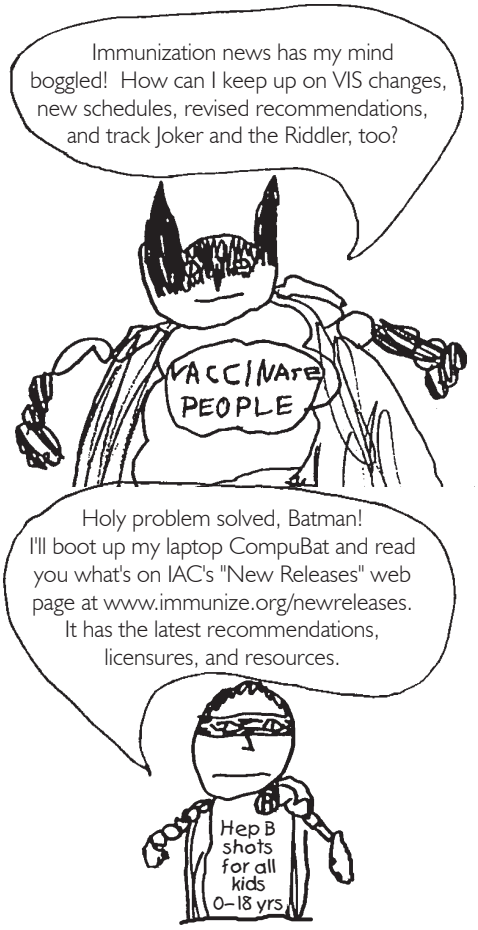
Volume 17 – Number 1 March 2007

NEEDLE TIPS

and the Hepatitis B Coalition News

Published by the Immunization Action Coalition for individuals and organizations concerned about vaccine-preventable diseases



WHAT YOU'LL FIND INSIDE:

Ask the Experts

IAC extends thanks to our experts, William L. Atkinson, MD, MPH, and Andrew T. Kroger, MD, MPH, medical epidemiologists at the National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC); and Joanna J. Buffington, MD, MPH, medical epidemiologist, Division of Viral Hepatitis (DVH), CDC; and Linda A. Moyer, RN, who until her retirement, was an epidemiologist and chief, Education and Training Team, at DVH. Currently an IAC consultant, she maintains close professional ties with CDC.

Immunization questions

What is the Vaccines for Children (VFC) program?

VFC is a program designed to reduce or eliminate vaccine cost as a barrier to childhood vaccination. The program purchases vaccines from manufacturers at federal contract prices and provides them at no cost to participating public and private healthcare providers who administer them to children through age 18 years who are eligible for Medicaid, are uninsured, or are American Indian or Alaska Native. Children whose health insurance benefit plan does not cover a particular VFC vaccine are also able to receive VFC vaccine at a Federally Qualified Health Center (FQHC) or Rural Health Clinic (RHC). If you are interested in becoming a VFC provider, contact your state immunization program (www.immunize.org/coordinators). For more information on the VFC program in general, go to the CDC website at www.cdc.gov/nip/vfc.

If a child isn't covered by health insurance but the parent plans to get insurance, is the child eligible for VFC vaccine?

If the child has no health insurance on the day he or she presents at a medical practice or health department for immunization, the child is VFC eligible

(continued on page 18)

Please fill out our brief survey on page 20.

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)

Needle Tips

Online at www.immunize.org/nt
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www.vaccineinformation.org
www.hepprograms.org
www.izcoalitions.org

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IAC publishes two free email news services *(IAC Express* and *Hep Express)* and three free print periodicals *(Needle Tips, Vaccinate Adults,* and *Vaccinate Women).* To subscribe to any or all of them go to www.immunize.org/subscribe.

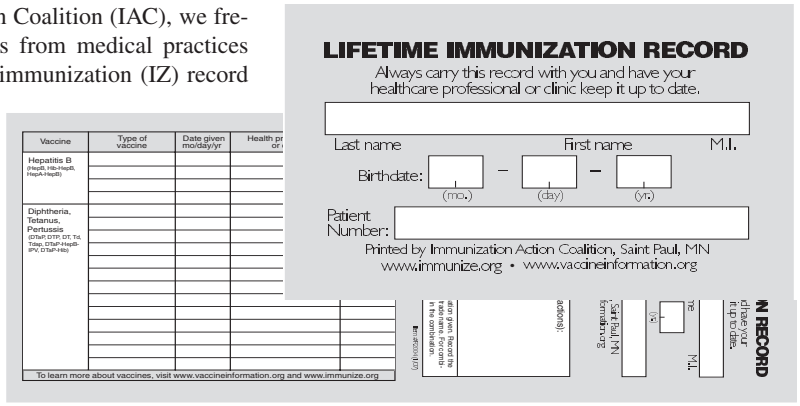
IAC, a 501(c)3 nonprofit organization, publishes practical immunization information for health professionals to help increase immunization rates and prevent disease.

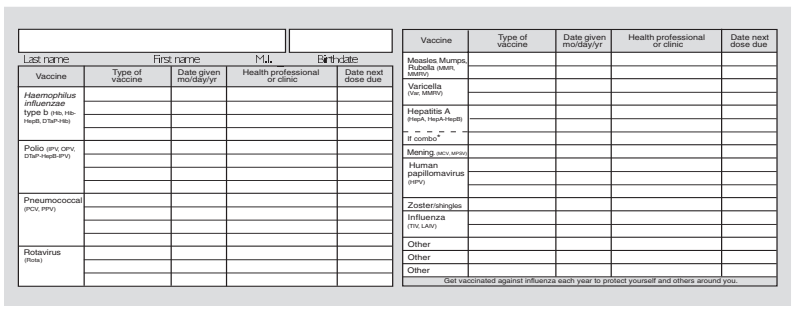
The Hepatitis B Coalition, a program of IAC, promotes hepatitis B vaccination; HBsAg screening for all pregnant women; testing and vaccination for high-risk groups; and education and treatment for people chronically infected with hepatitis B.

IAC now offers three IZ record cards

One for children and teens, one for adults, and one for a lifetime!

At the Immunization Action Coalition (IAC), we frequently receive phone calls from medical practices looking for child and teen immunization (IZ) record cards. IAC refers these callers to their state health department's IZ program and asks callers to call us back if the health department doesn't stock them.





Lately, we've been getting more calls back. Because of this and the number of recently licensed new vaccines, IAC surveyed state health department IZ programs to see if any were likely to buy child and teen or lifetime cards if IAC developed them. Several states responded, and many of them encouraged us to develop cards they could use "as is" or adapt for their use.

A patient-held record card is handy for patients when they enter schools, change healthcare providers, or travel abroad. Though statewide registries are the ultimate electronic record-keeping tool, they are not available for people of all ages, and until they become fully integrated into all healthcare systems, the patient-held card remains an essential resource.

With help from several state health departments and CDC, IAC has now added two new cards to the IZ resources it sells. Formatted to include all recently licensed vaccines, IAC's three cards are printed on durable rip-, smudge-, and water-proof paper. Sized to fit in a wallet when folded, the cards are brightly colored to stand out—the child and teen card is bright orange, and the lifetime card is lime green. The adult card, in sunshine yellow, continues to be popular, with more than 5 million sold.

IAC can customize the cards for your state, organization, or corporation; for example, we can add your state's name or logo or choose a distinctive color for a tailor-made card. Costs for customizing can be significant for orders of less than 50,000, however. For more information, contact IAC at (651) 647-9009 or admin@immunize.org.

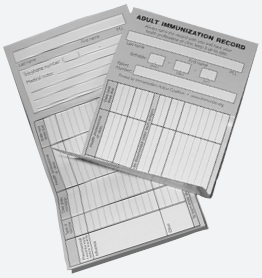
Features of the new cards:

- All recently licensed vaccines: MCV, HPV, Rota, Tdap, zoster
- Due date for next dose of vaccines (boosters or series)
- Patient's name and birth date on both sides (helpful when photocopying)
- Space for patient I.D. number
- Space for "other" vaccinations (e.g., travel)
- Links to IAC's websites for reference

To learn more about IAC's IZ record cards, visit our website at www.immunize.org/shop. If you'd like to request sample cards, send your request to admin@immunize.org.

Note: Several states distribute their own record cards free of charge, and if your state has them, IAC encourages you to use them. If you don't know if they do, contact your state IZ program. For phone numbers, go to www.immunize.org/coordinators.

Immunization record cards available for all ages—For children & teens, for adults, for a lifetime!



Now you can give any patient a permanent vaccination record card designed specifically for their age group: child & teen, adult, or lifetime. The three cards list all vaccines recommended for each age. The cards are printed on durable rip-, smudge-, and water-proof paper. Wallet-sized when folded, the cards are brightly colored to stand out. To view the cards or for more details, go to www.immunize.org/shop and click on the images.

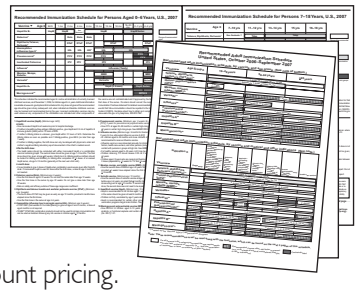
Buy 1 box (250 cards) for $35 (first order of a 250-card box comes with a 30-day, money-back guarantee)

Discounts for larger orders: 2 boxes (500 cards) $65; 3 boxes (750 cards) $90; 4 boxes (1000 cards) $110

To order, visit www.immunize.org/shop, or use the order form on page 23.

(To receive sample cards, email your request to admin@immunize.org.)

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



Here are the ACIP/AAP/AAFP-approved immunization schedule for people ages 0–18 years and the ACIP/AAFP/ACOG/ACP-approved schedule for adults. Both are laminated for heavy-duty use, complete with essential footnotes, and printed in color for easy reading. The cost is $5 for each schedule and only $3 each for five or more copies. For 20 or more copies, contact us for discount pricing.

To order, visit www.immunize.org/shop, or use the order form on page 23.

Do you vaccinate children or adults?

Then your practice needs this training video!

"Immunization Techniques: Safe, Effective, Caring"

developed by California Dept. of Health Services Immunization Branch

Cost is $30 for VHS video; $35 for DVD.

For 20 or more copies, contact us for discount pricing. To order, visit www.immunize.org/shop, or use the order form on page 23.

Questions? Email admin@immunize.org or call (651) 647-9009.

Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information on these pages is current as of February 12, 2007.

The next ACIP meetings

A committee of 15 national experts, the Advisory Committee on Immunization Practices (ACIP) advises CDC on the appropriate use of vaccines. ACIP meets three times a year in Atlanta; meetings are open to the public. The next meetings will be held in 2007, on June 27-28, and Oct. 24-25. For more information about ACIP, including how to pre-register if you wish to attend a meeting, visit www.cdc.gov/nip/acip.

ACIP recommendations

ACIP periodically issues public health recommendations on the use of vaccines. Clinicians who vaccinate should have a current set for reference. Published in the *Morbidity and Mortality Weekly Report (MMWR),* ACIP recommendations are easily available. Here are sources:

- Download them from links on IAC's website: www.immunize.org/acip.
- Download them from CDC's website: www.cdc.gov/nip/publications/acip-list.htm.
- Call the CDC-INFO Contact Center: (800) CDC-INFO [(800) 232-4636].

Recent ACIP recommendations

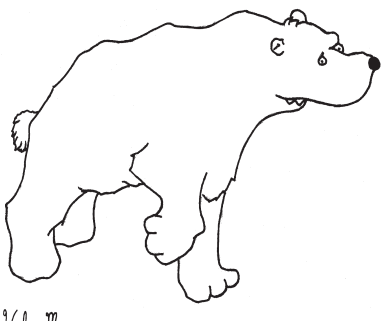
In the past two years, CDC has published more official recommendations than in any previous two-year period. Following is a list of most that have appeared since May 2005, organized in reverse chronological order. Every U.S. health facility that administers any of these vaccines should have copies of the pertinent official U.S. vaccine recommendations available for reference. All can be downloaded from the CDC website at the links provided.

In addition, there are newer vaccine recommendations that are classified as "provisional." Provisional recommendations are those that ACIP has voted on but that are not yet approved by CDC and the Department of Health and Human Services, and not yet published in *MMWR.* A section that lists the most recent provisional recommendations appears on the next page.

Final ACIP Recommendations

- "Recommended Immunization Schedules for Persons Aged 0–18 Years—U.S., 2007. " (1/5/07). Approved by ACIP, AAP, and AAFP. For a copy, go to www.cdc.gov/nip/recs/child-schedule-color-print.pdf.
- "Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccine: Recommendations of the ACIP; and Recommendation of ACIP, Supported by the Healthcare Infection Control Practices Advisory Committee (HICPAC), for Use of Tdap Among Healthcare Personnel" (12/15/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5517.pdf.
- "A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the U.S. Recommendations of the ACIP: Part II: Immunization of Adults" (12/8/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5516.pdf.
- "General Recommendations on Immunization: Recommendations of the ACIP" (12/1/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5515.pdf.
- "Recommended Adult Immunization Schedule—U.S., Oct. 2006–Sept. 2007. (10/13/06), Approved by ACIP, AAFP, ACOG, and ACP. For a copy, www.cdc.gov/nip/recs/adult-schedule.pdf.
- "Prevention of Rotavirus Gastroenteritis Among Infants and Children: Recommendations of the ACIP" (8/11/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5512.pdf.
- "Prevention and Control of Influenza: Recommendations of the ACIP" (7/28/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5510.pdf.
- "Notice to Readers: Updated Recommendations of the ACIP for the Control and Elimination of Mumps" (6/9/06). For a copy, go to www.cdc.gov/mmwr/PDF/wk/mm5522.pdf.
- "Prevention of Hepatitis A Through Active or Passive Immunization: Recommendations of the ACIP" (5/19/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5507.pdf.
- "Preventing Tetanus, Diphtheria, and Pertussis Among Adolescents: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccines: Recommendations of the ACIP" (3/24/06). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5503.pdf.
- "Influenza Vaccination of Healthcare Personnel: Recommendations of the HICPAC and the ACIP" (2/24/06) For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5502.pdf.
- "A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the U.S. Recommendation of the ACIP: Part I: Immunization of Infants, Children, and Adolescents" (12/23/05). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.
- "Prevention and Control of Meningococcal Disease: Recommendations of the ACIP" (5/27/05). For a copy, go to www.cdc.gov/mmwr/PDF/rr/rr5407.pdf.

