

VACCINATE ADULTS!

from the Immunization Action Coalition — www.immunize.org

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Adult Immunization . . . We've got to do better!

Following is a snapshot of 2010 U.S. adult vaccination coverage for five routinely recommended vaccines:

- Among adults age 19–64 years for whom Tdap status specifically could be assessed, Tdap vaccination coverage was 8.2%.¹
- Among adults age 60 years and older, zoster (shingles) vaccination coverage was 14.4%.¹
- Among women age 19–26 years, reported receipt of 1 or more doses of HPV vaccine was 20.7%.¹
- Among adults age 18 years and older, influenza vaccination coverage during the 2010–11 influenza season was 40.5%.²
- Among adults age 65 years and older, pneumococcal vaccination coverage was 59.7% overall, with notable racial and ethnic disparities. Non-Hispanic whites of this age group had higher vaccination coverage (63.5%) compared with Hispanics (39%), non-Hispanic blacks (46.2%), and non-Hispanic Asians (48.2%).¹

Annually, vaccine-preventable diseases claim the lives of approximately 50,000 U.S. adults. Obviously, healthcare providers need to substantially improve adult vaccination to reduce the serious consequences of disease.

Successful vaccination programs need to (1) educate potential vaccine recipients; (2) develop publicity to promote vaccination; (3) increase access to vaccination services in medical offices and

complementary settings such as workplaces and pharmacies; (4) use reminder-recall systems, (5) implement standing orders programs for vaccination; and (6) assess practice-level vaccination rates and provide feedback to staff members.

What can healthcare settings do to implement adult vaccination programs that contain the elements listed above? Practical online information is available on the Immunization Action Coalition's new compilation of Adult Immunization Resources at www.immunize.org/adult-vaccination. The 8-page listing provides access to numerous documents on clinic operations, provider and patient education, Medicare and CMS, office operations, policy, and provider and pharmacy training.

Developed for presentation at the first National Adult Immunization Summit (NAIS; held in May 2012), the listing is the initial step in creating a searchable database of adult immunization resources, which will be housed on IAC's website. The database will include resources and tools used by NAIS adult immunization partners to improve adult vaccination coverage.

¹ CDC. Adult Vaccination Coverage—United States, 2010. *MMWR* 2012;61:66–71.

² CDC. Final state-level influenza vaccination coverage estimates for the 2010–11 season—United States, National Immunization Survey and Behavioral Risk Factor Surveillance System, August 2010 through May 2011.

Ask the Experts

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

Immunization questions?

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

Immunization questions

Pneumococcal polysaccharide vaccine (PPSV23) is recommended for all adults who smoke. Are there recommendations for those who use smokeless tobacco products (e.g., chewing tobacco)?

No. ACIP does not identify people who use smokeless tobacco products as being at increased risk for pneumococcal disease or as being in a risk group for vaccination.

Now that FDA has licensed Prevnar 13 (PCV13; Pfizer) for adults, does ACIP have recommendations for its use?

To date, ACIP has not made recommendations for routine use of PCV13 for adults; however, at its June 2012 meeting, ACIP voted to recommend administering 1 dose of PCV13 to adults age 19 and older who are at highest risk for invasive pneumococcal disease. This includes adults who are immunosuppressed and those with functional or anatomic asplenia, renal disease, CSF leak, and cochlear implants. ACIP voted to recommend that

when healthcare providers vaccinate highest-risk patients who have never received a pneumococcal vaccine, the provider administer PCV13 first, then follow with a dose of pneumococcal polysaccharide vaccine (PPSV23) 8 weeks later, and follow with a second dose of PPSV23 5 years later. For highest-risk patients who have already received PPSV23, ACIP voted to recommend that healthcare

(continued on page 12)

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IAC Express Celebrates 15 Years and 1000 Issues Dedicated to Delivering Important Immunization News Directly to Your Email In-Box

Since its first issue was published 15 years ago on November 14, 1997, *IAC Express*, IAC's weekly email immunization news service for healthcare professionals, has been keeping readers up to date on all aspects of immunization. On July 3, 2012, IAC staff celebrated publishing and delivering 1000 issues of *IAC Express* to the email in-boxes of healthcare professionals in the United States and around the world (see photo inset).

Timely, accurate, and clinically relevant immunization information is the hallmark of *IAC Express*. In the past 15 years, the publication has informed readers about 104 vaccine recommendations from CDC's Advisory Committee on Immunization Practices (ACIP) and 84 vaccine product licensures from the Food and Drug Administration. We've also notified professionals about new staff-education materials and patient handouts, Vaccine Information Statements (VISs), journal articles and newsletters, conferences and educational opportunities, and more.

As evidence of the expansion of online information related to immunization in the past decade, the number of articles published annually in *IAC Express* has grown from 122 in 1998 to 697 in 2011. Subscribership has increased from 332 in 1997 to nearly 46,000 today.

SPECIAL EDITIONS OF IAC EXPRESS

In addition to publishing a weekly issue, IAC has distributed more than 100 special editions of *IAC Express*. The most popular special editions are "Ask the Experts" and those featuring *Unprotected People* reports.

NEW LOOK! NEW DAY OF DELIVERY!

On December 27, 2011, IAC began publishing *IAC Express* in an attractive, user-friendly format suitable for mobile devices. Weekly issues are now sent on Tuesdays, rather than on Mondays.



Bottom row: Diane Peterson, Casey Pauly, Mary Quirk; Back row: Julie Murphy, Dale Thompson, Teresa Anderson, Janelle Anderson, Deborah Wexler, Mike Franey, Robin VanOss. Not pictured: Sheila Franey.

Top 5 Reasons to Become a Subscriber

1. Keep current with the latest ACIP recommendations, VIS statements, and vaccine licensures
2. Access tools to help train staff on vaccine administration techniques and procedures
3. Locate tools on the proper storage and handling of vaccines
4. Find tools to screen for vaccine contraindications and precautions
5. Access the latest handouts to improve communication with parents/patients about immunization, including vaccine safety

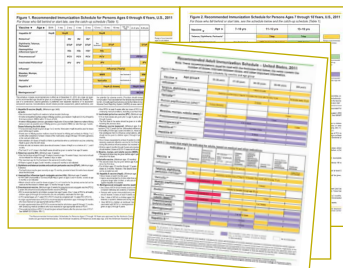
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Once you complete the sign-up form at www.immunize.org/subscribe, you'll start receiving weekly issues and special editions in your email in-box.

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



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

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

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Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information in Vaccine Highlights is current as of August 20, 2012.

The next ACIP meetings

A committee of 15 national experts, the Advisory Committee on Immunization Practices (ACIP) advises CDC on the appropriate use of vaccines. ACIP meets three times a year in Atlanta; meetings are open to the public. The next two meetings will be held on Oct. 24–25, 2012, and Feb. 20–21, 2013. 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 easily available. Here are sources:

- