Volume 24 – Number 2

July 2014
(content current as of June 23)

NEEDLE TIPS

from the Immunization Action Coalition — www.immunize.org

What's In This Issue

What's Happening with Personal Belief Exemptions Across the Nation

Compulsory vaccination for children enrolled in childcare facilities and schools has been a major contributor to the success of the U.S. immunization program. The constitutionality of mandatory vaccination was upheld by the U.S. Supreme Court in 1905 (Jacobson v. Massachusetts, 197 U.S. 11). Although there is no national law requiring the vaccination of school children, all states and the District of Columbia have vaccination requirements for children. All but two states allow exemptions to state mandates for non-medical reasons, and there is no constitutional right that requires states to include such exemptions (Prince v. Massachusetts, 321 U.S. 158 [1944]). Exemptions to school vaccination requirements continue to be an issue for discussion and debate in many state legislatures.

In recent years there has been an increase in the number of parents who have chosen a non-medical, non-religious exemption to state vaccination requirements for their children. For the purposes of this discussion, these exemptions will be termed personal belief exemptions (PBEs). The reasons a parent might request a PBE could include a range of factors, from misinformation about vaccines or disease, vaccine hesitancy, a lack of understanding about disease risk, to simply choosing not to vaccinate as a matter of convenience (e.g., not making time to take one's child to the doctor before the beginning of the school year).

Each state makes a determination about whether it allows PBEs—20 states allow them—and if PBEs are allowed, each state defines the steps parents must take to exempt their child from vaccination. In some states, exemptions are easy to obtain; very few steps are required of the parent to exempt a child. In other states, exemptions require more effort by the parent.

One of the many activities of the Immunization Action Coalition (IAC) is to monitor state legislation related to exemptions to vaccination requirements. Results of some of IAC's work were published in the February 14 issue of *Journal of the American Medical Association* (see JAMA. 2014; 311(6):620–1). IAC found that during the legislative sessions from 2009 through 2012, a total of 36 bills related to exemptions were introduced in 18 states. Of these bills, 5 would strengthen the state's existing exemption process (i.e., requires more effort by the parent to obtain an exemption), while the remaining 31 would either weaken an existing exemption or add a new PBE. None of the 31 bills that would have weakened the exemption process

Personal Belief Exemptions. . . *continued on p. 5* ▶

Ask the Experts

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

Immunization questions?

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

MMR vaccine

Many people age 60 years and older do not have records indicating what type of measles vaccine they received as children in the early 1960s. What measles vaccine was most frequently given in that time period? That guidance would assist many older people who would prefer not to be revaccinated.

Both killed and live attenuated measles vaccines became available in 1963. Live attenuated vaccine was used more often than killed vaccine. The killed vaccine was found to be not effective and people who received it should be revaccinated with live vaccine. Without a written record, it is not possible to know what type of vaccine an individual may have received. So persons born during or after 1957 who received killed measles vaccine or measles vaccine of unknown type, or who cannot document having been vaccinated or having laboratory-confirmed measles disease should receive at least 1 dose of MMR. Some people at increased risk of exposure to measles (such as healthcare professionals and international travelers) should receive 2 doses of MMR separated by at least 4 weeks.

Varicella vaccine

Does ACIP recommend giving varicella vaccine to infants before age 1 year if they are traveling internationally?

No. ACIP recommends giving a dose of MMR to infants age 6 through 11 months before international travel, but not varicella vaccine. Varicella vaccine is neither approved nor recommended

Ask the Experts . . . *continued on p. 22* ▶

Needle Tips

online at www.immunize.org/nt

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

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

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

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IAC maintains strict editorial independence in its publications.

Redesigned "Ask the Experts" home page is user friendly and now includes the new feature "Question of the Week"

"Ask the Experts" at www.immunize.org/askexperts is one of the most popular features on immunize.org, with more than two million page views last year. Now, the "Ask the Experts" home page has been redesigned to improve its usability and to accommodate the new feature "Question of the Week." Read on for more details.

When you visit the home page of "Ask the Experts," the first thing you'll notice is the organizing heart of the page, a large box with three tabs. Click on the following tabs to access the archive of hundreds of "Ask the Experts" questions and answers (Q&As) organized by vaccine and vaccination topic area.

Vaccine Index Tab

Access direct links to Q&As on 16 vaccines/vaccine-preventable diseases, including combination vaccines.

Topic Index Tab

Access direct links to Q&As covering eight general vaccination topic areas:

- Administering Vaccines
- Billing and Reimbursement
- Documenting Vaccination
- Precautions and Contraindications
- Scheduling Vaccines
- Storage and Handling
- Vaccine Recommendations
- Vaccine Safety

A–Z Tab

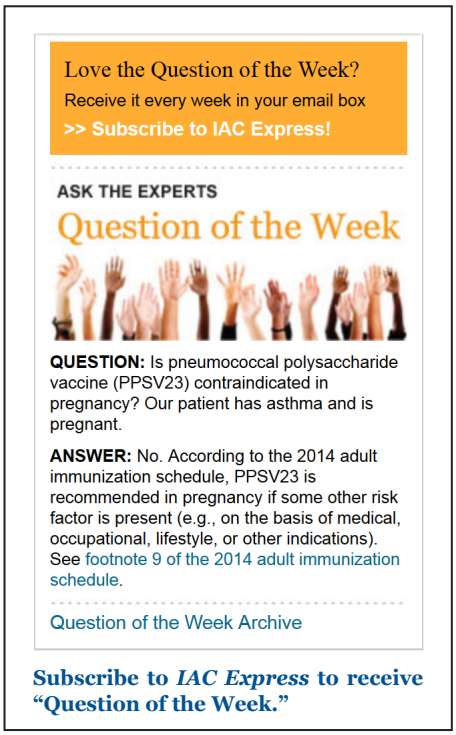
Access links to an alphabetical listing of all of the vaccine and topic areas contained in the "Ask the Experts" web section.

New! "Ask the Experts—Question of the Week"

IAC Express, the weekly email news and information service of the Immunization Action Coalition (IAC), now includes a new feature called "Question of the Week," available at www.immunize.org/askexperts/qotw.asp. Each week, *IAC Express* highlights a new, topical, or important-to-reiterate Q&A. This new feature is a cooperative venture between IAC and the Centers for Disease Control and Prevention. William L. Atkinson, MD, MPH, IAC's associate director for immunization education, chooses a new Q&A to feature every week from a set of Q&As prepared by experts at CDC's National Center for Immunization and Respiratory Diseases.

We hope you enjoy this new feature and find it helpful when dealing with difficult real-life scenarios in your vaccination practice. Please encourage your healthcare professional colleagues to sign up to receive *IAC Express,* including "Question of the Week," at www.immunize.org/subscribe.

If you have a question for the CDC immunization experts, you can email them directly at nipinfo@cdc.gov. There is no charge for this service. We hope you will visit "Ask the Experts" often.



Subscribe to *IAC Express* to receive "Question of the Week."

To receive "Question of the Week" by email, subscribe to *IAC Express,* the Immunization Action Coalition's e-news and information service at www.immunize.org/subscribe

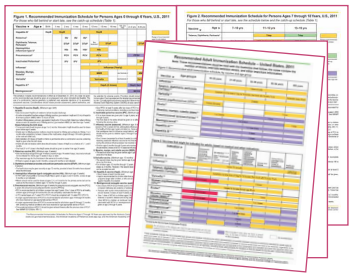
Where in the world is IAC?

After July 18, the answer is in our newly designed offices at the dynamic Court International building in a nearby neighborhood of Saint Paul, Minnesota.

Please mark down our new address so you can come visit when you're in town:

Immunization Action Coalition
2550 University Avenue West
Suite 415 North
Saint Paul, MN 55114
(651) 647-9009

2014 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 (8-sided) and the ACIP/AAFP/ACOG/ACNM-approved schedule for adults (6-sided). Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading. The cost is $7.50 for each schedule and only $5.50 each for five or more copies.

To order, visit www.immunize.org/shop, or use the order form on page 24.
For 20 or more copies, contact us for discount pricing: admininfo@immunize.org

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

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

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

To order, visit www.immunize.org/shop, or use the order form on page 24.
To receive sample cards, contact us: admininfo@immunize.org

Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information in Vaccine Highlights is current as of June 23, 2014.

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 two meetings will be held on June 25–26 and October 29–30. For more information, visit www.cdc.gov/vaccines/acip/index.html.

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 readily available. Here are sources:

- Download them from links on Immunization Action Coalition (IAC) website: www.immunize.org/acip.
- Download them from CDC's ACIP website: www.cdc.gov/vaccines/hcp/acip-recs.

In addition, extensive information on ACIP meetings is available at www.cdc.gov/vaccines/acip/meetings/meetings-info.html, including details on past and upcoming meetings, meeting dates, registration, draft agendas, minutes, live meeting archives, and presentation slides.

CDC immunization news

In June 2014, CDC released a new web-on-demand training video (45 min) titled "Keys to Storing and Handling Your Vaccine Supply." The video and related materials are available at www2.cdc.gov/vaccines/ed/shvideo. This resource is designed to decrease vaccine storage and handling errors and preserve the nation's vaccine supply by demonstrating the recommended best practices for storage and handling of vaccines. Continuing education credit is available until April 17, 2016, for those who complete the course.

On Sept. 29–30, CDC, the Task Force for Global Health, and the CDC Foundation will host the National Immunization Conference (NIC) titled "U.S. Immunization in a Time of Change," in Atlanta, Georgia. Please note that this conference will be much smaller in scale than previous NIC events, with attendance limited to approximately 800 people. For more information about NIC, contact the conference planning team at (404) 639-8225 or via email at NIPNIC@cdc.gov. Registration information and more details will be made available at www.cdc.gov/vaccines/events/nic/index.html.

Meningococcal vaccine news

On June 20, CDC published "Use of MenACWY-CRM Vaccine in Children Aged 2–23 Months at Increased Risk for Meningococcal Disease: Recommendations of the ACIP, 2013" (*MMWR* 2014; 63(24): 527–30). Access the recommendations at www.cdc.gov/mmwr/pdf/wk/mm6324.pdf. During its October 2013 meeting, ACIP recommended use of a third meningococcal conjugate vaccine, MenACWY-CRM (Menveo, Novartis), as an additional option for vaccinating infants age 2 through 23 months at increased risk for meningococcal disease. MenACWY-CRM is the first quadrivalent meningococcal conjugate vaccine licensed for use in children age 2 through 8 months. MenACWY-D (Menactra, Sanofi) is recommended for use in children age 9 through 23 months who are at increased risk for meningococcal disease, and Hib-MenCY-TT (MenHibrix, GlaxoSmithKline) is recommended for use in children age 6 weeks through 18 months at increased risk.

Measles news

According to a CDC telebriefing held on May 29, 288 cases of measles were reported to CDC in the U.S. between January 1 and May 23, 2014. This is the largest number of measles cases in the U.S. reported in the first five months of a year since 1994. Nearly all of the measles cases this year have been associated with international travel by unvaccinated people. On June 6, CDC published "Measles—U.S., January 1–May 23, 2014" in *MMWR*. CDC urges healthcare professionals to consider measles when evaluating patients with febrile rash and ask about a patient's recent travel history and contact with individuals who have recently traveled abroad. Download the complete report at www.cdc.gov/mmwr/preview/mmwrhtml/mm6322a4.htm.

On April 25 and April 11, CDC published two articles in *MMWR* about measles outbreaks in the U.S.

- "Notes from the Field: Measles—California, January 1–April 18, 2014" available at www.cdc.gov/mmwr/preview/mmwrhtml/mm6316a6.htm.
- "Measles Outbreak Associated with Adopted Children from China—Missouri, Minnesota, and Washington, July 2013" available at www.cdc.gov/mmwr/preview/mmwrhtml/mm6314a1.htm.

Tdap vaccine news

On March 24, the Food and Drug Administration (FDA) approved the lowering of the age indication for Adacel (Sanofi) Tdap vaccine from age 11 years to age 10 years. Both Tdap products licensed in the U.S., Adacel and Boostrix (GlaxoSmithKline), now have the same lower age indication of 10 years, which should help healthcare providers, especially when some students are age 10 years when Tdap vaccine may be required for middle school enrollment. Access information about Adacel from the FDA website at www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm172481.htm.

Polio news

On May 5, the World Health Organization (WHO) issued a statement on the meeting of the International Health Regulations Emergency Committee concerning the international spread of wild poliovirus. The Emergency Committee convened by the Director-General under the International Health Regulations (2005) was held by teleconference on April 28 and 29, 2014. Access the WHO statement at www.who.int/mediacentre/news/statements/2014/polio-20140505/en/.

On June 2, the CDC Health Alert Network (HAN) issued a CDC Health Advisory titled "Guidance to U.S. Clinicians Regarding New WHO Polio Vaccination Requirements for Travel by Residents of

Vaccine Highlights. . . *continued on p. 5*

and Long-term Visitors to Countries with Active Polio Transmission." The CDC Health Advisory is available at http://emergency.cdc.gov/han/han00362.asp.

HPV vaccine news

In February, the American Academy of Family Physicians, American Academy of Pediatrics, American College of Obstetricians and Gynecologists, American College of Physicians, CDC, and IAC released a "Dear Colleague" letter urging healthcare providers to promote HPV vaccination. Please share the letter widely; it is available at www.immunize.org/letter/recommend_hpv_vaccination.pdf.