How do you get fur from a bear?



By car, bus, train, or plane.

Provisional ACIP recommendations:

CDC posts provisional ACIP recommendations at www.cdc.gov/nip/recs/provisional_recs until such time as the final recommendations are published in *MMWR*. At the time of this writing, the following provisional recommendations are available on the CDC website:

- ACIP Provisional Recommendations for the Use of Zoster (Shingles) Vaccine (posted 11/20/06).
- ACIP Provisional Recommendations for the Use of Quadrivalent HPV Vaccine (posted 8/14/06).
- ACIP Provisional Recommendations for Prevention of Varicella (posted 8/2006).
- Prevention of Tetanus, Diphtheria, and Pertussis Among Pregnant Women: Provisional Recommendations of the ACIP for the Use of Tdap Vaccine (8/1/06).

Latest immunization news

On Jan. 5, CDC published "Recommended Immunization Schedules for Persons Aged 0–18 Years—U.S., 2007. This schedule is published every January by CDC and is also approved by AAP, and AAFP. To access it, go to www.cdc.gov/nip/recs/child-schedule-color-print.pdf. It's a good idea to put copies in every exam room. To order laminated copies from IAC, go to www.immunize.org/shop.

On Dec. 15, 2006, CDC published "Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccine: Recommendations of the ACIP and Recommendation of the ACIP, Supported by HICPAC, for Use of Tdap Among Healthcare Personnel," The recommendations are available at www.cdc.gov/mmwr/PDF/rr/rr5517.pdf.

On Dec. 8, 2006, CDC published "A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the U.S.: Part II: Immunization of Adults." The recommendations are available at www.cdc.gov/mmwr/PDF/rr/rr5516.pdf. CDC also developed a new website, Hepatitis B Recommendations for Adults, to promote implementation of the newly published adult hepatitis B recommendations. To access it, go to www.cdc.gov/ncidod/diseases/hepatitis/recs.

On Dec. 1, 2006, CDC published "General Recommendations on Immunization." The recommendations cover the timing and spacing of immunobiologics, contraindications and precautions, vaccine administration, storage, and handling, and much more. These recommendations are available at www.cdc.gov/mmwr/PDF/rr/rr5515.pdf.

On Oct. 25, 2006, ACIP voted to recommend routine vaccination against herpes zoster disease (shingles) for persons age 60 years and older (Zostavax®, Merck). The recommendations for use are provisional at this time. The package insert is available at www.fda.gov/cber/label/zosmer052506LB.pdf.

On Oct. 13, 2006, CDC published "Recommended Adult Immunization Schedule—U.S., Oct. 2006–Sept. 2007." This schedule is published annually and is approved by CDC, AAFP, ACOG, and ACP. To access it, go to www.cdc.gov/nip/recs/adult-schedule.pdf. If you see adult patients in your practice, it's a good idea to put copies of this schedule in every exam room. To order laminated copies, go to www.immunize.org/shop.

Looking for the latest VISs, vaccine recommendations, licensures, and resources?

www.immunize.org/newreleases

www.immunize.org/new

Looking for your state health department's immunization and hepatitis coordinators?

For phone numbers of people to contact at your state (or federal project) health department for help on immunization issues, the Vaccines for Children (VFC) Program, or hepatitis A, B, or C, go to

www.immunize.org/coordinators

Influenza news

On Jan. 5, FDA approved a refrigerated formulation of FluMist® (MedImmune). This cold attenuated influenza vaccine (CAIV-T) is stored in the refrigerator, rather than the freezer. To view the FluMist package insert, go to www.fda.gov/cber/label/inflmed010507LB.pdf.

In Nov. 2006, the National Influenza Vaccine Summit launched a website that offers healthcare professionals, the public, and the media resources intended to encourage and facilitate influenza vaccination into the early months of 2007. To access the new website, go to www.preventinfluenza.org.

On Oct. 5, 2006, FDA licensed FluLaval™ (GlaxoSmithKline), an inactivated influenza vaccine, to immunize adults. To view the package insert, go to www.fda.gov/cber/label/inflidb100506LB.pdf.

Miscellaneous news

The tenth edition of CDC's textbook "Epidemiology and Prevention of Vaccine-Preventable Diseases" (the Pink Book) provides health professionals with comprehensive information on vaccine-preventable diseases and vaccines. It is available for downloading from the CDC website at www.cdc.gov/nip/publications/pink. If you prefer to order a bound copy, go to the Public Health Foundation website, www.phf.org, and search on "Pink Book." The book will be available in mid-March.

Since 2006, the Merck Vaccine Patient Assistance Program provides Merck's adult vaccines at no cost to lower-income adults who qualify. The program is available in the private offices of licensed prescribers (e.g., physicians, nurse practitioners, and physician assistants). To find out more about accessing Merck vaccines for adults, call (800) 293-3881 weekdays from 8 AM–8 PM ET, or visit www.merck.com/merckhelps/vaccines.

In January, MLN Matters, the electronic CMS newsletter of the Medicare Learning Network (MLN), published information on an update to the 2007 Medicare Physician Fee Schedule Database. One of the key points of the update is that beginning on January 1, 2007, Medicare Part B will reimburse providers for the administration of a Part D vaccine (such as the vaccines for shingles, Td, and sometimes Tdap). To access information about reimbursement for administration of vaccine to Medicare recipients, go to www.cms.hhs.gov/MLNMattersArticles/downloads/MM5459.pdf, and read page 3.

Current VIS dates

The use of most Vaccine Information Statements (VISs) is mandated by federal law. Listed below are the dates of the most current VISs. Check your stock of VISs against this list. If you have outdated VISs, print current ones from one of these sources: CDC's website at www.cdc.gov/nip/publications/vis (has VISs in English) or IAC's website at www.immunize.org/vis (has VISs in more than 30 languages).

DTaP/DT/DTP.....7/30/01	PCV..... 9/30/02
hepatitis A.....3/21/06	PPV..... 7/29/97
hepatitis B 7/11/01	polio 1/1/00
Hib 12/16/98	rabies 1/12/06
HPV (H. papillomavirus)...2/2/07	rotavirus 4/12/06
influenza (LAIV) ..6/30/06	shingles..... 9/11/06
influenza (TIV).....6/30/06	Td 6/10/94
Japan. enceph. ..5/11/05	Tdap 7/12/06
meningococcal.. 11/16/06	typhoid 5/19/04
MMR.....1/15/03	varicella 1/10/07
yellow fever.....11/9/04	

Healthcare Worker Vaccination Recommendations

Vaccine	Recommendations in brief
Hepatitis B	Give 3-dose series (dose #1 now, #2 in 1 month, #3 approximately 5 months after #2). Give IM. Obtain anti-HBs serologic testing 1–2 months after dose #3.
Influenza	Give 1 dose of TIV or LAIV annually. Give IM or intranasally, respectively.
MMR	For persons born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. Give SC.
Varicella (chickenpox)	For persons who have no serologic proof of immunity, prior vaccination, or history of varicella disease, give 2 doses of varicella vaccine, 4 weeks apart. Give SC.
Tetanus, diphtheria, pertussis	All adults need a Td booster dose every 10 years, following the completion of the primary 3-dose series. All HCWs younger than 65 years with direct patient contact should receive a 1-time dose of Tdap. Give IM.
Meningococcal	Give 1 dose to microbiologists who are routinely exposed to isolates of *N. meningitidis.*

Hepatitis A, typhoid, and polio vaccines are not routinely recommended for HCWs who may have on-the-job exposure to fecal material.

Hepatitis B

Healthcare workers (HCWs) who perform tasks that may involve exposure to blood or body fluids should receive a 3-dose series of hepatitis B vaccine at 0-, 1-, and 6-month intervals. Test for hepatitis B surface antibody (anti-HBs) to document immunity 1–2 months after dose #3.

- If anti-HBs is at least 10 mIU/mL (positive), the patient is immune. No further serologic testing or vaccination is recommended.
- If anti-HBs is less than 10 mIU/mL (negative), the patient is unprotected from hepatitis B virus (HBV) infection; revaccinate with a 3-dose series. Retest anti-HBs 1–2 months after dose #3.
  - If anti-HBs is positive, the patient is immune. No further testing or vaccination is recommended.
  - If anti-HBs is negative following 6 doses of vaccine, the patient is a non-responder.

For non-responders: Persons who are non-responders should be considered susceptible to HBV and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to hepatitis B surface antigen (HBsAg)-positive blood.[1] It is also possible that non-responders are persons who are HBsAg positive. Testing should be considered. Persons found to be HBsAg positive should be counseled and medically evaluated.

Note: Anti-HBs testing is not recommended routinely for previously vaccinated HCWs who were not tested 1–2 months after their original vaccine series. These HCWs should be tested for anti-HBs when they have an exposure to blood or body fluids. If found to be anti-HBs negative, the HCW should be treated as if susceptible.[1]

Influenza

Trivalent (Inactivated) Influenza Vaccine (TIV): May give to any HCW.
Live, Attenuated Influenza Vaccine (LAIV): May give to any non-pregnant healthy HCW age 49 years and younger.

1. All HCWs should receive annual influenza vaccine. Groups that should be targeted include all personnel (including volunteers) in hospitals, outpatient, and home-health settings who have any patient contact.
2. TIV is preferred over LAIV for HCWs who are in close contact with severely immunosuppressed persons (e.g., stem cell transplant patients) when patients require a protective environment.

Measles, Mumps, Rubella (MMR)

Persons who work in medical facilities should be immune to measles, mumps, and rubella.

- Persons born in 1957 or later can be considered immune to measles, mumps, or rubella only if they have documentation of (a) physician-diagnosed measles or mumps disease; or (b) laboratory evidence of measles, mumps, or rubella immunity (persons who have an "indeterminate" or "equivocal" level of immunity upon testing should be considered nonimmune); or (c) appropriate vaccination against measles, mumps, and rubella (i.e., administration on or after the first birthday of two doses of live measles and mumps vaccines separated by 28 days or more, and at least one dose of live rubella vaccine).
- Although birth before 1957 generally is considered acceptable evidence of measles, mumps, and rubella immunity, healthcare facilities should consider recommending a dose of MMR vaccine to unvaccinated HCWs born before 1957 who are in either of the following categories: (a) do not have a history of physician-diagnosed measles and mumps disease or laboratory evidence of measles and mumps immunity and (b) do not have laboratory evidence of rubella immunity.

Varicella

It is recommended that all HCWs be immune to varicella. Evidence of immunity in HCWs includes documentation of 2 doses of varicella vaccine given at least 28 days apart, history of varicella or herpes zoster based on physician diagnosis, laboratory evidence of immunity, or laboratory confirmation of disease.

Tetanus/Diphtheria/Pertussis (Td/Tdap)

All adults who have completed a 3-dose primary series of a tetanus/diphtheria-containing product (DTP, DTaP, DT, Td) should receive Td boosters every 10 years. As soon as feasible, HCWs younger than age 65 years with direct patient contact should be given a 1-time dose of Tdap.

Meningococcal

Vaccination is recommended for microbiologists who are routinely exposed to isolates of *N. meningitidis.* Use of MCV4 is preferred among persons ages 11–55 years; give IM. If MCV4 is unavailable, MPSV is an acceptable alternative for persons ages 11–55 years. Use of MPSV is recommended for persons older than age 55; give SC.

References

1. See Table 3 in "Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis," *MMWR*, June 29, 2001, Vol. 50, RR-11.

For additional specific ACIP recommendations, refer to the official ACIP statements published in *MMWR.* To obtain copies, visit CDC's website at www.cdc.gov/nip/publications/ACIP-list.htm; or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip.

