NEEDLE TIPS

Visit www.immunize.org for up-to-date immunization information from the Immunization Action Coalition

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FEDERAL and MILITARY EMPLOYEES

Friendly reminder! When fall arrives, please make the

Immunization Action Coalition

your charity of choice for the Combined Federal Campaign. Use agency code

#10612

The Immunization Action Coalition is a 501(c)(3) charitable organization and your contribution is tax-deductible to the fullest extent of the law.

Vital Immunization News from IAC

Where to Get the Latest Updates on Novel H1N1 Influenza

Because information about the novel H1N1 influenza ("swine flu") virus is constantly changing, this issue of *Needle Tips* will not attempt to inform readers about the status of the H1N1 epidemic. The Centers for Disease Control and Prevention (CDC) has established extensive and continually updated H1N1 web resources for patients and healthcare professionals. Here are some that may be of particular interest:

CDC's main H1N1 webpage	www.cdc.gov/h1n1flu
Latest information from CDC	www.cdc.gov/h1n1flu/whatsnew.htm
Guidance for clinicians	www.cdc.gov/h1n1flu/guidance
General information for the public	www.cdc.gov/h1n1flu/general_info.htm
Subscribe to CDC's email updates	www.cdc.gov/emailupdates/index.html

In addition, the Immunization Action Coalition (IAC) has developed an H1N1 information web page, www.immunize.org/h1n1, which is updated daily. IAC selects from CDC website content, journal articles, partner resources, and news articles to present H1N1 influenza information that may have special relevance for *Needle Tips* readers and other users of IAC's www.immunize.org website.

Don't Miss an Issue of Needle Tips!

We thank the thousands of readers who subscribed to *Needle Tips* in response to our request in the most recent issue. If you have not yet requested a free subscription, please do so today!

When you subscribe, you'll receive up-to-the-minute notifications of new online issues of *Needle Tips*. You can also sign up to receive IAC's weekly vaccine news and information bulletin, *IAC Express*, which is delivered by email every Monday.

Please continue to share *Needle Tips* with your colleagues. You can print pages of interest to hand out at your office, or you can email a link to the issue to as many people as you like.

As always, we thank you for your continued dedication to protecting health and saving lives through immunization.

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).

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)

General questions

The number of injections recommended to be given at a single office visit is increasing, and we are running out of injection sites. Should we defer certain vaccines?

We strongly recommend that you do not defer any recommended vaccines. This would be a missed opportunity. No upper limit has been established regarding the number of vaccines that can be administered in one visit. CDC's Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics (AAP) consistently recommend administering all vaccines indicated for the patient's age. When giving several injections at a single visit, separate 2 intramuscular (IM) vaccines by at least 1 inch in the body of the muscle to reduce the likelihood of local reactions overlapping. Here is a link to a collection of illustrations (i.e., "site maps") that show how one can administer all indicated doses to children: www.cdc.gov/vaccines/pubs/pinkbook/downloads/ appendices/D/site-map.pdf.

When we are giving multiple injections in a limb, what is the best way to accurately document the injection site? It is not unusual for us to give 4–6 injections to each infant/child that we see, and I want to ensure that we are doing this safely and documenting it adequately.

One way to handle this is to indicate if the vaccination was given either in the "upper" or "lower" portion of the injection area selected (e.g., DTaP: right thigh, upper; Hib: right thigh, lower; or PCV7: left thigh, upper; HepB: left thigh, lower). It is helpful if

Needle Tips

Online at www.immunize.org/nt Immunization Action Coalition 1573 Selby Avenue, Suite 234 St. 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

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IAC publishes a free email news service (*IAC Express*) and three free 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) charitable organization, publishes practical immunization information for health professionals to help increase immunization rates and prevent disease.

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Three new IAC web sections make it easy to stay informed about U.S. immunization news and activities

If you want to stay current on news and activities pertaining to U.S. immunization, be sure to check out the web sections recently added under the "News and Information" heading at the top of the left column of IAC's home page at www.immunize.org. Culled from sources as diverse as the federal government, professional societies, international organizations, and specialized and mainstream media, the content of the new web sections is organized into three categories: What's New at IAC, New Releases, and Vaccines in the News.

1. *What's New at IAC* (www.immunize.org/new) offers users a chronological list of new and revised IAC materials. To help users find selected materials of in-

Waiting for a new VIS translation or updated standing orders? Find new and revised IAC materials at www.immunize.org/new

terest, the entries in What's New at IAC are also organized into three subcategories: updated VISs, new and revised IAC print materials, and new and revised additions to various web sections on www.immunize.org.

2. Check out the *New Releases* (www.immunize.org/ newreleases) web section for just-published Vaccine Information Statements from CDC, recommendations

Looking for just-published VISs or ACIP recommendations? Find official documents fast at www.immunize.org/newreleases

from the Advisory Committee on Immunization Practices, vaccine policy statements from the American Academy of Pediatrics, position statements on vaccines from the World Health Organization, clinically relevant press releases from other federal agencies, and more. 3. The third web section, *Vaccines in the News* (www. immunize.org/vaccinenews), provides the opening paragraph of news articles, features, opinion pieces, and editorials published in the news media (newspapers, magazines, editorials, and more) about vaccines

> Whenever vaccines make news, read all about it at www.immunize.org/vaccinenews

and vaccine-preventable diseases. A hyperlink to the entire article is provided for interested readers.

Along with the chronological listing of articles, the Vaccines in the News section also indexes the articles by **disease** (www.immunize.org/vaccinenews/dis_ant. asp) and by **topic** (www.immunize.org/vaccinenews/ topic_adjuv.asp). IAC selects only factually accurate articles for inclusion, ones that are suitable for sharing with patients and colleagues. You could, for example, use this web section to check for local and national news coverage about current measles and pertussis outbreaks, or influenza deaths, and then share what you find with vaccine-hesitant parents and patients. You could also check the latest media coverage on topics such as vaccine court rulings, exemptions, and new vaccine development.

Finally, we suggest that web users who want to stay up to date **subscribe** (www.immunize.org/subscribe) to our weekly email news service, *IAC Express* (www. immunize.org/express). Once you complete the signup form at www.immunize.org/subscribe, you'll start receiving FREE email announcements about important developments related to immunization.

Stay current! Subscribe to Immunization Action Coalition's free weekly email immunization news service, IAC Express. www.immunize.org/subscribe

Visit IAC's website for health professionals at www.immunize.org

DISCLAIMER: *Needle Tips* is available to all readers free of charge. Some of the information in this issue is supplied to us by the Centers for Disease Control and Prevention in Atlanta, Georgia, and some information is supplied by third-party sources. The Immunization Action Coalition (IAC) has used its best efforts to accurately publish all of this information, but IAC cannot guarantee that the original information as supplied by others is correct or complete, or that it has been accurately published. Some of the information in this issue is created or complete by IAC. All of the information in this issue is of a time-critical nature, and we cannot guarantee that some of the information is not now outdated, inaccurate, or incomplete. IAC cannot guarantee that reliance on the information in this issue no injury. Before you rely on the information in this issue, you should first independently verify its current accuracy and completeness. IAC is not licensed to practice medicine or pharmacology, and the providing of the information in this issue does not constitute such practice. Any claim against IAC must be submitted to binding arbitration under the auspices of the American Arbitration Association in Saint Paul, Minnesota.

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 through 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 \$10 for each schedule and only \$6.50 each for five or more copies.



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

Immunization screening questionnaires for contraindications! Now with English on front/Spanish on back; in pads of 100 sheets

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Save valuable staff time and make sure your patients are fully screened by using these simple I-page questionnaires (one for child/teen immunization, another for adults). Patients respond to questions by checking off "yes" and "no" boxes while waiting to be seen. Staff reviews answers during the visit. These pads are priced at \$16 per 100-sheet pad. Prices drop to \$12 each for 2 pads, \$11 each for 3 pads, \$10 each for 4–9 pads. Keep pads at the receptionist's desk, the nurses' station, and in every exam room. To view the pads or for more details, visit IAC's website at www.immunize.org/shop.

To order, visit www.immunize.org/shop or use the order form on page 23. For 10 or more pads, contact us for discount pricing: admininfo@immunize.org

Immunization record cards available 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. 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 I box (250 cards) for \$37.50 (first order of a 250-card box comes with a 30-day, money-back guarantee). Discounts for larger orders: 2 boxes \$35 each; 3 boxes \$32.50 each; 4 boxes \$30 each

To order, visit www.immunize.org/shop, or use the order form on page 23. To receive sample cards, contact us: admininfo@immunize.org

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Vaccine Highlights *Recommendations, schedules, and more*

Editor's note: The information in "Vaccine Highlights" is current as of June 22, 2009.

Novel H1N1 influenza

Because novel H1N1 influenza is a complex, rapidly emerging health concern, the Immunization Action Coalition (IAC) will not attempt to summarize H1N1 influenza developments in the Vaccine Highlights section of *Needle Tips*. Instead, on page 1 of this issue, we've listed links to excellent sources of up-to-date novel H1N1 influenza information. Please check these sources regularly to stay informed.

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 on June 24–26 and Oct. 21–22. For more information, including details about registration procedures, 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.
- Call the CDC-INFO Contact Center: (800) CDC-INFO [(800) 232-4636].

Recently published ACIP recommendations:

"Prevention of Rotavirus Gastroenteritis among Infants and Children" (2/6/09)

Immunization schedules

On Jan. 2, CDC published "Recommended Immunization Schedules for Persons Aged 0 Through 18 Years—U.S., 2009." Issued jointly by ACIP,



AAP, and AAFP, it is available in English and Spanish at www.cdc.gov/vaccines/recs/schedules/ child-schedule.htm. *Needle Tips* has a reformatted version on pages 11–13. To learn about or order IAC's laminated 6-page color version of the child/ teen schedule, go to www.immunize.org/shop/ schedule_child.asp.

On Jan. 9, CDC published "Recommended Adult Immunization Schedule—U.S., 2009." Issued jointly by ACIP, AAFP, ACOG, and ACP, it is available in English and Spanish at www.cdc. gov/vaccines/recs/schedules/adult-schedule.htm. *Needle Tips* has a reformatted version on pages 14–16. To learn about or order IAC's laminated 6-page color version of the adult schedule, go to www.immunize.org/shop/schedule_adult.asp.

Pneumococcal news

On June 9, CDC issued "Interim guidance for use of 23-valent pneumococcal polysaccharide vaccine during novel influenza A (H1N1) outbreak." It reminds healthcare professionals that during this H1N1 influenza outbreak, it is particularly important to administer PPSV vaccine to all the groups for whom vaccination is recommended. It also discusses how to use pneumococcal conjugate vaccine (PCV). To access the interim guidance, go to www.cdc.gov/h1n1flu/guidance/ ppsv_h1n1.htm.

On Dec. 8, 2008, ACIP issued provisional recommendations for the use of PPSV in people ages 19–64 who smoke cigarettes or have asthma. The provisional recommendations are available at www.cdc.gov/vaccines/recs/provisional.

On April 16, CDC issued a new VIS for PPSV reflecting the expanded recommendations. To access it, go to www.immunize.org/vis/pneum3.pdf. Several translations of this new PPSV VIS are available at www.immunize.org/vis/vis_ppsv.asp.

On Dec. 9, 2008, CDC issued an interim VIS for PCV vaccine to incorporate changes made to the recommendations for vaccinating healthy children ages 2 through 4 years. To access it, go to www.immunize.org/vis/pnPCV7.pdf.

