Volume 22 – Number 1

February 2012
(content current as of February 1)

NEEDLE TIPS

from the Immunization Action Coalition — www.immunize.org

What's Inside

Ask the Experts: CDC immunization experts answer your questions 1

CDC and IAC Are Official Partners in Providing VIS Translations 2

Vaccine Highlights: Recommendations, Schedules, and More 4

Summary of Recommendations for Child/Teen Immunization 6

Summary of Recommendations for Adult Immunization 10

What If You Don't Immunize Your Child 14

CDC Fact Sheets on Vaccine Topics 16

IAC's Immunization Resources Order Form 18

New! ACIP recommends routine vaccination of males 11 through 21 years old against human papillomavirus infection

On December 23, 2011, CDC issued updated recommendations of the Advisory Committee on Immunization Practices for vaccinating males with quadrivalent human papillomavirus vaccine (HPV4; Gardasil; Merck). HPV4 is directed against human papillomavirus (HPV) types 6, 11, 16, and 18. One of ACIP's primary goals in recommending that males be vaccinated is to protect them against some anal, penile, and oropharyngeal cancers caused primarily by HPV type 16. Previously, ACIP had recommended permissive use of HPV4 in males age 9–26 years for the prevention of genital warts.

Following are the recommendations published in *MMWR* (www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a3.htm) for administering HPV4 to males:

- Routinely vaccinate males age 11–12 years with a 3-dose series of HPV4. The series can be started in males as young as age 9.
- Vaccinate males age 13 through 21 if they have not been vaccinated previously or have not completed the 3-dose series.
- Males age 22 through 26 years may be vaccinated. This means that any male in this age range who wishes to be protected against human papillomavirus may receive the 3-dose series of HPV4 vaccine.
- Routinely vaccinate males through age 26 years if they are immunocompromised as a result of infection (including HIV), disease, or medications and have not been vaccinated previously or have not completed the 3-dose series.
- Routinely vaccinate men who have sex with men (MSM) through age 26 if they have not been vaccinated previously or have not completed the 3-dose series. MSM are at higher risk for infection with HPV types 6, 11, 16, and 18 and associated conditions, including genital warts and anal cancer.

And be sure to continue vaccinating young women with HPV vaccine. HPV vaccine is routinely recommended for young women age 11 through 26 years. According to CDC National Immunization Survey data, only 49% of females 13–17 years have started their HPV series and only 32% have completed the 3-dose series. There is lots of work to do!

Ask the Experts

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

Human papillomavirus (HPV)

Please describe the new recommendations for the use of HPV4 vaccine in males and explain how these new recommendations differ from the previous ones.

ACIP recommends routine vaccination of males age 11–12 years with HPV4 (Gardasil, Merck) administered as a 3-dose series. The vaccination series can be started beginning at age 9 years. Vaccination with HPV4 is recommended for males age 13 through 21 years who have not been vaccinated previously or who have not completed the 3-dose series. Males age 22 through 26 years may be vaccinated with HPV4.

ACIP recommends that immunocompromised males who have not been vaccinated previously or who have not completed the 3-dose series receive routine vaccination with HPV4 through age 26 years.

Men who have sex with men (MSM) are at higher risk for infection with HPV types 6, 11, 16, and 18 and associated conditions, including genital warts and anal cancer. ACIP recommends that MSM who have not been vaccinated previously or who have not completed the 3-dose series receive routine vaccination with HPV4 through age 26 years.

Previously, ACIP had issued permissive recommendations for HPV4 use in males age 9–26 years for the prevention of genital warts.

To obtain a copy of the new recommendations, which were published in *MMWR* in December 2011, see www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a3.htm.

Is it recommended that patients age 26 years start the HPV vaccination series even though they will be older than 26 when they complete it?

Yes. HPV vaccine is recommended for all women through age 26 years and also may be given to men through that age. So, the 3-dose series can be started at age 26 even if it will not be completed at age 26. The series should be completed regardless of the age of the patient (i.e., even if the patient is older than 26). In certain situations, some clinicians

(continued on page 5)

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

Immunization Action Coalition
1573 Selby Avenue, Suite 234
Saint Paul, MN 55104
Phone: (651) 647-9009
Fax: (651) 647-9131
Email: admin@immunize.org
Websites: www.immunize.org
www.vaccineinformation.org
www.izcoalitions.org

Needle Tips is a publication of the Immunization Action Coalition (IAC) written for health professionals. Content is reviewed by the Centers for Disease Control and Prevention (CDC) for technical accuracy. This publication is supported in part by CDC Grant No. U38IP000589. The content is solely the responsibility of IAC and does not necessarily represent the official views of CDC. ISSN 1944-2017.

Publication Staff
Editor: Deborah L. Wexler, MD
Associate Editor: Diane C. Peterson
Managing Editor: Dale Thompson, MA
Edit./Opr. Asst.: Janelle T. Anderson, MA
Consultants: Teresa A. Anderson, DDS, MPH
Linda A. Moyer, RN, and Mary Quirk
Layout: Kathy Cohen
Website Design: Sarah Joy

IAC Staff
Associate Director for Research:
Sharon G. Humiston, MD, MPH
Coordinator for Public Health:
Laurel Wood, MPA
Asst. to the Director: Julie Murphy, MA
Operations Manager: Robin VanOss
Operations Assistant: Casey Pauly

IAC publishes a free email news service (*IAC Express*) and two free periodicals (*Needle Tips* and *Vaccinate Adults*). To subscribe, go to www.immunize.org/subscribe.

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

The Immunization Action Coalition is also supported by
Merck Sharp & Dohme Corp.
GlaxoSmithKline • Novartis Vaccines
sanofi pasteur • Pfizer, Inc.
MedImmune, Inc. • CSL Biotherapies
Ortho Clinical Diagnostics, Inc.
Baxter Healthcare Corp.
American Pharmacists Association
Mark and Muriel Wexler Foundation
Anonymous
Many other generous donors

IAC maintains strict editorial independence in its publications.

Immunization Action Coalition and CDC are official partners in providing VIS translations

If you are a healthcare professional who provides vaccination services to people who don't speak English, the Immunization Action Coalition (IAC) is the "go-to" spot for translations of Vaccine Information Statements (VISs). For more than a decade, IAC has made these translations available on immunize.org. The VIS translations in up to 40 languages are donated to IAC from generous partners and volunteers. In October 2011, IAC entered into a cooperative agreement with the Centers for Disease Control and Prevention (CDC) to support IAC's role as the official clearinghouse of VIS translations. In addition, as a result of this federal funding and effective immediately, IAC will consistently provide translations in seven languages for each routinely recommended VIS whenever VISs are newly updated by CDC. The languages we will provide (within 30 days of CDC's release of an English VIS) are

- Arabic
- Chinese (Traditional)
- French (European)
- Russian
- Spanish (Mexican)
- Somali
- Vietnamese

www.immunize.org/vis

IAC'S GENEROUS TRANSLATION PARTNERS

IAC would like to take this opportunity to acknowledge the contributions of our generous translation partners, who we will continue to count on to provide VISs in additional languages. We are grateful for their time and dedication to providing these helpful patient materials.

- Arkansas Department of Health
- Asian Pacific Health Care Venture
- California Department of Public Health, Immunization Branch
- DT Interpreting and Wentworth Douglass Hospital
- Hawaii Department of Health
- Healthy Roads Media
- Kentucky Department of Public Health
- Massachusetts Department of Public Health
- Minnesota Department of Health
- Mustafa Kozanoglu, MD, Dogus Child Healthcare Center, Adana, Turkey
- New York City Department of Health and Mental Hygiene
- Oregon Public Health Division, Immunization Program
- Yisehak Tura, RN

TRANSLATE FOR IAC

If you are interested in becoming a translation partner of IAC, please contact translations@immunize.org. For details about how to provide VIS translations so they can be shared with the world via immunize.org, go to www.immunize.org/translate.asp.

To find out when new or revised VIS translations are available, subscribe to our weekly e-newsletter, IAC Express, at www.immunize.org/subscribe.

Vaccine Information Statements

The VIS section on immunize.org includes all VISs published in the United States and offers them in up to 40 languages.