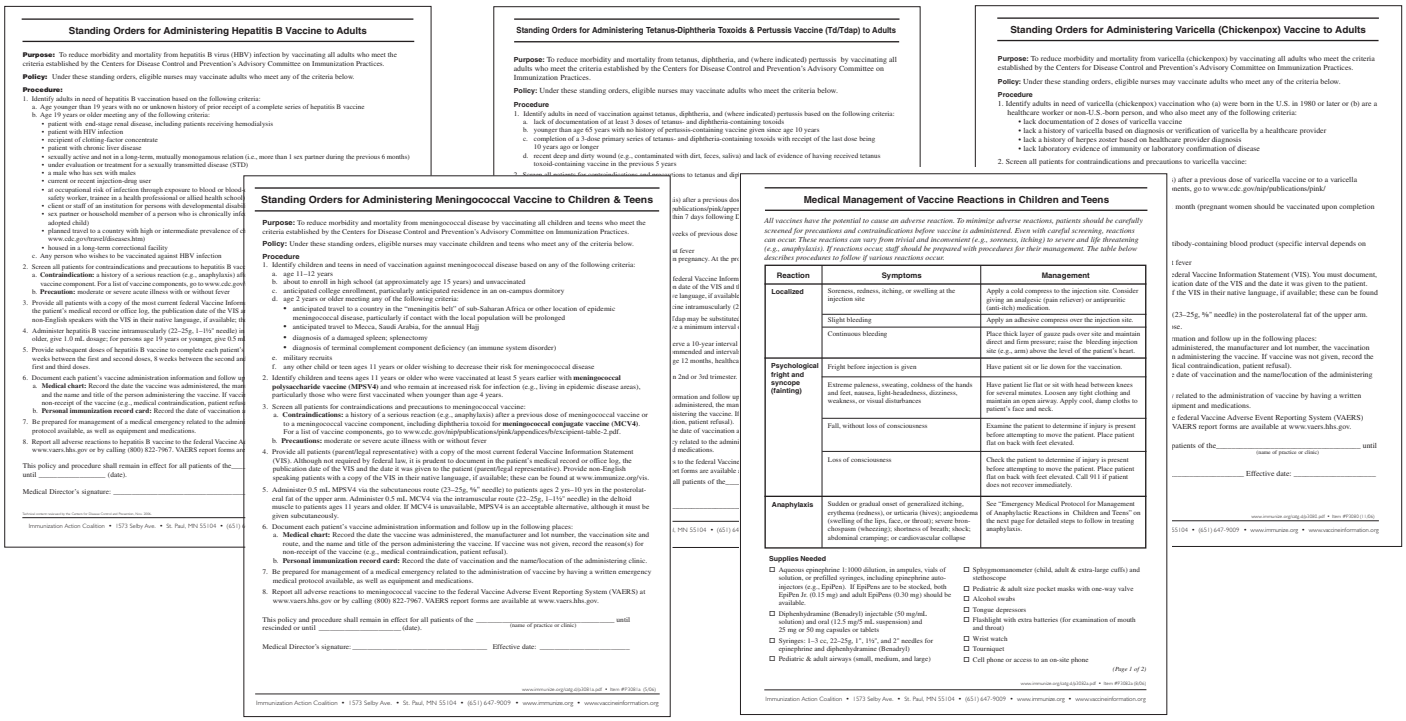
Adapted with thanks from the Michigan Department of Community Health

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

www.immunize.org/catg.d/p2017.pdf • Item #P2017 (1/07)

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 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
      - recipient of clotting-factor concentrate
      - 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
      - an occupational risk of infection through exposure to blood or blood-
      - safety worker, trainee in a health professional or allied health school
      - client or staff of an institution for persons with developmental disabi
      - sex partner or household member of a person who is chronically infe
      - adopted child)
      - planned travel to a country with high or intermediate prevalence of
      - www.cdc.gov/travel/diseases.htm)
      - housed in a long-term correctional facility
   c. Any person who wishes to be vaccinated against HBV infection
2. Screen all patients for contraindications and precautions to hepatitis B vac
   a. **Contraindication:** a history of a serious reaction (e.g., anaphylaxis) aft
      vaccine component. For a list of vaccine components, go to www.cdc.gov
   b. **Precaution:** moderate or severe acute illness with or without fever
3. Provide all patients with a copy of the most current federal Vaccine Inform
   the patient's medical record or office log, the publication date of the VIS a
   non-English speakers with the VIS in their native language, if available; th
4. Administer hepatitis B vaccine intramuscularly (22–25g, 1–1½" needle) to
   older, give 1.0 mL dosage; for persons age 19 years or younger, give 0.5 m
5. Provide subsequent doses of hepatitis B vaccine to complete each patient's
   weeks between the first and second doses, 8 weeks between the second an
   first and third doses.
6. Document each patient's vaccine administration information and follow up
   a. **Medical chart:** Record the date the vaccine was administered, the manu
      and the name and title of the person administering the vaccine. If vacci
      non-receipt of the vaccine (e.g., medical contraindication, patient refus
   b. **Personal immunization record card:** Record the date of vaccination a
7. Be prepared for management of a medical emergency related to the admini
   protocol available, as well as equipment and medications.
8. Report all adverse reactions to hepatitis B vaccine to the federal Vaccine A
   www.vaers.hhs.gov or by calling (800) 822-7967. VAERS report forms are

This policy and procedure shall remain in effect for all patients of the____ until _____ (date).

Medical Director's signature: _____

Technical content reviewed by the Centers for Disease Control and Prevention. Nov. 2006

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Standing Orders for Administering Tetanus-Diphtheria Toxoids & Pertussis Vaccine (Td/Tdap) to Adults

Purpose: To reduce morbidity and mortality from tetanus, diphtheria, and (where indicated) 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 may vaccinate adults who meet the criteria below.

Procedure

1. Identify adults in need of vaccination against tetanus, diphtheria, and (where indicated) pertussis based on the following criteria:
   a. lack of documentation of at least 3 doses of tetanus- and diphtheria-containing toxoids
   b. younger than age 65 years with no history of pertussis-containing vaccine given since age 10 years
   c. completion of a 3-dose primary series of tetanus- and diphtheria-containing toxoids with receipt of the last dose being 10 years ago or longer
   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 dip

Standing Orders for Administering Varicella (Chickenpox) Vaccine to Adults

Purpose: To reduce morbidity and mortality from varicella (chickenpox) 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 may vaccinate adults who meet any of the criteria below.

Procedure

1. Identify adults in need of varicella (chickenpox) vaccination who (a) were born in the U.S. in 1980 or later or (b) are a healthcare worker or non-U.S.-born person, and who also meet any of the following criteria:
   - lack documentation of 2 doses of varicella vaccine
   - lack a history of varicella based on diagnosis or verification of varicella by a healthcare provider
   - lack a history of herpes zoster based on healthcare provider diagnosis
   - lack laboratory evidence of immunity or laboratory confirmation of disease
2. Screen all patients for contraindications and precautions to varicella vaccine:

i) after a previous dose of varicella vaccine or to a varicella
ments, go to www.cdc.gov/nip/publications/pink/

month (pregnant women should be vaccinated upon completion

tibody-containing blood product (specific interval depends on

t fever
deral Vaccine Information Statement (VIS). You must document,
ication date of the VIS and the date it was given to the patient.
f the VIS in their native language, if available; these can be found

(23–25g, ⅝" needle) in the posterolateral fat of the upper arm.
se.
rmation and follow up in the following places:
administered, the manufacturer and lot number, the vaccination
n administering the vaccine. If vaccine was not given, record the
lical contraindication, patient refusal).
e date of vaccination and the name/location of the administering

r related to the administration of vaccine by having a written
ipment and medications.
e federal Vaccine Adverse Event Reporting System (VAERS)
VAERS report forms are available at www.vaers.hhs.gov.

patients of the_____ until
(name of practice or clinic)
_____. Effective date: _____

www.immunize.org/catg.d/p3082.pdf • Item #P3082a (1/06)

55104 • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org

Standing Orders for Administering Meningococcal Vaccine to Children & Teens

Purpose: To reduce morbidity and mortality from meningococcal disease by vaccinating all children and teens 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 may vaccinate children and teens who meet any of the criteria below.

Procedure

1. Identify children and teens in need of vaccination against meningococcal disease based on any of the following criteria:
   a. age 11–12 years
   b. about to enroll in high school (at approximately age 15 years) and unvaccinated
   c. anticipated college enrollment, particularly anticipated residence in an on-campus dormitory
   d. age 2 years or older meeting any of the following criteria:
      - anticipated travel to a country in the "meningitis belt" of sub-Saharan Africa or other location of epidemic meningococcal disease, particularly if contact with the local population will be prolonged
      - anticipated travel to Mecca, Saudi Arabia, for the annual Hajj
      - diagnosis of a damaged spleen; splenectomy
      - diagnosis of terminal complement component deficiency (an immune system disorder)
   e. military recruits
   f. any other child or teen ages 11 years or older wishing to decrease their risk for meningococcal disease
2. Identify children and teens ages 11 years or older who were vaccinated at least 5 years earlier with **meningococcal polysaccharide vaccine (MPSV4)** and who remain at increased risk for infection (e.g., living in epidemic disease areas), particularly those who were first vaccinated when younger than age 4 years.
3. Screen all patients for contraindications and precautions to meningococcal vaccine:
   a. **Contraindications:** a history of a serious reaction (e.g., anaphylaxis) after a previous dose of meningococcal vaccine or to a meningococcal vaccine component, including diphtheria toxoid for **meningococcal conjugate vaccine (MCV4)**. For a list of vaccine components, go to www.cdc.gov/nip/publications/pink/appendices/b/excipient-table-2.pdf.
   b. **Precautions:** moderate or severe acute illness with or without fever
4. Provide all patients (parent/legal representative) 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 (parent/legal representative). 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.
5. Administer 0.5 mL MPSV4 via the subcutaneous route (23–25g, ⅝" needle) to patients ages 2 yrs–10 yrs in the posterolateral fat of the upper arm. Administer 0.5 mL MCV4 via the intramuscular route (22–25g, 1–1½" needle) in the deltoid muscle to patients ages 11 years and older. If MCV4 is unavailable, MPSV4 is an acceptable alternative, although it must be given subcutaneously.
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 meningococcal 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 _____ until rescinded or until _____ (date).
(name of practice or clinic)

Medical Director's signature: _____ Effective date: _____

www.immunize.org/catg.d/p3081a.pdf • Item #P3081a (5/06)

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Medical Management of Vaccine Reactions in Children and Teens

All vaccines have the potential to cause an adverse reaction. To minimize adverse reactions, patients should be carefully screened for precautions and contraindications before vaccine is administered. Even with careful screening, reactions can 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.
	Continuous 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 Children and Teens" on the next page for detailed steps to follow in treating anaphylaxis.

Supplies Needed

- ☐ Aqueous epinephrine 1:1000 dilution, in ampules, vials of solution, or prefilled syringes, including epinephrine auto-injectors (e.g., EpiPen). If EpiPens are to be stocked, both EpiPen Jr. (0.15 mg) and adult EpiPens (0.30 mg) should be available.
- ☐ Diphenhydramine (Benadryl) injectable (50 mg/mL solution) and oral (12.5 mg/5 mL suspension) and 25 mg or 50 mg capsules or tablets
- ☐ Syringes: 1–3 cc, 22–25g, 1", 1½", and 2" needles for epinephrine and diphenhydramine (Benadryl)
- ☐ Pediatric & adult airways (small, medium, and large)
- ☐ Sphygmomanometer (child, adult & extra-large cuffs) and stethoscope
- ☐ Pediatric & adult size pocket masks with one-way valve
- ☐ Alcohol swabs
- ☐ Tongue depressors
- ☐ Flashlight with extra batteries (for examination of mouth and throat)
- ☐ Wrist watch
- ☐ Tourniquet
- ☐ Cell phone or access to an on-site phone

(Page 1 of 2)

www.immunize.org/catg.d/p3082a.pdf • Item #P3082a (6/06)

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For child and adult vaccines, visit www.immunize.org/standingorders

Vaccine	Children/Teens	Adults
Diphtheria, tetanus, acellular pertussis—DTaP	✔	
Haemophilus influenzae type b—Hib	✔	
Hepatitis A—HepA	✔	✔
Hepatitis B—HepB	✔	✔
Human papillomavirus—HPV	*coming soon*	*coming soon*
Inactivated poliovirus—IPV	✔	
Influenza, inactivated and live intranasal—TIV, LAIV	✔	✔
Measles, mumps, rubella—MMR	✔	✔
Meningococcal, conjugate and polysaccharide—MCV4, MPSV	✔	✔
Pneumococcal conjugate—PCV	✔	
Pneumococcal polysaccharide—PPV	✔	✔
Rotavirus—Rota	*coming soon*	
Tetanus-diphtheria toxoids and pertussis—Td, Tdap	✔	✔
Varicella (chickenpox)—Var	✔	✔
Zoster (shingles)—Zos		*coming soon*
Medical Management of Vaccine Reactions	✔	✔
Labor and Delivery Orders		
Guidelines for Standing Orders in Labor & Delivery and Nursery Units to Prevent Hepatitis B Virus Transmission to Newborns	✔	✔

Your patients will appreciate receiving these materials!

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

Here's the link: www.immunize.org/catg.d/p4010imm.pdf

Immunizations for Babies...

A Guide for Parents

These are the vaccinations your baby needs!

At birth	HepB
2 months	HepB (1–2 mos[1]) + DTaP + PCV + Hib + Polio + Rv
4 months	HepB[2] + DTaP + PCV + Hib + Polio + Rv
6 months	HepB (6–18 mos[1]) + DTaP + PCV + Hib[3] + Polio (6–18 mos[1]) + Rv + Influenza (6-59 mos[1,4])
12 months or older	MMR (12–15 mos[1]) + DTaP (15–18 mos[1,5]) + PCV (12–15 mos[1]) + Hib (12–15 mos[1]) + Chickenpox (12–15 mos[1]) + HepA (12–23 mos[1]) + Influenza (6–59 mos[1,4])

Check with your doctor or nurse to make sure your baby is receiving all vaccinations on schedule. Many times vaccines are combined to reduce the number of injections. Be sure you ask for a record card with the dates of your baby's vaccinations; bring this with you to every visit.