Influenza news

On Feb. 25, ACIP voted on recommendations for the use of seasonal influenza vaccine in the 2009–10 influenza season. These call for annual influenza vaccination for all people ages 6 months through 18 years. Previously, influenza vaccination for this age group was recommended "if feasible." Recommendations for adult influenza vaccination are unchanged. As of this writing, the recommendations have not been made official by



All the news we publish in "Vaccine Highlights" will be sent by email to you every Monday. Free! To sign up, visit

www.immunize.org/subscribe

At the same time, you'll be able to sign up to receive other free IAC publications!

publication in *MMWR*; however, provisional recommendations are available at www.cdc.gov/vaccines/recs/provisional.

CDC updated a page on its website, titled "Taking Care of Yourself: What to Do if You Get Sick with the Flu." It includes important information for providers, parents, and patients on emergency warning signs that indicate that immediate medical attention is needed. To access this important resource, go to www.cdc.gov/flu/takingcare.htm.

IAC recently created a new patient education piece on influenza vaccination that makes the case for all members of a family to be vaccinated against influenza. To access "Don't take chances with your family's health—make sure you all get vaccinated against influenza every year!" go to www.immunize.org/catg.d/p4069.pdf.

Td and Tdap news

On Dec. 4, 2008, FDA approved an expanded age range for administering Boostrix Tdap vaccine (GSK) to now include people ages 10 through 64 years. Previously, it was licensed for ages 10 through 18 years. To read a summary of indications for use of Boostrix, as published in *MMWR*,

go to www.cdc.gov/mmwr/preview/mmwrhtml/ mm5814a5.htm.

On Nov. 18, 2008, CDC issued an interim edition of a new VIS that is to be used for both Td vaccine and Tdap vaccine. To access it, go to www. immunize.org/vis/td_tdap.pdf.

Rotavirus news

On Feb. 6, CDC published updated recommendations for prevention of rotavirus gastroenteritis in infants and children. It includes information on the use of recently licensed 2-dose Rotarix (RV1, GSK) vaccine and the 3-dose RotaTeq (RV5, Merck). To read the recommendations, go to www.cdc.gov/mmwr/pdf/rr/rr5802.pdf.

Hib news

On March 18, CDC issued a Health Advisory emphasizing the need for all children to receive the primary 3-dose series of Hib-containing vaccine and outlining recommendations for vaccinating children of various ages with vaccine produced by different manufacturers. Because of the Hib vaccine shortage, CDC recommends deferring the booster dose at age 12–15 months, except for high-risk groups. To access the Health Advisory, go to www2a.cdc.gov/HAN/ ArchiveSys/ViewMsgV.asp?AlertNum=00281.

Supplies of Merck's PedvaxHIB and Comvax (Hib-HepB combination) vaccines are expected to be restored by mid-to-late 2009. Sanofi pasteur's supply of ActHIB and Pentacel (DTaP-IPV/Hib) vaccines are adequate to cover the 3-dose series through mid-2009.

To access CDC's vaccine supply and shortage updates, go to www.cdc.gov/vaccines/vac-gen/ shortages.

Hepatitis A and B news

In June, CDC issued a 2-page document titled "Protecting Infants against Hepatitis B Virus Infection when Using Pentacel Vaccine during the Hib Vaccine Shortage." It advises providers who are using DTaP-IPV/Hib vaccine (Pentacel) to make every effort to have an adequate supply of monovalent HepB vaccine available to ensure that all infants receive timely HepB vaccination and to avoid excess doses of other antigens, e.g., DTaP. To access the document, go to www.cdc.gov/vaccines/vac-gen/shortages.

At its February meeting, ACIP voted to recommend hepatitis A vaccination for all previously unvaccinated people who anticipate having close personal contact with an international adoptee within 60 days of the adoptee's arrival in the U.S. when the adoptee is from a country that has high or intermediate hepatitis A endemicity. It is anticipated that the new recommendation will be published in *MMWR* later in 2009. Pediatric hepatitis B (HepB) vaccine supply is expected to be tight in summer 2009. Despite supply constraints, current analysis indicates that sufficient pediatric HepB will be available to meet demand if providers continue to order vaccine judiciously. Providers should continue to administer pediatric HepB according to the recommended immunization schedule for children and teens.

Merck anticipates depleting supplies of its adult and dialysis formulations of Recombivax HB (HepB) vaccines. Supplies of GSK's adult Engerix-B (HepB) and Twinrix (HepA/HepB combination) will meet demands for routine and high-risk usage.

To access CDC's vaccine supply and shortage updates, go to www.cdc.gov/vaccines/vac-gen/ shortages.

MMR, varicella & zoster news

Merck reports that though it is experiencing delays in shipping Varivax (varicella) vaccine, supplies are adequate to fully implement the recommended 2-dose schedule (including catch-up) for all age groups. Merck's ProQuad (MMRV) vaccine will not be available in 2009.

Merck is also experiencing delays in shipping Zostavax (shingles) vaccine but anticipates that shipping times will return to normal in mid-2009.

In Dec. 2008, Merck reported to CDC that it was not currently producing or taking orders for the following monovalent vaccines: Attenuvax (measles), Mumpsvax (mumps), and Meruvax (rubella).

To access CDC's vaccine supply and shortage updates, go to www.cdc.gov/vaccines/vac-gen/ shortages.

Japanese encephalitis news

On March 30, FDA licensed Ixiaro (Intercell Biomedical), an inactivated, adsorbed Japanese Encephalitis (JE) virus vaccine, for use in preventing disease in persons age 17 years and older. It is licensed for use as a 2-dose series for people who travel to or live in areas where JE outbreaks are known to occur. To view the package insert, go to the alphabetical listing of licensed biological products at www.fda.gov/BiologicsBloodVaccines/ucm133705.htm and scroll down to Japanese encephalitis.

Anthrax news

On Dec. 11, 2008, FDA approved a new vaccine administration schedule of 0 and 4 weeks and 6, 12, and 18 months for Emergent BioSolutions' BioThrax anthrax vaccine. Previously, the schedule also included an additional dose at 2 weeks. FDA also approved intramuscular administration; previously, the route was subcutaneous. To view the package insert, go to www.emergentbiosolutions.com/pdf/emergent_biothrax_us.pdf.

CDC resources

The eleventh edition of CDC's textbook *Epidemiology and Prevention of Vaccine-Preventable Diseases* (the Pink Book) provides healthcare professionals with comprehensive information on vaccine-preventable diseases and vaccines. It is available for downloading at www.cdc.gov/vaccines/pubs/pinkbook. Information for ordering a bound copy is also available at the URL above.

In April, CDC released "Guide to Vaccine Contraindications and Precautions," which summarizes CDC's recommendations regarding common symptoms and conditions that do and do not contraindicate administering vaccines licensed for use in the U.S. To access it, go to www.cdc.gov/ vaccines/recs/vac-admin/downloads/contraindications-guide-508.pdf.

Vaccine concerns

On Feb. 12, three Special Masters of the U.S. Court of Federal Claims issued separate rulings related to autism and vaccine injury compensation cases. In each ruling, the Special Masters found that MMR vaccine, when administered with thimerosal-containing vaccines, does not cause autism. This is the first of two decisions that the U.S. Court of Federal Claims will make. The second decision will decide whether thimerosal-containing vaccines alone can cause autism. To read the Feb. 12 rulings, go to www.uscfc. uscourts.gov/node/5026.

For a wide selection of resources from a variety of organizations on vaccine concerns, visit www. immunize.org/concerns. ◆

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/vaccines/pubs/vis (has VISs in English) or IAC's website at www. immunize.org/vis (has VISs in more than 30 languages).

PCV 12/9/08
PPSV 4/16/09
polio 1/1/00
rabies 1/12/06
rotavirus 8/28/08
shingles 9/11/06
Td/Tdap 11/18/08
typhoid 5/19/04
varicella 3/13/08
yellow fever11/9/04
n to infants/children: bB, PCV, RV)

After the Shots

Your child may need extra love and care after getting vaccinated. Some vaccinations that protect children from serious diseases also can cause discomfort for a while. Here are answers to questions many parents have after their children have been vaccinated. If this sheet doesn't answer your questions, call your healthcare provider.

Vaccinations may hurt a little... but disease can hurt a lot!

Call your healthcare provider right away if you answer "yes" to any of the following questions:

- Does your child have a temperature that your healthcare provider has told you to be concerned about?
- \Box Is your child pale or limp?
- Has your child been crying for more than 3 hours and just won't quit?
- □ Is your child's body shaking, twitching, or jerking?
- □ Is your child very noticeably less active or responsive?

Please see the back of this page for information on the proper amount of medicine to give your child to reduce pain or fever.

What to do if your child has discomfort

I think my child has a fever. What should I do?

Check your child's temperature to find out if there is a fever. An easy way to do this is by taking a temperature in the armpit using an electronic thermometer (or by using the method of temperature-taking your healthcare provider recommends). If your child has a temperature that your healthcare provider has told you to be concerned about or if you have questions, call your healthcare provider.

Here are some things you can do to help reduce fever:

- Give your child plenty to drink.
- Dress your child lightly. Do not cover or wrap your child tightly.
- Give your child a fever- or pain-reducing medicine such as acetaminophen (e.g., Tylenol) or ibuprofen (e.g., Advil, Motrin). The dose you give your child should be based on your child's weight and your heathcare provider's instructions. See the dose chart on page 2. *Do not give aspirin*. Recheck your child's temperature after 1 hour. Call your healthcare provider if you have questions.

My child has been fussy since getting vaccinated. What should I do?

After vaccination, children may be fussy because of pain or fever. To reduce discomfort, you may want to give your child a medicine such as acetaminophen or ibuprofen. See the dose chart on page 2. *Do not give aspirin*. If your child is fussy for more than 24 hours, call your healthcare provider.

My child's leg or arm is swollen, hot, and red. What should I do?

- Apply a clean, cool, wet washcloth over the sore area for comfort.
- For pain, give a medicine such as acetaminophen or ibuprofen. See the dose chart on page 2. *Do not give aspirin.*
- If the redness or tenderness increases after 24 hours, call your healthcare provider.

My child seems really sick. Should I call my healthcare provider?

If you are worried **at all** about how your child looks or feels, call your healthcare provider!

HEALTHCARE PROVIDER: PLEASE FILL IN THE INFORMATION BELOW.

If your child's temperature is ______°F or _____°C or higher, or if you have questions, call your healthcare provider.

Healthcare provider phone number: _____

Technical content reviewed by the Centers for Disease Control and Prevention, May 2009.

IMMUNIZATION ACTION COALITION

1573 Selby Avenue = St. Paul, Minnesota 55104 = www.vaccineinformation.org = www.immunize.org

Medicines and Dosages to Reduce Pain and Fever

Choose the proper medicine, and measure the dose accurately.

- 1. Ask your healthcare provider or pharmacist which medicine is best for your child.
- **2.** Give the dose based on your child's weight. If you don't know your child's weight, give the dose based on your child's age. Do not give more medicine than is recommended.
- 3. If you have questions about dosage amounts or any other concerns, call your healthcare provider.
- 4. Always use a proper measuring device. For example:
 - When giving infant drops, use the dropper enclosed in the package. Never use a spoon or a cup!
 - When giving children's liquid, use the cup enclosed in the package. If you misplace the cup, consult
 - your healthcare provider or pharmacist for advice. Kitchen spoons are not accurate measures.

