaccine to the federal Vaccine Adverse Event Reporting System (VAERS) by calling (800) 822-7967. VAERS report forms are available at www.vaers.hhs.gov.

*For persons born in Asia, the Pacific Islands, Africa, or other countries identified as having high rates of HBV infection [No. RR-16):25), ensure that they have also been tested for hepatitis B surface antigen (HBsAg) to find out if they are infected. If HBsAg testing is performed on same visit, give hepatitis B vaccine after the blood draw. Do not delay initiating hepatitis B vaccination if patient is found to be HBsAg-positive, appropriate medical follow-up should be provided.

This policy and procedure shall remain in effect for all patients of the _____ (name of practice or clinic) until rescinded or until _____ (date).

Medical Director's signature: _____ Effective date: _____

Technical content reviewed by the Centers for Disease Control and Prevention, August 2007

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Standing Orders for Administering Measles, Mumps & Rubella Vaccine to Adults

Purpose: To reduce morbidity and mortality from measles, mumps, and rubella by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy: Under these standing orders, eligible nurses and other healthcare professionals (e.g., pharmacists), where allowed by state law, may vaccinate adults who meet any of the criteria below.

Procedure

1. Identify adults in need of initial vaccination against measles, mumps, or rubella who (a) were born in 1957 or later with no history of receipt of live, measles-, mumps-, and/or rubella-containing vaccine given at age 12 months or older or other acceptable evidence of immunity (e.g., laboratory evidence); (b) are women of any age planning to become pregnant and who do not have evidence of immunity; or (c) are healthcare workers born before 1957 without evidence of immunity. Measles, mumps, and rubella (MMR) vaccine (rather than single-antigen vaccine) is recommended if one or more antigens is indicated.

2. Identify adults in need of a second dose of MMR vaccine who (a) were born in 1957 or later and are either planning to travel internationally, a student in a college, university, technical, or vocational school, or (b) are healthcare workers born

Standing Orders for Administering Tdap/Td to Adults

Purpose: To reduce morbidity and mortality from tetanus, diphtheria, and pertussis by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy: Under these standing orders, eligible nurses and other healthcare professionals (e.g., pharmacists), where allowed by state law, may vaccinate adults who meet the criteria below.

Procedure

1. Identify adults in need of vaccination against tetanus, diphtheria, and pertussis based on the following criteria:
   a. lack of documentation of receiving a single dose of pertussis-containing vaccine (i.e., Tdap) as an adolescent or adult
   b. lack of documentation of receiving at least 3 doses of tetanus- and diphtheria-containing toxoids
   c. completion of a 3-dose primary series of tetanus- and diphtheria-containing toxoids with no documentation of receiving a booster dose within the previous 10 years
   d. recent deep and dirty wound (e.g., contaminated with dirt, feces, saliva) and lack of evidence of having received tetanus toxoid-containing vaccine in the previous 5 years
2. Screen all patients for contraindications and precautions to tetanus and diphtheria toxoids (Td) and, if applicable, pertussis vaccine (Tdap)

g., anaphylaxis) after a previous dose of Td or to a Td or Tdap component. For information
nufacturers' package insert (www.immunize.org/packageinserts) or go to www.cdc.gov/
ppendices/B/excipient-table-2.pdf.
thy within 7 days following DTP/DTaP not attributable to another identifiable cause

hin 6 weeks of previous dose of tetanus toxoid-containing vaccine
ving a previous dose of tetanus-containing and/or diphtheria-containing vaccine, including
r vaccination until at least 10 years have elapsed since the last tetanus-containing vaccine
without fever
hemiplegic disorder, uncontrolled seizures or progressive encephalopathy
arrent federal Vaccine Information Statement (VIS). You must document, in the patient's
date of the VIS and the date it was given to the patient. Provide non-English speaking patients
e, if available; these can be found at www.immunize.org/vis.
uscularly (22–25g, 1–1½" needle) in the deltoid muscle.
d to adults as follows:
observe a minimum interval of 4 weeks between the first and second doses, and 6 months

hedule is complete; prioritize use of Tdap if not previously given (Note: there is no need to
nd the subsequent Tdap); if Tdap was already given, boost with Td routinely every 10 years.*
has never been administered, give Tdap in the third or late second trimester (after 20 weeks
nancy, give Tdap in immediate postpartum period.
on information and follow up in the following places:
e was administered, the manufacturer and lot number, the vaccination site and route, and
ring the vaccine. If vaccine was not given, record the reason(s) for non-receipt of the vaccine
fusal).
cord the date of vaccination and the name/location of the administering clinic.
ergency related to the administration of vaccine by having a written emergency medical
dications. To prevent syncope, vaccinate patients while they are seated or lying down and
receipt of the vaccine.
ccines to the federal Vaccine Adverse Event Reporting System (VAERS) at
RS report forms are available at www.vaers.hhs.gov.
e to adults age 65 years and older; however, either vaccine product administered to a person
s considered valid.

ct for all patients of the _____ (name of practice or clinic) until rescinded or until
_____ Effective date: _____

w.immunize.org/standing-orders

www.immunize.org/catg.d/p3078.pdf • Item #P3078 (5/12)

• St. Paul, MN 55104 • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org

Standing Orders for Administering Zoster Vaccine to Adults

Purpose: To reduce morbidity and mortality from herpes zoster (shingles) by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy: Under these standing orders, eligible nurses and other healthcare professionals (e.g., pharmacists), where allowed by state law, may vaccinate adults who meet the criteria below.