Here's a list of the diseases your baby will be protected against:

HepB: hepatitis B, a serious liver disease
DTaP: diphtheria, tetanus (lockjaw), and pertussis (whooping cough)
PCV: pneumococcal conjugate vaccine protects against a serious blood, lung, and brain infection
Hib: *Haemophilus influenzae* type b, a serious brain, throat, and blood infection
Polio: polio, a serious paralyzing disease
Rv: rotavirus infection, a serious diarrheal disease
Influenza: a serious lung infection
MMR: measles, mumps, and rubella
HepA: hepatitis A, a serious liver disease
Chickenpox: also called varicella

Footnotes to above chart:
1. This is the age range in which this vaccine should be given.
2. Your infant may not need a dose of Hep B vaccine at age 4 months depending on the type of vaccine that your healthcare provider uses.
3. Your infant may not need a dose of Hib vaccine at age 6 months depending on the type of vaccine that your healthcare provider uses.
4. All children between the ages of 6 and 59 months should receive vaccination for influenza in the fall of each year. First-time vaccinees should receive 2 doses, separated by at least 4 weeks.
5. This dose of DTaP may be given as early as 12 months if it has been 6 months since the previous dose and if you think you might not return for more shots by the time your child is age 18 months.

Technical content reviewed by the Centers for Disease Control and Prevention, Nov. 2006. www.immunize.org/catg.d/p4010imm.pdf • Item #P4010 (11/06)

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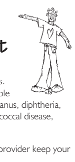
Here's the link: www.immunize.org/catg.d/11teens8.pdf

Are you 11–19 years old?

Then you need to be vaccinated against these serious diseases!

Many people between the ages of 11 and 19 think they are done with their vaccinations. They think vaccinations are just for little kids. But guess what? There are millions of people between the ages of 11 and 19 who need vaccinations to prevent whooping cough, tetanus, diphtheria, hepatitis B, hepatitis A, chickenpox, measles, mumps, rubella, polio, influenza, meningococcal disease, pneumococcal disease, and human papillomavirus infection. Are you one of them?

Getting immunized is a lifelong, life-protecting job. Make sure you and your healthcare provider keep your immunizations up to date. Check to be sure you've had all the vaccinations you need.



Hepatitis B (Hep B)	You need a series of doses of hepatitis B vaccine if you have not already received them.
Measles, Mumps, Rubella (MMR)	Check with your healthcare provider to make sure you've had two doses of MMR.
Tetanus, diphtheria, pertussis (whooping cough) (Tdap, Td)	You need a booster dose of Tdap at age 11–12 years. If you're older and already had a Td booster, you should get a Tdap shot to get the extra protection for pertussis. After that you will need a Td booster dose every ten years.
Polio	If you haven't completed your series of polio vaccine doses and you are not yet 18, you should complete them now.
Varicella (Var) (chickenpox shot)	If you have not been previously vaccinated and have not had chickenpox, you should get vaccinated against this disease. The vaccine is given as a 2-dose series. Any adolescent who was vaccinated as a child with only 1 dose should get a second dose now.
Hepatitis A (Hep A)	Many teens need protection from hepatitis A. Do you travel outside the United States?* Do you live in a community with a high rate of hepatitis A? Are you a male who has sex with other males? Do you use illegal drugs? Do you have a clotting factor disorder or chronic liver disease? Or, do you just want to be protected against hepatitis A? Talk to your healthcare provider about this 2-dose series of shots.
Human Papillomavirus (HPV)	All adolescent girls should get a series of 3 HPV shots, preferably at age 11–12 years, to prevent cervical cancer and genital warts. If you've missed these shots and are 26 years old or younger, you should get vaccinated.
Influenza	Do you have a chronic health problem such as asthma, diabetes, heart disease, etc.? Vaccination against influenza is especially recommended every fall for people with chronic diseases. Anyone who wants to avoid getting influenza should get vaccinated each year.
Pneumococcal disease (pneumococcal shot)	Do you have a chronic health problem? Talk to your healthcare provider about whether you should receive a pneumococcal shot.
Meningococcal disease	All 11–12-year-olds, teens about to enter high school (or at about age15), and older teens who are college bound and planning to live in a dormitory should get vaccinated against meningococcal disease. People with certain medical conditions should also receive this vaccine.

*** Do you travel outside the United States?**
If so, you may need additional vaccines. The Centers for Disease Control and Prevention (CDC) operates an international traveler's health information line. Call (877) 394-8747 or visit CDC's website at www.cdc.gov/travel for information about your destination. You may also consult a travel clinic or your healthcare provider.

Technical content reviewed by the Centers for Disease Control and Prevention, Nov. 2006. www.immunize.org/catg.d/11teens8.pdf • Item #P4020 (11/06)

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Here's the link: www.immunize.org/catg.d/p4030a.pdf

Vaccinations for Adults

You're NEVER too old to get immunized!

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

Age ▶ Vaccine ▼	19–49 years	50–64 years	65 years & older
Influenza	You need a dose yearly if you have a chronic health problem,* are a healthcare worker, have close contact with certain individuals,* or you just want to avoid getting influenza.	You need a dose every fall (or winter).	
Pneumococcal	You need 1–2 doses if you have certain chronic medical conditions.*		You need 1 dose at age 65 (or older) if you've never been vaccinated. You may also need a 2nd dose.*
Tetanus, diphtheria, pertussis (Td, Tdap)	If you haven't had at least 3 tetanus-and-diphtheria-containing shots sometime in your life, you need to get them now. Start with dose #1, followed by dose #2 in 1 month, and dose #3 in 6 months. All adults need Td booster doses every 10 years. If you're younger than 65 years and haven't had pertussis-containing vaccine as an adult, one of the doses that you receive should have pertussis (whooping cough) vaccine in it—known as Tdap. Be sure to consult your health professional if you have a deep or dirty wound.		
Hepatitis B (HepB)	You need this vaccine if you have a specific risk factor for hepatitis B virus infection* or you simply wish to be protected from this disease. The vaccine is given as a 3-dose series (dose #1 now, followed by dose #2 in 1 month, and dose #3, usually given 5 months later).		
Hepatitis A (HepA)	You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or you simply wish to be protected from this disease. The vaccine is usually given as 2 doses, 6–18 months apart.		
Human papillomavirus (HPV)	You need this vaccine if you are a woman who is age 26 years or younger. The vaccine is given as a 3-dose series (dose #1 now, followed by dose #2 in 2 months, and dose #3, usually given 4 months later).		
Measles, mumps, rubella (MMR)	You need at least 1 dose of MMR if you were born in 1957 or later. You may also need a 2nd dose.*		
Varicella (Chickenpox)	If you've never had chickenpox or you were vaccinated but only received 1 dose, you should get a second dose or complete a 2-dose series now (2 doses, 1–2 months apart).		
Meningococcal	If you are a young adult going to college and plan to live in a dormitory, you need to get vaccinated against meningococcal disease. People with certain medical conditions should also receive this vaccine.*		
Zoster (shingles)			If you are age 60 years or older, you can get this vaccine now.

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

Do you travel outside the United States? If so, you may need additional vaccines. The Centers for Disease Control and Prevention (CDC) operates an international traveler's health information line. Call (877) 394-8747 or visit CDC's website at www.cdc.gov/travel for information about your destination. You may also consult a travel clinic or your healthcare professional.

Technical content reviewed by the Centers for Disease Control and Prevention, Nov. 2006. www.immunize.org/catg.d/p4030a.pdf • Item #P4030 (11/06)

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Here's the link: www.immunize.org/catg.d/when1.pdf

When Do Children and Teens Need Vaccinations?

Age	Hep B (Hepatitis B)	DTaP/Tdap (Diphtheria, tetanus, pertussis)	Hib (*Haemophilus influenzae* type b)	Polio	PCV (Pneumococcal conjugate)	RV (Rotavirus)	MMR (Measles, mumps, rubella)	Varicella (Chickenpox)	Hep A (Hepatitis A)	HPV (Human papillomavirus)	MCV4 (Meningococcal conjugate)	Influenza
Birth	✓											
2 months	✓ (1–2 mos)	✓	✓	✓	✓	✓						
4 months	✓[1]	✓	✓	✓	✓	✓						
6 months	✓ (6–18 mos)	✓	✓[2]	✓ (6–18 mos)	✓	✓						✓[3] (6–59 mos) (given for each influenza season)
12–18 months		✓ (15–18 mos)	✓ (12–15 mos)		✓ (12–15 mos)		✓ (12–15 mos)	✓ (12–15 mos)	✓✓ (12–23 mos)			
19–23 months	Catch-up[4]	Catch-up[4]	Catch-up[4] (to 5 years)	Catch-up[4]	Catch-up[4] (to 5 years)		Catch-up[4]	Catch-up[4]				
24–47 months												
4–6 years		✓		✓			✓	✓				
11–12 years		✓ Tdap		Catch-up[4]			Catch-up[4]	(all children older than age 6 years who have had only 1 dose need a 2nd dose)		✓✓✓[5] (females only)	✓	
13–14 years		Catch-up[4] (Tdap/Td)								Catch-up[4,5]		
15 years											Catch-up[4]	
16–18 years											College bound?[6]	

1. Your infant may not need a dose of Hep B at 4 months of age depending on the type of vaccine that your healthcare provider uses.
2. Your infant may not need a dose of Hib vaccine at 6 months of age depending on the type of vaccine that your healthcare provider uses.
3. If your child is younger than 9 years and is getting vaccinated against influenza for the first time, they should get 2 doses spaced at least 4 weeks apart.
4. If your child's vaccinations are delayed or missed entirely, they should be given as soon as possible.
5. All girls and women ages 9–26 years should be vaccinated with 3 doses of HPV vaccine, with an interval of at least 2 months between #1 and #2 and 6 months between #1 and #3.
6. If you have a teenager who is enrolling in college and planning to live in a dormitory and hasn't previously been vaccinated against meningococcal disease, they should be vaccinated now.

Please note: Some children may need additional vaccines. Talk to your healthcare provider.

Technical content reviewed by the Centers for Disease Control and Prevention, Oct. 2006. www.immunize.org/catg.d/when1.pdf • Item #P4050 (10/06)

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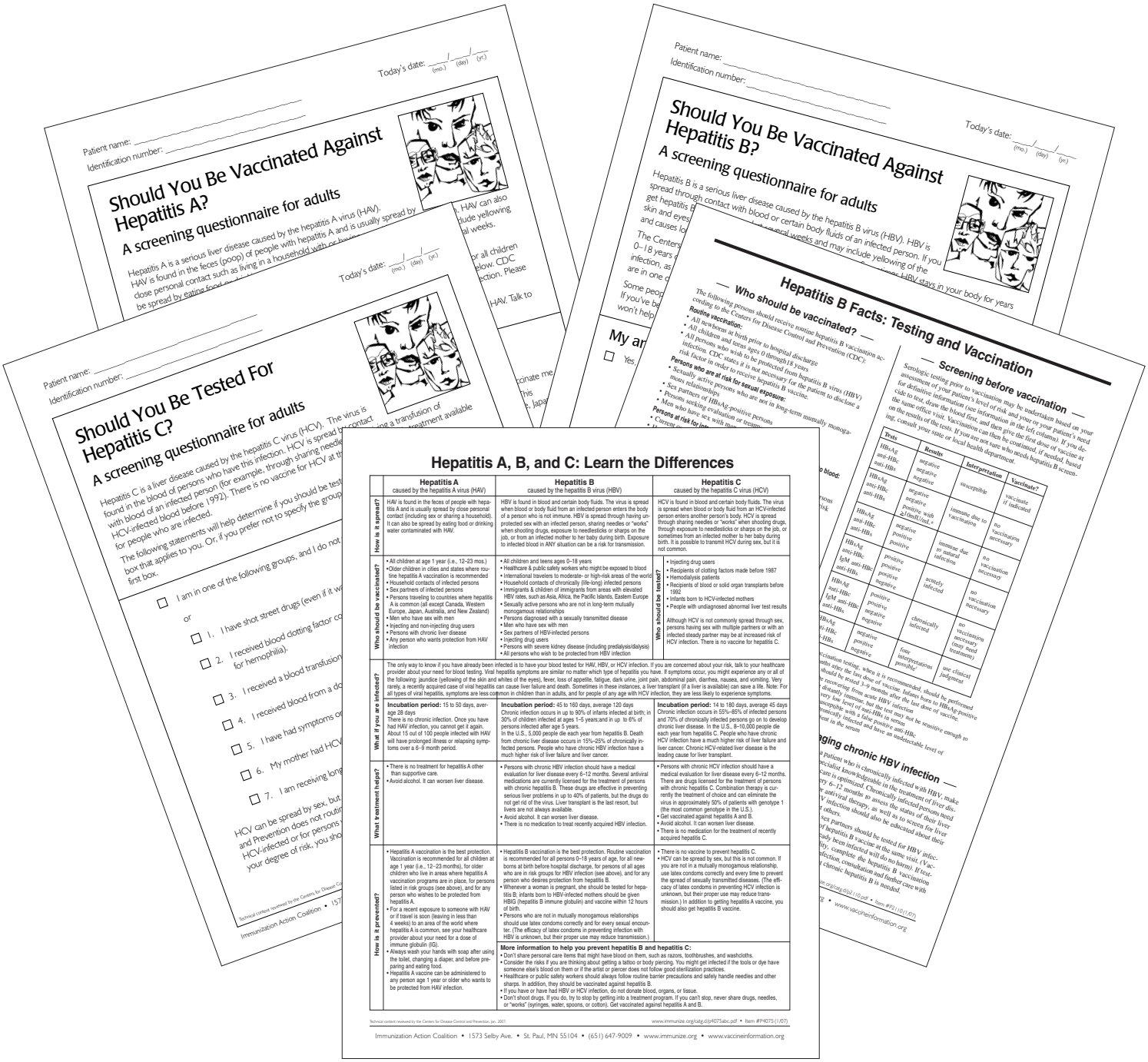
Viral hepatitis education materials for patients and staff

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



For 8-1/2" x 11" copies of the pieces above, visit IAC's website: www.immunize.org.