Take these two steps to avoid causing a serious medication overdose in your child.

- **1.** Don't give your child a larger amount of acetaminophen (e.g., Tylenol) or ibuprofen (e.g., Motrin, Advil) than is shown in the table below. Too much of any of these medicines can cause an overdose.
- 2. When you give your child acetaminophen or ibuprofen, don't also give them over-the-counter (OTC) cough or cold medicines. This can also cause a medication overdose because cough and cold medicines often contain acetaminophen or ibuprofen. In fact, to be safe, don't give OTC cough and cold medicines to your child unless you talk to your child's healthcare provider first.

Acetaminophen (Tylenol or another brand): How much to give?

Give every 4 to 6 hours, as needed, no more than 5 times in 24 hours (unless directed to do otherwise by your healthcare provider).

CHILD'S WEIGHT	CHILD'S AGE	INFANT'S DROPS 80 mg in each o.8 mL	CHILDREN'S LIQUID 160 mg in 5 mL (1 tsp) Kitchen spoons are not accurate measures.	CHILDREN'S TABLETS 80 mg in each tab	JUNIOR STRENGTH 160 mg in each tab
6–11 lbs (2.7–5 kg)	0–3 mos	Advised dose*	Advised dose*		
12–17 lbs (5.5–7.7 kg)	4–11 mos	Advised dose*	Advised dose*		
18–23 lbs (8.2–10.5 kg)	12–23 mos	Advised dose*	Advised dose*		
24–35 lbs (10.9–15.9 kg)	2—3 yrs	1.6 mL (0.8 mL+0.8 mL)	1 teaspoon or 5 mL	2 tablets	
36–47 lbs (16.4–21.4 kg)	4–5 yrs		$1\frac{1}{2}$ teaspoon or 7.5 mL	3 tablets	
48–59 lbs (21.8–26.8 kg)	6-8 yrs		2 teaspoons or 10 mL	4 tablets	2 tablets
60–71 lbs (27.3–32.3 kg)	9–10 yrs		2 ¹ / ₂ teaspoons or 12.5 mL	5 tablets	2 ¹ ⁄ ₂ tablets
72–95 lbs (32.7–43.2 kg)	11 yrs		3 teaspoons or 15 mL	6 tablets	3 tablets

Ibuprofen (Advil, Motrin, or another brand): How much to give?

Give every 6 to 8 hours, as needed, no more than 4 times in 24 hours (unless directed to do otherwise by your healthcare provider).

CHILD'S WEIGHT	CHILD'S AGE	INFANT'S DROPS 50 mg in each 1.25 mL	CHILDREN'S LIQUID 100 mg in 5 mL (1 tsp) Kitchen spoons are not accurate measures.	CHILDREN'S TABLETS 50 mg in each tab	JUNIOR STRENGTH 100 mg in each tab
less than 11 lbs (5 kg)	0–5 mos				
12–17 lbs (5.5–7.7 kg)	6–11 mos	1.25 mL	Advised dose*		
18–23 lbs (8.2–10.5 kg)	12–23 mos	1.875 mL	Advised dose*		
24–35 lbs (10.9–15.9 kg)	2—3 yrs		1 teaspoon or 5 mL	2 tablets	
36–47 lbs (16.4–21.4 kg)	4–5 yrs		$1\frac{1}{2}$ teaspoon or 7.5 mL	3 tablets	
48–59 lbs (21.8–26.8 kg)	6-8 yrs		2 teaspoons or 10 mL	4 tablets	2 tablets
60–71 lbs (27.3–32.3 kg)	9–10 yrs		$2\frac{1}{2}$ teaspoons or 12.5 mL	5 tablets	$2^{\frac{1}{2}}$ tablets
72–95 lbs (32.7–43.2 kg)	11 yrs		3 teaspoons or 15 mL	6 tablets	3 tablets

* HEALTHCARE PROVIDER: PLEASE FILL IN THE ADVISED DOSE.

Immunization Action Coalition • www.immunize.org/catg.d/p4015.pdf

Your name:



Do I need any vaccinations today?

Many adults are behind on their vaccinations. This questionnaire will help you and your healthcare provider determine if you need any vaccinations today. Please check the boxes that apply to you.

Influenza vaccination

- I'd like to be vaccinated to avoid getting influenza or spreading it to others this season.
- □ I am age 50 or older.
- □ I live with or provide care for a child younger than age 5.
- □ I am younger than age 50 and have an ongoing health problem, such as lung, heart, kidney, liver, or blood disease; diabetes; HIV/AIDS; a disease that affects my immune system; or a health condition that may cause me to choke when I swallow.
- □ I live with or provide care for an adult age 50 or older or who has one of the health conditions described above.
- □ I live in a nursing home or chronic care facility.
- \Box I am or will be pregnant during the influenza season.
- □ I am a healthcare worker.

Pneumococcal vaccination

- □ I am age 65 or older, and I have never had a pneumococcal shot.
- I am age 65 or older and had one pneumococcal shot when I was younger than age 65; it has been 5 years or more since that shot.
- I am younger than age 65, I have not been vaccinated against pneumococcal disease, and at least one of the following applies to me:
 - I smoke cigarettes.
 - I have heart, lung, liver, kidney, or sickle cell disease; diabetes; or alcoholism.
 - I have a weakened immune system due to cancer, Hodgkin's disease, leukemia, lymphoma, multiple myeloma, kidney failure, HIV/AIDS; or I am receiving radiation therapy; or I am on medication that suppresses my immune system.
 - I have had an organ or bone marrow transplant.
 - I have had my spleen removed, have had or will have a cochlear implant, or have leaking spinal fluid.

Tetanus-, diphtheria-, and pertussis (whooping cough)-containing vaccination (e.g., DTP, DTaP, Tdap, or Td)

- I am younger than age 65 and have not had a pertussis-containing vaccine as an adult.
- I have or will have close contact with a child younger than age 12 months and have not had a pertussis-containing vaccine as an adolescent or adult.
- □ I have not yet had at least 3 tetanus- and diphtheria-containing shots.
- I have had at least 3 tetanus- and diphtheria-containing shots in my lifetime, but I believe it's been 10 years or more since I received my last shot.
- I have no idea if I ever received any tetanus- and diphtheria-containing shots in school, the military, or elsewhere.

Shingles (zoster) vaccination

 $\hfill\square$ I am an adult age 60 or older and haven't had a shingles shot.

Note: Adults may need additional vaccinations, such as polio or others. Talk to your healthcare provider.

(continued on page 2)

Technical content reviewed by the Centers for Disease Control and Prevention, March 2009.

Do I need any vaccinations today? (continued)

 Hepatitis A vaccination I want to be vaccinated to avoid getting hepatitis A and spreading it i I was vaccinated with hepatitis A vaccine in the past but never received I might have been exposed to the hepatitis A virus in the past 2 weed I am in one of the following risk groups, and I haven't completed the I travel in countries other than the U.S., Western Europe, Canada, Japan, Australia, and New Zealand.¹ I am a man who has sex with men. 	to others. ved the second shot. eks. e 2-dose series of hepatitis A shots: • I use street drugs. • I have chronic liver disease. • I have a clotting factor disorder.
Hepatitis B vaccination	
■ I want to be vaccinated to avoid getting hepatitis B.	
□ I am age 18 or younger and haven't completed the series of hepatit	is B shots.
□ I was vaccinated with hepatitis B vaccine in the past but never comp	leted the full 3-dose series.
□ I am in one of the following risk groups, and I haven't completed the	e series of hepatitis B shots:
• I am sexually active and am not in a long-term, mutually	• I inject street drugs.
monogamous relationship.	• I have chronic liver disease.
 I am a man who has sex with men. I am an immigrant, or my parents are immigrants from an area 	• I am or will be on kidney dialysis.
of the world where hepatitis B is common. ^{2,3}	 I am a healthcare or public safety worker who is exposed to blood or other body fluids.
• I live with or am a sex partner of a person with hepatitis B.	I provide direct services for people with developmental
• I have been diagnosed with a sexually transmitted disease.	disabilities.
 I have been diagnosed with HIV. 	• I travel outside the U.S. ^{1,2}
 Measles-Mumps-Rubella (MMR) vaccination I was born in 1957 or later and never received an MMR shot. I am a woman thinking about a future pregnancy and do not know i I am a healthcare worker, I do not have a history of measles or mur I was born in 1957 or later, and I am included in one of the followin received only I shot. I am entering college or a post-high school educational institution. I had a blood test that shows I do not have immunity to measing internationally. 	f I'm immune to rubella. nps, and I've had only one dose of MMR vaccine. ng groups for whom 2 MMR shots are recommended, but I have ution. sles, mumps, or rubella.
Chickenpox (varicella) vaccination	
\square I was born in 1980 or later and have never had chickenpox or the v	vaccine, or I just don't know .
□ I was born before 1980 and am either a healthcare worker or forei	gn born, and am not sure if I've had chickenpox or not.
□ I may become pregnant and do not know if I've had chickenpox or	the vaccine.
 Meningococcal vaccination. I am age 18 or younger and haven't received a meningococcal shot. I am (or will be) a college freshman living in a dorm. I am traveling to an area of the world where meningococcal disease I have sickle cell disease, or my spleen isn't working or has been rer 	is common." noved, or I have a terminal complement component deficiency.
Human papillomavirus vaccination	f shots against human papillomavirus.

I. Call your local travel clinic to find out if additional vaccines are recommended.

2. Areas with high rates of hepatitis B include Africa, China, Korea, Southeast Asia including Indonesia and the Philippines, South and Western Pacific Islands, interior Amazon Basin, certain parts of the Caribbean (i.e., Haiti and the Dominican Republic), and the Middle East except Israel. Areas with moderate rates include South Central and Southwest Asia, Israel, Japan, Eastern and Southern Europe, Russia, and most of Central and South America.

3. Most adults from moderate- or high-risk areas of the world do not know their hepatitis B status. All patients from these areas need hepatitis B blood tests to determine if they have been previously infected. The first hepatitis B shot can be given during the same visit as the blood tests but only after the blood is drawn.

Page 2

Your patients will appreciate receiving these materials!