- Visit IAC's VIS web section
- Access IAC's VIS translations
- Access chronological listing of new and updated VISs and their translations

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

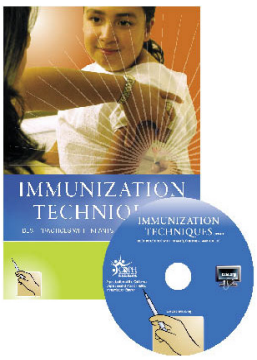
Now you can give any patient a permanent vaccination record card designed specifically for their age group: child & teen, adult, or lifetime. These brightly colored cards are printed on durable rip-, smudge-, and water-proof paper. To view the cards or for more details, go to www.immunize.org/shop and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

Buy 1 box (250 cards) for $45 (first order of a 250-card box comes with a 30-day, money-back guarantee). Discounts for larger orders: 2 boxes $40 each; 3 boxes $37.50 each; 4 boxes $34.50 each

To order, visit www.immunize.org/shop, or use the order form on page 18.

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

"Immunization Techniques — Best Practices with Infants, Children, and Adults"



The California Department of Public Health, Immunization Branch, updated its award-winning training video, "Immunization Techniques: Best Practices with Infants, Children, and Adults." The 25-minute DVD can be used to train new employees and to refresh the skills of experienced staff on administering injectable, oral, and nasal-spray vaccines to children, teens, and adults. Make sure your healthcare setting has the 2010 edition!

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

To order, visit www.immunize.org/shop, or use the order form on page 18.

For 100 or more copies, contact us for discount pricing: admininfo@immunize.org

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

IAC Honors Healthcare Institutions With Stellar Influenza Vaccination Policies

IAC's Honor Roll for Patient Safety recognizes hospitals, professional societies, and government entities that have taken a stand for patient safety by creating strong mandatory influenza vaccination policies for healthcare workers. More than 150 organizations are now enrolled.

Read the position statements of leading medical organizations and see the organizations now enrolled. You can apply for your organization to become a member. Access the Honor Roll at

www.immunize.org/honor-roll

Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information in Vaccine Highlights is current as of February 1, 2012.

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 3 times a year in Atlanta; meetings are open to the public. The next meetings will be held on Feb. 22–23 and June 20–21. For more information, visit www.cdc.gov/vaccines/ recs/acip.

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/vaccines/pubs/acip-list.htm.

New ACIP recommendations

On Dec. 23, 2011, *MMWR* published "Recommendations on the Use of Quadrivalent Human Papillomavirus Vaccine in Males." ACIP recommends routine vaccination of males age 11 or 12 years with quadrivalent human papillomavirus vaccine (HPV4; Gardasil; Merck) administered as a 3-dose series that can be started in males as young as age 9 years. Vaccination is also recommended for males age 13 through 21 years who have not been vaccinated previously or have not completed the series. Males age 22 through 26 years may be vaccinated.

ACIP also recommends vaccination with HPV4 in males 22–26 who are immunocompromised and for men who have sex with men. To obtain a copy of the recommendations, see pages 1705–1708 of the *MMWR* issue located at www.cdc.gov/mmwr/pdf/wk/mm6050.pdf.

On Dec. 23, 2011, CDC published ACIP recommendations titled "Use of Hepatitis B Vaccination for Adults with Diabetes Mellitus." ACIP recommends that hepatitis B vaccine be administered to unvaccinated adult diabetics age 19 through 59 years. The recommendations also state that hepatitis B vaccine may be administered to unvaccinated diabetics age 60 years and older at the discretion of the treating clinician. To obtain a copy of the recommendations, see pages 1709–1711 of the *MMWR* issue located at www.cdc.gov/mmwr/pdf/wk/mm6050.pdf.

On Nov. 25, 2011, CDC published ACIP recommendations titled *Immunization of Health-Care Personnel*. To obtain a copy, go to www.cdc.gov/mmwr/pdf/rr/rr6007.pdf.

Other vaccine news

On Nov. 11, 2011, CDC published "Update on Herpes Zoster Vaccine: Licensure for Persons Aged 50 Through 59 Years." It states that at its June 2011 meeting, ACIP declined to recommend use of herpes zoster (shingles) vaccine for adults age 50 through 59 years and reaffirmed its current recommendation that the vaccine be routinely recommended for adults age 60 years and older. ACIP cited the limited supply of Zostavax as a concern in recommending an expanded age indication for the vaccine. ACIP will continue to monitor supply issues and might update recommendations regarding vaccination of adults age 50 through 59 years when an adequate and stable supply of the vaccine is assured. To access the article, see page 1528 of the *MMWR* issue located at www.cdc.gov/mmwr/pdf/wk/mm6044.pdf.

On Dec. 30, 2011, FDA issued a press release announcing that it has approved the use of the pneumococcal 13-valent conjugate vaccine, Prevnar 13 (Pfizer), to prevent pneumonia and invasive disease caused by the bacterium *Streptococcus pneumoniae* in people age 50 and older. Prevnar 13 was originally approved on Feb. 24, 2010, for use in infants and children age 6 weeks through 5 years. The FDA press release is available at www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm285431.htm.

New VISs

On Jan. 24, CDC issued an updated VIS for Td and Tdap vaccines. It incorporates updated ACIP recommendations regarding children age 7 through 9 years, adults 65 and older, and pregnant women. It also includes a paragraph about the risk of syncope. Because of the addition of risk information, CDC encourages providers to begin using the updated edition as soon as possible. To access the VIS, go to www.immunize.org/vis/td_tdap.pdf.

On Dec. 7, 2011, CDC released a revised Japanese encephalitis (JE) vaccine VIS. To access it, go to www.immunize.org/vis/je_ixiaro.pdf.

On Nov. 8, 2011, CDC released a revised inactivated polio vaccine (IPV) VIS. It does not differ significantly from the previous edition. To access it, go to www.immunize.org/vis/polio-ipv.pdf.

On Oct. 25, 2011, CDC issued an updated hepatitis A vaccine VIS. It includes recommendations for families and other close contacts of newly arriving adopted children and information about post-exposure prophylaxis. It's available at www.immunize.org/vis/hepatitis-a.pdf.

New and updated VISs

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 IAC's website at www.immunize.org/vis. You'll find VISs in more than 30 languages.

DTaP/DT/DTP	5/17/07	MMRV	5/21/10
Hepatitis A	10/25/11	PCV	4/16/10
Hepatitis B	7/18/07	PPSV	10/6/09
Hib	12/16/98	Polio	11/8/11
HPV (Cervarix)	5/3/11	Rabies	10/6/09
HPV (Gardasil)	5/3/11	Rotavirus	12/6/10
Influenza (LAIV)	7/26/11	Shingles	10/6/09
Influenza (TIV)	7/26/11	Td/Tdap	1/24/12
Japan. enceph.	12/7/11	Typhoid	5/19/04
Meningococcal	10/14/11	Varicella	3/13/08
MMR	3/13/08	Yellow fever	3/30/11

Multi-vaccine VIS 9/18/08
(for 6 vaccines given to infants/children: DTaP, IPV, Hib, HepB, PCV, RV)

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


Andrew T. Kroger, MD, MPH


Donna L. Weaver, RN, MN


Iyabode Akinsanya-Beysolow, MD, MPH


William L. Atkinson, MD, MPH

choose to start the 3-dose HPV series in patients who are older than 26 years. This, however, is an off-label use.

Will patients who have already had genital warts benefit from receiving Gardasil?
A history of genital warts or clinically evident genital warts indicates infection with HPV, most often type 6 or 11. However, people with this history might not have been infected with both HPV 6 and 11 or with HPV 16 or 18. Vaccination will provide protection against infection with HPV vaccine types the patient has not already acquired. Gardasil (HPV4) protects against HPV vaccine types 6, 11, 16, and 18; Cervarix (HPV2; GlaxoSmithKline) protects against HPV 16 and 18. Providers should advise their patients/clients that results from clinical trials do not indicate the vaccine will have any therapeutic effect on existing HPV infection or genital warts.

If a patient has been sexually active for a number of years, is it still recommended to give HPV vaccine or to complete the HPV vaccine series?
Yes. You should not withhold HPV vaccine from people who are already sexually active. Ideally, patients should be vaccinated before onset of sexual activity; however, patients who have already been infected with one or more HPV types still get protection from other HPV types in the vaccine that have not been acquired.