1. Should you be vaccinated against hepatitis A?: www.immunize.org/catg.d/2190hepa.pdf
2. Should you be vaccinated against hepatitis B?: www.immunize.org/catg.d/2191hepb.pdf
3. Should you be tested for hepatitis C?: www.immunize.org/catg.d/2192hepc.pdf
4. Hepatitis B Facts: Testing and Vaccination: www.immunize.org/catg.d/p2110.pdf
5. Hepatitis A, B, and C: Learn the Differences: www.immunize.org/catg.d/p4075abc.pdf

How to administer IM and SC injections

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

Download these essential pages from the Internet and make copies for your staff members: www.immunize.org/catg.d/p2020.pdf

How to Administer Intramuscular (IM) Injections

Administer these vaccines via intramuscular (IM) route: Diphtheria-tetanus (DT, Td) with pertussis (DTaP, Tdap); Hib; hepatitis A; hepatitis B; human papillomavirus (HPV); inactivated influenza; meningococcal conjugate (MCV4); and pneumococcal conjugate (PCV). Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPV) either IM or SC.

Patient age	Site	Needle size
Birth to 12 mos.	Anterolateral thigh muscle	5/8"* needle (newborns only), 1" (older infants), 22–25 gauge
12 mos. to 10 yrs.	Thickest portion of deltoid muscle—above level of axilla and below acromion (if adequate muscle mass). The anterolateral thigh may also be used.	5/8"*† to 1" needle, 22–25 gauge
Children and adults 11 yrs. and older	Thickest portion of deltoid muscle—above level of axilla and below acromion	1"–1½"*† needle, 22–25 gauge

*A 5/8" needle can be used if the skin is stretched tight and the subcutaneous tissue is not bunched.
†A 5/8" needle may be used in the deltoid muscle in children ages 12 mos. or older and in adults weighing less than 130 lbs.

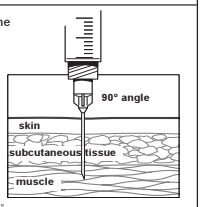
Needle insertion

Use a needle long enough to reach deep into the muscle.

Insert needle at a 90° angle to the skin with a quick thrust.

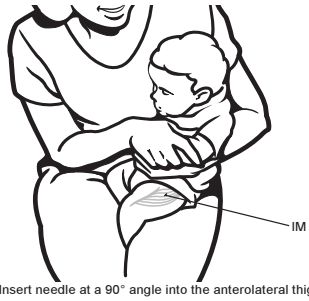
(Before administering an injection, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.¶)

Multiple injections given in the same extremity should be separated by a minimum of 1", if possible.



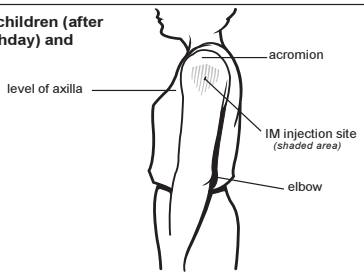
¶CDC. "ACIP General Recommendations on Immunization" at www.cdc.gov/nip/publications/ACIP-list.htm.

IM site for infants



Insert needle at a 90° angle into the anterolateral thigh muscle.

IM site for children (after the 1st birthday) and adults



Insert needle at a 90° angle into thickest portion of deltoid muscle—above the level of the axilla and below the acromion.

Technical content reviewed by the Centers for Disease Control and Prevention, Jan. 2007. www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/07)

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How to Administer Subcutaneous (SC) Injections

Administer these vaccines via subcutaneous (SC) route: MMR, varicella, meningococcal polysaccharide (MPSV), and zoster (shingles). Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPV) vaccines either SC or IM.

Patient age	Site	Needle size
Birth to 12 mos.	Fatty tissue over the anterolateral thigh	5/8" needle, 23–25 gauge
12 mos. and older	Fatty tissue over the triceps	5/8" needle, 23–25 gauge

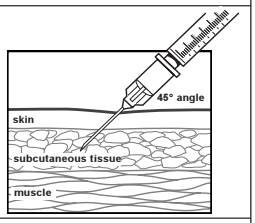
Needle insertion

Pinch up on SC tissue to prevent injection into muscle.

Insert needle at 45° angle to the skin.

(Before administering an injection, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.*)

Multiple injections given in the same extremity should be separated by a minimum of 1".

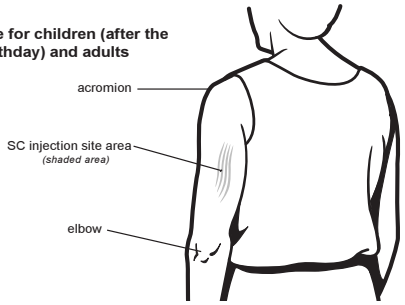


*CDC. "ACIP General Recommendations on Immunization" at www.cdc.gov/nip/publications/ACIP-list.htm.

SC site for infants

Insert needle at a 45° angle into fatty tissue of the anterolateral thigh. Make sure you pinch up on SC tissue to prevent injection into the muscle.

SC site for children (after the 1st birthday) and adults



Insert needle at a 45° angle into the fatty tissue over the triceps muscle. Make sure you pinch up on the SC tissue to prevent injection into the muscle.

Technical content reviewed by the Centers for Disease Control and Prevention, Jan. 2007. www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/07)

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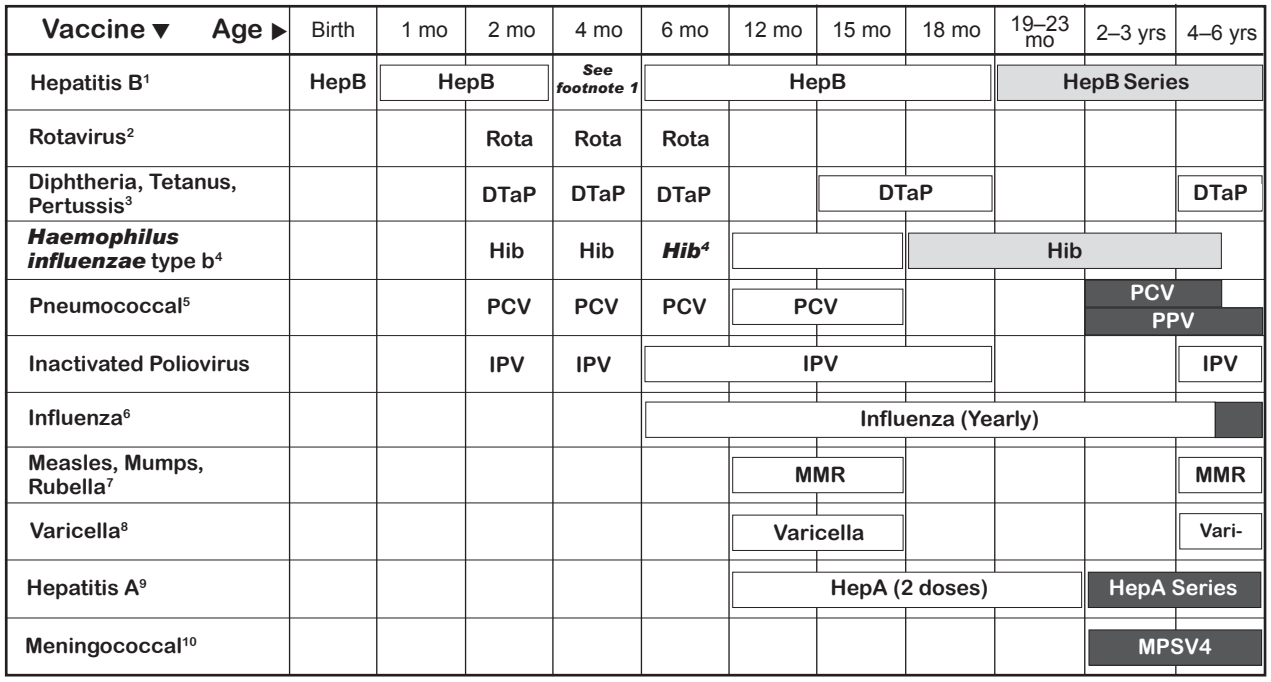
Recommended Immunization Schedule for Persons Aged 0–6 Years, U.S., 2007



This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 0– 6 years. Additional information is available at www.cdc.gov/nip/recs/child-schedule.htm. Any dose not given at the recommended age should be given at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.hhs.gov or by telephone, 800-822-7967.

1. Hepatitis B vaccine (HepB). *(Minimum age: birth)*

At birth:

- Give monovalent HepB to all newborns prior to hospital discharge.
- If mother is hepatitis surface antigen (HBsAg)-positive, give HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, give HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, give HBIG (no later than age 1 week).
- If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mother's negative HBsAg laboratory report documented in the infant's medical record.

After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be given at age 1–2 months. The final dose should be given at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of ≥3 doses of a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

4-month dose:

- It is permissible to give 4 doses of HepB when combination vaccines are given after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

2. Rotavirus vaccine (Rota). *(Minimum age: 6 weeks)*

- Give the first dose at age 6–12 weeks. Do not start the series later than age 12 weeks.
- Give the final dose in the series by age 32 weeks. Do not give a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). *(Minimum age: 6 weeks)*

- The fourth dose of DTaP may be given as early as age 12 months, provided 6 months have elapsed since the third dose.
- Give the final dose in the series at age 4–6 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). *(Minimum age: 6 weeks)*

- If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is given at ages 2 and 4 months, a dose at age 6 months is not required.
- TriHIBit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in children aged ≥12 months.

5. Pneumococcal vaccine. *(Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])*

- Give PCV at ages 24–59 months in certain high-risk groups. Give PPV to children aged ≥2 years in certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1-35.

6. Influenza vaccine. *(Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])*

- All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
- Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006:55(No. RR-10):1-41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. Measles, mumps, and rubella vaccine (MMR). *(Minimum age: 12 months)*

- Give the second dose of MMR at age 4–6 years. MMR may be given before age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are given at age ≥12 months.

8. Varicella vaccine. *(Minimum age: 12 months)*

- Give the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be given before age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are given at age ≥12 months. If second dose was given ≥28 days following the first dose, the second dose does not need to be repeated.

9. Hepatitis A vaccine (HepA). *(Minimum age: 12 months)*

- HepA is recommended for all children aged 1 year (i.e., aged 12–23 months). The 2 doses in the series should be given at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55[No. RR-7]:1-23.

10. Meningococcal polysaccharide vaccine (MPSV4). *(Minimum age: 2 years)*

- Give MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54 (No. RR-7):1-21.

continued on next page . . .

Recommended Immunization Schedule for Persons 7–18 Years, U.S., 2007

Vaccine ▼ / Age ▶	7–10 yrs	11–12 yrs	13–14 yrs	15 yrs	16–18 yrs
Tetanus, Diphtheria, Pertussis[1]	***See footnote 1***	Tdap	Tdap		
Human Papillomavirus[2]	***See footnote 2***	HPV (3 doses)	HPV Series		
Meningococcal[3]	MPSV4	MCV4	MCV4	MCV4[3]	
Pneumococcal[4]	PPV				
Influenza[5]	Influenza (Yearly)				
Hepatitis A[6]	HepA Series				
Hepatitis B[7]	HepB Series				
Inactivated Poliovirus[8]	IPV Series				
Measles, Mumps, Rubella[9]	MMR Series				
Varicella[10]	Varicella Series				

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. Additional information is available at www.cdc.gov/nip/recs/child-schedule.htm. Any dose not given at the recommended age should be given at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at www.vaers.hhs.gov or by telephone, 800-822-7967.

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). *(Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL™)*
- Give at age 11–12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a tetanus and diphtheria toxoids (Td) booster dose.
- Adolescents aged 13–18 years who missed the 11–12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DTaP vaccination series.

2. Human papillomavirus vaccine (HPV). *(Minimum age: 9 years)*
- Give the first dose of the HPV vaccine series to females at age 11–12 years.
- Give the second dose 2 months after the first dose and the third dose 6 months after the first dose.
- Give the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

3. Meningococcal vaccine. *(Minimum age: 11 years for meningococcal conjugate vaccine [MCV4]; 2 years for meningococcal polysaccharide vaccine [MPSV4])*
- Give MCV4 at age 11–12 years and to previously unvaccinated adolescents at high school entry (at approximately age 15 years).
- Give MCV4 to previously unvaccinated college freshmen living in dormitories; MPSV4 is an acceptable alternative.
- Vaccination against invasive meningococcal disease is recommended for children and adolescents aged ≥2 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54(No. RR-7):1–21. Use MPSV4 for children aged 2–10 years and MCV4 or MPSV4 for older children.

4. Pneumococcal polysaccharide vaccine (PPV). *(Minimum age: 2 years)*
- Give PPV to certain high-risk groups. See *MMWR* 1997;46(No. RR-08):1–24, and *MMWR* 2000;49(No. RR-9):1–35.

5. Influenza vaccine. *(Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])*
- Influenza vaccine is recommended annually for persons with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55(No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

6. Hepatitis A vaccine (HepA). *(Minimum age: 12 months)*
- The 2 doses in the series should be given at least 6 months apart.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

7. Hepatitis B vaccine (HepB). *(Minimum age: birth)*
- Give the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB® is licensed for children aged 11–15 years.

8. Inactivated poliovirus vaccine (IPV). *(Minimum age: 6 weeks)*
- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was given at age ≥4 years.
- If both OPV and IPV were given as part of a series, a total of 4 doses should be given, regardless of the child's current age.