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

Here's the link: www.immunize.org/catg.d/p4010.pdf



reneach f reneach f rwinner to hildren age Influer d be vaccinited with 3 doses of 1 e 9 years may be vaccinated.) vird planning to live in a dormite disease, they should be vaccinate Vaccinations? Catch-up^{5,7} MCV4 Veringococo conjugate 5 Catch-up^{5/6} HPV Human popillo-mavirus lalk t HepA Ispatitis A does give nos aput a 12-23 mos atch-up 5 years 5 5 young ng in cc neningo 1 women age 11 through 2 a 6-month period. (Girls as a teenager who is errollir been vaccinated against m Varicella Chickenpox **Teens Need** Catch-up⁵ Catch-up > 25 6006 MMR les, mump ubella Catch-up⁵ Catch-up⁵ > 25 RV 225 and PCV neumococol conjugate (atch-up⁵ to 5 years) 221 רא²ני aint /ho are season art this 234 Children Catch-up⁵ Cakh-up' Polio 22 $\mathbf{N}_{\mathrm{mst}}$.: Children younger than age 9 2 b seceived only 1 dose in the pn of the 2 doses spaced at least 4 w s 12 months if it has been 6 m Hib Haemophilus Vienz ae type! Catch-up⁵ to 5 years) **>**¹² mst 23 2 DTaP/Tdap Diphtheria, tetarus, pertussis Catch-up⁵ $\overbrace{Tdap}^{Catch-up^{5}}$ മ് ₹²8ms b vaccine or ler uses. 1 people. Cl or who no ild receive i early as 12 eturn for m 177 When Catch-up⁵ HepB kepatit is B $\boldsymbol{\lambda}^{(1-2)}$ **>**¹⁸ is recommended for r vaccine for the first ti vaccination season), s of DTaP may be given you think you might r 5 > months 7-10 years 11-12 years 13-18 years 15 months healthcare p 4 months 18 months 4-6 years 2 months 12 months 6 months Birth Age 19-23 n

Here's the link: www.immunize.org/catg.d/p4050.pdf

Here's the link: www.immunize.org/catg.d/p4020.pdf



Here's the link: www.immunize.org/catg.d/p4030.pdf

40.40	E0. 64	CE
19–49 years	50–64 years	65 years & older
You need a dose yearly if you have a chronic health problem,* are a healthcare worker, have close contact with certain individuals.* or you simply want to avoid getting influenza or spreading it to others.	You need a de	sse every fall (or winter).
You need 1-2 doses if you smoke cigare medical conditions.*	ttes or if you have certain chroni	c You need 1 dose at age 65 (or older) if you've never been vaccinated. You may also need a 2nd dose.*
If you haven't had at least 3 tetanus-and- now. Start with dose #1, followed by dos doses every 10 years. If you're younger ' adult, one of the doses that you receive s Be sure to consult your healthcare provide	diphtheria-containing shots son se #2 in 1 month, and dose #3 in than age 65 years and haven't ha should have pertussis (whooping der if you have a deep or dirty w	terime in your life, you need to get them 6 months. All adults need Td booster d pertussis-containing vaccine as an cough) vaccine in it—known as Tdap. ound.
You need this vaccine if you have a spec protected from this disease. The vaccine 1 month, and dose #3, usually given 5 m	ific risk factor for hepatitis B via e is given as a 3-dose series (dos onths after dose #2).	us infection* or you simply wish to be #1 now, followed by dose #2 in
You need this vaccine if you have a spec be protected from this disease. The vacc	ific risk factor for hepatitis A via ine is usually given as 2 doses, ϵ	us infection* or you simply wish to -18 months apart.
You need this vaccine if you are a woman who is age 26 years or younger. The vaccine is given in 3 doses over 6 months.		
You need at least 1 dose of MMR if you were born in 1957 or later. You may also need a 2nd dose.*		
If you've never had chickenpox or you w about whether you need this vaccine.	vere vaccinated but only received	1 1 dose, talk to your healthcare provider
If you are a young adult going to college meningococcal disease. People with cert	and plan to live in a dormitory, tain medical conditions should a	you need to get vaccinated against lso receive this vaccine.*
	If you get the	are age 60 years or older, you should is vaccine now
	19–49 years You need alone yearly if you have a - chronic health problem," are a healthear worker, have close contact with certain individuals, "er you simply want to avoid gening influence or spreading it to others. You need 1-2 close if you smaller circum- medical conditions." If you haven't had at least 3 tettuma- and now. Start with does th, followed by do doese every 10 years. If you're younger adult, noe of the does that you receive the sure to consult your healthcare provi You need th sixed. The vaccini Toou need this vaccine if you have a spee protected from this disease. The vacci You need this vaccine if you have a spee have protected from this disease. The vacci You need this vaccine if you have a spee be protected from this disease. The vacci You need the succine if you have a spee be protected from this disease. The vacci You need the succine if you have a spee be protected from this disease. The vacci younger, The vaccine if you have a spee be protected from this disease. The vacci younger, The vaccine if you have a spee be protected from this disease. The vacci younger, The vaccine if you have a spee be protected from this disease. The vacci you way alone ed a daw dow." If you we never had to dow dMMK if you we never had the check report or your about whether you need this vaccine. If you we never had the check report or your hour about you dow dis you collage meningencecal disease. Propie with cert	19-49 years 50-64 years You need a doe; yearly if you have a chronic health power." is an a hathcare worker, have close contact with certain individuals, "or you simply want a road or and a doe standard gening influenza or spreading it to others." You need a doe simply want a road beer and the standard gening influenza or spreading it to others. You need 1 does of it you snow clip does 20 in the standard does 20 in the standa

Figure 1. Recommended Immunization Schedule for Persons Ages 0 through 6 Years, U.S., 2009

For those who fall behind or start late, see the catch-up schedule (Table 1).

Vaccine ▼ Age ►	Birth	1 mo	2 mo	4 mo	6 mo	12 mo	15 mo	18 mo	19–23 mo	2–3 yrs	4–6 yrs
Hepatitis B ¹	НерВ	Не	рB	See footnote 1		Не	рВ				
Rotavirus ²			RV	RV	RV²						
Diphtheria, Tetanus, Pertussis³			DTaP	DTaP	DTaP	See footnote 3	DT	TaP			DTaP
Haemophilus influenzae type b⁴			Hib	Hib	Hib⁴	Н	ib				
Pneumococcal⁵			PCV	PCV	PCV	PC	CV			PP	sv
Inactivated Poliovirus			IPV	IPV		IF	PV				IPV
Influenza ⁶					Influenza (Yearly)						
Measles, Mumps, Rubella ⁷						M	MR		See footnote	7	MMR
Varicella ⁸						Vari	cella		 See footnote ; 	8	Varicella
Hepatitis A ⁹							HepA (2 doses)		НерА	Series
Meningococcal ¹⁰										M	cv



Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 17, 2008, for children ages 0 through 6 years. Any dose not given at the recommended age should be given at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the relevant Advisory Committee on

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

At birth:

- · Give monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis B surface antigen (HBsAg)-positive, give newborn HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, give newborn HepB within 12 hours of birth. Determine mother's HBsAg status as soon as possible and, if HBsAg-positive, give newborn HBIG (no later than age 1 week).

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 or 2 months. The final dose should be given no earlier than age 24 weeks.
- Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg (anti-HBs) after completion of at least 3 doses of the HepB series, at age 9 through 18 months (generally at the next well-child visit).

4-month dose:

 Administration of 4 doses of HepB to infants is permissible when combination vaccines containing HepB are given after the birth dose.

2. Rotavirus vaccine (RV). (Minimum age: 6 weeks)

- Give the first dose at age 6 through 14 weeks (maximum age: 14 weeks 6 days). Vaccination should not be initiated for infants ages 15 weeks 0 days or older.
- Give the final dose in the series by age 8 months 0 days.
- If Rotarix® is given at ages 2 and 4 months, a dose at 6 months is not indicated.
- 3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)
- The fourth dose may be given as early as age 12 months, provided at least 6 months have elapsed since the third dose.
- Give the final dose in the series at age 4 through 6 years.
- 4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)
- If PRP-OMP (PedvaxHIB[®] or ComVax[®][HepB-Hib]) is given at ages 2 and 4 months, a dose at age 6 months is not indicated.
- TriHIBit[®] (DTaP/Hib) should not be used for doses at ages 2, 4, or 6 months but can be used as the final dose in children age 12 months or older.
- 5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPSV])

• PCV is recommended for all children age younger than 5 years. Give 1 dose of PCV to all healthy

Immunization Practices statement for detailed recommendations, including high-risk conditions: www.cdc.gov/vaccines/pubs/acip-list.htm. 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.

children ages 24 through 59 months who are not completely vaccinated for their age.

- Give PPSV to children age 2 years or older with certain underlying medical conditions (see *MMWR* 2000;49[No. RR-9]), including a cochlear implant.
- 6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 2 years for live, attenuated influenza vaccine [LAIV])
 - Give annually to children ages 6 months through 18 years.
 - For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) ages 2 through 49 years, either LAIV or TIV may be used.
- \bullet Children receiving TIV should receive 0.25 mL if age 6 through 35 months or 0.5 mL if age 3 years or older.
- Give 2 doses (separated by at least 4 weeks) to children age younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.
- 7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)
- Give the second dose at age 4 through 6 years. However, the second dose may be given before age 4, provided at least 28 days have elapsed since the first dose.
- 8. Varicella vaccine. (Minimum age: 12 months)
- Give the second dose at age 4 through 6 years. However, the second dose may be given before age 4, provided at least 3 months have elapsed since the first dose.
- For children ages 12 months through 12 years, the minimum interval between doses is 3 months. However, if the second dose was given at least 28 days after the first dose, it can be accepted as valid.
- 9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)
- Give to all children age 1 year (i.e., ages 12 through 23 months). Give 2 doses at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA also is recommended for children older than age 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See MMWR 2006;55(No. RR-7).
- 10. Meningococcal vaccine. (Minimum age: 2 years for meningococcal conjugate vaccine [MCV] and for meningococcal polysaccharide vaccine [MPSV])

 Give MCV to children ages 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other high-risk groups. See MMWR 2005;54 (No. RR-7).

• Persons who received MPSV 3 or more years previously and who remain at increased risk for meningococcal disease should be revaccinated with MCV.

Figure 2. Recommended Immunization Schedule for Persons Ages 7 through 18 Years, U.S., 2009

For those who fall behind or start late, see the schedule below and the catch-up schedule (Table 1).

Vaccine <mark>↓</mark> Age ▶	7–10 yrs	11–12 yrs	13–18 yrs	
Tetanus, Diphtheria, Pertussis ¹	See footnote 1	Тdap	Tdap	
Human Papillomavirus ²	See footnote 2	HPV (3 doses)	HPV Series	Range of recommended ages
Meningococcal ³	MCV	MCV	MCV	
Influenza⁴		Influenza (Yearly)		
Pneumococcal⁵		PPSV		Catch-up immunization
Hepatitis A ⁶		HepA Series		
Hepatitis B ⁷		HepB Series		
Inactivated Poliovirus ⁸		IPV Series		Certain high-risk groups
Measles, Mumps, Rubellaº		MMR Series		
Varicella ¹⁰		Varicella Series		

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 17, 2008, for children ages 7 through 18 years. Any dose not given at the recommended age should be given at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the relevant Advisory

- **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 or 12 years for those who have completed the recommended childhood DTP/ DTaP vaccination series and have not received a tetanus and diphtheria toxoid (Td) booster dose.
- Persons ages 13 through 18 years who have not received Tdap should receive a dose.
 A 5 was integral from the last Td does is approximately than Tdap is used as a baseter does
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose; however, a shorter interval may be used if pertussis immunity is needed.
- 2. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)
- Give the first dose to females at age 11 or 12 years.
- Give the second dose 2 months after the first dose and the third dose 6 months after the first dose (at least 24 weeks after the first dose).
- · Give the series to females at age 13 through 18 years if not previously vaccinated.

3. Meningococcal conjugate vaccine (MCV).

- · Give at age 11 or 12 years, or at age 13 through 18 years if not previously vaccinated.
- · Give to previously unvaccinated college freshmen living in a dormitory.
- MCV is recommended for children ages 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other groups at high risk. See MMWR 2005;54(No. RR-7).
- Persons who received MPSV 5 or more years previously and remain at increased risk for meningococcal disease should be revaccinated with MCV.

Influenza vaccine.

- · Give annually to children ages 6 months through 18 years.
- For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) ages 2 through 49 years, either LAIV or TIV may be used.
- Give 2 doses (separated by at least 4 weeks) to children age younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.

Committee on Immunization Practices statement for detailed recommendations, including highrisk conditions: www.cdc.gov/vaccines/pubs/acip-list.htm. 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.

5. Pneumococcal polysaccharide vaccine (PPSV).

 Give to children with certain underlying medical conditions (see MMWR 1997;46[No.RR-8], including a cochlear implant. A single revaccination should be given to children with functional or anatomic asplenia or other immunocompromising condition after 5 years.

6. Hepatitis A vaccine (HepA).

- Give 2 doses at least 6 months apart.
- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See MMWR 2006;55(No. RR-7).

7. Hepatitis B vaccine (HepB).

- · Give the 3-dose series to those not previously vaccinated.
- A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB[®] is licensed for children ages 11 through 15 years.

8. Inactivated poliovirus vaccine (IPV).

- 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 or older.
- 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).

 If not previously vaccinated, give 2 doses or the second dose for those who have received only 1 dose, with at least 28 days between the doses.

10.Varicella vaccine.

- For persons ages 7 through 18 years without evidence of immunity (see MMWR 2007;56 [No. RR-4]), give 2 doses if not previously vaccinated or the second dose if they have received only 1 dose.
- For persons ages 7 through 12 years, the minimum interval between doses is 3 months. However, if the second dose was given at least 28 days after the first dose, it can be accepted as valid.
- For persons age 13 years and older, the minimum interval between doses is 28 days.

The Recommended Immunization Schedules for Persons Ages 0 Through 18 Years are approved by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/ recs/acip), the American Academy of Pediatrics (www.aap.org), and the American Academy of Family Physicians (www.aafp.org). Information about reporting reactions after immunization is available online at www.vaers.hhs.gov or by telephone, (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/vaccines or telephone, (800) CDC-INFO ([800] 232-4636).

Table 1. Catch-up Immunization Schedule for Persons Ages 4 Months through 18 YearsWho Start Late or Who Are More Than 1 Month Behind, United States, 2009

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.

	Catch-up schedule for persons ages 4 months through 6 years								
Maasima	Minimum Age		Minimum Interval Between Doses						
vaccine	for Dose 1	Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5				
Hepatitis B ¹	Birth	4 weeks	8 weeks (and at least 16 wks after first dose)						
Rotavirus ²	6 wks	4 weeks	4 weeks ²						
Diphtheria, Tetanus, Pertussis ³	6 wks	4 weeks	4 weeks	6 months	6 months ³				
Haemophilus influenzae type b⁴	6 wks	4 weeks if first dose given before 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 or older	4 weeks ⁴ if current age is younger than 12 mos 8 weeks (as final dose) ⁴ if current age is 12 mos or older and second dose given before age 15 mos No further doses needed if previous dose given at age 15 mos or older	8 weeks (as final dose) This dose only necessary for children ages 12 mos through 59 mos who received 3 doses before age 12 mos					
Pneumococcal⁵	6 wks	4 weeks if first dose given before age 12 mos 8 weeks (as final dose for healthy children) if first dose given at age 12 mos or older or current age is 24 through 59 mos No further doses needed for healthy children if first dose given at age 24 mos or older	4 weeks if current age is younger than 12 mos 8 weeks (as final dose for healthy children) if current age is 12 mos or older No further doses needed for healthy children if previous dose given at age 24 mos or older	8 weeks (as final dose) This dose only necessary for chil- dren ages 12 mos through 59 mos who received 3 doses before age 12 mos or for high-risk children who received 3 doses at any age					
Inactivated Poliovirus ⁶	6 wks	4 weeks	4 weeks	4 weeks ⁶					
Measles, Mumps, Rubella ⁷	12 mos	4 weeks							
Varicella [®]	12 mos	3 months							
Hepatitis A ⁹	12 mos	6 months							
		Catch-up schedule for pers	sons ages 7 through 18 years						
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis ¹⁰	7 yrs¹º	4 weeks	4 weeks if first dose is given before age 12 mos 6 months if first dose given at age 12 mos or older	6 months if first dose is given before age 12 mos					
Human Papillomavirus ¹¹	9 yrs		Routine dosing intervals are recommende	d ¹¹					
Hepatitis A ⁹	12 mos	6 months							
Hepatitis B ¹	Birth	4 weeks	8 weeks (and at least 16 wks 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	3 months if the person is younger than age 13 yrs 4 weeks if the person is age 13 years or older							

1. Hepatitis B vaccine (HepB).

• Give the 3-dose series to those not previously vaccinated.

• A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB® is licensed for children ages 11 through 15 years.

2. Rotavirus vaccine (RV).

- The maximum age for the first dose is 14 weeks 6 days. Vaccination should not be initiated for infants age 15 weeks or older (i.e., 15 weeks 0 days or older).
- Give the final dose in the series by age 8 months 0 days.
- If Rotarix® was given for the first and second doses, a third dose is not indicated.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).

• The fifth dose is not necessary if the fourth dose was given at age 4 years or older.

4. Haemophilus influenzae type b conjugate vaccine (Hib).

- Hib vaccine is not generally recommended for persons age 5 years or older. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection, or who have had a splenectomy; giving 1 dose of Hib vaccine to these persons is not contraindicated.
- If the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax®), and given at age 11 months or younger, the third (and final) dose should be given at age 12 through 15 months and at least 8 weeks after the second dose.
- If the first dose was given at age 7 through 11 months, give 2 doses separated by 4 weeks and a final dose at age 12 through 15 months.

5. Pneumococcal vaccine.

- Give 1 dose of pneumococcal conjugate vaccine (PCV) to all healthy children ages 24 through 59
 months who have not received at least 1 dose of PCV on or after age 12 months.
- For children ages 24 through 59 months with underlying medical conditions, give 1 dose of PCV if 3 doses were received previously or give 2 doses of PCV at least 8 weeks apart if fewer than 3 doses were received previously.
- Give pneumococcal polysaccharide vaccine (PPSV) to children ages 2 years or older with certain underlying medical conditions (see MMWR 2000;49[No. RR-9]), including a cochlear implant, at least 8 weeks after the last dose of PCV.

6. Inactivated poliovirus vaccine (IPV).

• 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 or older.

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).

- Give the second dose at age 4 through 6 years. However, the second dose may be given before age 4, provided at least 28 days have elapsed since the first dose.
- · If not previously vaccinated, give 2 doses with at least 28 days between doses.

8. Varicella vaccine.

- Give the second dose at age 4 through 6 years. However, the second dose may be given before age 4, provided at least 3 months have elapsed since the first dose.
- For persons ages 12 months through 12 years, the minimum interval between doses is 3 months. However, if the second dose was given at least 28 days after the first dose, it can be accepted as valid.
- For persons ages 13 years and older, the minimum interval between doses is 28 days.

9. Hepatitis A vaccine (HepA).

- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See MMWR 2006;55(No. RR-7).
- 10. Tetanus and diphtheria toxoids (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).
- Doses of DTaP are counted as part of the Td/Tdap series.
 Tdap should be substituted for a single dose of Td in the catch-up series or as a booster for children ages 10 through 18 years; use Td for other doses.

11. Human papillomavirus vaccine (HPV).

• Give the series to females at age 13 through 18 years if not previously vaccinated.

 Use recommended routine dosing intervals for series catch-up (i.e., the second and third doses should be given at 2 and 6 months after the first dose). However, the minimum interval between the first and second doses is 4 weeks. The minimum interval between the second and third doses is 12 weeks, and the third dose should be given at least 24 weeks after the first dose.

Recommended Adult Immunization Schedule – United States, 2009

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

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

Vaccine <mark>↓</mark> Age group ►	19–26 yrs	27–49 yrs	50–59 years	60–64 yrs	≥65 years
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1,*}	Substitute 1-ti	me dose of Tdap for Td b	l booster; then boost with l	Td every 10 yrs	Td booster every 10 yrs
Human papillomavirus (HPV) ^{2,*}	3 doses (females)				
Varicella ^{3,*}			2 doses		
Zoster⁴				1 d	ose
Measles, mumps, rubella (MMR) ^{5,*}	1 or 2 dos	ies		1 dose	
Influenza ^{6,*}			1 dose annually		
Pneumococcal (polysaccharide) ^{7,8}		1 or 2	doses		1 dose
Hepatitis A ^{9,*}			2 doses		
Hepatitis B ^{10,*}			3 doses		
Meningococcal ^{11,*}			1 or more doses		

*Covered by the Vaccine Injury Compensation Program.

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

Indication ►		Immunocom- promising conditions (excluding human immuno-	HIV infection CD4+ T lympl count	n ^{3, 12, 13} hocyte	Diabetes, heart disease, chronic lung disease	Asplenia ¹² (including elective splenectomy and terminal complement		Kidney failure, end-stage renal disease.	
Vaccine v	Pregnancy	deficiency virus [HIV]) ¹³	<pre><200 ≥: cells/µL cells/µL</pre>	:200 ells/µL	chronic alcoholism	component deficiencies)	Chronic liver disease	receipt of hemodialysis	Healthcare personnel
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1,*}	Td		Substitute 1	-time do	ose of Tdap for	Td booster; the	l n boost with Td e I	every 10 yrs	
Human papillomavirus (HPV) ^{2,*}					3 doses for	l females through	n age 26 years		
Varicella ^{3,*}	Co	ontraindicated					2 doses		
Zoster⁴	Cc	ontraindicated					1 dose		
Measles, mumps, rubella (MMR)⁵,*	Co	ontraindicated					1 or 2 doses		
Influenza ^{6,*}		1		1 d	ose TIV annual	ly			1 dose TIV or LAIV annually
Pneumococcal (polysaccharide) ^{7,8}					1 or 2	doses			
Hepatitis A ^{9,*}		2 doses							
Hepatitis B ^{10,*}					3 d	loses			
Meningococcal ^{11,*}		I			1 or m	ore doses			

*Covered by the Vaccine Injury Compensation Program.

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)

No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages19 years and older, as of January 1, 2009. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/pubs/acip-list.htm).

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

Footnotes

Note: Immunization recommendations from ACIP are available at www.cdc.gov/vaccines/pubs/acip-list.htm

1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination. Tdap should replace a single dose of Td for adults ages 19 through 64 years who have not received a dose of Tdap previously.

Adults with uncertain or incomplete history of primary vaccination series with tetanus and diphtheria toxoid-containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses of tetanus and diphtheria toxoid-containing vaccines; give the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. However, Tdap can substitute for any one of the doses of Td in the 3-dose primary series. The booster dose of tetanus and diphtheria toxoid-containing vaccine should be given to adults who have completed a primary series and if the last vaccination was received 10 or more years previously. Tdap or Td vaccine may be used, as indicated.

If a woman is pregnant and received the last Td vaccination 10 or more years previously, give Td during the second or third trimester. If the woman received the last Td vaccination less than 10 years previously, give Tdap during the immediate postpartum period. A dose of Tdap is recommended for postpartum women, close contacts of infants younger than age 12 months, and all healthcare personnel with direct patient contact if they have not previously received Tdap. An interval as short as 2 years from the last Td is suggested; shorter intervals can be used. Td may 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.

Consult the ACIP statement for recommendations for giving Td as prophylaxis in wound management.

2. Human papillomavirus (HPV) vaccination. HPV vaccination is recommended for all females ages 11 through 26 years (and may begin at age 9 years) who have not completed the vaccine series. History of genital warts, abnormal Papanicolaou test, or positive HPV DNA test is not evidence of prior infection with all vaccine HPV types; HPV vaccination is recommended for persons with such histories.