Procedure

1. Identify adults who are age 60 years or older and have no history of prior receipt of zoster vaccine.
2. Screen all patients for contraindications and precautions to zoster vaccine:
   a. **Contraindications:**
   - a history of a serious reaction to a vaccine component, including gelatin and neomycin. For a list of vaccine components, go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
   - primary or acquired immunodeficiency, including
     - leukemia, lymphomas, or other malignant neoplasms affecting the bone marrow or lymphatic system
     - AIDS or other clinical manifestations of HIV, including persons with CD4+ T-lymphocyte values ≤200 per mm³ or ≤15% of total lymphocytes
     - current immunosuppressive therapy, including high-dose corticosteroids (≥20 mg/day of prednisone or equivalent) lasting two or more weeks
     - clinical or laboratory evidence of other unspecified cellular immunodeficiency
     - receipt of or history of hematopoietic stem cell transplantation
     - current receipt of recombinant human immune mediators and immune modulators, especially the antitumor necrosis factor agents adalimumab, infliximab, and etanercept
   - pregnancy or possibility of pregnancy within 4 weeks of receiving vaccine

   b. **Precaution:** moderate or severe acute illness with or without fever
3. Provide all patients with a copy of the most current federal Vaccine Information Statement (VIS). Although not required by federal law, it is prudent to document in the patient's medical record or office log, the publication date of the VIS and the date it was given to the patient. Provide non-English speaking patients with a copy of the VIS in their native language, if available; these can be found at www.immunize.org/vis.
4. Administer entire amount (approximately 0.65 mL) of reconstituted zoster vaccine subcutaneously (23–25g, ⅝" needle) in the posterolateral fat of the upper arm.
5. Document each patient's vaccine administration information and follow up in the following places:
   a. **Medical chart:** Record the date the vaccine was administered, the manufacturer and lot number, the vaccination site and route, and the name and title of the person administering the vaccine. If vaccine was not given, record the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).
   b. **Personal immunization record card:** Record the date of vaccination and the name/location of the administering clinic.
6. Be prepared for management of a medical emergency related to the administration of vaccine by having a written emergency medical protocol available, as well as equipment and medications.
7. Report all adverse reactions to zoster vaccine to the federal Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or by calling (800) 822-7967. VAERS report forms are available at www.vaers.hhs.gov.

This policy and procedure shall remain in effect for all patients of the _____ (name of practice or clinic) until rescinded or until _____ (date).

Medical Director's signature: _____

Effective date: _____

Technical content reviewed by the Centers for Disease Control and Prevention, May 2008. www.immunize.org/catg.d/p3092.pdf • Item #P3092 (5/08)

Immunization Action Coalition • 1573 Selby Ave. • St. Paul, MN 55104 • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org

Medical Management of Vaccine Reactions in Adult Patients

All vaccines have the potential to cause an adverse reaction. In order to minimize adverse reactions, patients should be carefully screened for precautions and contraindications before vaccine is administered. Even with careful screening, reactions may occur. These reactions can vary from trivial and inconvenient (e.g., soreness, itching) to severe and life threatening (e.g., anaphylaxis). If reactions occur, staff should be prepared with procedures for their management. The table below describes procedures to follow if various reactions occur.

Reaction	Symptoms	Management
Localized	Soreness, redness, itching, or swelling at the injection site	Apply a cold compress to the injection site. Consider giving an analgesic (pain reliever) or antipruritic (anti-itch) medication.
	Slight bleeding	Apply an adhesive compress over the injection site.
	Contianous bleeding	Place thick layer of gauze pads over site and maintain direct and firm pressure; raise the bleeding injection site (e.g., arm) above the level of the patient's heart.
Psychological fright and syncope (fainting)	Fright before injection is given	Have patient sit or lie down for the vaccination.
	Extreme paleness, sweating, coldness of the hands and feet, nausea, light-headedness, dizziness, weakness, or visual disturbances	Have patient lie flat or sit with head between knees for several minutes. Loosen any tight clothing and maintain an open airway. Apply cool, damp cloths to patient's face and neck.
	Fall, without loss of consciousness	Examine the patient to determine if injury is present before attempting to move the patient. Place patient flat on back with feet elevated.
	Loss of consciousness	Check the patient to determine if injury is present before attempting to move the patient. Place patient flat on back with feet elevated. Call 911 if patient does not recover immediately.
Anaphylaxis	Sudden or gradual onset of generalized itching, erythema (redness), or urticaria (hives); angioedema (swelling of the lips, face, or throat); severe bronchospasm (wheezing); shortness of breath; shock; abdominal cramping; or cardiovascular collapse.	See "Emergency Medical Protocol for Management of Anaphylactic Reactions in Adults" on the next page for detailed steps to follow in treating anaphylaxis.

(continued on page 2)

Technical content reviewed by the Centers for Disease Control and Prevention, April 2011 www.immunize.org/catg.d/p3082.pdf • Item #P3082 (4/11)

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Here Are Standing Orders for Adult Vaccinations

Click blue text to view standing orders documents

Vaccine Standing Orders	(Date of latest revision)
Hepatitis A (HepA)	(1/11)
Hepatitis B (HepB)	(2/12)
Human papillomavirus (HPV)	(5/12)
Influenza	(8/11)
Measles-mumps-rubella (MMR)	(1/08)
Meningococcal conjugate (MCV4) and Meningococcal polysaccharide (MPSV)	(2/12)

Vaccine Standing Orders	(Date of latest revision)
Pneumococcal polysaccharide (PPSV)	(1/11)
Tetanus-diphtheria toxoids and pertussis (Tdap/Td)	(5/12)
Varicella (VAR; chickenpox)	(7/08)
Zoster (ZOS; shingles)	(5/08)

Medical Management of Vaccine Reactions in Adult Patients	(4/11)

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