If a patient's vaccination history indicates she received the third dose of HPV vaccine earlier than the recommended minimum interval of 24 weeks, should she be given a fourth dose?
Maybe. If the 3-dose series was given with minimum intervals of at least 4 weeks between dose #1 and dose #2 AND at least 12 weeks between dose #2 and dose #3, do not repeat any doses. If the third dose was given at less than 12 weeks from dose #2, repeat dose #3 at least 12 weeks after the invalid dose.

Will VFC cover HPV vaccination for males?
Yes. VFC funding will cover HPV4 (Gardasil) vaccination for VFC-eligible males age 9 through 18 years.

If HPV vaccine is given subcutaneously (SC) instead of intramuscularly (IM), does the dose need to be repeated?
No, the dose does not need to be repeated. Vaccines should always be administered by the route recommended by the manufacturer; however, if a vaccine is inadvertently administered SC instead of IM, or IM instead of SC, ACIP recommends that the dose be counted as valid with two exceptions: Hepatitis B or rabies vaccine administered by a route other than IM should be repeated.

Hepatitis B vaccine

Would you please provide details about the new ACIP recommendations for the use of hepatitis B vaccine in adult diabetic patients?
In December 2011, CDC published new ACIP recommendations that hepatitis B vaccine be given to adults with diabetes. The vaccine series is recommended for unvaccinated adults with diabetes age 59 years and younger. At the discretion of the treating clinician, the vaccine may also be administered to unvaccinated adults with diabetes age 60 years and older.

The recommendations were prompted by a number of outbreaks of hepatitis B virus infection in settings that provide assisted blood glucose monitoring for people with diabetes.

Administration of the hepatitis B vaccine series should be completed as soon as feasible after diabetes is diagnosed. No serologic testing or additional hepatitis B vaccination is recommended for adults who received a complete series of hepatitis B vaccinations at any time in the past.

Hepatitis B vaccine may be administered during healthcare visits scheduled for other purposes, as long as minimum intervals between doses are observed. No maximum interval between doses exists that would make the hepatitis B vaccination series ineffective or that would require restarting the series.

You can read the details of this recommendation and the rationale behind it in *MMWR* at www.cdc.gov/mmwr/preview/mmwrhtml/mm6050a4.htm.

Tdap vaccine

Is it true that ACIP no longer specifies a time interval between administering doses of Td and Tdap to teens and adults?
In January 2011, CDC issued updated ACIP recommendations (www.cdc.gov/mmwr/preview/mmwrhtml/mm6001a4.htm?s_cid=mm6001a4) on the use of Tdap vaccine. They clearly state that pertussis vaccination, when indicated, should not be delayed and that Tdap should be administered regardless of the interval since the last tetanus- or diphtheria-toxoid-containing vaccine was given. This means that if Td was administered inadvertently when Tdap was indicated, the dose of Tdap can be given on the same day the dose of Td was given.

If a teen or adult patient received a dose of Td vaccine 2 years ago, should I wait approximately 8 more years before administering a dose of Tdap to the patient?
No. ACIP recommends that people age 11 through 64 who have not yet received Tdap receive their one-time Tdap dose now. ACIP specifies no waiting interval between administering Td and Tdap to anyone in this age group. Adults age 65 years and older do not need to delay Tdap vaccination following Td either.

If a teen or adult mistakenly received a dose of Td when they should have received Tdap, what is the optimal time to give the missing Tdap dose?
As soon as possible, even if it is the same day.

Is there any reason not to administer Tdap vaccine to adults age 65 and older who want the vaccine but are not in contact with an infant? It seems like it would be a good idea to vaccinate them to protect them, their family, and their community from pertussis.
No medical reason exists for withholding Tdap from adults age 65 and older unless they have a medical contraindication.

We intend to start vaccinating family contacts of pregnant women with Tdap to protect the newborn. Can you tell me how long it takes for the Tdap vaccine to provide protection?
To best protect infants, CDC recommends that teens and adults who haven't been vaccinated receive Tdap 2 weeks or more before having contact with an infant.

(continued on page 17)

Needle Tips correction policy

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

Summary of Recommendations for Child/Teen Immunization *(Ages birth through 18 years)* (Page 1 of 4)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis B (HepB) *Give IM*	• Vaccinate all children age 0 through 18yrs. • Vaccinate all newborns with monovalent vaccine prior to hospital discharge. Give dose #2 at age 1–2m and the final dose at age 6–18m (the last dose in the infant series should not be given earlier than age 24wks). After the birth dose, the series may be completed using 2 doses of single-antigen vaccine or up to 3 doses of Comvax (ages 2m, 4m, 12–15m) or Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of hepatitis B vaccine. • **If mother is HBsAg-positive:** give the newborn HBIG + dose #1 within 12hrs of birth; complete series at age 6m or, if using Comvax, at age 12–15m. • **If mother's HBsAg status is unknown:** give the newborn dose #1 within 12hrs of birth. If low birth weight (less than 2000 grams), also give HBIG within 12hrs. For infants weighing 2000 grams or more whose mother is subsequently found to be HBsAg positive, give the infant HBIG ASAP (no later than 7d of birth) and follow HepB immunization schedule for infants born to HBsAg-positive mothers.	• Do not restart series, no matter how long since previous dose. • 3-dose series can be started at any age. • Minimum intervals between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3. **Special Notes on Hepatitis B Vaccine (HepB)** **Dosing of HepB:** Monovalent vaccine brands are interchangeable. For people age 0 through 19yrs, give 0.5 mL of either Engerix-B or Recombivax HB. **Alternative dosing schedule for unvaccinated adolescents age 11 through 15yrs:** Give 2 doses Recombivax HB 1.0 mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.) **For preterm infants:** Consult ACIP hepatitis B recommendations (*MMWR* 2005; 54 [RR-16]).*	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • For infants who weigh less than 2000 grams, see ACIP recs.*
DTaP, DT (Diphtheria, tetanus, acellular pertussis) *Give IM*	• Give to children at ages 2m, 4m, 6m, 15–18m, 4–6yrs. • May give dose #1 as early as age 6wks. • May give #4 as early as age 12m if 6m have elapsed since #3. • Do not give DTaP/DT to children age 7yrs and older. • If possible, use the same DTaP product for all doses.	• #2 and #3 may be given 4wks after previous dose. • #4 may be given 6m after #3. • If #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs). • If #4 is given after 4th birthday, #5 is not needed.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • For DTaP/Tdap only: encephalopathy not attributable to an identifiable cause, within 7d after DTP/DTaP. **Precautions** • Moderate or severe acute illness. • History of arthus reaction following a prior dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine. • Guillain-Barré syndrome (GBS) within 6wks after previous dose of tetanus-toxoid-containing vaccine. • For DTaP only: Any of these events following a previous dose of DTP/DTaP: 1) temperature of 105°F (40.5°C) or higher within 48hrs; 2) continuous crying for 3hrs or more within 48hrs; 3) collapse or shock-like state within 48hrs; 4) seizure within 3d. • For DTaP/Tdap only: Progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Td, Tdap (Tetanus, diphtheria, acellular pertussis) *Give IM*	• For children and teens lacking previous Tdap: give Tdap routinely at age 11–12yrs and vaccinate older teens on a catch-up basis; then boost every 10yrs with Td. • Make special efforts to give Tdap to children and teens who are 1) in contact with infants younger than age 12m and 2) healthcare workers with direct patient contact. • For pregnant women lacking previous Tdap, give Tdap in 3rd or late 2nd trimester (i.e., more than 20wks gestation). If not given during pregnancy, give Tdap in immediate postpartum period.	• Children as young as age 7yrs and teens who are unvaccinated or behind schedule should complete a primary Td series (spaced at 0, 1–2m, and 6–12m intervals); substitute a 1-time Tdap for any dose in the series, preferably as dose #1. • Tdap should be given regardless of interval since previous Td.	
Polio (IPV) *Give SC or IM*	• Give to children at ages 2m, 4m, 6–18m, 4–6yrs. • May give dose #1 as early as age 6wks. • Not routinely recommended for U.S. residents age 18yrs and older (except certain travelers).	• The final dose should be given on or after the 4th birthday and at least 6m from the previous dose. • If dose #3 is given after 4th birthday, dose #4 is not needed if dose #3 is given at least 6m after dose #2.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.

*This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of the recommendations, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC's website at www.cdc.gov/vaccines/pubs/ACIP-list.htm; or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip. This table is revised periodically. Visit IAC's website at www.immunize.org/childrules to make sure you have the most current version.