Ideally, vaccine should be given before potential exposure to HPV through sexual activity; however, females who are sexually active should still be vaccinated consistent with age-based recommendations. Sexually active females who have not been infected with any of the four HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for females who have already been infected with one or more of the HPV vaccine types.

A complete series consists of 3 doses. The second dose should be given 2 months after the first dose; the third dose should be given 6 months after the first dose.

HPV vaccination is not specifically recommended for females with the medical indications described in Figure 2, "Vaccines that might be indicated for adults based on medical and other indications." Because HPV vaccine is not a live-virus vaccine, it may be given to persons with the medical indications described in Figure 2. However, the immune response and vaccine efficacy might be less for persons with the medical indications described in Figure 2 than in persons who do not have the medical indications described or who are immunocompetent. Healthcare personnel are not at increased risk because of occupational exposure, and should be vaccinated consistent with age-based recommendations.

3. Varicella vaccination. All adults without evidence of immunity to varicella should receive 2 doses of single-antigen varicella vaccine if not previously vaccinated or the second dose if they have received only one dose, unless they have a medical contraindication. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., healthcare personnel and family contacts of persons with immunocompromising conditions) or 2) are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).

Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for healthcare personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a healthcare provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, healthcare providers should seek either an epidemiologic link with a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on healthcare provider diagnosis or verification of herpes zoster by a healthcare provider; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the healthcare facility. The second dose should be given 4–8 weeks after the first dose.

4. Herpes zoster vaccination. A single dose of zoster vaccine is recommended for adults ages 60 years and older regardless of whether they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication.

5. Measles, mumps, rubella (MMR) vaccination. *Measles component:* Adults born before 1957 generally are considered immune to measles. Adults born during or after 1957 should receive 1 or more doses of MMR unless they have a medical contraindication, documentation of 1 or more doses, history of measles based on healthcare 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 are in an outbreak setting; 2) have been vaccinated previously 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 healthcare facility; or 6) plan to travel internationally.

Mumps component: Adults born before 1957 generally are 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 healthcare provider diagnosis, or laboratory evidence of immunity.

A second dose of MMR is recommended for adults who 1) live in a community experiencing a mumps outbreak and are in an affected age group; 2) are students in postsecondary educational institutions; 3) work in a healthcare facility; or 4) plan to travel internationally. For unvaccinated healthcare personnel born before 1957 who do not have other evidence of mumps immunity, giving 1 dose on a routine basis should be considered and giving a second dose during an outbreak should be strongly considered.

Rubella component: 1 dose of MMR vaccine is recommended for women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, rubella immunity should be determined and women should be counseled regarding congenital rubella syndrome. Women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the healthcare facility.

6. Influenza vaccination: *Medical indications*: Chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal or hepatic dysfunction, hemoglobinopathies, or immunocompromising conditions (including immunocompromising conditions caused by medications or human immunodeficiency virus [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: All healthcare personnel, including those employed by long-term care and assisted-living facilities, and caregivers of children younger than age 5 years.

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

Footnotes (continued)

Note: Immunization recommendations from ACIP are available at www.cdc.gov/vaccines/pubs/acip-list.htm

household contacts and caregivers of children younger than age 5 years, persons 65 years and older, and persons of all ages with high-risk condition[s]); and anyone who would like to decrease their risk of getting influenza. Healthy, nonpregnant adults younger than age 50 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered live, attenuated influenza vaccine (FluMist®) or inactivated vaccine.

7. Pneumococcal polysaccharide (PPSV) vaccination. *Medical indications:* Chronic lung disease (including asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, cirrhosis; chronic alcoholism; 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]); immunocompromising conditions; and cochlear implants and cerebrospinal fluid leaks. Vaccinate as close to HIV diagnosis as possible.

Other indications: Residents of nursing homes or long-term care facilities and persons who smoke cigarettes. Routine use of PPSV is not recommended for Alaska Native or American Indian persons younger than age 65 years unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for Alaska Natives and American Indians ages 50 through 64 years who are living in areas in which the risk of invasive pneumococcal disease is increased.

8. Revaccination with PPSV. One-time revaccination after 5 years is recommended for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions. For persons age 65 years and older, one-time revaccination if they were vaccinated 5 or more years previously and were younger than age 65 years at the time of primary vaccination.

9. 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 wwwn.cdc.gov/ travel/contentdiseases.aspx) and any person seeking protection from HAV infection.

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

10. Hepatitis B vaccination. *Medical indications:* Persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection; and persons with chronic liver disease.

Occupational indications: Healthcare personnel 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 (e.g., persons with more than 1 sex partner during the previous

6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection-drug users; and men who have sex with men.

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; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at wwwn.cdc.gov/travel/contentdiseases.aspx); and any adult seeking protection from HBV infection.

Hepatitis B vaccination is recommended for all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; healthcare settings targeting services to injectiondrug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential daycare facilities for persons with developmental disabilities.

If the combined hepatitis A and hepatitis B vaccine (Twinrix[®]) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule, given on days 0, 7, and 21 to 30 followed by a booster dose at month 12 may be used.

Special formulation indications: For adult patients receiving hemodialysis or with other immunocompromising conditions, 1 dose of 40 μ g/mL (Recombivax HB[®]) given on a 3-dose schedule or 2 doses of 20 μ g/mL (Engerix-B[®]) given simultaneously on a 4-dose schedule at 0, 1, 2 and 6 months.

11. 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 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 through June]), particularly if their 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 (MCV) is preferred for adults with any of the preceding indications who are age 55 years or younger, although meningococcal polysaccharide vaccine (MPSV) is an acceptable alternative. Revaccination with MCV after 5 years might be indicated for adults previously vaccinated with MPSV who remain at increased risk for infection (e.g., persons residing in areas in which disease is epidemic).

12. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used. Hib vaccine generally is not recommended for persons age 5 years and older. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults. However, studies suggest good immunogenicity in patients who have sickle cell disease, leukemia, or HIV infection or who have had a splenectomy; giving 1 dose of vaccine to these patients is not contraindicated.

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

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

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, (800) 338-2382.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, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/ vaccines or from the CDC-INFO Contact Center at (800) CDC-INFO ([800] 232-4636) in English and Spanish, 24 hours a day, 7 days a week. Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

How to administer IM and SC injections

This CDC-reviewed document is ready for you to download, copy, and use!

Download these guides and make them available to all staff who give vaccines.

To obtain full-sized (8-1/2" by 11") copies of these charts, go to www.immunize.org/ catg.d/p2020.pdf

Patient age	Injection site	Needle size	Needle insertion
Newborn (0-28 days)	Anterolateral thigh muscle	%"* (22-25 gauge)	
Infant (1–12 months)	Anterolateral thigh muscle	1" (22–25 gauge)	deep into the muscle.
Taddlar (4, Quanta)	Anterolateral thigh muscle	1-11/4" (22-25 gauge)	Insert needle at a 90° angle to the skin
Toddler (1-2 years)	Alternate site: Deltoid muscle of arm if muscle mass is adequate	%-1** (22-25 gauge)	(Before administering an injection, it is
Children (3-18 years)	Deltoid muscle	5%-1"* (22-25 gauge)	not necessary to aspirate, i.e., to pull skin
	Alternate site: Anterolateral thigh muscle	1-1¼" (22-25 gauge)	insertion.1) subcutaneous tissue
	Deltoid muscle of arm	1-11/2"** (22-25 gauge)	Multiple injections given in the same extremity should be separated by a muscle
Adults 19 years and older	Alternate site: Anterolateral thigh muscle	1-11/4" (22-25 gauge)	minimum of 1", if possible.
a 1-1% [*] needle is recommended in needle is recommended in women IM site for infant	women weighing 152-200 lbs (70-90 kg) and men weighing weighing >200 lbs (>80 kg) or men weighing >260 lbs (>118 s and toddlers	g 152-260 lbs (70-118 kg); a 1% kg).	IM site for children (after the 3rd birthday) and adults
	IM injection site (shaded aree)		level of axilla
	-		Insert needle at a 90° angle into thickest portion of deltoid muscle — above the level

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William L. Atkinson, MD, MPH Andrew T. Kroger, MD, MPH

everyone in your office or clinic uses the same sites for each vaccine. Use of standardized site maps can facilitate this. Site maps for administering vaccines to children are available at www.cdc.gov/vaccines/ pubs/pinkbook/downloads/appendices/D/site-map. pdf. Site maps for administering vaccines to adults are at www.eziz.org/PDF/IMM-718adult.pdf.

If I have to give more than 1 injection in a muscle, are certain vaccines best given together? Since DTaP and pneumococcal conjugate are the vaccines most likely to cause a local reaction, it's practical to give DTaP and PCV in separate limbs (if possible), so there is no confusion about which vaccine caused the reaction.

When patients need multiple vaccines, can we just combine them in one syringe?

Absolutely not. Vaccines should never be mixed in a single syringe except when specifically approved by FDA and packaged for that specific purpose.

For which vaccines is an egg allergy a contraindication? What about MMR vaccine?

Influenza and yellow fever vaccines are the only vaccines that are contraindicated for people who have a history of a severe (anaphylactic) allergy to eggs. Allergy to eggs is no longer considered a contraindication for giving MMR vaccine. Though measles and mumps vaccines are grown in chick embryo tissue culture, several studies have documented the safety of these vaccines in children with severe egg allergy. In 1994, ACIP's



"General Recommendations on Immunization" listed egg allergy as a contraindication for administering MMR. That was changed, however, and by 1998 when ACIP's most recent recommendations for MMR were published, egg allergy was no longer listed as a contraindication. That remains true today: Neither AAP's Committee on Infectious Diseases ("Red Book Committee") nor ACIP consider egg allergy a contraindication to MMR vaccine.

You can always check for contraindications for any vaccine in CDC's Guide to Vaccine Contraindications and Precautions at www.cdc.gov/vaccines/ recs/vac-admin/downloads/contraindicationsguide-508.pdf.

We frequently see patients who are febrile or have an acute illness and are due for vaccinations. We're never quite sure if we should withhold the vaccines or not. What do you advise? A "moderate or severe acute illness" is a precaution for administering any vaccine. A mild acute illness (e.g., diarrhea or mild upper-respiratory tract infection) with or without fever is not. The concern

in vaccinating someone with moderate or severe illness is that a fever following the vaccine could complicate management of the concurrent illness (that is, it could be difficult to determine if the fever was from the vaccine or due to the concurrent illness). In deciding whether to vaccinate a patient with moderate or severe illness, the clinician needs to determine if forgoing vaccination will increase the patient's risk to vaccine-preventable diseases, as is the case if the patient is unlikely to return for vaccination or to seek vaccination elsewhere.

Some of our employees have a contact allergy to latex gloves. Can they receive vaccines that are supplied in vials or syringes that contains latex?

Yes. A contact allergy to latex is not a contraindication or precaution to vaccination. Consequently, a person with a *contact allergy* to latex can be safely vaccinated with a vaccine supplied in a vial or syringe that contains natural rubber or rubber latex. People who have an *anaphylactic allergy* to latex should not be vaccinated, however.

Which vaccines are supplied in vials or syringes containing latex?

You can find information on latex in vaccine packaging in Appendix B of CDC's Guide to Vaccine Contraindications and Precautions at www. cdc.gov/vaccines/recs/vac-admin/downloads/ contraindications-guide-508.pdf.