Adult immunization news

The March/April 2014 issue of *Public Health Reports* published "Recommendations of the National Vaccine Advisory Committee (NVAC): Standards for Adult Immunization Practice." Access the Standards at www.publichealthreports.org/issueopen.cfm?articleID=3145. The NVAC standards recognize the importance of the healthcare provider recommendation for patients to receive needed vaccines, the current low vaccination rates among U.S. adults, and reflect the changed environment within which adult vaccines are now given.

The 2014 National Adult and Influenza Immunization Summit (NAIIS) was held in Atlanta on May 13–15, with over 300 people attending. Slides of the presentations made at the summit are now available on the summit website at www.izsummitpartners.org/2014-naiis. NAIIS is led by IAC, CDC, and the National Vaccine Program Office, and includes more than 140 organizations and 800 participants. NAIIS recently launched its new website at www.izsummitpartners.org to provide information about the annual summit meeting and NAIIS workgroups, as well as links to many resources related to adult vaccination.

Looking for free educational materials you can copy for patients and staff? Visit the Immunization Action Coalition's website at

www.immunize.org/handouts

New and updated VISs

Check the dates on your supply of Vaccine Information Statements (VISs). If any are outdated, get current versions and VISs in more than 30 languages at www.immunize.org/vis.

Adenovirus	6/11/14	Meningococcal	10/14/11
Anthrax	3/10/10	Multi-vaccine	unavailable Expected mid-2014
Chickenpox	3/13/08		
DTaP	5/17/07	PCV13	2/27/13
Hib	2/4/14	PPSV	10/6/09
Hepatitis A	10/25/11	Polio	11/8/11
Hepatitis B	2/2/12	Rabies	10/6/09
HPV-Cervarix	5/3/11	Rotavirus	8/26/13
HPV-Gardasil	5/17/13	Shingles	10/6/09
Influenza	7/26/13	Td	2/4/14
Japanese enceph	1/24/14	Tdap	5/9/13
MMR	4/20/12	Typhoid	5/29/12
MMRV	5/21/10	Yellow fever	3/30/11

For a ready-to-print version of this table for posting in your practice, go to www.immunize.org/catg.d/p2029.pdf.

Personal Belief Exemptions *. . . continued from page 1*

passed. Of those that were designed to strengthen the exemption process, 3 of the 5 bills passed. To date, during the legislative sessions from 2013 to 2014, 11 new bills were introduced in 8 states. Six bills proposed to weaken the state's existing PBE process and none passed. Five proposed to strengthen the exemption process and 2 of these passed.

Studies have demonstrated that in states where exemptions are permitted and easy-to-get as compared to states with strong policies, it results in higher rates of exemptions in those states.

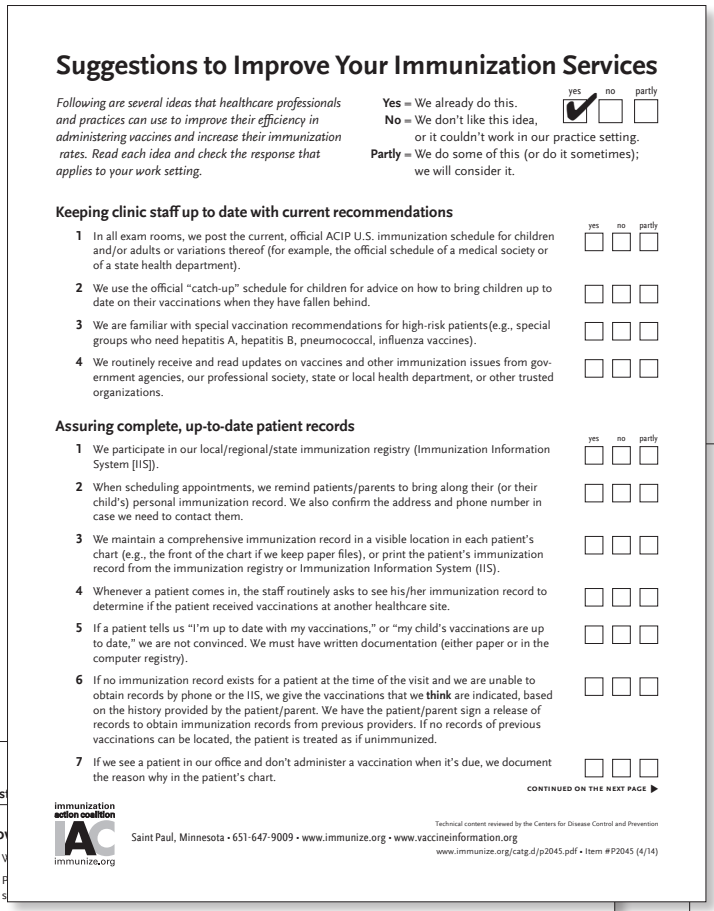
Studies have demonstrated that in states where exemptions are permitted and easy-to-get as compared to states with strong policies, it results in higher rates of exemptions in those states. In 2011, CDC released its first report of state-specific exemption rates for children entering kindergarten (see *MMWR* 2011; 60(21):700–4). The report showed that the three states with the highest rates of non-medical exemptions were Washington with 5.7%; Vermont, 5.3%; and Oregon, 5.2%. All of these states had easy-to-obtain exemption policies, but have since been successful in strengthening their state's exemption policy by incorporating a mandatory educational requirement as part of the process of obtaining an exemption. For example, new procedures in Washington include a requirement for parents to receive education from a healthcare provider on the risks and benefits of vaccines. Vermont now requires annual renewal of the non-medical exemption on a state health department form that includes evidence-based educational material regarding immunizations. Oregon's new requirements, implemented in March of this year, call for either education from a healthcare provider or completion of an online vaccine educational module. According to vaccination coverage data for 2012–13 (see *MMWR* 2013; 62(30):607–12), kindergarten vaccination coverage for most reporting states remained high and exemption levels remained stable for the 2012–13 school year compared with the 2011–12 school year.

IAC also tracks certain vaccination mandates for vaccine-preventable diseases in childcare facilities, schools, and colleges. The immunization mandate data are compiled for the 50 states and presented in table and/or map formats at www.immunize.org/laws.

In June 2014, IAC developed a new table and map titled "Exemptions Permitted to School and Childcare Immunization Requirements." Access the new map (PDF format) at www.immunize.org/laws/exemptions_map_june-2014.pdf and table at www.immunize.org/laws/exemptions.asp.

The report showed that the three states with the highest rates of non-medical exemptions were Washington with 5.7%; Vermont, 5.3%; and Oregon, 5.2%. All of these states had easy-to-obtain exemption policies, but have since been successful in strengthening their state's exemption policy by incorporating a mandatory educational requirement as part of the process of obtaining an exemption.

Checklist: Suggestions to Improve Your Immunization Services



Suggestions to Improve Your Immunization Services

Following are several ideas that healthcare professionals and practices can use to improve their efficiency in administering vaccines and increase their immunization rates. Read each idea and check the response that applies to your work setting.

Yes = We already do this.
No = We don't like this idea, or it couldn't work in our practice setting.
Partly = We do some of this (or do it sometimes); we will consider it.

yes ☑ no ☐ partly ☐

Keeping clinic staff up to date with current recommendations

1 In all exam rooms, we post the current, official ACIP U.S. immunization schedule for children and/or adults or variations thereof (for example, the official schedule of a medical society or of a state health department).
2 We use the official "catch-up" schedule for children for advice on how to bring children up to date on their vaccinations when they have fallen behind.
3 We are familiar with special vaccination recommendations for high-risk patients(e.g., special groups who need hepatitis A, hepatitis B, pneumococcal, influenza vaccines).
4 We routinely receive and read updates on vaccines and other immunization issues from government agencies, our professional society, state or local health department, or other trusted organizations.

Assuring complete, up-to-date patient records

1 We participate in our local/regional/state immunization registry (Immunization Information System [IIS]).
2 When scheduling appointments, we remind patients/parents to bring along their (or their child's) personal immunization record. We also confirm the address and phone number in case we need to contact them.
3 We maintain a comprehensive immunization record in a visible location in each patient's chart (e.g., the front of the chart if we keep paper files), or print the patient's immunization record from the immunization registry or Immunization Information System (IIS).
4 Whenever a patient comes in, the staff routinely asks to see his/her immunization record to determine if the patient received vaccinations at another healthcare site.
5 If a patient tells us "I'm up to date with my vaccinations," or "my child's vaccinations are up to date," we are not convinced. We must have written documentation (either paper or in the computer registry).
6 If no immunization record exists for a patient at the time of the visit and we are unable to obtain records by phone or the IIS, we give the vaccinations that we **think** are indicated, based on the history provided by the patient/parent. We have the patient/parent sign a release of records to obtain immunization records from previous providers. If no records of previous vaccinations can be located, the patient is treated as if unimmunized.
7 If we see a patient in our office and don't administer a vaccination when it's due, we document the reason why in the patient's chart.

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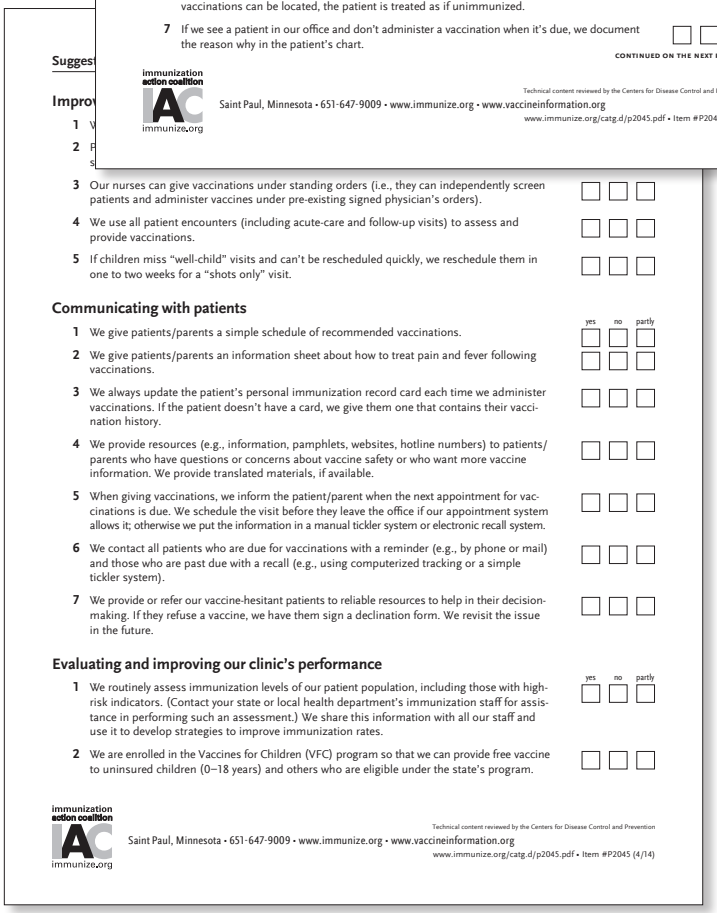

3 Our nurses can give vaccinations under standing orders (i.e., they can independently screen patients and administer vaccines under pre-existing signed physician's orders).
4 We use all patient encounters (including acute-care and follow-up visits) to assess and provide vaccinations.
5 If children miss "well-child" visits and can't be rescheduled quickly, we reschedule them in one to two weeks for a "shots only" visit.

Communicating with patients

1 We give patients/parents a simple schedule of recommended vaccinations.
2 We give patients/parents an information sheet about how to treat pain and fever following vaccinations.
3 We always update the patient's personal immunization record card each time we administer vaccinations. If the patient doesn't have a card, we give them one that contains their vaccination history.
4 We provide resources (e.g., information, pamphlets, websites, hotline numbers) to patients/parents who have questions or concerns about vaccine safety or who want more vaccine information. We provide translated materials, if available.
5 When giving vaccinations, we inform the patient/parent when the next appointment for vaccinations is due. We schedule the visit before they leave the office if our appointment system allows it; otherwise we put the information in a manual tickler system or electronic recall system.
6 We contact all patients who are due for vaccinations with a reminder (e.g., by phone or mail) and those who are past due with a recall (e.g., using computerized tracking or a simple tickler system).
7 We provide or refer our vaccine-hesitant patients to reliable resources to help in their decision-making. If they refuse a vaccine, we have them sign a declination form. We revisit the issue in the future.

Evaluating and improving our clinic's performance

1 We routinely assess immunization levels of our patient population, including those with high-risk indicators. (Contact your state or local health department's immunization staff for assistance in performing such an assessment.) We share this information with all our staff and use it to develop strategies to improve immunization rates.
2 We are enrolled in the Vaccines for Children (VFC) program so that we can provide free vaccine to uninsured children (0–18 years) and others who are eligible under the state's program.