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

Summary of Recommendations for Child/Teen Immunization *(Ages birth through 18 years)*

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Influenza Trivalent inactivated influenza vaccine (TIV) *Give IM* Live attenuated influenza vaccine (LAIV) *Give intranasally*	• Vaccinate all children and teens age 6m through 18yrs. • LAIV may be given to healthy, non-pregnant people age 2–49yrs. • Give 2 doses, spaced 4wks apart, to children age 6m through 8yrs who 1) are first-time vaccinees or 2) failed to receive at least 1 dose of the 2010–11 vaccine. • For TIV, give 0.25 mL dose to children age 6–35m and 0.5 mL dose if age 3yrs and older. • If LAIV and either MMR, Var, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.		**Contraindications** • Previous anaphylaxis to this vaccine, to any of its components, including egg protein. • For LAIV only: age younger than 2yrs; pregnancy; chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV); for children and teens ages 6m through 18yrs, current long-term aspirin therapy; for children age 2 through 4yrs, wheezing or asthma within the past 12m, per healthcare provider statement. **Precautions** • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6wks of a previous influenza vaccination. • For LAIV only: Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48hrs before vaccination. Avoid use of these antiviral drugs for 14d after vaccination.
Varicella (Var) (Chickenpox) *Give SC*	• Give dose #1 at age 12–15m. • Give dose #2 at age 4–6yrs. Dose #2 of Var or MMRV may be given earlier if at least 3m since dose #1. • Give a 2nd dose to all older children/teens with history of only 1 dose. • MMRV may be used in children age 12m through 12yrs (see note below). Note: For the first dose of MMR and varicella given at age 12–47mos, either MMR and Var or MMRV may be used. Unless the parent or caregiver expresses a preference for MMRV, CDC recommends that MMR and Var should be given for the first dose in this age group.	• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space at least 4wks apart. • May use as postexposure prophylaxis if given within 5d. • If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Children on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired cellular immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte percentages are either 15% or greater in children ages 1 through 8yrs or 200 cells/μL or greater in children age 9yrs and older). **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement *General Recommendations on Immunization** regarding time to wait before vaccinating. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. **Note:** For patients with humoral immunodeficiency or leukemia, see ACIP recommendations*.
MMR (Measles, mumps, rubella) *Give SC*	• Give dose #1 at age 12–15m. • Give MMR at age 6 through 11m if traveling internationally; then revaccinate at age 12m (and at least 4wks from previous dose). The dose given at younger than 12m does not count toward the 2-dose series. • Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1. For MMRV: dose #2 may be given earlier if at least 3m since dose #1. • Give a 2nd dose to all older children and teens with history of only 1 dose. • MMRV may be used in children age 12m through 12yrs (see note above).	• If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. • When using MMR for both doses, minimum interval is 4wks. • When using MMRV for both doses, minimum interval is 3m. • Within 72hrs of measles exposure, give 1 dose of MMR as postexposure prophylaxis to susceptible healthy children age 12m and older.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). Note: HIV infection is NOT a contraindication to MMR for children who are not severely immunocompromised (consult ACIP MMR recommendations [*MMWR* 1998;47 [RR-8] for details*). **Precautions** • Moderate or severe acute illness. • If blood, plasma, or immune globulin given in past 11m, see ACIP statement *General Recommendations on Immunization** regarding time to wait before vaccinating. • History of thrombocytopenia or thrombocytopenic purpura. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. • Need for tuberculin skin testing (TST). If TST needed, give TST before or on same day as MMR, or give TST 4wks following MMR.

Summary of Recommendations for Child/Teen Immunization *(Ages birth through 18 years)*

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hib (*Haemophilus influenzae* type b) *Give IM*	• ActHib (PRP-T): give at age 2m, 4m, 6m, 12–15m (booster dose). • PedvaxHIB or Comvax (containing PRP-OMP): give at age 2m, 4m, 12–15m (booster dose). • Dose #1 of Hib vaccine should not be given earlier than age 6wks. • Give final dose (booster dose) no earlier than age 12m and a minimum of 8wks after the previous dose. • Hib vaccines are interchangeable; however, if different brands of Hib vaccines are administered for dose #1 and dose #2, a total of 3 doses is necessary to complete the primary series in infants. • Any Hib vaccine may be used for the booster dose. • Hib is not routinely given to children age 5yrs and older. • Hiberix is approved ONLY for the booster dose at age 12m through 4yrs.	**All Hib vaccines:** • If #1 was given at 12–14m, give booster in 8wks. • Give only 1 dose to unvaccinated children ages 15 through 59m. **ActHib:** • #2 and #3 may be given 4wks after previous dose. • If #1 was given at age 7–11m, only 3 doses are needed; #2 is given 4–8wks after #1, then boost at age 12–15m (wait at least 8wks after dose #2). **PedvaxHIB and Comvax:** • #2 may be given 4wks after dose #1.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Age younger than 6wks. **Precaution** Moderate or severe acute illness.
Pneumococcal conjugate (PCV13) *Give IM*	• Give at ages 2m, 4m, 6m, 12–15m. • Dose #1 may be given as early as age 6wks. • When children are behind on PCV schedule, minimum interval for doses given to children younger than age 12m is 4wks; for doses given at 12m and older, it is 8wks. • Give 1 dose to unvaccinated healthy children age 24–59m. • For high-risk** children ages 24–71m: Give 2 doses at least 8wks apart if they previously received fewer than 3 doses; give 1 dose at least 8wks after the most recent dose if they previously received 3 doses. • PCV13 is not routinely given to healthy children age 5yrs and older. ****High-risk:** Those with sickle cell disease; anatomic or functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; diseases associated with immunosuppressive and/or radiation therapy; or who have or will have a cochlear implant.	• For minimum intervals, see 3rd bullet at left. • For age 7–11m: If history of 0 doses, give 2 doses of PCV13, 8wks apart, with a 3rd dose at age 12–15m; if history of 1 or 2 doses, give 1 dose of PCV13 with a 2nd dose at age 12–15m at least 8wks later. • For age 12–23m: If unvaccinated or history of 1 dose before age 12m, give 2 doses of PCV13 8wks apart; if history of 1 dose at or after age 12m or 2 or 3 doses before age 12m, give 1 dose of PCV13 at least 8wks after most recent dose; if history of 4 doses of PCV7 or other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose. • For age 24–59m and healthy: If unvaccinated or any incomplete schedule or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose. • For age 24–71m and at high risk**: If unvaccinated or any incomplete schedule of 1 or 2 doses, give 2 doses of PCV13, 1 at least 8wks after the most recent dose and another dose at least 8wks later; if any incomplete series of 3 doses, or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent PCV7 dose. • For children ages 6 through 18yrs with functional or anatomic asplenia (including sickle cell disease), HIV infection or other immunocompromising condition, cochlear implant, or CSF leak, consider giving 1 dose of PCV13 regardless of previous history of PCV7 or PPSV.	**Contraindication** Previous anaphylaxis to a PCV vaccine, to any of its components, or to any diphtheria toxoid-containing vaccine. **Precaution** Moderate or severe acute illness.
Pneumococcal polysaccharide (PPSV) *Give IM or SC*	• Give 1 dose at least 8wks after final dose of PCV to high-risk** children age 2yrs and older. • For children who have an immunocompromising condition or have sickle cell disease or functional or anatomic asplenia, give a 2nd dose of PPSV 5yrs after previous PPSV (consult ACIP PPSV recommendations at www.cdc.gov/vaccines/pubs/ACIP-list.htm*).		**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.