Our large pediatric practice is struggling with the requirement to provide VISs to the parents of every child we vaccinate. We think we have a solution and would like your opinion of it. We would like to create a re-usable packet of laminated VIS sheets (fastened together on a ring). We plan to place a packet in each exam room for parents to read prior to vaccine administration. On the bottom of each sheet would be a statement, "If you would like a copy of this sheet to take home, please ask our staff." This will ensure that parents are given the VIS sheets to read prior to vaccine administration. It will also help save paper; our experience is that many parents throw out the VIS documents or leave them behind in the waiting room.

Many clinicians are looking for ways to reduce paper overload, so this is a common question. Your solution will meet the spirit of the federal law, as long as you make sure to encourage the patient (or parent) to take home a paper copy of the VIS and to refer to it if needed (e.g., if they need to know what to do if there is an adverse event or how to contact VAERS). Patients can also download VISs onto mobile devices. For more information about this technology, go to www.cdc.gov/vaccines/pubs/ vis/vis-downloads.htm.

Where can I find names of vaccines used outside the U.S.?

Appendix B of the CDC publication *Epidemiology and Prevention of Vaccine-Preventable Diseases* (the Pink Book) contains a list of vaccines used outside the U.S. You'll find Appendix B at www.cdc.gov/vaccines/pubs/pinkbook/downloads/ appendices/B/foreign-products-tables.pdf.

Where can I find a list of vaccines currently licensed for use in the U.S.?

CDC maintains a sortable list of vaccine names at www.cdc.gov/vaccines/about/terms/USVaccines. html.

Many of my patients are reading The Vaccine Book, in which the author, Dr. Robert W. Sears, cites studies that he interprets as showing that the amount of aluminum found in certain vaccines might be unsafe. He thinks it is better to separate aluminum-containing vaccines, rather than give them according to the recommended U.S. immunization schedule. I would love any information you have about this.

Paul Offit, MD, and Charlotte Moser, BS, of the Vaccine Education Center (VEC) at the Children's

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 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. Shots

Don't you fret Don't you cry The pain will Pass by and by. It Might hurt It Might Swell but It Will help You to Stay Well. <u>IZZ7</u> and Sorah.

Hospital of Philadelphia, published an article, "The Problem with Dr. Bob's Alternative Vaccine Schedule," in the January 2009 issue of *Pediatrics*. It includes a section about aluminum. You can read it in its entirety at http://pediatrics.aappublications. org/cgi/content/full/123/1/e164. Here are two sources of related information:

- "Aluminum in Vaccines: What you should know" is available from VEC at www.chop.edu/vaccine/ pdf/aluminum_eng.pdf.
- "Questions and Answers about Vaccine Ingredients" is available from AAP at www.cispimmunize.org/pro/pdf/vaccineingredients.pdf.

Combination vaccines

Can Kinrix (DTaP-IPV; GSK) be used at kindergarten entry if the previous brand of DTaP is unknown?

Yes. Though it is preferable to use the same manufacturer's DTaP vaccine for all of the doses in the series, you can give Kinrix as the fifth dose of DTaP and fourth dose of IPV at age 4 through 6 years if the previous brand is unknown or if Kinrix is the only product stocked.

We mistakenly gave Kinrix (DTaP-IPV) to a child age 3 years 10 months. We later realized that he had a prior history of receiving 4 doses of DTaP and IPV. Can the dose of Kinrix count as his 4 through 6 year booster?

Use of the vaccine in a child younger than age 4 is off-label and is not recommended. You should take measures to prevent this error in the future. The minimum age for the fifth dose of the DTaP series is 4 years, so this dose of DTaP is not valid. The current minimum age for the fourth dose of IPV is 18 weeks, so the IPV component may be counted as long as at least 4 weeks have elapsed since the third dose. Some states may require a dose of IPV on or after age 4 years regardless of the number of previous doses. For detailed information, see CDC's useful table "Recommended and Minimum Ages and Intervals Between Doses of Routinely Recommended Vaccines" at www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/ age-interval-table.pdf.

If Kinrix is inadvertently given to a child age 15 through 18 months, as the fourth DTaP dose and the third IPV dose, does the Kinrix dose have to be repeated?

Since Kinrix is licensed and recommended only for children ages 4 through 6 years, you should take measures to prevent this error in the future. However, you can count this as a valid dose for DTaP and IPV as long as you met the minimum interval between administering dose #3 and dose #4 of DTaP (i.e., 6 months) and dose #2 and dose #3 of IPV (i.e., 4 weeks).

We inadvertently gave a child only the DTaP-IPV component of Pentacel (DTaP-IPV/Hib; sanofi pasteur), not realizing that this component was intended to reconstitute the Hib component. Does this count as a valid dose of DTaP and IPV? Can we mix the unused Hib component with sterile water and give it separately?

Use of DTaP-IPV solution as the diluent for the Hib component is specifically written both on the Pentacel box AND on the DTaP-IPV vial label. In answer to your first question, the DTaP-IPV component will count as valid doses of DTaP and IPV vaccines, but take measures to prevent this error in the future. In answer to your second question, NO, you cannot mix the Hib component with sterile water. ActHib must ONLY be reconstituted with either the DTaP-IPV solution supplied with Pentacel, or with a specific ActHib diluent. If you have ActHib but neither diluent, you must contact the manufacturer (sanofi pasteur) and obtain ActHib diluent.

I've lost a vial of MMR diluent, which is sterile water. Since it's sterile water, is there any reason I can't dilute the vaccine with sterile water from our clinic's treatment room supply?

No, you cannot mix the MMR component with sterile water. A vaccine should only be mixed with the diluent formulated for it and supplied with it.

Our nurses have been routinely giving DTaP-HepB-IPV (Pediarix; GSK) to toddlers who were overdue for their third doses of DTaP, IPV, and HepB. Recently someone told me that Pediarix is only intended for use at 2, 4, and 6 months of age. Did we err?

No you did not err. Pediarix is licensed for use in children ages 6 weeks through 6 years for doses 1, 2, and 3 of the DTaP primary series. This would not constitute a vaccine error, as long as you observe the recommended minimum intervals for all the vaccine components (i.e., DTaP, IPV, and HepB).

We have been giving DTaP-HepB-IPV (Pediarix) to children who are overdue for DTaP #4, IPV #3, and HepB #3. Is this an acceptable practice?

No. Pediarix is intended to be used only for doses 1, 2, or 3 of the DTaP primary series; consequently using Pediarix for DTaP #4 is off-label and not recommended. You should take measures to prevent this error in the future. The DTaP, IPV, and HepB doses given in this scenario do not need to be repeated as long as you met the recommended

(continued on page 20)

Immunization screening questionnaires for contraindications! Now with English on front/Spanish on back; in pads of 100 sheets



Save valuable staff time and make sure your patients are screened for vaccine contraindications by having them or their parents fill out these simple 1-page questionnaires (one for children/teen immunization; another for adults) while waiting to be seen. Each pad has 100 sheets. Prices start at \$16 per pad and drop to \$12 each for 2 pads, \$11 each for 3 pads, \$10 each for 4–9 pads. Keep pads at the receptionist's desk, the nurses' station, and in every exam room. To view pads or for more details, visit IAC's website at www.immunize.org/shop.

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

For 10 or more pads, contact us for discount pricing: admininfo@immunize.org

minimum intervals for each vaccine component (DTaP, IPV, HepB). If you did meet the minimum intervals, the doses should be counted as valid.

Can we switch back and forth from monovalent vaccines at one visit to combination vaccines at another visit? For example, if a child is given monovalent DTaP, IPV, Hib, and Hep B during her 2-month visit, could we give her either DTaP-IPV/Hib (Pentacel) or DTaP-HepB-IPV (Pediarix) at her 4-month visit?

Switching between combination and single-antigen vaccines poses no problem as long as you maintain the recommended minimum intervals for all vaccines.

Tetanus, diphtheria, pertussis

If a dose of DTaP or Tdap is inadvertently given to a patient for whom the product is not indicated (e.g., wrong age group), how do we rectify the situation?

The first step is to inform the parent/patient that you administered the wrong vaccine. Next, follow these guidelines:

- 1. Tdap given to a child younger than age 7 years as either dose 1, 2, or 3, is NOT valid. Repeat with DTaP as soon as feasible.
- 2. Tdap given to a child younger than age 7 years as either dose 4 or 5, can be counted as valid for DTaP dose 4 or 5.
- 3. Tdap given to a child age 7 through 9 years can be counted as valid for the 1-time Tdap dose.
- 4. DTaP given to patients age 7 or older can be counted as valid for the 1-time Tdap dose.

Can an adult receive Tdap if they had a contraindication or precaution to DTP as a child?

Tdap has two contraindications and four precautions. The contraindications are (1) anaphylactic reaction to a prior dose of the vaccine or any of its components and (2) encephalopathy within 7 days of a previous dose of DTaP or DTP; in this case, give Td instead of Tdap. The precautions are (1) moderate or severe acute illness; (2) history of an Arthus reaction following a previous dose of a tetanus-containing and/or diphtheria toxoidcontaining vaccine, including meningococcal conjugate vaccine; (3) Guillain-Barré Syndrome (GBS) 6 weeks or sooner after a previous dose of tetanus-toxoid containing vaccine; and (4) progressive or unstable neurological disorder, uncontrolled seizures or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized. CDC has recently issued an excellent publication, Guide to Vaccine Contraindications and Precautions. To access it, go to www.cdc.gov/vaccines/recs/vac-admin/downloads/contraindications-guide-508.pdf.

We recently saw a 30-year-old man who remembers that he received a "tetanus booster" in another state within the past 2 years. The problem is he cannot remember if he received Tdap or Td, and we can't obtain an immunization record. His wife is pregnant, and we would like to immunize him against pertussis as a way to protect their soon-to-be-born child. Should we give him Tdap in this situation?

Yes. Whenever you lack vaccination documentation and vaccination is indicated, give the patient Tdap unless they are older than age 64.

Should we give Tdap to an adult who had pertussis as a child?

CDC recommends that adults who have a history of pertussis generally receive Tdap according to the routine recommendation. This practice is preferred because the duration of protection induced by pertussis is unknown (waning might begin as early as 7 years after infection) and because the diagnosis of pertussis can be difficult to confirm, particularly with tests other than culture for *B. pertussis*. Administering pertussis vaccine to persons

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www.immunize.org/askexperts



with a history of pertussis presents no theoretical safety concern.

Human papillomavirus vaccine

We inadvertently gave HPV #1 to a woman who didn't know she was pregnant at the time. How should we complete the schedule?

First, you should report the vaccination incident to the Merck registry at (800) 986-8999. Second, withhold further HPV vaccine until she is no longer pregnant. Shortly after the pregnancy is completed, administer HPV#2. Give HPV#3 at 16 weeks after HPV#2 and no sooner than 24 weeks after HPV#1.

Measles, mumps, rubella

What is the earliest age at which I can give MMR to an infant who will be traveling internationally? Also, which countries pose a high risk to children for contracting measles?

ACIP recommends that children who travel or live abroad be vaccinated at an earlier age than that recommended for children who reside in the United States. Before their departure from the United States, children age 6 through 11 months should receive 1 dose of monovalent measles vaccine (if available) or MMR. The risk for measles exposure can be high in both developed and developing countries. Consequently, CDC encourages all international travelers to be up to date on their immunizations regardless of their travel destination and to keep a copy of their immunization records with them as they travel. For continually updated information on the worldwide measles situation. and on CDC's measles vaccination information for travelers, go to wwwn.cdc.gov/travel/content/ in-the-news/measles.aspx.