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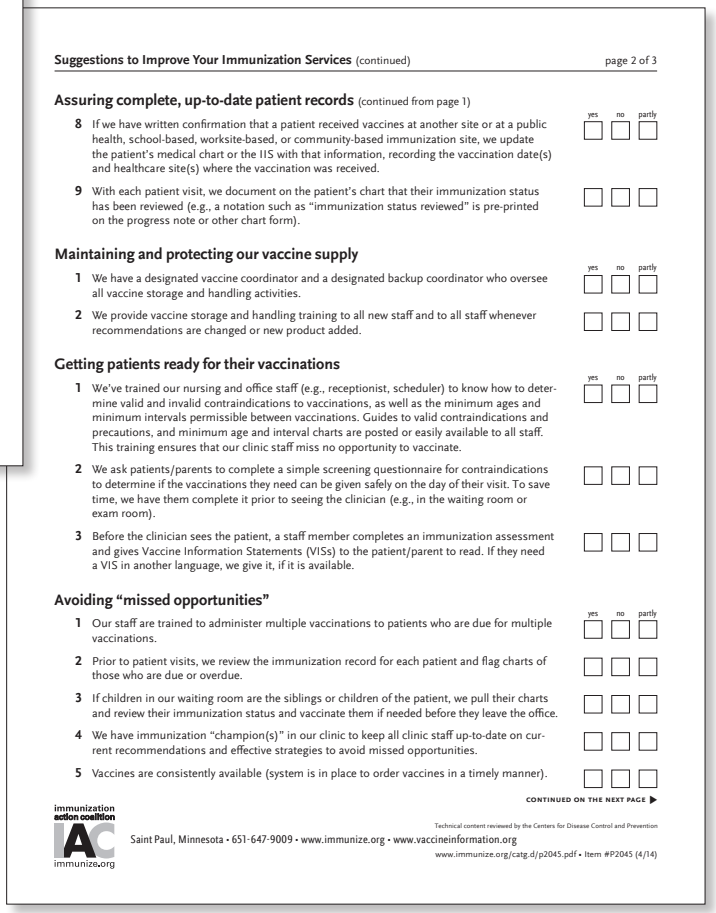

Assuring complete, up-to-date patient records (continued from page 1)

8 If we have written confirmation that a patient received vaccines at another site or at a public health, school-based, worksite-based, or community-based immunization site, we update the patient's medical chart or the IIS with that information, recording the vaccination date(s) and healthcare site(s) where the vaccination was received.
9 With each patient visit, we document on the patient's chart that their immunization status has been reviewed (e.g., a notation such as "immunization status reviewed" is pre-printed on the progress note or other chart form).

Maintaining and protecting our vaccine supply

1 We have a designated vaccine coordinator and a designated backup coordinator who oversee all vaccine storage and handling activities.
2 We provide vaccine storage and handling training to all new staff and to all staff whenever recommendations are changed or new product added.

Getting patients ready for their vaccinations

1 We've trained our nursing and office staff (e.g., receptionist, scheduler) to know how to determine valid and invalid contraindications to vaccinations, as well as the minimum ages and minimum intervals permissible between vaccinations. Guides to valid contraindications and precautions, and minimum age and interval charts are posted or easily available to all staff. This training ensures that our clinic staff miss no opportunity to vaccinate.
2 We ask patients/parents to complete a simple screening questionnaire for contraindications to determine if the vaccinations they need can be given safely on the day of their visit. To save time, we have them complete it prior to seeing the clinician (e.g., in the waiting room or exam room).
3 Before the clinician sees the patient, a staff member completes an immunization assessment and gives Vaccine Information Statements (VISs) to the patient/parent to read. If they need a VIS in another language, we give it, if it is available.

Avoiding "missed opportunities"

1 Our staff are trained to administer multiple vaccinations to patients who are due for multiple vaccinations.
2 Prior to patient visits, we review the immunization record for each patient and flag charts of those who are due or overdue.
3 If children in our waiting room are the siblings or children of the patient, we pull their charts and review their immunization status and vaccinate them if needed before they leave the office.
4 We have immunization "champion(s)" in our clinic to keep all clinic staff up-to-date on current recommendations and effective strategies to avoid missed opportunities.
5 Vaccines are consistently available (system is in place to order vaccines in a timely manner).

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www.immunize.org/catg.d/p2045.pdf • Item #P2045 (4/14)

Great ideas to expedite vaccination and increase immunization rates in your healthcare setting!

Print out this helpful resource, read each idea, and check the response that applies to your work setting.

For a ready-to-copy 8½ x 11" version of this 3-page piece, visit
www.immunize.org/catg.d/p2045.pdf

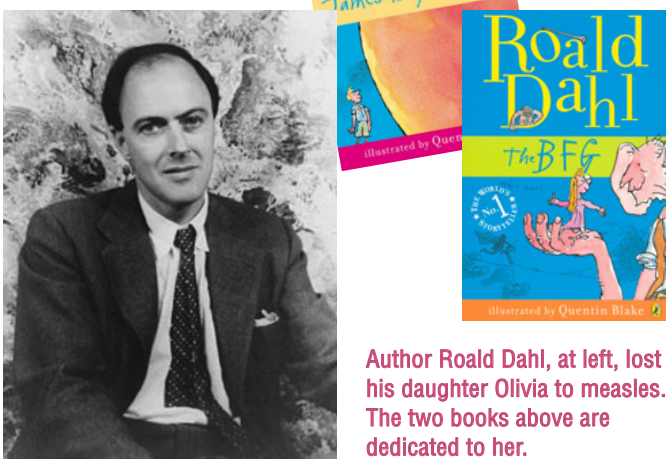
UNPROTECTED PEOPLE REPORT #108

Measles: A Dangerous Illness

The Immunization Action Coalition publishes "Unprotected People Reports" about people who have suffered or died from vaccine-preventable diseases.

Measles is a serious disease. The measles virus is very contagious, so when one person gets infected, it's easy for the disease to spread. Measles is still common around the world. There have been many recent measles outbreaks due to infected people bringing the disease into the United States from other countries. Unvaccinated people put themselves and others at risk for measles and its serious complications.

In 1962, Roald Dahl, author of Charlie and the Chocolate Factory *and many other beloved books for children and young adults, suffered a heartbreaking loss: the death of his 7-year-old daughter Olivia from the complications of measles encephalitis. More than 20 years after Olivia's death, Dahl wrote this personal essay in her memory. Dahl aimed his essay at parents who were refusing to give their children the measles vaccine in the United Kingdom. He encourages all parents to get their children vaccinated. As Dahl states in his essay: "It really is almost a crime to allow your child to go unimmunised."*



Author Roald Dahl, at left, lost his daughter Olivia to measles. The two books above are dedicated to her.

By Roald Dahl

My eldest daughter caught measles when she was seven years old. As the illness took its usual course I can remember reading to her often in bed and not feeling particularly alarmed about it. Then one morning, when she was well on the road to recovery, I was sitting on her bed showing her how to fashion little animals out of coloured pipe-cleaners, and when it came to her turn to make one herself, I noticed that her fingers and her mind were not working together and she couldn't do anything.

"Are you feeling all right?" I asked her.

"I feel all sleepy," she said.

In an hour, she was unconscious. In twelve hours she was dead.

The measles had turned into a terrible thing called measles encephalitis and there was nothing the doctors could do to save her.

That was twenty-four years ago in 1962, but even now, if a child with measles happens to develop the same deadly reaction from measles as Olivia did, there would still be nothing the doctors could do to help her.

On the other hand, there is today something that parents can do to make sure that this sort of tragedy does not happen to a child of theirs. They can insist that their child is immunised against measles. I was unable to do that for Olivia in 1962 because in those days a reliable measles vaccine had not been discovered. Today a good and safe vaccine is available to every family and all you have to do is to ask your doctor to administer it.

It is not yet generally accepted that measles can be a dangerous illness.

Believe me, it is. In my opinion parents who now refuse to have their children immunised are putting the lives of those children at risk.

In America, where measles immunisation is compulsory, measles, like smallpox, has been virtually wiped out.

Here in Britain, because so many parents refuse, either out of obstinacy or ignorance or fear, to allow their children to be immunised, we still have a hundred thousand cases of measles every year.

Out of those, more than 10,000 will suffer side effects of one kind or another.

At least 10,000 will develop ear or chest infections.

About 20 will die.

LET THAT SINK IN.

Every year around 20 children will die in Britain from measles.

So what about the risks that your children will run from being immunised?

They are almost non-existent. Listen to this. In a district of around 300,000 people, there will be only one child every 250 years who will develop serious side effects from measles immunisation! That is about a million to one chance. I should think there would be more chance of your child choking to death on a chocolate bar than of becoming seriously ill from a measles immunisation.

So what on earth are you worrying about?

It really is almost a crime to allow your child to go unimmunised.

The ideal time to have it done is at 13 months, but it is never too late. All school-children who have not yet had a measles immunisation should beg their parents to arrange for them to have one as soon as possible.

Incidentally, I dedicated two of my books to Olivia, the first was *James and the Giant Peach*. That was when she was still alive. The second was *The BFG*, dedicated to her memory after she had died from measles. You will see her name at the beginning of each of these books. And I know how happy she would be if only she could know that her death had helped to save a good deal of illness and death among other children.

To read more articles and case reports about people who have suffered or died from vaccine-preventable diseases, visit IAC's web section "Unprotected People Reports"

www.immunize.org/reports

It includes more than 100 reports.

Summary of Recommendations for Child/Teen Immunization *(Age birth through 18 years)* (Page 1 of 5)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis B (HepB) *Give IM*	• Vaccinate all children age 0 through 18yrs. • Vaccinate all newborns with monovalent vaccine prior to hospital discharge. Give dose #2 at age 1–2m and the final dose at age 6–18m (the last dose in the infant series should not be given earlier than age 24wks). After the birth dose, the series may be completed using 2 doses of single-antigen vaccine or up to 3 doses of Comvax (ages 2m, 4m, 12–15m) or Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of hepatitis B vaccine. • **If mother is HBsAg-positive:** give the newborn HBIG and dose #1 within 12hrs of birth; complete series at age 6m or, if using Comvax, at age 12–15m. • **If mother's HBsAg status is unknown:** give the newborn dose #1 within 12hrs of birth. If low birth weight (less than 2000 grams), also give HBIG within 12hrs. For infants weighing 2000 grams or more whose mother is subsequently found to be HBsAg positive, give the infant HBIG ASAP (no later than age 7d) and follow HepB immunization schedule for infants born to HBsAg-positive mothers.	• Do not restart series, no matter how long since previous dose. • 3-dose series can be started at any age. • Minimum intervals between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness • For infants who weigh less than 2000 grams, see ACIP recommendations.*
DTaP, DT (Diphtheria, tetanus, acellular pertussis) *Give IM*	• Give to children at ages 2m, 4m, 6m, 15–18m, and 4–6yrs. • May give dose #1 as early as age 6wks. • May give #4 as early as age 12m if 6m have elapsed since #3. • Do not give DTaP/DT to children age 7yrs and older. • If possible, use the same DTaP product for all doses.	• #2 and #3 may be given 4wks after previous dose. • #4 may be given 6m after #3. • If #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs). • If #4 is given after 4th birthday, #5 is not needed.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • For all pertussis-containing vaccines: encephalopathy not attributable to an identifiable cause, within 7d after DTP/DTaP/Tdap. **Precautions** • Moderate or severe acute illness. • History of arthus reaction following a prior dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine. • Guillain-Barré syndrome (GBS) within 6wks after previous dose of tetanus-toxoid-containing vaccine. • For DTaP only: Any of these events following a previous dose of DTP/DTaP: 1) temperature of 105°F (40.5°C) or higher within 48hrs; 2) continuous crying for 3hrs or more within 48hrs; 3) collapse or shock-like state within 48hrs; 4) seizure within 3d. • For all pertussis-containing vaccine: progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Td, Tdap (Tetanus, diphtheria, acellular pertussis) *Give IM*	• For children and teens lacking previous Tdap: give Tdap routinely at age 11–12yrs and vaccinate older teens on a catch-up basis; then boost every 10yrs with Td. • Make special efforts to give Tdap to children and teens who are 1) in contact with infants younger than age 12m and 2) healthcare workers with direct patient contact. • Give Tdap to pregnant adolescents during each pregnancy (preferred during 27–36 weeks' gestation), regardless of number of years since prior Td or Tdap.	• Children as young as age 7yrs and teens who are unvaccinated or behind schedule should complete a primary Td series (spaced at 0, 1–2m, and 6–12m intervals); substitute Tdap for any dose in the series, preferably as dose #1. • Tdap should be given regardless of interval since previous Td.	

Special Notes on Hepatitis B Vaccine (HepB)
Dosing of HepB: Monovalent vaccine brands are interchangeable. For people age 0 through 19yrs, give 0.5 mL of either Engerix-B or Recombivax HB.
Alternative dosing schedule for unvaccinated adolescents age 11 through 15yrs: Give 2 doses Recombivax HB 1.0 mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.)
For preterm infants: Consult ACIP hepatitis B recommendations (*MMWR* 2005; 54 [RR-16]).*

* This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/ACIP-recs/index.html or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip. This table is revised periodically. Visit IAC's website at www.immunize.org/childrules to make sure you have the most current version.