9. Measles, mumps, and rubella vaccine (MMR). *(Minimum age: 12 months)*
- If not previously vaccinated, give 2 doses of MMR during any visit, with ≥4 weeks between the doses.

10. Varicella vaccine. *(Minimum age: 12 months)*
- Give 2 doses of varicella vaccine to persons without evidence of immunity.
- Give 2 doses of varicella vaccine to persons aged <13 years at least 3 months apart. Do not repeat the second dose, if given ≥28 days following the first dose.
- Give 2 doses of varicella vaccine to persons aged ≥13 years at least 4 weeks apart.

Information about reporting reactions after immunization is available online at www.vaers.hhs.gov or by telephone via the 24-hour national toll-free information line 800-822-7967. Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for immunization, is available from the National Center for Immunization and Respiratory Diseases at www.cdc.gov/nip/default.htm or telephone, 800-CDC-INFO (800-232-4636).

continued on next page . . .

The Recommended Immunization Schedules for Persons Aged 0–18 Years are approved by the Advisory Committee on Immunization Practices (www.cdc.gov/nip/acip), the American Academy of Pediatrics (www.aap.org), and the American Academy of Family Physicians (www.aafp.org).

Catch-up Immunization Schedule for Persons Aged 4 Months – 18 Years Who Start Late or Who Are More Than 1 Month Behind, United States, 2007

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age.

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Catch-up schedule for persons aged 4 months – 6 years					
Hepatitis B[1]	Birth	4 weeks	**8 weeks** (and 16 weeks after first dose)		
Rotavirus[2]	6 wks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis[3]	6 wks	4 weeks	4 weeks	6 months	6 months[3]
Haemophilus influenzae type b[4]	6 wks	**4 weeks** if first dose given at age <12 mos **8 weeks (as final dose)** if first dose given at age 12–14 mos **No further doses needed** if first dose given at age ≥15 mos	**4 weeks**[4] if current age <12 mos **8 weeks (as final dose)**[4] if current age ≥12 mos and second dose given at age <15 mos **No further doses needed** if previous dose given at age ≥15 mos	**8 weeks (as final dose)** This dose only necessary for children aged 12 mos–5 years who received 3 doses before age 12 mos	
Pneumococcal[5]	6 wks	**4 weeks** if first dose given at age <12 mos and current age <24 mos **8 weeks (as final dose)** if first dose given at age ≥12 mos or current age 24–59 mos **No further doses needed** for healthy children if first dose given at age ≥24 mos	**4 weeks** if current age <12 mos **8 weeks (as final dose)** if current age ≥12 mos **No further doses needed** for healthy children if previous dose given at age ≥24 mos	**8 weeks (as final dose)** This dose only necessary for children aged 12 mos–5 years who received 3 doses before age 12 mos	
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	3 months			
Hepatitis A[9]	12 mos	6 months			
Catch-up schedule for persons aged 7 – 18 years					
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis[10]	7 yrs[10]	4 weeks	**8 weeks** if first dose given at age <12 mos **6 months** if first dose given at age ≥12 mos	**6 months** if first dose given at age <12 mos	
Human Papillomavirus[11]	9 yrs	4 weeks	12 weeks		
Hepatitis A[9]	12 mos	6 months			
Hepatitis B[1]	Birth	4 weeks	**8 weeks** (and 16 weeks after first dose)		
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	**4 weeks** if first dose given at age ≥13 years **3 months** if first dose given at age <13 years			

1. Hepatitis B vaccine (HepB). *(Minimum age: birth)*
- Give the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB® is licensed for children aged 11–15 years.

2. Rotavirus vaccine (Rota). *(Minimum age: 6 weeks)*
- Do not start the series later than age 12 weeks.
- Give the final dose in the series by age 32 weeks. Do not give a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). *(Minimum age: 6 weeks)*
- The fifth dose is not necessary if the fourth dose was given at age ≥4 years.
- DTaP is not indicated for persons aged ≥7 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). *(Minimum age: 6 weeks)*
- Vaccine is not generally recommended for children aged ≥5 years.
- If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax® [Merck]), the third (and final) dose should be given at age 12–15 months and at least 8 weeks after the second dose.
- If first dose was given at age 7–11 months, give 2 doses separated by 4 weeks plus a booster at age 12–15 months.

5. Pneumococcal conjugate vaccine (PCV). *(Minimum age: 6 weeks)*
- Vaccine is not generally recommended for children aged ≥5 years.

6. Inactivated poliovirus vaccine (IPV). *(Minimum age: 6 weeks)*
- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was given at age ≥4 years
- If both OPV and IPV were given as part of a series, a total of 4 doses should be given, regardless of the child's current age.

7. Measles, mumps, and rubella vaccine (MMR). *(Minimum age: 12 months)*
- The second dose of MMR is recommended routinely at age 4–6 years but may be given earlier if desired.
- If not previously vaccinated, give 2 doses of MMR during any visit with ≥4 weeks between the doses.

8. Varicella vaccine. *(Minimum age: 12 months)*
- The second dose of varicella vaccine is recommended routinely at age 4–6 years but may be given earlier if desired.
- Do not repeat the second dose in persons aged <13 years if given ≥28 days after the first dose.

9. Hepatitis A vaccine (HepA). *(Minimum age: 12 months)*
- HepA is recommended for certain groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). *(Minimum ages: 7 years for Td, 10 years for BOOSTRIX®, 11 years for ADACEL™)*
- Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for other doses.
- A five-year interval from the last Td dose is encouraged when Tdap is used as booster dose. A booster (fourth) dose is needed if any of the previous doses were given at age <12 months. Refer to ACIP recommendations for further information. See *MMWR* 2006;55(No. RR-3).

11. Human papillomavirus vaccine (HPV). *(Minimum age: 9 years)*
- Give the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

Recommended Adult Immunization Schedule
United States, October 2006–September 2007

Recommended adult immunization schedule, by vaccine and age group (See note at bottom.)

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

Recommended adult immunization schedule, by vaccine and medical and other indications (See note.)

Vaccine ▼ / Indication ▶	Pregnancy	Congenital immunodeficiency; leukemia;[11] lymphoma; generalized malignancy; cerebrospinal fluid leaks; therapy with alkylating agents, antimetabolites, radiation, or high-dose, long-term corticosteroids	Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia[11] (including elective splenectomy and terminal complement component deficiencies)	Chronic liver disease, recipients of clotting factor concentrates	Kidney failure, end-stage renal disease, recipients of hemodialysis	Human immunodeficiency virus (HIV) infection[3,11]	Health-care workers
Tetanus, diphtheria, pertussis (Td/Tdap)[1]*	1-dose Td booster every 10 yrs; Substitute 1 dose of Tdap for Td							
Human papillomavirus (HPV)[2]		3 doses for females through age 26 years (0, 2, 6 mos)						
Measles, mumps, rubella (MMR)[3]*			1or 2 doses					
Varicella[4]*			2 doses (0, 4–8 wks)					2 doses
Influenza[5]*	1 dose annually			1 dose annually	1 dose annually			
Pneumococcal (polysaccharide)[6,7]	1–2 doses	1–2 doses						1–2 doses
Hepatitis A[8]*	2 doses (0, 6–12 mos, or 0, 6–18 mos)				2 doses	2 doses (0, 6–12 mos, or 0, 6–18 mos)		
Hepatitis B[9]*	3 doses (0, 1–2, 4–6 mos)				3 doses (0, 1–2, 4–6 mos)			
Meningococcal[10]	1 dose			1 dose	1 dose			

*Covered by the Vaccine Injury Compensation Program

Note: These recommendations must be read along with the footnotes, which can be found on the next 3 pages of this schedule.

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

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

Contraindicated

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged ≥19 years, as of October 1, 2006. 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 (http://www.cdc.gov/nip/publications/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 http://www.vaers.hhs.gov or by telephone, 800-822-7967.

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

Additional information about the vaccines in this schedule and contraindications for vaccination is also available at www.cdc.gov/nip or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.

Footnotes

1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination. Adults with uncertain histories of a complete primary vaccination series with diphtheria and tetanus toxoid–containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. Administer a booster dose to adults who have completed a primary series and if the last vaccination was received ≥10 years previously. Tdap or tetanus and diphtheria (Td) vaccine may be used; Tdap should replace a single dose of Td for adults aged <65 years who have not previously received a dose of Tdap (either in the primary series, as a booster, or for wound management). Only one of two Tdap products (Adacel® [sanofi pasteur]) is licensed for use in adults. If the person is pregnant and received the last Td vaccination ≥10 years previously, administer Td during the second or third trimester; if the person received the last Td vaccination in <10 years, administer Tdap during the immediate postpartum period. A one-time administration of 1 dose of Tdap with an interval as short as 2 years from a previous Td vaccination is recommended for postpartum women, close contacts of infants aged <12 months, and all healthcare workers with direct patient contact. In certain situations, Td can be deferred during pregnancy and Tdap substituted in the immediate postpartum period, or Tdap can be given instead of Td to a pregnant woman after an informed discussion with the woman (see http://www.cdc.gov/nip/publications/acip-list.htm). Consult the ACIP statement for recommendations for administering Td as prophylaxis in wound management (http://www.cdc.gov/mmwr/preview/mmwrhtml/00041645.htm).

2. Human Papillomavirus (HPV) vaccination. HPV vaccination is recommended for all women aged ≤26 years who have not completed the vaccine series. Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, women who are sexually active should still be vaccinated. Sexually active women who have not been infected with any of the HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for women who have already been infected with one or more of the four HPV vaccine types. A complete series consists of 3 doses. The second dose should be administered 2 months after the first dose; the third dose should be administered 6 months after the first dose. Vaccination is not recommended during pregnancy. If a woman is found to be pregnant after initiating the vaccination series, the remainder of the 3-dose regimen should be delayed until after completion of the pregnancy.

3. Measles, Mumps, Rubella (MMR) vaccination. *Measles component:* adults born before 1957 can be considered immune to measles. Adults born during or after 1957 should receive ≥1 dose of MMR unless they have a medical contraindication, documentation of ≥1 dose, history of measles based on health-care provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) have been recently exposed to measles or in an outbreak setting; 2) were previously vaccinated with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility, or 6) plan to travel internationally. Withhold MMR or other measles-containing vaccines from HIV-infected persons with severe immunosuppression. *Mumps component:* adults born before 1957 can generally be considered immune to mumps. Adults born during or after 1957 should receive 1 dose of MMR unless they have a medical contraindication, history of mumps based on health-care provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) are in an age group that is affected during a mumps outbreak; 2) are students in postsecondary educational institutions; 3) work in a health-care facility; or 4) plan to travel internationally. For unvaccinated health-care workers born before 1957 who do not have other evidence of mumps immunity, consider giving 1 dose on a routine basis and strongly consider giving a second dose during an outbreak. *Rubella component:* administer 1 dose of MMR vaccine to women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Do not vaccinate women who are pregnant or who might become pregnant within 4 weeks of receiving vaccine. 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.

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Footnotes (continued)

4. Varicella vaccination. All adults without evidence of immunity to varicella should receive 2 doses of varicella vaccine. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care workers and family contacts of immunocompromised persons) or 2) are at high risk for exposure or transmission (e.g., teachers of young children; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers). Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.–born before 1980 (although for health-care workers and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a health-care provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link with a typical varicella case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on health-care provider diagnosis; or 5) laboratory evidence of immunity or laboratory confirmation of disease. Do not vaccinate women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. Assess pregnant women for evidence of varicella immunity. Women who do not have evidence of immunity should receive dose 1 of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. Dose 2 should be administered 4–8 weeks after dose 1.

5. Influenza vaccination: *Medical indications:* chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or HIV); any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, or seizure disorder or other neuromuscular disorder); and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia. *Occupational indications:* health-care workers and employees of long-term–care and assisted living facilities. *Other indications:* residents of nursing homes and other long-term–care and assisted living facilities; persons likely to transmit influenza to persons at high risk (e.g., in-home household contacts and caregivers of children aged 0–59 months, or persons of all ages with high-risk conditions); and anyone who would like to be vaccinated. Healthy, nonpregnant persons aged 5–49 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered influenza vaccine (FluMist®) or inactivated vaccine. Other persons should receive the inactivated vaccine.

6. Pneumococcal polysaccharide vaccination. *Medical indications:* chronic disorders of the pulmonary system (excluding asthma); cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection [vaccinate as close to diagnosis as possible when CD4 cell counts are highest], leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, organ or bone marrow transplantation); chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids; and cochlear implants. *Other indications:* Alaska Natives and certain American Indian populations and residents of nursing homes or other long-term–care facilities.

7. Revaccination with pneumococcal polysaccharide vaccine. One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection, leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); or chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids. For persons aged ≥65 years, one-time revaccination if they were vaccinated ≥5 years previously and were aged <65 years at the time of primary vaccination.

8. Hepatitis A vaccination. *Medical indications:* persons with chronic liver disease and persons who receive clotting factor concentrates. *Behavioral indications:* men who have sex with men and persons who use illegal drugs. *Occupational indications:* persons working with hepatitis A virus (HAV)–infected primates or with HAV in a research laboratory setting. *Other indications:* persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at http://www.cdc.gov/travel/diseases.htm) and any person who would like to obtain immunity. Current vaccines should be administered in a 2-dose schedule at either 0 and 6–12 months, or 0 and 6–18 months. If the combined hepatitis A and hepatitis B vaccine is used, administer 3 doses at 0, 1, and 6 months.