Summary of Recommendations for Child/Teen Immunization *(Ages birth through 18 years)*

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Rotavirus (RV) *Give orally*	• Rotarix (RV1): give at age 2m, 4m. • RotaTeq (RV5): give at age 2m, 4m, 6m. • May give dose #1 as early as age 6wks. • Give final dose no later than age 8m 0 days.	• Do not begin series in infants older than age 14wks 6 days. • Intervals between doses may be as short as 4wks. • If prior vaccination included use of different or unknown brand(s), a total of 3 doses should be given.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. If allergy to latex, use RV5. • History of intussusception. • Diagnosis of severe combined immunodeficiency (SCID). **Precautions** • Moderate or severe acute illness. • Altered immunocompetence other than SCID. • Chronic gastrointestinal disease. • Spina bifida or bladder exstrophy.
Hepatitis A (HepA) *Give IM*	• Give 2 doses spaced 6 to 18m apart to all children at age 1yr (12–23m). • Vaccinate all previously unvaccinated children and adolescents age 2yrs and older who - Want to be protected from HAV infection and lack a specific risk factor. - Live in areas where vaccination programs target older children. - Travel anywhere except U.S., W. Europe, N. Zealand, Australia, Canada, or Japan. - Have chronic liver disease, clotting factor disorder, or are adolescent males who have sex with other males. - Use illicit drugs (injectable or non-injectable). - Anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee's arrival in the U.S.	• Minimum interval between doses is 6m. • Children who are not fully vaccinated by age 2yrs can be vaccinated at subsequent visits. • Consider routine vaccination of children age 2yrs and older in areas with no existing program. • Give 1 dose as postexposure prophylaxis to incompletely vaccinated children age 12m and older who have recently (during the past 2wks) been exposed to hepatitis A virus.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.
Meningococcal conjugate, quadrivalent (MCV4) *Give IM* —— **Meningococcal polysaccharide** (MPSV4) *Give SC*	• Give MCV4 #1 routinely at age 11 through 12yrs and a booster dose at age 16yrs. • Give MCV4 to all unvaccinated teens age 13 through 18yrs; if vaccinated at age 13–15yrs, give booster dose at age 16–18yrs. • Give 1 initial dose to unvaccinated first-year college students age 19–21yrs who live in residence halls; give booster dose if most recent dose given when younger than age 16yrs. • Give MCV4-D (Menactra) to children age 9 through 23m who have persistent complement component deficiency, are a resident of or traveling to a country with hyperendemic or epidemic disease, or are present during outbreaks caused by a vaccine serogroup; give 2 doses, 3m apart (or no sooner than 8wks apart). • Give either brand of MCV4 to unvaccinated children age 24m and older with persistent complement component deficiency or anatomic or functional asplenia; give 2 doses, 2m apart. If MCV4-D (Menactra) is given, it must be separated by 4wks from the final dose of PCV13.	• If previously vaccinated with MPSV4 or MCV4 and risk of meningococcal disease persists, revaccinate with MCV4 in 3yrs (if previous dose given when younger than age 7yrs) or in 5yrs (if previous dose given at age 7yrs or older). Then, give additional booster doses every 5yrs if risk continues. • When administering MCV4 to children with HIV infection, give 2 initial doses, separated by 8wks.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. *Note: Use MPSV4 ONLY if there is a permanent contraindication or precaution to MCV4.*
Human papillomavirus (HPV) (HPV2, Cervarix) (HPV4, Gardasil) *Give IM*	• Give 3-dose series of either HPV2 or HPV4 to girls and 3-dose series of HPV4 to boys at age 11–12yrs on a 0, 1–2, 6m schedule. (May be given as early as age 9yrs.) • Give a 3-dose series of either HPV2 or HPV4 to all older girls/women (through age 26yrs) and 3-dose series of HPV4 to all older boys/men (through age 21yrs) who were not previously vaccinated.	Minimum intervals between doses: 4wks between #1 and #2; 12 wks between #2 and #3. Overall, there must be at least 24wks between doses #1 and #3. If possible, use the same vaccine product for all doses.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.

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

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
Influenza Trivalent inactivated influenza vaccine (TIV) *Give IM or ID (intradermally)* ——— Live attenuated influenza vaccine (LAIV) *Give intranasally*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • Vaccination is recommended for all adults. (This includes healthy adults ages 19–49yrs without risk factors.) • LAIV is approved only for healthy nonpregnant people age 2–49yrs. • Adults age 18 through 64yrs may be given any intramuscular TIV product or, alternatively, the intradermal TIV product (Fluzone Intradermal). • Adults ages 65yrs and older may be given standard-dose TIV or, alternatively, the high-dose TIV (Fluzone High-Dose). **Note:** LAIV may not be given to some adults; see contraindications and precautions listed in far right column.	• Give 1 dose every year in the fall or winter. • Begin vaccination services as soon as vaccine is available and continue until the supply is depleted. • Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.	**Contraindications** • Previous anaphylactic reaction to this vaccine, to any of its components, including egg protein. • For LAIV only: pregnancy; chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV). **Precautions** • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6wks following previous influenza vaccination. • For LAIV only: receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48hrs before vaccination. Avoid use of these antiviral drugs for 14d after vaccination.
Pneumococcal polysaccharide (PPSV) *Give IM or SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • People age 65yrs and older. • People younger than age 65yrs who have chronic illness or other risk factors, including chronic cardiac or pulmonary disease (including asthma), chronic liver disease, alcoholism, diabetes, CSF leaks, cigarette smoking, as well as candidates for or recipients of cochlear implants and people living in special environments or social settings (including American Indian/Alaska Natives age 50 through 64yrs if recommended by local public health authorities). • Those at highest risk of fatal pneumococcal infection, including people who - Have anatomic or functional asplenia, including sickle cell disease. - Have an immunocompromising condition, including HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, or nephrotic syndrome. - Are receiving immunosuppressive chemotherapy (including corticosteroids). - Have received an organ or bone marrow transplant.	• Give 1 dose if unvaccinated or if previous vaccination history is unknown. • Give a 1-time revaccination to people - Age 65yrs and older if 1st dose was given prior to age 65yrs and 5yrs have elapsed since dose #1. - Age 19 through 64yrs who are at highest risk of fatal pneumococcal infection or rapid antibody loss (see the 3rd bullet in the box to left for listings of people at highest risk) and 5yrs have elapsed since dose #1.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.

* This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC's website at www.cdc.gov/vaccines/pubs/ACIP-list.htm; or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip. This table is revised periodically. Visit IAC's website at www.immunize.org/adultrules to make sure you have the most current version.

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

Immunization Action Coalition • 1573 Selby Avenue • Saint Paul, MN 55104 • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org • admin@immunize.org

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

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
MMR (Measles, mumps, rubella) *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • People born in 1957 or later (especially those born outside the U.S.) should receive at least 1 dose of MMR if there is no laboratory evidence of immunity or documentation of a dose given on or after the first birthday. • People in high-risk groups, such as healthcare personnel (paid, unpaid, or volunteer), students entering college and other post–high school educational institutions, and international travelers, should receive a total of 2 doses. • People born before 1957 are usually considered immune, but evidence of immunity (serology or documented history of 2 doses of MMR) should be considered for healthcare personnel. • Women of childbearing age who do not have acceptable evidence of rubella immunity or vaccination.	• Give 1 or 2 doses (see criteria in 1st and 2nd bullets in box to left). • If dose #2 is recommended, give it no sooner than 4wks after dose #1. • If a pregnant woman is found to be rubella susceptible, give 1 dose of MMR postpartum. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, Zos, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d. • Within 72hrs of measles exposure, give 1 dose as postexposure prophylaxis to susceptible adults. **Note:** Routine post-vaccination serologic testing is not recommended.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy; or severely symptomatic HIV). **Note:** HIV infection is NOT a contraindication to MMR for those who are not severely immunocompromised (i.e., CD4+ T-lymphocyte counts are greater than or equal to 200 cells/µL). **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin were given in past 11m, see ACIP statement *General Recommendations on Immunization** regarding time to wait before vaccinating. • History of thrombocytopenia or thrombocytopenic purpura. **Note:** If TST (tuberculosis skin test) and MMR are both needed but not given on same day, delay TST for 4–6wks after MMR.
Varicella (chickenpox) (Var) *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • All adults without evidence of immunity. **Note:** Evidence of immunity is defined as written documentation of 2 doses of varicella vaccine; a history of varicella disease or herpes zoster (shingles) based on healthcare-provider diagnosis; laboratory evidence of immunity; and/or birth in the U.S. before 1980, with the exceptions that follow. - Healthcare personnel (HCP) born in the U.S. before 1980 who do not meet any of the criteria above should be tested or given the 2-dose vaccine series. If testing indicates they are not immune, give the 1st dose of varicella vaccine immediately. Give the 2nd dose 4–8 wks later. - Pregnant women born in the U.S. before 1980 who do not meet any of the criteria above should either 1) be tested for susceptibility during pregnancy and if found susceptible, given the 1st dose of varicella vaccine postpartum before hospital discharge, or 2) not be tested for susceptibility and given the 1st dose of varicella vaccine postpartum before hospital discharge. Give the 2nd dose 4–8wks later.	• Give 2 doses. • Dose #2 is given 4–8wks after dose #1. • If dose #2 is delayed, do not repeat dose #1. Just give dose #2. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, Zos, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d. • May use as postexposure prophylaxis if given within 5d. **Note:** Routine post-vaccination serologic testing is not recommended.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • People on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired cellular immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte counts are greater than or equal to 200 cells/µL. See *MMWR* 2007;56,RR-4). **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement *General Recommendations on Immunization** regarding time to wait before vaccinating. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.
Zoster (shingles) (Zos) *Give SC*	• People age 60yrs and older.	• Give 1-time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox. • If 2 or more of the following live virus vaccines are to be given—MMR, Zos, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.	**Contraindications** • Previous anaphylactic reaction to any component of zoster vaccine. • Primary cellular or acquired immunodeficiency. • Pregnancy. **Precautions** • Moderate or severe acute illness. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.

Summary of Recommendations for Adult Immunization *(Age 19 years & older)* (Page 3 of 4)

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis A (HepA) *Give IM* Brands may be used interchangeably.	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • All people who want to be protected from hepatitis A virus (HAV) infection and lack a specific risk factor. • People who travel or work anywhere EXCEPT the U.S., Western Europe, New Zealand, Australia, Canada, and Japan. • People with chronic liver disease; injecting and non-injecting drug users; men who have sex with men; people who receive clotting-factor concentrates; people who work with HAV in experimental lab settings; food handlers when health authorities or private employers determine vaccination to be appropriate. • People who anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee's arrival in the U.S. • Adults age 40yrs or younger with recent (within 2 wks) exposure to HAV. For people older than age 40yrs with recent (within 2 wks) exposure to HAV, immune globulin is preferred over HepA vaccine.	• Give 2 doses, spaced 6–12m apart. • If dose #2 is delayed, do not repeat dose #1. Just give dose #2. For Twinrix (hepatitis A and B combination vaccine [GSK]) for patients age 18yrs and older only: give 3 doses on a 0, 1, 6m schedule. There must be at least 4wks between doses #1 and #2, and at least 5m between doses #2 and #3. An alternative schedule can also be used at 0, 7d, 21–30d, and a booster at 12m.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy
Hepatitis B (HepB) *Give IM* Brands may be used interchangeably.	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • All adults who want to be protected from hepatitis B virus infection and lack a specific risk factor. • Household contacts and sex partners of HBsAg-positive people; injecting drug users; sexually active people not in a long-term, mutually monogamous relationship; men who have sex with men; people with HIV; people seeking STD evaluation or treatment; hemodialysis patients and those with renal disease that may result in dialysis; diabetics younger than age 60yrs (diabetics age 60yrs and older may be vaccinated at the clinician's discretion [see ACIP recommendations*]); healthcare personnel and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; certain international travelers; and people with chronic liver disease. **Note:** Provide serologic screening for immigrants from endemic areas. If patient is chronically infected, assure appropriate disease management. For sex partners and household contacts of HBsAg-positive people, provide serologic screening and administer initial dose of HepB vaccine at same visit.	Give 3 doses on a 0, 1, 6m schedule. • Alternative timing options for vaccination include 0, 2, 4m; 0, 1, 4m; and 0, 1, 2, 12m (Engerix brand only). • There must be at least 4wks between doses #1 and #2, and at least 8wks between doses #2 and #3. Overall, there must be at least 16wks between doses #1 and #3. • **Schedule for those who have fallen behind:** If the series is delayed between doses, DO NOT start the series over. Continue from where you left off.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Polio (IPV) *Give IM or SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • Not routinely recommended for U.S. residents age 18yrs and older. Note: Adults living in the U.S. who never received or completed a primary series of polio vaccine need not be vaccinated unless they intend to travel to areas where exposure to wild-type virus is likely. Previously vaccinated adults can receive 1 booster dose if traveling to polio endemic areas or to areas where the risk of exposure is high.	• Refer to ACIP recommendations* regarding unique situations, schedules, and dosing information.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.

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

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
Human papillomavirus (HPV) (HPV2, Cervarix) (HPV4, Gardasil) *Give IM*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • All previously unvaccinated women through age 26yrs and men through age 21yrs. • All previously unvaccinated men through age 26yrs who 1) have sex with men or 2) are immunocompromised as a result of infection (including HIV), disease, or medications.	• Give 3 doses on a 0, 2, 6m schedule. • There must be at least 4wks between doses #1 and #2 and at least 12wks between doses #2 and #3. Overall, there must be at least 24wks between doses #1 and #3. If possible, use the same vaccine product for all three doses.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.
Meningococcal conjugate vaccine, quadrivalent (MCV4) Menactra, Menveo *Give IM* **Meningococcal** polysaccharide vaccine (MPSV4) Menomune *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • People with anatomic or functional asplenia or persistent complement component deficiency. • People who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). • Microbiologists routinely exposed to isolates of *N. meningitidis.* • First year college students through age 21yrs who live in residence halls; see 5th bullet in the box to the right for details.	• Give 2 initial doses of MCV4 separated by 2m to adults 55yrs and younger with risk factors listed in 1st bullet in column to left or if vaccinating adults with HIV infection in this age group. Give 1 dose of MPSV4 to adults 56yrs and older with risk factors. • Give 1 initial dose to all other adults with risk factors (see 2nd–4th bullets in column to left). • Give booster doses every 5yrs to adults with continuing risk (see the 1st–3rd bullets in column to left for listings of people with possible continuing risk). • MCV4 is preferred over MPSV4 for people age 55yrs and younger; use MPSV4 ONLY if age 56yrs or older or if there is a permanent contraindication/precaution to MCV4. • For first year college students age 19–21yrs living in residence halls, give 1 initial dose if unvaccinated and give booster dose if most recent dose was given when younger than 16yrs.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precaution** • Moderate or severe acute illness.
Td, Tdap (Tetanus, diphtheria, pertussis) *Give IM* *Using tetanus toxoid (TT) instead of Tdap or Td is not recommended.*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • All people who lack written documentation of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine. • A booster dose of Td or Tdap may be needed for wound management, so consult ACIP recommendations.* • In pregnancy, when indicated, give Td or Tdap in late 2nd or 3rd trimester. Tdap is preferred because protective antibodies to pertussis are provided to the fetus. If not administered during pregnancy, give Tdap in immediate postpartum period. **For Tdap only:** • Adults younger than age 65yrs who have not already received Tdap. • Adults of any age, including adults age 65yrs and older, in contact with infants younger than age 12m (e.g., parents, grandparents, childcare providers) who have not received a dose of Tdap should be prioritized for vaccination. • Healthcare personnel of all ages. • Adults age 65yrs and older without a risk indicator (e.g., not in contact with an infant) may also be vaccinated with Tdap.	• For people who are unvaccinated or behind, complete the primary Td series (spaced at 0, 1–2m, 6–12m intervals); substitute a one-time dose of Tdap for one of the doses in the series, preferably the first. • Give Td booster every 10yrs after the primary series has been completed. • Tdap should be given regardless of interval since previous Td.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • For Tdap only, history of encephalopathy not attributable to an identifiable cause, within 7d following DTP/DTaP. **Precautions** • Moderate or severe acute illness. • Guillain-Barré syndrome within 6wks following previous dose of tetanus-toxoid-containing vaccine. • For Tdap only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive neuropathy until a treatment regimen has been established and the condition has stabilized. • History of arthus reaction following a prior dose of tetanus- or diphtheria toxoid-containing vaccine; defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine.

then . . .

- *Your child will be left at risk of catching the disease.*
- *Your child will be an infectious disease threat to others.*
- *Your child may have to be excluded from school or child care.*

what to do . . .

We strongly encourage you to immunize your child. Please discuss any concerns you have with a trusted healthcare provider or call the immunization coordinator at your local or state health department. Your vaccination decision affects not only the health of your child, but also all of your family, your child's friends and their families, and your community.

For more information about vaccines, go to

- Immunization Action Coalition
  www.immunize.org
  and www.vaccineinformation.org
- Centers for Disease Control and Prevention
  www.cdc.gov/vaccines
  CDC-INFO Contact Center: (800) 232-4636
- American Academy of Pediatrics
  www.aap.org/immunization
- National Network for Immunization Information
  www.nnii.org
- Vaccine Education Center at the Children's Hospital of Philadelphia
  www.vaccine.chop.edu

Immunization Action Coalition
1573 Selby Avenue, Suite 234
Saint Paul, MN 55104
phone: (651) 647-9009
fax: (651) 647-9131
www.immunize.org
www.vaccineinformation.org

www.immunize.org/catg.d/p4017.pdf • Item #P4017 (12/11)

What if . . .

you don't immunize your child?

What if . . .

What if you don't immunize your child? Parents, please consider the consequences of not immunizing your child. Your vaccination decision affects not only the health of your child, but also the health of your family, your child's friends and their families, and your community.

Without immunizations your child is at risk for catching a vaccine-preventable disease.

Vaccines were developed to protect people from dangerous and often fatal diseases. Vaccines are safe and effective, and vaccine-preventable diseases are still a threat.

- Influenza or "flu" is a serious respiratory disease that can be deadly. Healthy infants and toddlers are especially vulnerable to the complications of influenza. Tragically, every year in the United States children die from influenza.
- Pertussis or "whooping cough" is an extremely dangerous disease for infants. It is not easily treated and can result in permanent brain damage or death. Since the 1980s, the number of cases of pertussis has increased, especially among babies younger than 6 months and teenagers. In 2010, several states reported an increase in cases and outbreaks of pertussis, including a state-wide epidemic in California. Many infants died from whooping cough during this epidemic.
- Measles is dangerous and very contagious. It is still common in many countries and is easily brought into the United States by returning vacationers and foreign visitors. The number of reported measles cases began to decline rapidly during the 1990s. Recently, vaccine hesitancy among parents in the United States and abroad has led to a growing number of children and teens who are under-vaccinated and thus, unprotected from measles. Unfortunately, measles cases are on the rise across this country and worldwide.
- Chickenpox is very contagious. Before the development of a vaccine, about 100 people died every year in the United States from chickenpox. Most were previously healthy. Children with chickenpox need to be kept out of day care or school for a week or more so they don't spread the disease to others.

Without immunizations your child can infect others.

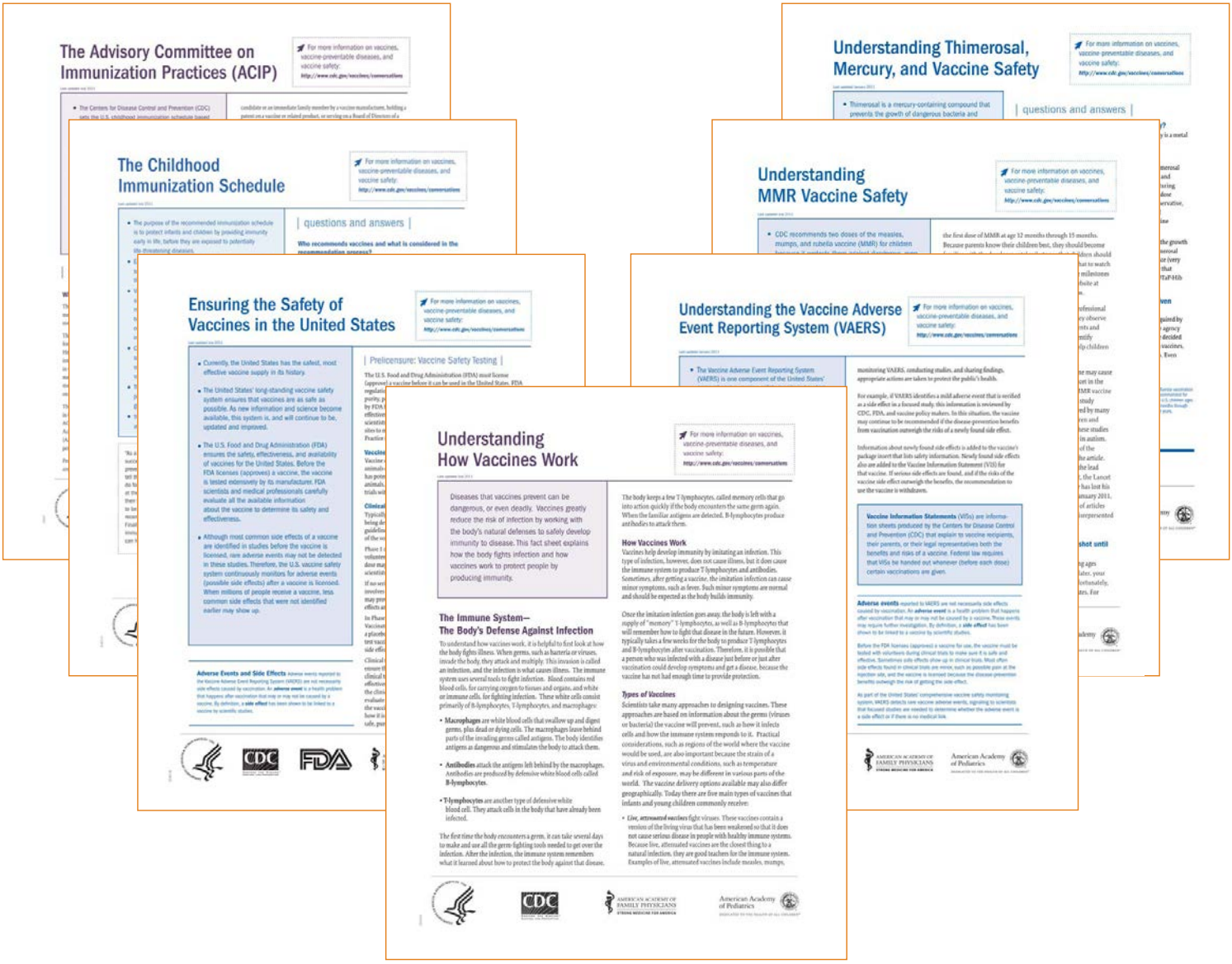
Children who are not immunized can readily transmit vaccine-preventable diseases throughout the community.

- Unvaccinated children can pass diseases on to babies who are too young to be fully immunized.
- Unvaccinated children pose a threat to children and adults who can't be immunized for medical reasons. This includes people with leukemia and other cancers, immune system problems, and people receiving treatment or medications that suppress their immune system.
- Unvaccinated children can infect the small percentage of children who do not mount an immune response to vaccination.

Without immunizations your child may have to be excluded from school or child care.

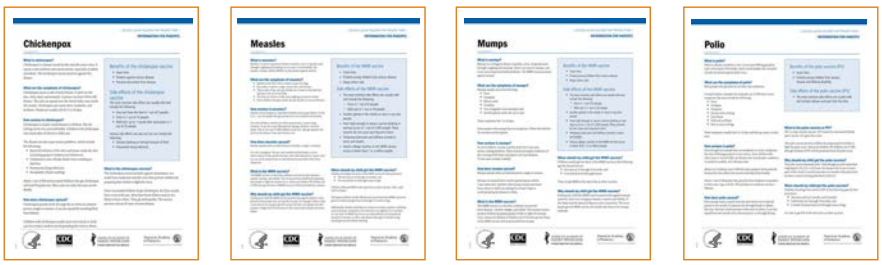
During disease outbreaks, unimmunized children may be excluded from school or child care until the outbreak is over. This is for their own protection and the protection of others. It can cause hardship for the child and parent.

Use These CDC Fact Sheets to Keep Patients and Staff Up to Date on Vaccine Topics



Download these CDC fact sheets at www.cdc.gov/vaccines/spec-grps/hcp/provider-resources-safetysheets.html

Also, find patient fact sheets on vaccine-preventable diseases (for 6th–8th grade and 10th–12th grade reading levels) at www.cdc.gov/vaccines/spec-grps/hcp/provider-resources-factsheets.html



Meningococcal vaccine

Since we know that children with functional or anatomic asplenia are at high risk for contracting* Neisseria meningitidis, *why aren't they included in the latest recommendations to vaccinate certain high-risk children against meningococcal disease beginning at age 9 months?

Though what you say is true, these children are also at higher risk of *Streptococcus pneumoniae*. Data show that the MCV4-D vaccine (Menactra; sanofi pasteur) may interfere with the immunologic response to PCV13 if these two vaccines are given too close together. Therefore, ACIP recommends that MCV4 vaccination be delayed until age 2 years to ensure that these children get age-appropriate vaccination with PCV13, and to improve the likelihood that these children are not vaccinated simultaneously with PCV13 and MCV4.

Can we vaccinate a 2-year-old boy with functional or anatomic asplenia who has not completed a series of PCV13?

You should first be certain that he is up to date with PCV13 vaccine before you vaccinate him with MCV4. If you are going to give him MCV4-D (Menactra; sanofi pasteur), you need to wait at least 4 weeks after he completes the PCV13 series before giving him the MCV4-D. There is no similar space consideration if MCV4-CRM (Menveo; Novartis) is used; it may be given simultaneously with PCV13 or at any interval since receipt of PCV13.

Shingles vaccine

When people are in their 80s, is it still recommended for them to get the shingles vaccine? I've heard it doesn't work as well in the elderly.

ACIP recommends the vaccine for everyone age 60 and older, even though the vaccine's efficacy decreases with the recipient's age. The clinical trials found approximately an 18% efficacy rate in people age 80 and older as compared with 64% efficacy in people age 60 through 69 years (see pages 13–14 at www.cdc.gov/mmwr/PDF/rr/rr5705.pdf). In general, with increasing age at vaccination, the vaccine was more effective in reducing the severity of zoster and post-herpetic neuralgia than in reducing the occurrence of zoster itself.

Hib vaccine

Occasionally we have asplenic adult patients who want to get the Hib vaccine. We know it's given only to infants and young children, but what about using it in this situation?

Although the vaccine is not routinely recommended for adults, CDC states in the *General Recommendations on Immunization:* "No efficacy data are available on which to base a recommendation for use of Hib vaccine for older children and adults with the chronic conditions that are associated with an increased risk for Hib disease. Administering 1 dose of Hib vaccine to these patients who have not previously received Hib vaccine is not contraindicated." For additional information, consult page 22 of the General Recommendations, published January 2011, at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf.

General vaccine questions

ACIP and CDC's* Vaccine Storage and Handling Guide *say that refrigerated vaccines should be stored between 35°–46°F, but some vaccine package inserts list 36°–46°F as the proper range. Should I use 35°F or 36°F as the low boundary of the range?

On the Celsius scale, the appropriate storage range for refrigerated vaccines is 2°C–8°C. Because 2°C converts to 35.6°F, some manufacturers have rounded the Fahrenheit reading to 36°F. However, 35°F is still considered acceptable for storage of any refrigerated vaccine. Providers should make an effort to store vaccines toward the midpoint of the range (approximately 40°F or 5°C) rather than at either end of the scale.

What should I do if my thermometer indicates my refrigerated vaccine has been stored between 32°–34°F? Since the vaccine wasn't "frozen," will it be OK to use? And what about people who received the vaccine before we discovered the temperature excursion—will we need to revaccinate them?

This is a complex question that requires case-by-case review. First, while you're assessing the situation, return the vaccine to proper storage temperatures and mark it "Do Not Use." Then, contact your state or local immunization program or the appropriate vaccine manufacturer(s) to discuss the potential usability of the vaccine. They will need to consider several variables related to vaccine storage conditions. For example, their guidance will be affected by the accuracy of the thermometer, whether the thermometer probe was in a liquid or was reading the temperature of the air, the type of vaccine involved, the length of time of the excursion, etc.

In general, if it can be reliably determined that the vaccine in question was not stored below 32°F and the manufacturer's stability data concurs, most immunization programs and vaccine manufacturers would not recommend wasting the vaccine or revaccinating recipients.

Does the federal law that requires providing patients with VISs apply when administering influenza vaccine to employees and volunteers in hospitals or other workplaces?

Yes. Employees and volunteers are considered patients, and you need to provide them with a VIS.

If a vaccine is covered under the National Childhood Vaccine Injury Act—and almost all vaccines routinely administered to adults are (with the exception of PPSV and zoster) —it is mandatory under federal law to give the VIS for that vaccine to the vaccinee. Therefore, when you give influenza vaccine to employees and staff, you are required by law to provide them with a VIS.

You can find more details about the requirements for using VISs at www.cdc.gov/vaccines/pubs/vis/downloads/vis-Instructions.pdf.

For VISs in multiple languages, go to www.immunize.org/vis.

If you place a needle on a pre-filled syringe and then don't administer the vaccine, how long can you store the pre-filled syringe with the needle attached?

In general, a vaccine should not be prepared until the provider is ready to administer it to a patient. This is because once the syringe cap is removed or a needle is attached, the sterile seal is broken. However, if a sterile seal has been broken, staff should be sure to maintain the syringe at the appropriate temperature and either use it or discard it at the end of the clinic day.

CDC's Pink Book has a new chapter about vaccine storage and handling at www.cdc.gov/vaccines/pubs/pinkbook/downloads/vac-storage.pdf.

To receive "Ask the Experts" Q&As by email, subscribe to the Immunization Action Coalition's news service, *IAC Express.* Special "Ask the Experts"issues are published five times per year.

Subscribe at: www.immunize.org/subscribe

To find more than a thousand "Ask the Experts" Q&As answered by CDC experts, go to

www.immunize.org/askexperts

Order Essential Immunization Resources from IAC

DVD: Immunization Techniques: Best Practices with Infants, Children, and Adults

New in 2010 from the California Department of Public Health's Immunization Branch, this 25-minute DVD helps ensure that staff administer vaccines correctly to all age groups. An excellent training tool, the DVD provides detailed information on these major topics:

- Preparing vaccines—Mixing, reconstituting, and drawing up a variety of vaccine products and preparations
- Administering vaccines—Identifying correct needle lengths, insertion angles, and injection sites, and giving injectable, oral, and nasal-spray vaccines.
- Communicating with parents and patients—Providing VISs, answering questions, and observing patients after vaccination

To order the DVD or any of our other essential immunization resources, print out and mail or fax the form below, or place your order online at www.immunize.org/shop.

It's convenient to shop IAC online at www.immunize.org/shop

Order Essential Immunization Resources

Qty. **DVD – Immunization Techniques: Best Practices with Infants, Children, and Adults (details p. 3; call for discounts on bulk orders)** **Amt.**

1-9 copies–$17 each; 10-24 copies–$10.25 each; 25-49 copies–$7 each

____ D2021 Immunization Techniques: Best Practices with Children/Teens/Adults.... $ _____

Patient Immunization Record Cards — for children & teens, for adults, and for a lifetime! (all are wallet-sized; details p. 3; call for discounts on bulk orders)

250 cards/box; 1 box–$45; 2 boxes–$40 each; 3 boxes–$37.50 each; 4 boxes–$34.50 each

____ R2003 Child/teen immunization record cards ..... $ _____

____ R2005 Adult immunization record cards ..... $ _____

____ R2004 Lifetime immunization record cards ..... $ _____

Total for Purchases $ _____

Make a Charitable Contribution

I am a ❑ new ❑ renewing contributor.

Here is my contribution:

❑ $25 ❑ $50 ❑ $75 ❑ $100 ❑ $125

❑ $150 ❑ $200 ❑ $250 other: $_____

IAC is a 501(c)(3) charitable organization and your contribution is tax deductible to the fullest extent of the law.

Total for Purchases and Contribution $ _____

How to Place an Order

By Credit Card: Order easily online at our secure shopping cart at www.immunize.org/shop.

By Check, Purchase Order, or Credit Card: Print out this page, fill out the necessary information, and

Fax the page to: (651) 647-9131 or

Mail the page to: Immunization Action Coalition
1573 Selby Avenue, Suite 234
St. Paul, MN 55104

Our federal ID# is 41-1768237.

For Questions or International Orders: Contact us by phone at (651) 647-9009 or email **admininfo@immunize.org**

Thank you for your support of the Immunization Action Coalition. We depend on you!

Method of payment: ❑ **Check enclosed** (payable to Immunization Action Coalition)

❑ **Purchase order #** _____

❑ Visa ❑ Mastercard ❑ Am. Express ❑ Discover

Card # | | | | | | | | | | | | | | | |

Expiration Date mo/yr | | | | | CV Code #* | | | |

*The CV Code is the Credit Verification Code, the additional 3- or 4-digit number on your credit card.

Name/Title _____

Organization _____

Shipping address (Check one: This is my ❑ organization address ❑ home address) _____

City/State/Zip _____

Telephone _____

Email address _____

It's convenient to shop IAC online at www.immunize.org/shop