Technical content reviewed by the Centers for Disease Control and Prevention

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

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Rotavirus (RV) *Give orally*	• Rotarix (RV1): give at ages 2m, 4m. • RotaTeq (RV5): give at ages 2m, 4m, 6m. • May give dose #1 as early as age 6wks. • Give final dose no later than age 8m 0 days.	• Do not begin series in infants older than age 14wks 6 days. • Intervals between doses may be as short as 4wks. • If prior vaccination included use of different or unknown brand(s), a total of 3 doses should be given.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. If allergy to latex, use RV5. • History of intussusception. • Diagnosis of severe combined immunodeficiency (SCID). **Precautions** • Moderate or severe acute illness. • Altered immunocompetence other than SCID. • Chronic gastrointestinal disease. • Spina bifida or bladder exstrophy.
Varicella (Var) (Chickenpox) *Give SC*	• Give dose #1 at age 12–15m. • Give dose #2 at age 4–6yrs. Dose #2 of Var or MMRV may be given earlier if at least 3m since dose #1. If the 2nd dose was given at least 4wks after 1st dose, it can be accepted as valid. • Give a 2nd dose to all older children/teens with history of only 1 dose. • MMRV may be used in children age 12m through 12yrs (see note below).	• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space at least 4wks apart. • May use as postexposure prophylaxis if given within 5d. • If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Children on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte percentages are 15% or greater in children age 1 through 8yrs or 200 cells/μL in children age 9yrs and older). **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP's *General Recommendations on Immunization** regarding time to wait before vaccinating. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. **Note:** For patients with humoral immunodeficiency or leukemia, consult ACIP recommendations at www.cdc.gov/mmwr/pdf/rr/rr5604.pdf.*
MMR (Measles, mumps, rubella) *Give SC*	• Give dose #1 at age 12–15m. • Give MMR at age 6–11m if traveling internationally; revaccinate with 2 doses of MMR at age 12–15m and at least 4wks later). The dose given at younger than 12m does not count toward the 2-dose series. • Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1. For MMRV: dose #2 may be given earlier if at least 3m since dose #1. • Give a 2nd dose to all older children and teens with history of only 1 dose. • MMRV may be used in children age 12m through 12 years (see note above).	• If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. • When using MMR for both doses, minimum interval is 4wks. • When using MMRV for both doses, minimum interval is 3m. • May use as postexposure prophylaxis if given within 3d.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). Note: HIV infection is NOT a contraindication to MMR for children who are not severely immunocompromised (consult ACIP MMR recommendations [*MMWR* 2013;62 [RR-4] for details).* Vaccination is recommended if indicated for (1) children age 12m through 5yrs whose CD4+ T-lymphocyte percentage has been greater than 15% for at least 6m or (2) for children age 6yrs and older whose CD4+ T-lymphocyte counts have been 200 cells/μL or greater for at least 6m. **Precautions** • Moderate or severe acute illness. • If blood, plasma, or immune globulin given in past 11m, see ACIP's *General Recommendations on Immunization** regarding time to wait before vaccinating. • History of thrombocytopenia or thrombocytopenic purpura. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. • Need for tuberculin skin testing (TST). If TST needed, give TST before or on same day as MMR, or give TST 4wks following MMR.

Note: For the first dose of MMR and varicella given at age 12–47m, either MMR and Var or MMRV may be used. Unless the parent or caregiver expresses a preference for MMRV, CDC recommends that MMR and Var be used for the first doses in this age group.

Summary of Recommendations for Child/Teen Immunization *(Age birth through 18 years)* (Page 3 of 5)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Pneumococcal conjugate (PCV13) *Give IM*	• Give at ages 2m, 4m, 6m, 12–15m (booster dose). • Dose #1 may be given as early as age 6wks. • When children are behind on PCV13 schedule, minimum interval for doses given to children younger than age 12m is 4wks; for doses given at 12m and older, it is 8wks. • For age 24 through 59m and healthy: If unvaccinated or any incomplete schedule or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose. • For high-risk** children ages 2 through 5 yrs: give 2 doses at least 8wks apart if they previously received fewer than 3 doses; give 1 dose at least 8wks after the most recent dose if they previously received 3 doses. • For high-risk** children: all recommended PCV13 doses should be given prior to PPSV vaccination. • PCV13 is not routinely given to healthy children age 5yrs and older. **** High-risk:** *For both PCV13 and PPSV,* those with sickle cell disease; anatomic or functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; diseases associated with immunosuppressive and/or radiation therapy; solid organ transplantation; or who have or will have a cochlear implant and, *for PPSV only,* alcoholism and/or chronic liver disease.	• For minimum intervals, see 3rd bullet at left. • For age 7 through 11m: If history of 0 doses, give 2 doses of PCV13, 4wks apart, with a 3rd dose at age 12–15m; if history of 1 or 2 doses, give 1 dose of PCV13 with a 2nd dose at age 12–15m at least 8wks later. • For age 12 through 23m: If unvaccinated or history of 1 dose before age 12m, give 2 doses of PCV13 8wks apart; if history of 1 dose at or after age 12m or 2 or 3 doses before age 12m, give 1 dose of PCV13 at least 8wks after most recent dose; if history of 4 doses of PCV7 or other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose. • For age 2 through 5yrs and at high risk**: If unvaccinated or any incomplete schedule of 1 or 2 doses, give 2 doses of PCV13, 1 at least 8wks after the most recent dose and another dose at least 8wks later; if any incomplete series of 3 doses, or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent PCV7 dose. • For children ages 6 through 18yrs with functional or anatomic asplenia (including sickle cell disease), HIV infection or other immunocompromising condition, cochlear implant, or CSF leak, give 1 dose of PCV13 if no previous history of PCV13.	**Contraindication** Previous anaphylaxis to a PCV vaccine, to any of its components, or to any diphtheria toxoid-containing vaccine. **Precaution** Moderate or severe acute illness.
Pneumococcal polysaccharide (PPSV23) *Give IM or SC*	• Give 1 dose at least 8wks after final dose of PCV13 to high-risk** children age 2yrs and older. • For children who have sickle cell disease, functional or anatomic asplenia, HIV infection, or other immunocompromising condition, give a 2nd dose of PPSV 5yrs after previous PPSV (consult ACIP PPSV recommendations at www.cdc.gov/mmwr/pdf/rr/rr5911.pdf*)		**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Human papillomavirus (HPV) (HPV2, Cervarix) (HPV4, Gardasil) *Give IM*	• Give 3-dose series of either HPV2 or HPV4 to girls and 3-dose series of HPV4 to boys at age 11–12yrs on a 0, 1 to 2, 6m schedule. (May be given as early as age 9yrs.) • Give a 3-dose series of either HPV2 or HPV4 to all older girls/women (through age 26yrs) and 3-dose series of HPV4 to all older boys/men (through age 21yrs) who were not previously vaccinated.	Minimum intervals between doses: 4wks between #1 and #2; 12 wks between #2 and #3. Overall, there must be at least 24wks between doses #1 and #3. If possible, use the same vaccine product for all doses.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** Moderate or severe acute illness. Pregnancy.

Summary of Recommendations for Child/Teen Immunization *(Age birth through 18 years)* (Page 4 of 5)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis A (HepA) *Give IM*	• Give 2 doses spaced 6 to 18m apart to all children at age 1yr (12–23m). • Vaccinate all previously unvaccinated children and adolescents age 2yrs and older who - Want to be protected from HAV infection and lack a specific risk factor. - Live in areas where vaccination programs target older children. - Travel anywhere except U.S., W. Europe, New Zealand, Australia, Canada, or Japan. - Have chronic liver disease, clotting factor disorder, or are adolescent males who have sex with other males. - Use illicit drugs (injectable or non-injectable). - Anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee's arrival in the U.S.	• Minimum interval between doses is 6m. • Children who are not fully vaccinated by age 2yrs can be vaccinated at a subsequent visits. • Administer 2 doses at least 6 months apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection. • Give 1 dose as postexposure prophylaxis to incompletely vaccinated children and teens age 12m and older who have recently (during the past 2wks) been exposed to hepatitis A virus.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Inactivated Polio (IPV) *Give SC or IM*	• Give to children at ages 2m, 4m, 6–18m, 4–6yrs. • May give dose #1 as early as age 6wks. • Not routinely recommended for U.S. residents age 18yrs and older (except certain travelers). For information on polio vaccination for international travelers, see wwwnc.cdc.gov/travel/diseases/poliomyelitits.	• The final dose should be given on or after the 4th birthday and at least 6m from the previous dose. • If dose #3 is given after 4th birthday, dose #4 is not needed if dose #3 is given at least 6m after dose #2.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.
Influenza Inactivated influenza vaccine (IIV) *Give IM* Live attenuated influenza vaccine (LAIV) *Give intranasally*	• Vaccinate all children and teens age 6m and older. • LAIV may be given to healthy, non-pregnant people age 2 through 49yrs. • Give 2 doses, spaced 4wks apart, to children age 6m through 8yrs who 1) are first-time vaccinees or 2) who meet any of the additional guidance in the current year's ACIP influenza vaccine recommendations*. • For IIV, give 0.25 mL dose to children age 6–35m and 0.5 mL dose if age 3yrs and older. • If LAIV and either MMR,Var, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart	**Contraindications** • Previous anaphylaxis to this vaccine, to any of its components, including egg protein. **Note:** Adolescents age 18yrs and older with egg allergy of any severity can receive the recombinant influenza vaccine (RIV) (Flublok). RIV does not contain any egg protein. • For LAIV only: age younger than 2yrs; pregnancy; chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV); for children and teens ages 6m through 18yrs, current long-term aspirin therapy; for children age 2 through 4yrs, wheezing or asthma within the past 12m, per healthcare provider statement. For children/teens who experience only hives with exposure to eggs, give IIV with additional safety precautions (i.e., observe patients for 30 minutes after receipt of vaccine for signs of a reaction). **Precautions** • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6wks of a previous influenza vaccination. • For LAIV only: Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48hrs before vaccination. Avoid use of these antiviral drugs for 14d after vaccination.	

Summary of Recommendations for Child/Teen Immunization *(Age birth through 18 years)* (Page 5 of 5)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hib (*Haemophilus influenzae* type b) *Give IM*	• ActHib (PRP-T): give at age 2m, 4m, 6m, 12–15m (booster dose). • PedvaxHIB or Comvax (containing PRP-OMP): give at age 2m, 4m, 12–15m (booster dose). • Dose #1 of Hib vaccine should not be given earlier than age 6wks. • Give final dose (booster dose) no earlier than age 12m and a minimum of 8wks after the previous dose. • Hib vaccines are interchangeable; however, if different brands of Hib vaccines are administered for dose #1 and dose #2, a total of 3 doses is necessary to complete the primary series in infants. • For vaccination of children 12 months and older who are immunocompromised or asplenic: if previously received no doses or only 1 dose before age 12m, give 2 additional doses at least 8wks apart; if previously received 2 or more doses before age 12m, give 1 additional dose. • Hib is not routinely given to healthy children age 5yrs and older. • 1 dose of Hib vaccine should be administered to children age 5 years and older who have anatomic or functional asplenia (including sickle cell disease) and who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after age 14 months. • 1 dose of Hib vaccine should be administered to unvaccinated persons 5 through 18 years of age with HIV infection. • Hiberix is approved only for the booster dose at age 12m through 4yrs.	**All Hib vaccines:** • If #1 was given at 12–14m, give booster in 8wks. • Give only 1 dose to unvaccinated healthy children ages 15–59m. **ActHib:** • #2 and #3 may be given 4wks after previous dose. • If #1 was given at age 7–11m, only 3 doses are needed; #2 is given at least 4 wks after #1, then final dose at age 12–15m (wait at least 8wks after dose #2). **PedvaxHIB and Comvax:** • #2 may be given 4wks after dose #1. Recipients of hematopoietic stem cell transplant should receive 3 doses of Hib vaccine at least 4wks apart beginning 6–12m after transplant, regardless of Hib vaccination history.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Age younger than 6wks. **Precaution** Moderate or severe acute illness.
Meningococcal conjugate, quadrivalent (MCV4) *Give IM* Menactra (MCV4-D) Menveo MCV4-CRM) *Give IM* **Hib-MenCY** *Give IM* **Meningococcal polysaccharide** (MPSV4) *Give SC*	• Give quadrivalent MCV (Menactra [MCV4-D] or Menveo [MCV4-CRM]) #1 routinely at age 11–12yrs and a booster dose at age 16yrs. • Give MCV4 to all unvaccinated teens age 13–18yrs; if vaccinated at age 13–15yrs, give booster dose at age 16 through 18yrs with a minimum interval of at least 8wks between doses. • Give 1 initial dose to unvaccinated first-year college students age 19 through 21yrs who live in residence halls; give booster dose if most recent dose given when younger than age 16yrs. • Give Hib-MenCY (MenHibrix) or MCV4-CRM (Menveo) to children age 2–18m with persistent complement component deficiency or anatomic/functional asplenia; give at ages 2, 4, 6, 12–15m. • For unvaccinated or partially vaccinated children age 7–23m with persistent complement component deficiency: 1) if age 7–23m and using MCV4-CRM (Menveo), give a 2-dose series at least 3m apart with dose #2 given after age 12m or, 2) if age 9–23m and using MCV4-D (Menactra), give a 2-dose series at least 3m apart. • Give either brand of MCV4 to unvaccinated children age 24m and older with persistent complement component deficiency or anatomic or functional asplenia; give 2 doses, 2m apart. If MCV4-D is given, it must be separated by 4wks from the final dose of PCV13. • Give age-appropriate series of MCV (brand must be licensed for age of child) to 1) children age 2m and older at risk during a community outbreak attributable to a vaccine serogroup and 2) children age 9m and older travelling to or living in countries with hyperendemic or epidemic meningococcal disease. Prior receipt of Hib-MenCY is not sufficient for children travelling to the meningitis belt or the Hajj.	• If previously vaccinated and risk of meningococcal disease persists, revaccinate with MCV4 in 3yrs (if previous dose given when younger than age 7yrs) or in 5yrs (if previous dose given at age 7yrs or older). Then, give additional booster doses every 5yrs if risk continues. • When administering MCV4 to children and teens with HIV infection, give 2 initial doses, separated by 8wks. • Minimum ages for MCV: 6wks (Hib-MenCY), 2m (MCV4-CRM), 9m (MCV4-D). See ACIP schedule footnotes for additional information on catch-up vaccination of high-risk persons and for Hib-MenCY.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** Moderate or severe acute illness.