9. Hepatitis B vaccination. *Medical indications:* Persons with end-stage renal disease, including patients receiving hemodialysis; persons seeking evaluation or treatment for a sexually transmitted disease (STD); persons with HIV infection; persons with chronic liver disease; and persons who receive clotting factor concentrates. *Occupational indications:* health-care workers and public-safety workers who are exposed to blood or other potentially infectious body fluids. *Behavioral indications:* sexually active persons who are not in a long-term, mutually monogamous relationship (i.e., persons with >1 sex partner during the previous 6 months); current or recent injection-drug users; and men who have sex with men. *Other indications:* household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection; clients and staff members of institutions for persons with developmental disabilities; all clients of STD clinics; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at http://www.cdc.gov/travel/diseases.htm); and any adult seeking protection from HBV infection. Settings where hepatitis B vaccination is recommended for all adults: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings providing services for injection-drug users or men who have sex with men;

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Footnotes (continued)

correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential daycare facilities for persons with developmental disabilities. *Special formulation indications:* for adult patients receiving hemodialysis and other immunocompromised adults, 1 dose of 40 μg/mL (Recombivax HB®) or 2 doses of 20 μg/mL (Engerix-B®).

10. Meningococcal vaccination. *Medical indications:* adults with anatomic or functional asplenia, or terminal complement component deficiencies. *Other indications:* first-year college students living in dormitories; microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of sub-Saharan Africa during the dry season [December–June]), particularly if contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj. Meningococcal conjugate vaccine is preferred for adults with any of the preceding indications who are aged ≤55 years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 5 years might be indicated for adults previously vaccinated with MPSV4 who remain at high risk for infection (e.g., persons residing in areas in which disease is epidemic).

11. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccination may be used. Hib conjugate vaccines are licensed for children aged 6 weeks–71 months. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults with the chronic conditions associated with an increased risk for Hib disease. However, studies suggest good immunogenicity in patients who have sickle cell disease, leukemia, or HIV infection or have had splenectomies; administering vaccine to these patients is not contraindicated.

The Immunization Action Coalition created this adult immunization schedule based on the **Recommended Adult Immunization Schedule, U.S., October 2006–September 2007,** published in the *Morbidity and Mortality Weekly Report (MMWR)* on October 13, 2006. It is also available as a 4-page, 8 ½" x 11" booklet, laminated and in full color (see ordering information below).

The Recommended Adult Immunization Schedule is updated annually by the Centers for Disease Control and Prevention (CDC). Vaccination recommendations issued by CDC after the October 2006 publication date are official but are not reflected in this schedule until the next year's schedule is published. To be sure you have the most current vaccination recommendations from CDC, visit the following web pages:

Official ACIP recommendations
www.cdc.gov/nip/publications/acip-list.htm (alphabetical order)
www.immunize.org/acip (chronological order)

Provisional ACIP recommendations
www.cdc.gov/nip/recs/provisional_recs/default.htm
www.immunize.org/acip

For more information on CDC's adult immunization recommendations, go to www.cdc.gov/nip/recs/adult-schedule.htm.

To order laminated, color copies of this adult immunization schedule from the Immunization Action Coalition, visit www.immunize.org/immschedules or call (651) 647-9009.

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because he or she is uninsured. A child must be screened for VFC eligibility at each visit, even though the eligibility form needs to be updated only when the child's eligibility status changes.

Where can I get more information on vaccine cold storage and handling?

CDC's Vaccine Storage and Handling Toolkit is available online. The link to download the toolkit is www2a.cdc.gov/nip/isd/shtoolkit/splash.html.

What is the impact of a power outage on vaccine and what should be done with vaccine?

General procedures for power outages are described in Chapter 7 of the CDC's Vaccine Storage and Handling Toolkit. (www2a.cdc.gov/nip/isd/shtoolkit/008Chap7.pdf)

All providers should have an emergency vaccine retrieval and storage plan prepared in advance to guide them in the event of a power outage or other emergency. This should include plans for alternative storage and transport of vaccines. See www2a.cdc.gov/nip/isd/shtoolkit/003Chap2.pdf and www2a.cdc.gov/nip/isd/shtoolkit/Resources/Emerg_Vac_Rtrvl_Strg_Plan_Worksheet.pdf.

What's new in CDC's recently published 2006 edition of the "General Recommendations on Immunization," and how do I get a copy?

The General Recommendations provide comprehensive technical guidance on all standard vaccines for children and adults. Though it doesn't contain all the details that are in the individual vaccine statements from CDC and AAP, it contains many useful tables that summarize essential information for providers to reference in their busy practices. Some of the tables and illustrations in the document include

- Minimum intervals and minimum ages for routine vaccines
- Spacing of live and inactivated antigens
- True and untrue contraindications and precautions
- Dose and route of administration of selected vaccines (new)
- Appropriate needle length and injection site for giving IM injections (new)
- Treatment regimens for anaphylaxis (new)
- Vaccine storage temperature recommendations (new)
- Comparison of thermometers for monitoring vaccine temperatures (new)
- Illustrations of vaccination sites and needle insertion (new)
- Vaccination of persons with primary and secondary immune deficiencies (new)
- Approaches to the evaluation and vaccination of internationally adopted children

To access the entire document, including all tables and illustrations, go to www.cdc.gov/mmwr/PDF/rr/rr5515.pdf.

In addition to annual influenza vaccination, which vaccinations should be given to healthcare workers?

The recommendations for healthcare workers include vaccination for or evidence of immunity to influenza, hepatitis B, MMR, varicella, pertussis, and for certain laboratory personnel only, meningococcal vaccination. You can find a summary page of these recommendations on page 6 of this issue of *Needle Tips.*

We frequently see new patients who have no immunization records. We would like to vaccinate but are concerned about "over immunization." What should we do?

As a general rule, ACIP recommends that persons who do not have valid documentation of vaccinations be revaccinated. The one exception to this rule is for excessive or too-frequent doses of tetanus toxoid (e.g., DTP, DTaP, DT, Tdap, or Td); doses given too frequently can increase the risk of a local adverse reaction. Serologic testing for immunity is an alternative to vaccination for certain antigens (e.g., measles, rubella, and tetanus). This issue is discussed at length in ACIP's "General Recommendations on Immunization" *(MMWR* 2006; 55 [RR-15]:34-35).

How can I find out if our state or locality has an automated immunization registry in which I can participate?

Contact your state health department immunization program. Phone numbers are available at www.immunize.org/coordinators.

What is new in the childhood immunization schedule this year?

For 2007, the schedule for routine administration of vaccines has been divided into one for infants and young children (birth through 6 years) and another for children ages 7 through 18 years. A third page contains the catch-up schedules for those who have fallen behind schedule. Of course, the most significant changes are the additions of the newly licensed vaccines (i.e., rotavirus, HPV, Tdap), as well as expanded recommendations for the use of varicella and influenza vaccines.

Where can we obtain copies of the official recommendations from CDC and AAP on the use of rotavirus vaccine, Tdap vaccine, and the second dose of varicella vaccine?

To access these and all other ACIP recommendations, go to www.cdc.gov/nip/publications/acip-list.htm for statements in alphabetical order or www.immunize.org/acip for statements in chronological order. For the AAP policy statements on immunization in chronological order, go to www.immunize.org/aap.

How can we quickly locate the most important recent federal publications (e.g., VISs, ACIP statements, FDA licensures) and announcements about immunization issues?

Visit www.immunize.org/newreleases for IAC's chronological list of these events. Also, be sure to sign up for *IAC Express* to receive weekly email updates and links to newly released publications. Subscribe at www.immunize.org/subscribe.

If an adolescent or adult mistakenly receives DTaP, or if a child who should get DTaP receives Tdap instead, what should be done?

This error is quite common. It is important to carefully read the package and vial labeling to correctly identify which vaccine you are using. Remember that children younger than age 7 need higher concentrations of diphtheria (large [capital] "D") and pertussis (large [capital] "P") antigens when compared with adolescents and adults. If pediatric DTaP is inadvertently administered to an adolescent or adult, the dose should be counted as the one-time

(continued on page 19)

Needle Tips correction policy

The Immunization Action Coalition works tirelessly to ensure the accuracy of the information we make available. At times, however, mistakes occur. If you find an error, please notify us immediately. We publish notification of significant errors in ***Needle Tips*** and on our email announcement service ***IAC Express.*** Be sure you're signed up for this service. Visit www.immunize.org/subscribe to sign up.

Tdap booster. The adolescent/adult has received a higher concentration of antigen than necessary, so no further doses are needed. If a child receives Tdap instead of DTaP for the fourth or fifth doses of the DTaP series, the dose can be counted, even though the child has received less diphtheria and pertussis antigen. Sufficient protection is provided from the first three doses of DTaP. If the child receives Tdap instead of any of the first three doses of DTaP, this dose does not count and a dose of DTaP should be given as soon as feasible. For more details, see the ACIP adolescent Tdap recommendations at www.cdc.gov/mmwr/PDF/rr/rr5503.pdf.

Can a woman who is breastfeeding receive MMR, varicella, or live attenuated influenza vaccine?

Yes. Breastfeeding is not a contraindication for routine vaccination of breastfeeding women, or their infants, with the exception of smallpox vaccine.

To whom and when should we give second doses of varicella vaccine?

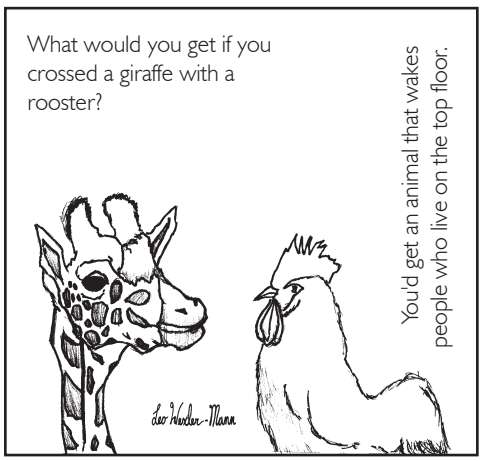
All children, adolescents, and adults should have documentation of two doses of varicella vaccine or other evidence of immunity. For preschoolers, the second dose is recommended at age 4–6 years. Be aware that the minimum intervals between the two doses vary by age group; for children 12 months through 12 years, it is at least 3 months, and for adolescents and adults ages 13 years and older, it is at least 4 weeks.

If an infant spits out part of a dose of rotavirus vaccine, should I repeat it?

The vaccine does not need to be repeated for infants who regurgitate, spit out, or vomit during or after vaccine administration. They should continue to receive the series at the recommended intervals.

Should I make an effort to give teenagers a Tdap dose, even if they've had a dose of Td at age 11–12 years?

Yes. All adolescents should receive one dose of Tdap vaccine to protect them from pertussis, even if they have already received Td. It is important to do this right away if they are in contact with an infant younger than age 12 months, work in a healthcare setting where they have direct contact with patients, or live in a community where pertussis is occurring.



Please summarize the newly published recommendations for the use of Tdap vaccine in adults.

The following recommendations for a single dose of Tdap (ADACEL®) apply to adults ages 19–64 years who have not yet received Tdap. After receiving Tdap, adults should receive the standard Td booster every ten years.

- **Routine:** Adults should receive a single dose of Tdap to replace a single dose of Td for booster immunization against tetanus, diphtheria, and pertussis if they received their most recent tetanus toxoid-containing vaccine (e.g., Td) 10 or more years earlier.
- **Short intervals between Td and Tdap:** Tdap can be administered at an interval of less than 10 years since the last dose of Td to protect against pertussis. The safety of intervals as short as approximately 2 years between administration of Td and Tdap is supported by a Canadian study of children and adolescents; shorter intervals may be used.
- **Prevention of pertussis among infants younger than age 12 months by vaccinating adult contacts:** Adults who have or who anticipate having close contact with an infant younger than age 12 months (e.g., parents, grandparents, child-care providers, and healthcare personnel) should receive a single dose of Tdap. An interval as short as 2 years since the most recent tetanus toxoid-containing vaccine is suggested; shorter intervals can be used. Ideally, Tdap should be administered at least 2 weeks before beginning close contact with the infant. Women should receive a dose of Tdap in the immediate postpartum period if they have not previously received Tdap. Any woman who might become pregnant is encouraged to receive a single dose of Tdap.
- **Vaccination of healthcare personnel (HCP):** HCP in hospitals and ambulatory care settings who have direct patient contact should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap. An interval as short as 2 years from the last dose of Td is recommended. Other HCP should receive a single dose of Tdap according to the routine recommendation; they are encouraged also to receive Tdap at an interval as short as 2 years. Priority should be given to vaccination of HCP who have direct contact with infants younger than age 12 months. Hospitals and ambulatory-care facilities should provide Tdap for HCP and use approaches that maximize vaccination rates.
- **History of pertussis:** Adults with a history of pertussis generally should receive Tdap according to the routine recommendations.
- **Tetanus prophylaxis in wound management:** Adults ages 19–64 years who require a tetanus toxoid-containing vaccine as part of wound management should receive Tdap instead of Td if they have not previously received Tdap. If Tdap is not available or was administered previously, Td should be administered.
- **Incomplete or unknown vaccination history:** Adults who have never received tetanus and diphtheria toxoid-containing vaccine should receive a series of three vaccinations. The preferred schedule is a single dose of Tdap followed by Td at least 4 weeks later and a second dose of Td 6–12 months after the previous dose. Tdap can substitute for Td for any one of the 3 doses in the series.
- **Pregnancy:** Pregnancy is not a contraindication for Tdap or Td vaccination. Guidance on the use of Tdap during pregnancy is published separately in provisional recommendations for use of Tdap in pregnant women. See www.cdc.gov/nip/recs/provisional_recs.