Can I give the second dose of MMR earlier than age 4 through 6 years (i.e., the kindergarten entry dose) to young children traveling to areas of the world where there are measles cases?

Yes. The second dose of MMR can be given a minimum of 28 days after the first dose if necessary.

If I give MMR to an infant traveler younger than age 1 year, will that dose be considered valid for the U.S. immunization schedule?

No. A measles-containing vaccine administered before the first birthday should not be counted as part of the series. MMR should be repeated when the child is age 12 to 15 months (12 months if the child remains in an area where disease risk is high). The second dose should be administered at least 28 days after the first dose.

Why is the second dose of MMR routinely given at kindergarten entry (age 4 through 6 years) rather than at an earlier age?

The second dose of MMR vaccine is usually given at age 4 through 6 years as a scheduling convenience. The second dose of MMR may be given as early as 28 days after the first dose and can be counted as a valid dose if both doses were given after the first birthday. The second dose is not a booster; rather, it is intended to produce immunity in the small number of people who fail to respond to the first dose.

Varicella vaccine (chickenpox)

If a child had 1 varicella vaccination and developed a vesicular (chickenpox-like) rash at the vaccination site 7 to 10 days after vaccination, does the patient still need the second dose? What if the rash covered the entire body?

If you believe the child had varicella disease (that is, breakthrough varicella) after the first dose, the child does not need another dose. If you are uncertain whether the child had varicella, the second dose should be administered on schedule. If in doubt, plan to give the second dose. If this was a case of breakthrough varicella, a second dose will not be harmful.



Meningococcal vaccine

If a student received MCV (Menactra; sanofi pasteur) before their eleventh birthday, does the dose need to be repeated at age 11?

No. On October 17, 2007, FDA expanded the age indications for Menactra for use in children as young as age 2 years (i.e., it is now licensed for use in people ages 2 through 55 years). Right now only a 1-time dose of Menactra is recommended. ACIP will consider making recommendations for revaccination with Menactra as more data on duration of protection become available.

What do you do if an adult patient is in a highrisk situation for meningococcal disease (e.g., traveling to Sub-Saharan Africa) and doesn't know whether they received MCV or MPSV (Menomune; sanofi pasteur) in the past. If they received MPSV 5 years ago or more, revaccination may be recommended, but if they received MCV it isn't. Should we vaccinate them?

Yes. The ACIP recommendation is to vaccinate when vaccination is indicated and when you don't have adequate documentation.

Pneumococcal vaccine

Some physicians in our area order PPSV every 5 years for their patients. Is this correct?

No. CDC recommends 1 dose of PPSV for most people in a lifetime and 2 doses for certain people. PPSV is a polysaccharide vaccine that does not boost well, and data do not indicate that more than 2 doses are beneficial. IAC has a handy summary piece about the use of PPSV vaccine titled "Pneumococcal polysaccharide vaccine: CDC answers your questions" at www.immunize.org/ catg.d/p2015.pdf. For detailed information, see the 1997 ACIP recommendations on prevention of pneumococcal disease at ftp://ftp.cdc.gov/pub/ Publications/mmwr/RR/RR4608.pdf. Also see the 2008 provisional recommendations at www.cdc. gov/vaccines/recs/provisional.

In its provisional pneumococcal recommendations ACIP recommends immunizing adult asthmatics with PPSV. Should I give PPSV to people with mild, intermittent asthma or exercise-induced asthma? Why isn't PPSV recommended for asthmatic children?

PPSV is recommended for adults 19 years and older with all types of asthma. Available data do not indicate that asthma alone increases the risk of invasive pneumococcal disease among persons younger than 19 years, so PPSV is not currently recommended for persons younger than 19 years with asthma.

Zoster vaccine (shingles)

Can I give our long-term care residents zoster, injectable influenza, and pneumococcal vaccines on the same day?

Yes. Here are the general rules: (1) all vaccines used



for routine vaccination in the United States can be given on the same day; (2) an inactivated vaccine can be administered either on the same day as or at any time before or after another inactivated or a live vaccine; and (3) any 2 LIVE vaccines that are not given on the same day must be spaced at least 4 weeks apart.

Zostavax (Merck) is a live, attenuated vaccine; injectable trivalent influenza vaccine (TIV) and pneumococcal polysaccharide vaccine (PPSV) are inactivated vaccines. Therefore, these 3 vaccines can be given on the same day or at any time before or after each other. They cannot, however, be given in the same syringe.

When can a patient previously on immunosuppressive chemotherapy receive zoster vaccine?

If the patient was on anticancer therapy, wait 3 months. If they were on high-dose steroids, isoantibodies, immune-mediators, immunomodulators, wait 1 month. Lastly, if they were on low doses of methotrexate, azathioprine, or 6-mercaptopurine, waiting is not indicated as these are not considered immunosuppressive. See the ACIP recommendations for zoster at www.cdc.gov/mmwr/pdf/rr/ rr5705.pdf for details.

How long should we wait before giving zoster vaccine to a patient who has had a blood transfusion?

There is no waiting period for administering zoster vaccine following transfusion. Studies have shown the efficacy of zoster vaccine in patients receiving blood products. The amount of antigen in zoster vaccine is so substantial that it overpowers any antibody to herpes zoster that may be in the blood product. This is not the case for varicella and MMR vaccines, however. Wait 3 or more months before administering these vaccines to a patient who has received an antibody-containing blood product.

(continued on page 22)

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Hepatitis A & B vaccines

I thought hepatitis A vaccine (HepA) was recommended for all children. Why does the bar on CDC's childhood immunization schedule indicate that HepA should be routinely given to children ages 12 through 23 months, but not be given to children age 2 years and older unless they are in certain high-risk groups? In our practice in a historically "low-risk" state, we currently give hepA to any unvaccinated child. Is this incorrect?

No. Though the ACIP recommendation says children ages 12 through 23 months should routinely be vaccinated with 2 doses of HepA, it also says, "children who are not vaccinated by age 2 years can be vaccinated at subsequent visits."

An infant was given monovalent hepatitis B vaccine (HepB) at birth. Later we gave her monovalent HepB at age 1 month and age 4 months. Did we give her the third dose too early?

Yes. Poorer immune response rates are seen in infants who complete the vaccination series prior to age 6 months. Do not count dose #3, which you gave at age 4 months. Repeat dose #3 when the infant is at least age 6 months (no earlier than age 24 weeks).

I understand there is a now a shortage of HepB vaccine for children and possibly for adults. Could you please tell me about it and what we should do to cut back on using it?

The supply of Merck's hepatitis B vaccines (pediatric, adult, and dialysis formulations) is limited at this time, but recommendations for its use are unchanged. For detailed information about HepB shortages, go to CDC's website at www.cdc.gov/ vaccines/vac-gen/shortages.

We heard there is an alternative schedule for the adult HepA-HepB (Twinrix; GSK) vaccine that gives the patient protection sooner than the standard schedule does. Can you tell us more?

Yes. Licensed for use in people age 18 and older, the combined HepA-HepB vaccine is normally given as a 3-dose series at intervals of 0, 1, and 6 months. However, if someone needs protection sooner (e.g., imminent foreign travel), you can give it as a 4-dose series at intervals of 0, 7, and 21–30 days, followed by a dose at 12 months.



Resources to Help You Respond to Vaccine-Hesitant Parents

Science-based materials from respected organizations

American Academy of Pediatrics – www.cispimmunize.org

Facts for Parents About Vaccine Safety
www.cispimmunize.org/fam/facts/VaccineSafety_English.docThe Childhood Immunization Schedule: Why Is It Like That?
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Centers for Disease Control & Prevention – www.cdc.gov/vaccines

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Influenza Vaccination for Healthcare Workers: Our Duty to Patients

Immunizing healthcare workers is crucial to preventing nosocomial transmission of influenza, and it provides excellent behavioral modeling for patients who may wonder whether they themselves should be vaccinated. In most healthcare settings, however, there is plenty of room for improvement in employee vaccination rates. On average, fewer than half of healthcare personnel receive influenza vaccine each year.

The good news is that there are ways for healthcare facilities to encourage employees to get influenza vaccine. Here are three principal strategies to consider:

- **1. Make it free.** Employees are more likely to get vaccinated when they don't have to think about whether it's worth the cost. Also, by footing the bill, the healthcare institution demonstrates that it values employee vaccination.
- **2. Make it convenient.** Employees should be able to get vaccinated whenever their work permits—not just during regular business hours. For greatest convenience, the vaccine should come to them on a roving cart.
- **3. Make it mandatory.** Require vaccination for all healthcare personnel unless they have a medical contraindication. A less stringent approach is to allow employees to decline vaccination, but require that they complete and sign a declination form that spells out the risks they pose to themselves and patients in declining vaccination.

Find the Immunization Action Coalition's influenza disease and vaccine resources at www.immunize.org/influenza

Several healthcare facilities around the country have used creative incentives to achieve outstanding employee immunization rates. Here are some:

- Houston Northwest Medical Center, Houston, TX, offers vaccination outside its cafeteria. Departments compete to achieve the highest immunization rate.
- At Blythesdale Children's Hospital, Valhalla, NY, the vaccine cart visits staff meetings, and paychecks come with immunization information enclosed.
- St. Louis University Hospital, St. Louis, MO, requires employees to submit declination forms in person so that declining is no quicker than getting vaccinated.

The stories and techniques behind these and other successful programs can be found at www.preventinfluenza.org/profs_workers.asp under "Best Practices."

It is estimated that 36,000 Americans die every year of influenza and its complications. This year, the appearance of the novel H1N1 strain may make for an even more intense influenza season. As healthcare professionals, we work hard to protect our patients and counsel them on good health habits. Let's take a further step by encouraging our co-workers to get vaccinated, by advocating for strong workplace immunization programs, and, of course, by getting vaccinated ourselves.

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Vaccine Myths Busted

I. "I never get influenza."

Although influenza is best known for causing fever, muscle aches, and headache, it can also be responsible for milder illness—the scratchy throats and coughs that healthcare professionals are notorious for working through. Even when we have subclinical infection or relatively minor symptoms, we can still pass on the full-blown illness to our patients as we talk with them and provide care.

2. "I'm not in a risk group."

You may not be, but many of your patients are. As healthcare professionals, we must consider that not only are we in close contact with dozens of people every day, but many of these people have special vulnerabilities that put them at high risk of severe complications or death from influenza. The only good reason for a healthcare worker to skip influenza vaccination is a true medical contraindication.

3. "I forget to get vaccinated or don't have time."

Many healthcare workers hardly have time to catch their breath during the day, but it's worth carving out the few minutes it takes to get vaccinated against influenza. You may save a life with those few minutes.

4. "I'm concerned about vaccine side effects."

The most common side effect from influenza vaccine is a sore arm. Among adults, side effects such as fever, headache, fatigue, and myalgia occur no more often with vaccine than they do with placebo injection. *Influenza vaccine isn't capable of giving you influenza.*

Download IAC's resource sheet on influenza vaccination of healthcare workers, "First Do No Harm." It outlines influenza-related CDC recommendations and JCAHO standards for healthcare facilities. If your workplace doesn't have an influenza immunization program, this one-page document offers a good place to start.

Find it at www.immunize.org/catg.d/p2014.pdf.

It's convenient to contribute online at www.immunize.org/support

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