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

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
Influenza Inactivated Influenza vaccine (IIV*) *Give IM or ID (intradermally)* **includes recombinant influenza vaccine (RIV)* Live attenuated influenza vaccine (LAIV) *Give intranasally*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf. • Vaccination is recommended for all adults, including healthy adults ages 19–49yrs without risk factors. • LAIV is licensed for use only for healthy nonpregnant people age 2 through 49yrs. • Adults age 18 through 64yrs may be given any intramuscular IIV product or, alternatively, the intradermal IIV product (Fluzone Intradermal). • Adults age 65yrs and older may be given standard-dose IIV or, alternatively, high-dose IIV (Fluzone High-Dose). **Note:** Healthcare personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive IIV rather than LAIV. For information on other contraindications and precautions to LAIV, see far right column.	• Give 1 dose every year in the fall or winter. • Begin vaccination services as soon as vaccine is available and continue until the supply is depleted. • Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.	**Contraindications** • Previous anaphylactic reaction to this vaccine, to any of its components, including egg protein. • For LAIV only: pregnancy; chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV). Adults with egg allergy of any severity may receive RIV or, adults who experience only hives with exposure to eggs may receive other IIV with additional safety precautions (i.e., observe patient for 30 minutes after receipt of vaccine for signs of a reaction). **Precautions** • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6wks following previous influenza vaccination. • For LAIV only: receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48hrs before vaccina-ation. Avoid use of these antiviral drugs for 14d after vaccination.
Pneumococcal polysaccharide (PPSV) *Give IM or SC* **Pneumococcal conjugate** (PCV13) *Give IM*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" www.immunize.org/catg.d/p2010.pdf. • People age 65yrs and older. • People younger than age 65yrs who have chronic illness or other risk factors, including chronic cardiac or pulmonary disease (including asthma), chronic liver disease, alcoholism, diabetes, cigarette smoking, and people living in special environments or social settings (including American Indian/Alaska Natives age 50 through 64yrs if recommended by local public health authorities). • Those at highest risk of serious pneumococcal infection, including people who - Have anatomic or functional asplenia, including sickle cell disease. - Have an immunocompromising condition, including HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, or nephrotic syndrome. - Are receiving immunosuppressive chemotherapy (including high-dose corticosteroids). - Have cerebrospinal fluid leaks - Have received an organ or bone marrow transplant. - Are a candidate for or recipient of a cochlear implant	**For PPSV:** • Give 1 dose of PPSV23 if unvaccinated or if previous vaccination history is unknown. • Give another dose of PPSV to people - Age 65yrs and older if 1st dose was given prior to age 65yrs and 5yrs have elapsed since dose #1. - Age 19–64yrs who are at highest risk of pneumococcal infection or rapid antibody loss (see the 3rd bullet in the box to left for listings of people at highest risk) and 5yrs have elapsed since dose #1. **Note:** When both PCV13 and PPSV23 are indicated, give PCV13 first. **For PCV13 and PPSV:** Give 1 dose of PCV13 to people age 19yrs and older at highest risk of serious pneumococcal infection (see column to left).If previously vaccinated with PPSV, give PCV13 at least 12m following PPSV; if not previously vaccinated with PPSV, give PCV13 first, followed by PPSV23 in 8wks.	**Contraindication** Previous anaphylactic reaction to this vaccine, including (for PCV13) to any diphtheria toxoid-containing vaccine, or to any of its components. **Precaution** Moderate or severe acute illness.

* This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/ACIP-recs/index.html or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip. This table is revised periodically. Visit IAC's website at www.immunize.org/adultrules to make sure you have the most current version.

Technical content reviewed by the Centers for Disease Control and Prevention

Summary of Recommendations for Adult Immunization *(Age 19 years & older)* (Page 2 of 4)

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
MMR (Measles, mumps, rubella) *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • People born in 1957 or later (especially those born outside the U.S.) should receive at least 1 dose of MMR if they have no laboratory evidence of immunity to each of the 3 diseases or documentation of a dose given on or after the first birthday. • People in high-risk groups, such as healthcare personnel (paid, unpaid, or volunteer), students entering college and other post-high school educational institutions, and international travelers, should receive a total of 2 doses. • People born before 1957 are usually considered immune, but evidence of immunity (serology or documented history of 2 doses of MMR) should be considered for healthcare personnel. • Women of childbearing age who do not have acceptable evidence of rubella immunity or vaccination.	• Give 1 or 2 doses (see criteria in 1st and 2nd bullets in box to left). • If dose #2 is recommended, give it no sooner than 4wks after dose #1. • If a pregnant or childbearing-age woman is found to be rubella susceptible, give 1 dose of MMR. For pregnant women the dose should be given postpartum. This includes women who have received 1 or 2 doses of rubella-containing vaccine. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d. • Within 72hrs of measles exposure, give 1 dose as postexposure prophylaxis to susceptible adults. **Note:** Routine post-vaccination serologic testing is not recommended.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy; or severely symptomatic HIV). **Note:** HIV infection is NOT a contraindication to MMR for those who are not severely immunocompromised (i.e., CD4+ T-lymphocyte counts are greater than or equal to 200 cells/μL) for 6 months.* **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin were given in past 11m, see ACIP's *General Recommendations on Immunization** regarding time to wait before vaccinating. • History of thrombocytopenia or thrombocytopenic purpura. **Note:** If TST (tuberculosis skin test) and MMR are both needed but not given on same day, delay TST for at least 4 wks after MMR.
Varicella (chickenpox) (Var) *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • All adults without evidence of immunity. **Note:** Evidence of immunity is defined as written documentation of 2 doses of varicella vaccine; a history of varicella disease or herpes zoster (shingles) based on healthcare-provider diagnosis; laboratory evidence of immunity or confirmation of disease; and/or birth in the U.S. before 1980, with the exceptions that follow. - Healthcare personnel (HCP) born in the U.S. before 1980 who do not meet any of the criteria above should be tested or given the 2-dose vaccine series. If testing indicates they are not immune, give the 1st dose of varicella vaccine immediately. Give the 2nd dose 4 to 8wks later. - Pregnant women born in the U.S. before 1980 who do not meet any of the criteria above should either 1) be tested for susceptibility during pregnancy and if found susceptible, given the 1st dose of varicella vaccine postpartum before hospital discharge, or 2) not be tested for susceptibility and given the 1st dose of varicella vaccine postpartum before hospital discharge. Give the 2nd dose 4–8wks later.	• Give 2 doses. • Dose #2 is given 4–8wks after dose #1. • If dose #2 is delayed, do not repeat dose #1. Just give dose #2. • If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d. • May use as postexposure prophylaxis if given within 5d. **Note:** Routine post-vaccination serologic testing is not recommended.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • People on long-term immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte counts are greater than or equal to 200 cells/μL. See *MMWR* 2007;56,RR-4). **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP's *General Recommendations on Immunization** regarding time to wait before vaccinating. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination; delay resumption of these antiviral drugs for 14d after vaccination, if possible.
Human papillomavirus (HPV) (HPV2, Cervarix) (HPV4, Gardasil) *Give IM*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • All previously unvaccinated women through age 26yrs and men through age 21yrs. • All previously unvaccinated men through age 26yrs who 1) have sex with men or 2) are immunocompromised as a result of infection (including HIV), disease, or medications, or who lack either of the preceding risk factors but want to be vaccinated.	• Give 3 doses on a 0, 2, 6m schedule. Use either HPV2 or HPV4 for women, and only HPV4 for men. • There must be at least 4wks between doses #1 and #2 and at least 12wks between doses #2 and #3. Overall, there must be at least 24wks between doses #1 and #3. If possible, use the same vaccine product for all three doses.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.

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

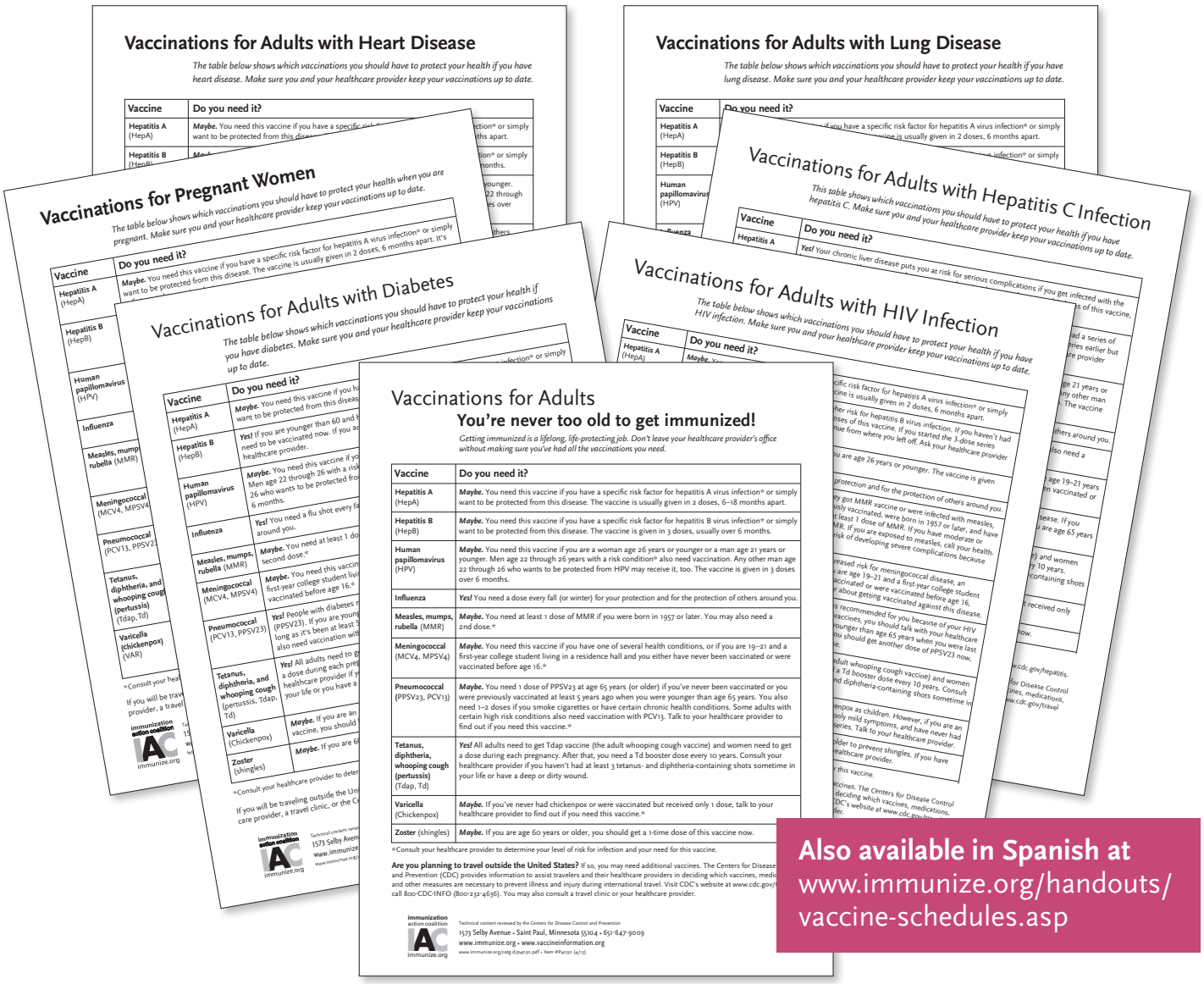
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis A (HepA) *Give IM* Brands may be used interchangeably.	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • All adults who want to be protected from hepatitis A virus (HAV) infection and lack a specific risk factor. • People who travel or work anywhere EXCEPT the U.S., Western Europe, New Zealand, Australia, Canada, and Japan. • People with chronic liver disease; injecting and non-injecting drug users; men who have sex with men; people who receive clotting-factor concentrates; people who work with HAV in experimental lab settings; food handlers when health authorities or private employers determine vaccination to be appropriate. • People who anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee's arrival in the U.S. • Adults age 40yrs or younger with recent (within 2 wks) exposure to HAV. For people older than age 40yrs with recent (within 2 wks) exposure to HAV, immune globulin is preferred over HepA vaccine.	• Give 2 doses, spaced 6–18m apart (depending on brand). • If dose #2 is delayed, do not repeat dose #1. Just give dose #2. For Twinrix (hepatitis A and B combination vaccine [GSK]) for patients age 18yrs and older only: give 3 doses on a 0, 1, 6m schedule. There must be at least 4wks between doses #1 and #2, and at least 5m between doses #2 and #3. An alternative schedule can also be used at 0, 7d, 21 to 30d, and a booster at 12m.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** Moderate or severe acute illness.
Hepatitis B (HepB) *Give IM* Brands may be used interchangeably.	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • All adults who want to be protected from hepatitis B virus infection and lack a specific risk factor. • Household contacts and sex partners of HBsAg-positive people; injecting drug users; sexually active people not in a long-term, mutually monogamous relationship; men who have sex with men; people with HIV; people seeking STD evaluation or treatment; hemodialysis patients and those with renal disease that may result in dialysis; diabetics younger than age 60yrs (diabetics age 60yrs and older may be vaccinated at the clinician's discretion [see ACIP recommendations*]); healthcare personnel and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; certain international travelers; and people with chronic liver disease. **Note:** Provide serologic screening for immigrants from endemic areas. If patient is chronically infected, assure appropriate disease management. For sex partners and household contacts of HBsAg-positive people, provide serologic screening and administer initial dose of HepB vaccine at same visit.	• Give 3 doses on a 0, 1, 6m schedule. • Alternative timing options for vaccination include 0, 2, 4m; 0, 1, 4m; and 0, 1, 2, 12m (Engerix brand only). • There must be at least 4wks between doses #1 and #2, and at least 8wks between doses #2 and #3. Overall, there must be at least 16wks between doses #1 and #3. • Give adults on hemodialysis or with other immunocompromising conditions 1 dose of 40 µg/mL (Recombivax HB) at 0, 1, 6m or 2 doses of 20 µg/mL (Engerix-B) given simultaneously at 0, 1, 2, 6m. • **Schedule for those who have fallen behind:** If the series is delayed between doses, DO NOT start the series over. Continue from where the schedule was interrupted.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Inactivated Polio (IPV) *Give IM or SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • Not routinely recommended for U.S. residents age 18yrs and older. **Note:** Adults living in the U.S. who never received or completed a primary series of polio vaccine need not be vaccinated unless they intend to travel to areas where exposure to wild-type virus is likely. Adults with documented prior vaccination can receive 1 booster dose if traveling to polio endemic areas or to areas where the risk of exposure is high.	• Refer to ACIP recommendations* regarding unique situations, schedules, and dosing information.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.
Hib *(Haemophilus influenzae type b)* *Give IM*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • Not routinely recommended for healthy adults. • Those adults at highest risk of serious Hib disease include people who 1) have anatomic or functional asplenia, 2) are undergoing an elective splenectomy, or 3) are recipients of hematopoietic stem cell transplant (HSCT).	• Give 1 dose of any Hib conjugate vaccine to adults in categories 1 or 2 (see 2nd bullet in column to left) if no history of previous Hib vaccine. • For HSCT patients, regardless of Hib vaccination history, give 3 doses, at least 4wks apart, beginning 6–12m after transplant.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precautions** Moderate or severe acute illness.