To obtain a copy of ACIP's "Preventing Tetanus, Diphtheria, and Pertussis Among Adults," go to www.cdc.gov/mmwr/PDF/rr/rr5517.pdf.

In our practice, we're instituting visits for older teens to make sure they're up to date with Tdap, MCV4, hep B, and HPV vaccines before they graduate. We would appreciate your feedback.

Congratulations! Your clinic should get an award. We hope you're also taking advantage of VFC vaccine for VFC-eligible patients. Once teenagers turn 19, they are no longer eligible for VFC.

Why is influenza vaccination important for healthcare workers? We encourage our employees to stay home from work when sick.

Unfortunately, by the time healthcare workers have influenza and feel ill, they will have already exposed many patients since the virus is shed for 1–2 days before symptoms begin. Do the right thing. Start planning now to make sure all employees in your work setting receive influenza vaccination before the next influenza season begins.

I've heard that a nasal influenza vaccine formulation that is stable at refrigerator temperatures will be available next fall. True?

Yes, FluMist was recently licensed as a cold adapted influenza vaccine (CAIV-T). This vaccine is stable at refrigerator temperatures (does not need to be frozen) and will be available for the 2007–08 vaccination season.

How do I obtain electronic and laminated copies of the newest U.S. recommended immunization schedules for children and for adults?

Download the schedules from CDC's website at www.cdc.gov/nip/recs/child-schedule.htm for children and www.cdc.gov/nip/recs/adult-schedule.htm for adults. You can also print them or purchase laminated versions from IAC by going to www.immunize.org/shop.

(continued on page 20)

For whom is shingles (zoster) vaccination recommended?

A single dose of zoster vaccine is recommended for adults 60 years of age and older whether or not they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless a contraindication or precaution exists for their condition.

Why isn't zoster (shingles) vaccine included on the recently published "2006–07 Recommended Adult Immunization Schedule"?

Because the official recommendations had not yet been published when the schedule was finalized. However, this shouldn't prevent any provider from routinely vaccinating adults ages 60 years and older. Follow the instructions on the package insert. ACIP has released provisional recommendations for the use of zoster vaccine. They are posted at www.cdc.gov/nip/recs/provisional_recs/default.htm.

Hepatitis A and B

I've heard a few hospitals in our state aren't giving the birth dose to all newborns. Isn't hepatitis B vaccine now recommended for all newborns prior to hospital discharge?

Yes. ACIP recommends that all newborns be vaccinated in the hospital prior to hospital discharge. AAP and AAFP have also endorsed these recommendations. ACIP recommends the following with regard to administering the birth dose:

- All delivery hospitals should implement standing orders for administration of hepatitis B vaccine as part of routine medical care of all medically stable infants weighing 2 kg (4.4 lb) or more at birth.
- All medically stable infants weighing 2 kg or more at birth and born to HBsAg-negative mothers should receive the first dose of vaccine (single-antigen only) before hospital discharge.
- On a case-by-case basis and only in rare circumstances, the first dose may be delayed until after hospital discharge for an infant who weighs 2 kg or more and whose mother is HBsAg negative. In this case, a physician's order not to give the birth dose must be written, and a copy of the original HBsAg-negative laboratory report during this pregnancy should be placed in the infant's medical record.

The official ACIP recommendations for hepatitis B vaccination of children are available at www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.

Why is there a strong recommendation to use the birth dose for all newborns?

The birth dose provides effective postexposure immunoprophylaxis to prevent transmission in the perinatal period and early infancy. Some of the reasons for the birthdose are as follows:

- HBsAg testing of mothers does not identify all newborns who require postexposure immunoprophylaxis. Errors are sometimes made in ordering tests, reporting test results, and omitting vaccination of infants of known HBsAg-positive mothers. The birth dose serves as a "safety net," preventing perinatal infection among infants born to all mothers who are HBsAg positive and assures protection for all infants.
- The birth dose provides early protection to infants at risk for infection after the perinatal period. Although infections in young children represented less than 10% of all hepatitis B virus (HBV) infections before implementation of routine childhood hepatitis B vaccination, childhood infections resulted in an estimated 30%–40% of chronic HBV infections among persons who acquired their infections in the U.S. Many of these chronic infections would not have been prevented by a selective program of identification and immunization of only those infants born to HBsAg-positive mothers.

According to the recently released ACIP hepatitis B recommendations for adults, which adults should be vaccinated?

The following groups are recommended for hepatitis B vaccination.

- Sex partners of HBsAg-positive persons
- Sexually active persons who are not in long-term, mutually monogamous relationships
- Persons seeking evaluation or treatment for a sexually transmitted disease (STD)
- Men who have sex with men (MSM)
- Current or recent injection-drug users
- Household contacts of HBsAg-positive persons
- Residents and staff of facilities for developmentally challenged persons
- Healthcare and public safety workers with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids
- Persons with end-stage renal disease, including predialysis, hemo-, peritoneal-, and home-dialysis patients
- International travelers to regions with intermediate or high levels (i.e., ≥2%) of HBV infection (see Figure 4 in ACIP statement). These new recommendations do not specify the length of the trip.
- Persons with chronic liver disease
- Persons with HIV infection
- All other persons who wish to be protected from HBV infection

Acknowledgement of a specific risk factor is NOT a requirement for vaccination.

The official ACIP recommendations for hepatitis B vaccination of adults are available at www.cdc.gov/mmwr/PDF/rr/rr5516.pdf.

In which high-risk settings should hepatitis B vaccine be universally administered?

In certain settings, a high proportion of persons are likely to be at risk for HBV infection. Examples of these settings are the following:

- STD/HIV testing and treatment facilities
- Drug-abuse treatment and prevention settings including injection-drug-user care settings
- Healthcare settings targeting services to MSM
- Correctional facilities
- Chronic hemodialysis facilities and end-stage renal disease programs
- Institutions and non-residential day care facilities for developmentally challenged persons

In these settings, ACIP recommends universal hepatitis B vaccination for all adults who have not completed the vaccine series.

According to the new recommendations, how should hepatitis B vaccination be administered in primary care settings?

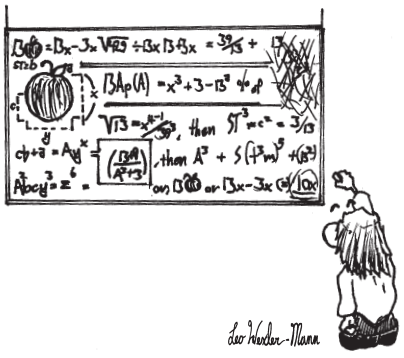
In primary care and specialty medical settings, ACIP recommends implementation of standing orders for identifying adults recommended for hepatitis B vaccination and for administering vaccination as part of routine services. To ensure vaccination of adults at risk for HBV infection who have not completed the vaccine series, ACIP recommends the following:

- Provide information to all adults regarding the health benefits of hepatitis B vaccination, including risk factors for HBV infection and persons for whom vaccination is recommended
- Help all adults assess their need for vaccination by obtaining a history that emphasizes risks for sexual transmission and percutaneous or mucosal exposure to blood
- Vaccinate all adults who report risks for HBV infection
- Vaccinate all adults requesting protection from HBV infection, without requiring them to acknowledge a specific risk factor

For your use, a hepatitis B screening questionnaire is available at www.immunize.org/catg.d/2191hepb.pdf. Standing orders for administer-

(continued on page 21)

If you took 3 apples from a basket that contained 13 apples, how many apples would you have?



Leo Werden-Mann

If you took 3 apples, you'd have 3 apples.

ing hepatitis B vaccine to adults are also available at www.immunize.org/catg.d/p3076.pdf.

Which HBsAg-positive patients should be considered infectious?
All HBsAg-positive persons should be considered infectious, regardless of HBeAg status.

I've heard that HBV can exist on an environmental surface and remain infectious to humans. True?
Yes. HBV is stable in the environment and remains viable for 7 or more days on environmental surfaces at room temperature. The virus is still capable of transmitting HBV despite the absence of visible blood.

How do I manage a patient with a sexual exposure to HBV?
These recommendations are too lengthy to address in *Needle Tips*. Refer to Appendix B of the ACIP adult hepatitis B recommendations at www.cdc.gov/mmwr/PDF/rr/rr5516.pdf. It fully covers this topic.

Are hepatitis B vaccines safe?
Yes. Hepatitis B vaccines have been demonstrated to be safe when administered to infants, children, adolescents, and adults. Since 1982, an estimated 70 million adolescents and adults and 50 million infants and children in the United States have received at least one dose of hepatitis B vaccine; a billion doses of hepatitis B vaccine have been given worldwide. Vaccination causes a sore arm occasionally, but serious reactions are very rare.

Two doses of hepatitis A vaccine are recommended for all one-year-olds. What should I do about older children who were not vaccinated at age 1 year?
If the child is not vaccinated at age 12–23 months, you can vaccinate at a subsequent visit. The Vaccines for Children (VFC) program will cover hepatitis A vaccination for all VFC-eligible children through age 18 years.

If a person wants to be protected from hepatitis A, and isn't in a risk group, is there any reason not to vaccinate him or her?
No. ACIP recommends hepatitis A vaccination for any person who wants to be protected from hepatitis A.

Which travelers should be vaccinated against hepatitis A?
All U.S. travelers who travel to or work in countries outside the U.S.—except Western Europe, New Zealand, Australia, Canada, and Japan—should receive hepatitis A vaccine at least one month prior to departure.

For hepatitis A, is it really necessary to vaccinate travelers to Latin America who will be staying in 4-star hotels?
Yes. Data have shown that persons acquire HAV infection even in such places as 4-star hotels located in Latin America.

How do I interpret the results of some of the commonly ordered panels of hepatitis B tests?

Tests	Results	Interpretation	Vaccinate?
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible	vaccinate if indicated
HBsAg anti-HBc anti-HBs	negative negative positive with ≥10mIU/mL*	immune due to vaccination	no vaccination necessary
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected	no vaccination necessary (may need treatment)
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible†	use clinical judgment

*Postvaccination testing, when it is recommended, should be performed 1–2 months after the last dose of vaccine. Infants born to HBsAg-positive mothers should be tested 3–9 months after the last dose.

†1. May be recovering from acute HBV infection
2. May be distantly immune, but the test may not be sensitive enough to detect a very low level of anti-HBs in serum
3. May be susceptible with a false positive anti-HBc
4. May be chronically infected and have an undetectable level of HBsAg present in the serum

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Visit www.immunize.org

Hepatitis A and B lab tests

Hepatitis A lab nomenclature

anti-HAV: *Antibody to hepatitis A virus.* This diagnostic test detects total antibody of both IgG and IgM subclasses of HAV. Its presence indicates either acute or resolved infection.

IgM anti-HAV: *IgM antibody subclass of anti-HAV.* Its presence indicates a recent infection with HAV (6 mos or less). It is used to diagnose acute hepatitis A.

Hepatitis B lab nomenclature

HBsAg: *Hepatitis B surface antigen* is a marker of infectivity. Its presence indicates either acute or chronic HBV infection.

anti-HBs: *Antibody to hepatitis B surface antigen* is a marker of immunity. Its presence indicates an immune response to HBV infection, an immune response to vaccination, or the presence of passively acquired antibody. (It is also known as ***HBsAb,*** but this abbreviation is best avoided since it is often confused with abbreviations such as HBsAg.)

anti-HBc (total): *Antibody to hepatitis B core antigen* is a nonspecific marker of acute, chronic, or resolved HBV infection. It is *not* a marker of vaccine-induced immunity. It may be used in prevaccination testing to determine previous exposure to HBV infection. (It is also known as ***HBcAb,*** but this abbreviation is best avoided since it is often confused with other abbreviations.)

IgM anti-HBc: *IgM antibody subclass of anti-HBc.* Positivity indicates recent infection with HBV (within the past 6 mos). Its presence indicates acute infection.

HBeAg: *Hepatitis B "e" antigen* is a marker of a high degree of HBV infectivity, and it correlates with a high level of HBV replication. It is primarily used to help determine the clinical management of patients with chronic HBV infection.

Anti-HBe: *Antibody to hepatitis B "e" antigen* may be present in an infected or immune person. In persons with chronic HBV infection, its presence suggests a low viral titer and a low degree of infectivity.

HBV-DNA: *HBV Deoxyribonucleic acid* is a marker of viral replication. It correlates well with infectivity. It is used to assess and monitor the treatment of patients with chronic HBV infection.

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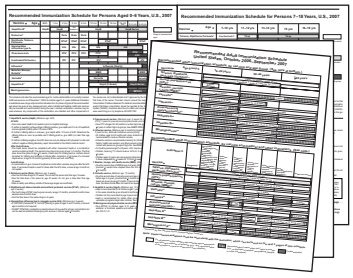
***Updated!* Laminated U.S. Child/Adolescent and Adult Immunization Schedules**



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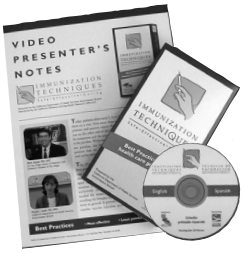

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Deborah L. Wexler, MD
IAC Executive Director

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- *"I find* Needle Tips *to be a valuable source of current and practical information for my practice and have shared the information with the family practice physicians and nurses at my center often ... Thanks!"—S.B.J., MD, Arizona*
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Deborah L. Wexler, MD

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A special thank you to the Mark and Muriel Wexler Foundation.

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