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

Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication
Meningococcal conjugate vaccine, quadrivalent (MCV4) Menactra, Menveo *Give IM* **Meningococcal** polysaccharide vaccine (MPSV4) Menomune *Give SC*	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • People with anatomic or functional asplenia or persistent complement component deficiency. • People who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). • Microbiologists routinely exposed to isolates of *N. meningitidis.* • First year college students through age 21yrs who live in a residence hall; see 5th bullet in the box to the right for details.	• Give 2 initial doses of MCV4 separated by 2m to adults 55yrs and younger with risk factors listed in 1st bullet in column to left or if vaccinating adults with HIV infection in this age group. • Give 1 initial dose to all other adults with risk factors (see 2nd–4th bullets in column to left). • Give booster doses every 5yrs to adults with continuing risk (see 1st–3rd bullets in column to left). • MCV4 is preferred over MPSV4 for people age 55yrs and younger. For people age 56yrs and older who anticipate multiple doses (see 1st–3rd bullets in column to left) or who have received MCV4 previously, use MCV4. For all others, use MPSV4. • For first year college students age 19 through 21yrs living in a residence hall, give 1 initial dose if unvaccinated and give booster dose if most recent dose was given when younger than 16yrs.	**Contraindication** Previous anaphylactic reaction to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Td, Tdap (Tetanus, diphtheria, pertussis) *Give IM* Do not use tetanus toxoid (TT) in place of Tdap or Td.	For people through age 18 years, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/ p2010.pdf. • All people who lack written documentation of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine. • A booster dose of Td or Tdap may be needed for wound management, so consult ACIP recommendations.* **For Tdap only:** • Adults who have not already received Tdap. • Healthcare personnel of all ages. • Give Tdap to pregnant women during each pregnancy (preferred during 27–36 weeks' gestation), regardless of the interval since prior Td or Tdap.	• For people who are unvaccinated or behind, complete the primary Td series (spaced at 0, 1–2m, 6–12m intervals); substitute a one-time dose of Tdap for one of the doses in the series, preferably the first. • Give Td booster every 10yrs after the primary series has been completed. • Tdap should be given regardless of interval since previous Td.	**Contraindications** • Previous anaphylactic reaction to this vaccine or to any of its components. • For Tdap only, history of encephalopathy not attributable to an identifiable cause, within 7d following DTP/DTaP, or Tdap. **Precautions** • Moderate or severe acute illness. • Guillain-Barré syndrome within 6wks following previous dose of tetanus-toxoid-containing vaccine. • History of arthus reaction following a prior dose of tetanus- or diphtheria toxoid-containing vaccine (including MCV4); defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine. • For pertussis-containing vaccines only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Zoster (shingles) (HZV) *Give SC*	• People age 60yrs and older. **Note:** Do not test people age 60 years or older for varicella immunity prior to zoster vaccination. Persons born in the U.S. prior to 1980 can be presumed to be immune to varicella for the purpose of zoster vaccination, regardless of their recollection of having had chickenpox.	• Give 1-time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox. • If 2 or more of the following live virus vaccines are to be given—MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.	**Contraindications** • Previous anaphylactic reaction to any component of zoster vaccine. • Primary cellular or acquired immunodeficiency. • Pregnancy. **Precautions** • Moderate or severe acute illness. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination; delay resumption of these antiviral drugs for 14d after vaccination, if possible.

Patient Schedules for All Adults and for High-Risk Adults

These documents are ready for you to download, copy, and use!



Vaccinations for Adults –
You're never too old to get immunized!
www.immunize.org/catg.d/p4030.pdf

Vaccinations for Adults with Heart Disease
www.immunize.org/catg.d/p4044.pdf

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Vaccinations for Adults with Diabetes
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Vaccinations for Adults with Hepatitis C
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Vaccinations for Adults with HIV Infection
www.immunize.org/catg.d/p4041.pdf

Vaccine Administration Record for Children and Teens

(Page 1 of 2)

Vaccine Administration Record for Children and Teens

Patient name: _____

Birthdate: _____ Chart number: _____

Clinic name and address

Before administering any vaccines, give copies of all pertinent Vaccine Information Statements (VISs) to the child's parent or legal representative and make sure he/she understands the risks and benefits of the vaccine(s). Always provide or update the patient's personal record card.

Vaccine	Type of Vaccine[1]	Date given (mo/day/yr)	Funding Source (F,S,P)[2]	Route & Site[3]	Vaccine		Vaccine Information Statement (VIS)		Vaccinator[5] (signature or initials & title)
					Lot #	Mfr.	Date on VIS[4]	Date given[4]	
Hepatitis B[6] (e.g., HepB, Hib-HepB, DTaP-HepB-IPV) Give IM.[3]									
Diphtheria, Tetanus, Pertussis[6] (e.g., DTaP, DTaP/Hib, DTaP-HepB-IPV, DT, DTaP-IPV/Hib, Tdap, DTaP-IPV, Td) Give IM.[3]									
***Haemophilus influenzae* type b[6]** (e.g., Hib, Hib-HepB, DTaP-IPV/Hib, DTaP/Hib, Hib-MenCY) Give IM.[3]									
Polio[6] (e.g., IPV, DTaP-HepB-DTaP-IPV/Hib, DTaP-IPV) Give IPV SC or IM.[3] Give all others IM.[3]									
Pneumococcal (e.g., PCV7, PCV13, conjugate; PPSV23, polysaccharide) Give PCV IM.[3] Give PPSV SC or IM.[3]									
Rotavirus (RV1, RV5) Give orally (po).[3]									

See page 2 to record measles-mumps-rubella, varicella, hepatitis A, meningococcal, HPV, influenza, and other vaccines (e.g., travel vaccines).

How to Complete This Record

1. Record the generic abbreviation (e.g., Tdap) or the trade name for each vaccine (see table at right).
2. Record the funding source of the vaccine given as either F (federal), S (state), or P (private).
3. Record the route by which the vaccine was given as either intramuscular (IM), subcutaneous (SC), intradermal (ID), intranasal (IN), or oral (PO) and also the site where it was administered as either RA (right arm), LA (left arm), RT (right thigh), or LT (left thigh).
4. Record the publication date of each VIS as well as the date the VIS is given to the patient.
5. To meet the space constraints of this form and federal requirements for documentation, a healthcare setting may want to keep a reference list of vaccinators that includes their initials and titles.
6. For combination vaccines, fill in a row for each antigen in the combination.

Abbreviation	Trade Name and Manufacturer
DTaP	Daptacel (sanofi); Infanrix (GlaxoSmithKline [GSK]); Tripedia (sanofi pasteur)
DT (pediatric)	Generic DT (sanofi pasteur)
DTaP-HepB-IPV	Pediarix (GSK)
DTaP/Hib	TriHIBit (sanofi pasteur)
DTaP-IPV/Hib	Pentacel (sanofi pasteur)
DTaP-IPV	Kinrix (GSK)
HepB	Engerix-B (GSK); Recombivax HB (Merck)
HepA-HepB	Twinrix (GSK), can be given to teens age 18 and older
Hib	ActHIB (sanofi pasteur); Hiberix (GSK); PedvaxHIB (Merck)
Hib-HepB	Comvax (Merck)
Hib-MenCY	MenHibrix (GSK)
IPV	Ipol (sanofi pasteur)
PCV13	Prevnar 13 (Pfizer)
PPSV23	Pneumovax 23 (Merck)
RV1	Rotarix (GSK)
RV5	RotaTeq (Merck)
Tdap	Adacel (sanofi pasteur); Boostrix (GSK)
Td	Decavac (sanofi pasteur); Generic Td (MA Biological Labs)

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Just what you need to document children and teens' vaccinations – updated for 2014!

Download this free form, and place in the front of each patient's medical chart.

(Page 2 of 2)

…n Record
…s

Patient name: _____

Birthdate: _____ Chart number: _____

Clinic name and address

…ll pertinent Vaccine Information Statements (VISs) to the child's parent or legal representative and … of the vaccine(s). Always provide or update the patient's personal record card.

…e given …o/day/yr)	Funding Source (F,S,P)[2]	Route & Site[3]	Vaccine		Vaccine Information Statement (VIS)		Vaccinator[5] (signature or initials & title)
			Lot #	Mfr.	Date on VIS[4]	Date given[4]	
Give IIV and RIV IM.[3] Give LAIV IN.[3]							
Other							

See page 1 to record hepatitis B, diphtheria, tetanus, pertussis, *Haemophilus influenzae* type b, polio, pneumococcal, and rotavirus vaccines.

How to Complete This Record

1. Record the generic abbreviation (e.g., Tdap) or the trade name for each vaccine (see table at right).
2. Record the funding source of the vaccine given as either F (federal), S (state), or P (private).
3. Record the route by which the vaccine was given as either intramuscular (IM), subcutaneous (SC), intradermal (ID), intranasal (IN), or oral (PO) and also the site where it was administered as either RA (right arm), LA (left arm), RT (right thigh), or LT (left thigh).
4. Record the publication date of each VIS as well as the date the VIS is given to the patient.
5. To meet the space constraints of this form and federal requirements for documentation, a healthcare setting may want to keep a reference list of vaccinators that includes their initials and titles.
6. For combination vaccines, fill in a row for each antigen in the combination.

Abbreviation	Trade Name and Manufacturer
MMR	MMRII (Merck)
VAR	Varivax (Merck)
MMRV	ProQuad (Merck)
HepA	Havrix (GlaxoSmithKline [GSK]); Vaqta (Merck)
HepA-HepB	Twinrix (GSK)
HPV2	Cervarix (GSK)
HPV4	Gardasil (Merck)
LAIV (Live attenuated influenza vaccine]	FluMist (MedImmune)
TIV (Trivalent inactivated influenza vaccine); RIV (Recombinant influenza vaccine)	Afluria (CSL Biotherapies); Agriflu (Novartis); Fluarix (GSK); Flublok (Protein Sciences Corp.); Flucelvax (Novartis); FluLaval (GSK); Fluvirin (Novartis); Fluzone, Fluzone Intradermal [for ages 18–64 yrs] (sanofi)
MCV4 or MenACWY, MenACWY-CRM, MenACWY-D; Hib-MenCY	MenACWY-D = Menactra (sanofi pasteur); MenACWY-CRM = Menveo (Novartis); Hib-MenCY (MenHibrix [GSK])
MPSV4	Menomune (sanofi pasteur)

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For a ready-to-copy 8½ x 11" version of this 2-page piece, visit www.immunize.org/catg.d/p2022.pdf

Sample pages 3–6 are provided for your reference, showing how to use this form.

Vaccine Administration Record for Adults

(Page 1 of 2)

Vaccine Administration Record for Adults

Patient name: _____

Birthdate: _____ Chart number: _____

Clinic name and address

Before administering any vaccines, give the patient copies of all pertinent Vaccine Information Statements (VISs) and make sure he/she understands the risks and benefits of the vaccine(s). Always provide or update the patient's personal record card.

Vaccine	Type of Vaccine[1]	Date given (mo/day/yr)	Funding source (F,S,P)[2]	Route[3] & Site[3]	Vaccine		Vaccine Information Statement (VIS)		Vaccinator[5] (signature or initials & title)
					Lot #	Mfr.	Date on VIS[4]	Date given[4]	
Tetanus, Diphtheria, Pertussis (e.g., Td, Tdap) Give IM.[3]									
Hepatitis A[6] (e.g., HepA, HepA-HepB) Give IM.[3]									
Hepatitis B[6] (e.g., HepB, HepA-HepB) Give IM.[3]									
Human papillomavirus (HPV2, HPV4) Give IM.[3]									
Measles, Mumps, Rubella (MMR) Give SC.[3]									
Varicella (VAR) Give SC.[3]									
Pneumococcal (e.g., PCV13, conjugate; PPSV23, polysaccharide) Give PCV13 IM.[3] Give PPSV23 IM or SC.[3]									
Meningococcal (e.g., MenACWY, conjugate; MPSV4, polysaccharide) Give MenACWY IM.[3] Give MPSV4 SC.[3]									

See page 2 to record influenza, Hib, zoster, and other vaccines (e.g., travel vaccines).

How to Complete This Record

1. Record the generic abbreviation (e.g., Tdap) or the trade name for each vaccine (see table at right).
2. Record the funding source of the vaccine given as either F (federal), S (state), or P (private).
3. Record the route by which the vaccine was given as either intramuscular (IM), subcutaneous (SC), intradermal (ID), intranasal (IN), or oral (PO) and also the site where it was administered as either RA (right arm), LA (left arm), RT (right thigh), or LT (left thigh).
4. Record the publication date of each VIS as well as the date the VIS is given to the patient.
5. To meet the space constraints of this form and federal requirements for documentation, a healthcare setting may want to keep a reference list of vaccinators that includes their initials and titles.
6. For combination vaccines, fill in a row for each antigen in the combination.

Abbreviation	Trade Name and Manufacturer
Tdap	Adacel (sanofi pasteur); Boostrix (GlaxoSmithKline [GSK])
Td	Decavac (sanofi pasteur); generic Td (MA Biological Labs)
HepA	Havrix (GSK); Vaqta (Merck)
HepB	Engerix-B (GSK); Recombivax HB (Merck)
HepA-HepB	Twinrix (GSK)
HPV2	Cervarix (GSK)
HPV4	Gardasil (Merck)
MMR	MMRII (Merck)
VAR	Varivax (Merck)
PCV13, PPSV23	Prevnar 13 (Pfizer); Pneumovax 23 (Merck)
MenACWY	Menactra (sanofi pasteur); Menveo (Novartis)
MPSV4	Menomune (sanofi pasteur)

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Just what you need to document adult vaccinations – updated for 2014!

Download this free form, and place in the front of each patient's medical chart.

(Page 2 of 2)

Patient name: _____

Birthdate: _____ Chart number: _____

Clinic name and address

See page 1 to record Tdap/Td, hepatitis A, hepatitis B, HPV, MMR, varicella, pneumococcal, and meningococcal vaccines.

How to Complete This Record

1. Record the generic abbreviation (e.g., Tdap) or the trade name for each vaccine (see table at right).
2. Record the funding source of the vaccine given as either F (federal), S (state), or P (private).
3. Record the route by which the vaccine was given as either intramuscular (IM), subcutaneous (SC), intradermal (ID), intranasal (IN), or oral (PO) and also the site where it was administered as either RA (right arm), LA (left arm), RT (right thigh), or LT (left thigh).
4. Record the publication date of each VIS as well as the date the VIS is given to the patient.
5. To meet the space constraints of this form and federal requirements for documentation, a healthcare setting may want to keep a reference list of vaccinators that includes their initials and titles.

Abbreviation	Trade Name and Manufacturer
LAIV (Live attenuated influenza vaccine)	FluMist (MedImmune)
IIV (Inactivated influenza vaccine), RIV (recombinant influenza vaccine)	Afluria (CSL Biotherapies); Agriflu (Novartis); Fluarix (GSK); Flublok (Protein Sciences Corp.); Flucelvax (Novartis); FluLaval (GSK); Fluvirin (Novartis); Fluzone, Fluzone Intradermal, Fluzone High-Dose (sanofi pasteur)
Hib	ActHIB (sanofi pasteur); Hiberix (GSK); PedvaxHib (Merck)
ZOS (shingles)	Zostavax (Merck)

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For a ready-to-copy 8½ x 11" version of this 2-page piece, visit www.immunize.org/catg.d/p2023.pdf

Sample pages 3–4 are provided for your reference, showing how to use this form.

A Guide for Gay and Bisexual Men about Hepatitis A and Hepatitis B

Protect Yourself Against Hepatitis A and Hepatitis B...

A GUIDE FOR GAY AND BISEXUAL MEN

Men who have sex with men are at increased risk of becoming infected with both the hepatitis A virus and the hepatitis B virus. Although these viruses can be transmitted in different ways, both can be spread through sexual activity.

Hepatitis is a serious disease that can be fatal. Fortunately, both hepatitis A and hepatitis B can be prevented by safe and effective vaccines. Unfortunately, many men at risk remain unprotected.

How great is my risk of getting hepatitis infection?

In 2009 an estimated 38,000 persons in the U.S. were newly infected with the hepatitis B virus. About 5% of people in the U.S. will get infected sometime during their lives. Men who have sex with men are 10 to 15 times more likely to acquire the hepatitis B virus than the general population.

In 2010 an estimated 17,000 persons in the U.S. were infected with the hepatitis A virus. Persons who engage in anal pleasuring activities such as rimming and fingering are at increased risk.

How are hepatitis A virus and hepatitis B virus spread?

A man infected with hepatitis B virus can spread the virus to another person by

- having unprotected anal or vaginal sex
- sharing needles for drugs, piercing, or tattooing
- coming in contact with the infected person's open sores or blood
- sharing toothbrushes, razors, nail clippers, etc.

The hepatitis B virus can also be spread by living in a household with a chronically infected person. The hepatitis B virus is not spread by sharing eating utensils, hugging, kissing, hand holding, coughing, or sneezing.

Hepatitis A virus is usually transmitted from particles of fecal material, for example, by eating or drinking contaminated food or water or during sex.

What are the symptoms of hepatitis A and hepatitis B?

The symptoms of both diseases are similar: extreme tiredness, nausea, fever, dark urine, bloated and tender belly, and yellowish-tinged skin and eyes. Infected persons can have no symptoms at all or be extremely ill. However, people who are infected with either hepatitis A virus or hepatitis B virus can spread the disease to others, whether they have symptoms or not.

Do people fully recover from hepatitis A virus and hepatitis B virus infections?

Most adults recover from hepatitis B virus infection after several months and are no longer contagious. Unfortunately, about 5% of adults who become infected with hepatitis B virus will carry the virus in their bodies for years and remain infectious. Chronically infected people usually do not have symptoms, but are at increased risk for eventual liver failure (cirrhosis) and liver cancer and need ongoing medical care. An estimated 800,000 to 1.4 million people in the U.S. (and 350 million in the world) are chronically infected.

Although hepatitis A virus does not result in chronic infection, infected people can become very sick and sometimes die.

How serious are hepatitis A and hepatitis B virus infections?

Hepatitis B virus infection can cause serious liver disease, including liver failure and liver cancer. More than 5,000 people in the U.S. die every year from hepatitis B-related liver disease.

There are approximately 100 deaths each year in the U.S. from hepatitis A. About 15% of people with hepatitis A require hospitalization. Adults who become ill are often out of work for several weeks.

Becoming infected with hepatitis A virus or hepatitis B virus can have a major impact on a person's life. A person might be too sick to work or go to the gym for months, and should not drink alcohol. Hepatitis A virus and hepatitis B virus infection can have serious consequences for people with HIV, as their immune systems might be compromised.

CONTINUED ON THE NEXT PAGE ▶

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www.immunize.org/catg.d/p4115.pdf • Item #P4115 (2/14)

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Are these shots effective?

Yes. After three doses of hepatitis B vaccine, at least 90% of healthy young adults develop immunity to hepatitis B virus infection. Immune-compromised people might not respond as well to hepatitis B vaccine. They should be tested 1–2 months after the third dose of vaccine to see if they responded.

Almost 100% of people are protected from hepatitis A virus infection after getting two doses of hepatitis A vaccine.

Will hepatitis A or hepatitis B vaccine protect me from hepatitis C?

No. Hepatitis A, B, and C are all different viruses. The hepatitis C virus is spread through body fluids, and although it can be transmitted through sexual contact, it is most commonly acquired through injection drug use. Unfortunately, there is no hepatitis C vaccine at this time.

Are these shots recommended for travelers?

Both hepatitis A virus and hepatitis B virus infection are common in many parts of the world. People traveling to any area of the world except the United States, Canada, Western Europe, Japan, New Zealand, and Australia should get vaccinated against hepatitis A virus. Hepatitis B vaccine is recommended for many travelers also. Discuss this with your doctor.

Where can I receive these shots?

Talk to your healthcare professional or your local public health department.

EVERYONE NEEDS VACCINATIONS!

If you can't afford shots or don't where to get them, contact your local or state health department to find out where to go for affordable vaccinations.

You can access a listing of telephone numbers for state immunization programs at www.immunize.org/coordinators.

For more information, go to www.vaccineinformation.org or www.cdc.gov/hepatitis.

doses have been given. Since 1995, more than 15 million doses of hepatitis A vaccine have been given in the U.S. with no reports of serious health problems linked to the vaccine. Side effects might include soreness at the injection site, headache, and fatigue.

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www.immunize.org/catg.d/p4115.pdf • Item #P4115 (2/14)

Hepatitis A, B, and C: Learn the Differences

	Hepatitis A caused by the hepatitis A virus (HAV)	Hepatitis B caused by the hepatitis B virus (HBV)	Hepatitis C caused by the hepatitis C virus (HCV)
How is it spread?	HAV is found in the feces (poop) of people with hepatitis A and is usually spread by close personal contact (including sex or living in the same household). It can also be spread by eating food or drinking water contaminated with HAV and by traveling internationally where HAV infection is occurring.	HBV is found in blood and certain body fluids. The virus is spread when blood or body fluid from an infected person enters the body of a person who is not immune. HBV is spread through having unprotected sex with an infected person, sharing needles or "works" when shooting drugs, exposure to needlesticks or sharps on the job, or from an infected mother to her baby during birth. Exposure to infected blood in ANY situation can be a risk for transmission.	HCV is found in blood and certain body fluids. The virus is spread when blood or body fluid from an HCV-infected person enters another person's body. HCV is spread through sharing needles or "works" when shooting drugs, through exposure to needlesticks or sharps on the job, or sometimes from an infected mother to her baby during birth. It is possible to transmit HCV during sex, but it is not common.
Who should be vaccinated?	• People who wish to be protected from HAV infection • All children at age 1 year (12–23 months) • Men who have sex with men • Users of street drugs (injecting and non-injecting) • People who travel or work in any area of the world except the U.S., Canada, Western Europe, Japan, New Zealand, and Australia • People who will have close personal contact with an international adoptee, from a country where HAV infection is common, during the first 60 days following the adoptee's arrival in the U.S. • People with chronic liver disease, including HCV • People working with HAV in a laboratory • People with clotting factor disorders (e.g., hemophilia)	• All infants, children, and teens ages 0–18 years • Any adult who wants to be protected from HBV infection • Sexually active people who are not in long-term, mutually monogamous relationships • Men who have sex with men • People seeking evaluation or treatment for a sexually transmitted disease • Healthcare or public safety workers who might be exposed to blood or body fluids • Residents and staff of facilities for developmentally disabled people • Adults under 60 years of age with diabetes • Dialysis and pre-dialysis patients • People infected with HIV • People in close personal contact (i.e., household or sexual) with someone who has chronic HBV infection • Current or recent injection-drug users • Travelers to regions of the world where hepatitis B is common (Asia, Africa, the Amazon Basin in South America, the Pacific Islands, Eastern Europe, or the Middle East); • People with chronic liver disease	**Who should be tested?** There is no vaccine to prevent HCV. Testing for HCV is recommended for the following groups of people. • People born during 1945–1965 • Injecting drug users • Recipients of clotting factors made before 1987 • Hemodialysis patients • Recipients of blood or solid organ transplants before 1992 • Infants born to HCV-infected mothers • People with undiagnosed abnormal liver test results Although HCV is not commonly spread through sex, Individuals having sex with multiple partners or with an infected steady partner may be at increased risk of HCV infection.
Symptoms	Viral hepatitis symptoms are similar no matter which type of hepatitis you have. If symptoms occur, you might experience any or all of the following: jaundice (yellowing of the skin and whites of the eyes), fever, loss of appetite, fatigue, dark urine, joint pain, abdominal pain, diarrhea, nausea, and vomiting. Very rarely, a recently acquired case of viral hepatitis can cause liver failure and death. Sometimes in these instances, a liver transplant (if a liver is available) can save a life. Note: For all types of viral hepatitis, symptoms are less common in children than in adults, and for people of any age with HCV infection, they are less likely to experience symptoms.		
	Incubation period: 15 to 50 days, average 28 days	**Incubation period:** 60 to 150 days, average 90 days	**Incubation period:** 14 to 180 days, average 45 days
Chronic infection	There is no chronic infection. Once you have had HAV infection, you cannot get it again. About 15 out of 100 people infected with HAV will have prolonged illness or relapsing symptoms over a 6−9 month period.	Chronic infection occurs in up to 90% of infants infected at birth; in about 30% of children infected at ages 1–5 years; and less than 5% of people infected after age 5 years. In the U.S., 2,000 to 4,000 people die each year from hepatitis B. Death from chronic liver disease occurs in 15%–25% of chronically infected people People who have chronic HBV infection have a much higher risk of liver failure and liver cancer.	Chronic infection occurs in 75%–85% of newly infected people and 70% of chronically infected people go on to develop chronic liver disease. In the U.S., an estimated 8–10,000 people die each year from HCV. People who have chronic HCV infection have a much higher risk of liver failure and liver cancer. Chronic HCV-related liver disease is the leading cause for liver transplant.
What treatment helps?	• There is no treatment for HAV other than supportive care. • Avoid alcohol. It can worsen liver disease.	• People with chronic HBV infection should have a medical evaluation for liver disease every 6–12 months. Several antiviral medications are currently licensed for the treatment of individuals with chronic HBV. These drugs are effective in preventing serious liver problems in up to 40% of patients, but the drugs do not get rid of the virus. Liver transplant is the last resort, but livers are not always available. • Avoid alcohol. It can worsen liver disease. • There is no medication to treat recently acquired HBV infection.	• People with chronic HCV infection should have a medical evaluation for liver disease every 6–12 months. There are drugs licensed for the treatment of individuals with chronic HCV infection. Combination therapy is currently the treatment of choice and can eliminate the virus in approximately 40–50% of patients with genotype 1 (the most common genotype in the U.S.). • Get vaccinated against hepatitis A and B. • Avoid alcohol. It can worsen liver disease. • There is no medication for the treatment of recently acquired HCV infection.
How is it prevented?	• Get vaccinated! Safe and effective vaccines to prevent HAV infection have been available in the U.S. since 1995. • Always wash your hands with soap and water after using the toilet, changing a diaper, and before preparing or eating food. • For a recent exposure to someone with HAV or if travel is soon (leaving in less than 2 weeks) to an area of the world where hepatitis A is common, see your healthcare provider about your need for hepatitis A vaccine or a dose of immune globulin (IG).	• Get vaccinated! Hepatitis B vaccination is the best protection. Three shots are usually given over a period of six months. • Whenever a woman is pregnant, she should be tested for hepatitis B (HBsAg blood test); infants born to HBV-infected mothers should be given HBIG (hepatitis B immune globulin) and vaccine within 12 hours of birth. • Tell your sex partner(s) to get vaccinated too, and always follow "safer sex" practices (e.g., using condoms).	• There is no vaccine to prevent HCV infection. • HCV can be spread by sex, but this is not common. If you are not in a mutually monogamous relationship, use latex condoms correctly and every time to prevent the spread of sexually transmitted diseases. (The efficacy of latex condoms in preventing HCV infection is unknown, but their proper use may reduce transmission.) In addition to getting hepatitis A vaccine, you should also get hepatitis B vaccine.

www.immunize.org/catg.d/p4075.pdf • Item #P4075 (3/14)

Andrew T. Kroger, MD, MPH

Donna L. Weaver, RN, MN

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

for children younger than age 12 months in any situation.

Tdap vaccine

We see many 10-year-olds for middle school entry immunization. Is one brand of Tdap preferred for this age group?

No. In March 2014, FDA lowered the age indication for Adacel brand Tdap vaccine (sanofi) from age 11 years to age 10 years. Both Tdap products, Adacel and Boostrix (GSK), now have the same lower age indication.

Is it acceptable to give breastfeeding mothers Tdap vaccine?

Yes. Women who have never received Tdap and who did not receive it during pregnancy should receive it immediately postpartum or as soon as possible thereafter. Breastfeeding does not decrease the immune response to routine childhood vaccines and is not a contraindication for any vaccine except smallpox. Breastfeeding is a precaution for yellow fever vaccine and the vaccine can be given for travel when indicated.

HPV vaccine

Can human papillomavirus (HPV) be transmitted by non-sexual transmission routes, such as clothing, undergarments, sex toys, or surfaces?

Nonsexual HPV transmission is theoretically possible but has not been definitely demonstrated. This is mainly because HPV can't be cultured and DNA detection from the environment is difficult and likely prone to false negative results.

Pneumococcal vaccine

Is pneumococcal polysaccharide vaccine (PPSV23, Pneumovax, Merck) indicated for former smokers?

PPSV23 is currently recommended for people age 19 through 64 years who actively smoke cigarettes (see www.cdc.gov/mmwr/preview/mmwrhtml/mm5934a3.htm). However, chronic lung disease is an indication for PPSV23, which could be applicable for former smokers.

Zoster vaccine

I know that ACIP only recommends zoster vaccine for adults age 60 years and older, although it is licensed for use in those 50 years and older. If I choose to vaccinate patients age 50–59 years, are there any criteria as to which patients in this age group might benefit most from zoster vaccination?

CDC had the following to say about your question in a November 11, 2011, issue of *MMWR* titled "Update on Herpes Zoster Vaccine: Licensure for Persons Aged 50 Through 59 Years" (www.cdc.gov/mmwr/preview/mmwrhtml/mm6044a5.htm): "For vaccination providers who choose to use Zostavax among certain patients aged 50 through 59 years despite the absence of an ACIP recommendation, factors that might be considered include particularly poor anticipated tolerance of herpes zoster or postherpetic neuralgia symptoms (e.g., attributable to preexisting chronic pain, severe depression, or other comorbid conditions; inability to tolerate treatment medications because of hypersensitivity or interactions with other chronic medications; and occupational considerations)."

Hepatitis B vaccine

In December 2013, CDC released a new document titled *CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management* (*MMWR* 2013;62[RR-10]) available at www.cdc.gov/mmwr/pdf/rr/rr6210.pdf. Does the content of this document update ACIP recommendations on healthcare personnel vaccination and hepatitis B?

The new guidance published by CDC does not constitute new recommendations of ACIP. The CDC guidance was created based on the opinions of an expert panel convened by CDC. According to the document, the guidance from CDC "augments the 2011 recommendations" of the ACIP document titled *Immunization of Health-Care Personnel* published November 25, 2011 (www.cdc.gov/mmwr/pdf/rr/rr6007.pdf), for evaluating hepatitis B protection among healthcare personnel and administering postexposure prophylaxis.

Does CDC now recommend routine pre-exposure anti-HBs testing of all healthcare personnel who were previously vaccinated?

In general, no, but the type of testing (pre-exposure or postexposure) depends on the healthcare worker's profession and work setting. An expert panel convened by CDC acknowledged that the risk for hepatitis B virus (HBV) infection for vaccinated healthcare personnel (HCP) can vary widely by setting and profession. The risk might be low enough in certain settings that assessment of hepatitis B surface antibody (anti-HBs) status and appropriate follow-up can be done at the time of exposure to potentially infectious blood or body fluids. This approach relies on HCP recognizing and reporting blood and body fluid exposures and might be applied on the basis of documented low risk, implementation, and cost considerations. Trainees, some occupations (such as those with frequent exposure to sharp instruments and blood), and HCP practicing in certain populations are at greater risk of exposure to blood or body fluid exposure from an HBsAg-positive patient. Vaccinated HCP in these settings/occupations would benefit from a pre-exposure approach. Figure 6 on page 13 of the guidance document provides an algorithm for settings where the choice is to use a pre-exposure approach. Table 2, found on page 14 of the document, provides the algorithm when postexposure management is implemented. The document, tables, and figures are available at www.cdc.gov/mmwr/pdf/rr/rr6210.pdf.

If an employee receives both HBIG and hepatitis B vaccine after a needlestick from a patient who is HBsAg positive, how long should one wait to check the employee's response to the vaccine?

Anti-HBs testing for HCP who receive both hepatitis B immune globulin (HBIG) and hepatitis B vaccine can be conducted as soon as 4 months after receipt of the HBIG. However, a new recommendation in the 2013 document is to test for hepatitis B core antibody (anti-HBc) and hepatitis B surface antigen (HBsAg) among certain HCP (those previously unvaccinated, incompletely vaccinated, or revaccinated) with an exposure from an HBsAg-positive or unknown HBsAg-status patient at the time of the exposure and approximately 6 months after the exposure (that is, after the HBV incubation period). The CDC expert panel determined that it would be more efficient to do all the follow-up testing at one time, and recommended testing at 6 months after the exposure. Anti-HBs could be

Ask the Experts . . . *continued on p. 23* ▶

Needle Tips correction policy

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measured at a minimum of 4 months after the administration of HBIG, but testing for infection would then follow approximately 2 months later.

At our facility we do routine pre-employment anti-HBs testing regardless of whether the employee has documentation of a hepatitis B vaccination series and consider those who are anti-HBs positive to be immune. Is this the recommended strategy?

No. HCP with written documentation of receipt of a properly spaced 3-dose series of hepatitis B vaccine AND a positive anti-HBs can be considered immune to HBV and require no further testing or vaccination. Testing unvaccinated or incompletely vaccinated HCP (including those without written documentation of vaccination) is not necessary and is potentially misleading because anti-HBs of 10 mIU/mL or higher as a correlate of vaccine-induced protection has only been determined for persons who have completed a hepatitis B vaccination series. Persons who cannot provide written documentation of a complete hepatitis B vaccination series should complete the 3-dose series, then be tested for anti-HBs 1 to 2 months after the final dose.

Does CDC still recommend routine anti-HBs testing of HCP who are at risk for occupational blood or body fluid exposure following the hepatitis B vaccination series?

Yes. This recommendation has not changed.

Is there now a recommendation for a routine booster dose of hepatitis B vaccine?

No. HCP who have documentation of receiving a 3-dose series of hepatitis B vaccine and who tested positive for anti-HBs (defined as anti-HBs of 10 mIU/mL or higher) are considered to be immune to hepatitis B. Immunocompetent persons have long-term protection against HBV and do not need further testing or vaccine doses. Some immunodeficient persons (including those on hemodialysis) may need periodic booster doses of hepatitis B vaccine, as described in the 2006 adult hepatitis B vaccine ACIP recommendations (*MMWR* 2006;55[RR-16]:26–9). These recommendations have not changed.

Does CDC now recommend restarting the hepatitis B vaccine series in the event the series is interrupted?

No. This recommendation has not changed. The series should not be restarted. Simply continue from where you left off.

Vaccine storage & handling

How long do we need to keep our refrigerator/freezer temperature tracking logs?

CDC recommends that refrigerator and freezer temperature logs be kept for at least 3 years. (See www.cdc.gov/vaccines/recs/storage/toolkit/storage-handling-toolkit.pdf, page 52.) The reasoning is that it is useful to be able to look back at the record to help determine if a unit is developing a problem.

Individual state Vaccines For Children (VFC) programs may have different requirements for retaining temperature logs. You should contact your state program for this information. Contact information for state immunization programs is available at www.immunize.org/coordinators.

General vaccine questions

What do we legally need to record when giving an immunization to a patient?

It is important to know the federal requirements for documenting the vaccines administered to your patients. The requirements are defined in the National Childhood Vaccine Injury Act enacted in 1986. The law applies to all routinely recommended childhood vaccines, regardless of the age of the patient receiving the vaccines. The only vaccines not included in this law are pneumococcal polysaccharide, zoster, and certain infrequently used vaccines, such as rabies and Japanese encephalitis. The following information must be documented on the patient's paper or electronic medical record or on a permanent office log:

1. The vaccine manufacturer.
2. The lot number of the vaccine.
3. The date the vaccine is administered.
4. The name, office address, and title of the healthcare provider administering the vaccine. (**Editor's Note:** On July 31, 2104, IAC corrected an error in this statement of the "Ask the Experts" answer, which had previously stated that a "signature (electronic is acceptable) of the person administering the vaccine. Initials of the vaccine administrator ..." was required by federal law.)
5. The Vaccine Information Statement (VIS) edition date located in the lower right corner on the back of the VIS. When administering combination vaccines, all applicable VISs should be given and the individual VIS edition dates recorded.
6. The date the VIS is given to the patient, parent, or guardian.

The federally required information should be both permanent and accessible.

Federal law does not require a parent, patient, or guardian to sign a consent form in order to receive a vaccination; providing them with the appropriate VIS(s) and answering their questions is sufficient under federal law.

In updating immunizations for immigration ("green card") exams, I regularly come across intervals between catch-up vaccine doses that are shorter than ACIP recommendations—most often the last 2 doses of IPV are given less than 6 months apart, but also sometimes the 2 doses of varicella are given less than 3 months apart, and the next-to-last and last Td are given less than 6 months apart. How significant is this in terms of immunity?

The significance of non-standard intervals probably depends on the vaccine and the dose. This is a complex issue—studies have not been done to examine the effect of various intervals between doses on the immunogenicity of those doses. But ACIP has examined the available data and made recommendations about the minimum acceptable interval between doses for that dose to be considered valid (there is no maximum interval between doses). These minimum intervals are published as Table 1 in ACIP's *General Recommendations on Immunization*, available at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf, pages 36–37. Doses with a minimum interval less than the recommended minimum, as described in Table 1, should not be counted as valid. More details on this topic can be found in the General Recommendations.

Is it standard practice to revaccinate a child who is adopted from another country?

No. According to ACIP, vaccines administered outside the U.S. generally can be accepted as valid if the schedule (i.e., minimum ages and intervals) is similar to that recommended in the U.S. However, with the exception of the influenza vaccine and PPSV23, only written documentation should be accepted as evidence of previous vaccination. In general, if records cannot be located or will definitely not be available anywhere because of the patient's circumstances, children without adequate documentation should be considered susceptible and should be started on the age-appropriate vaccination schedule. Serologic testing for immunity is an alternative to vaccination for certain antigens. More information is available in the ACIP *General Recommendations on Immunization*, available at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf, pages 27–29.

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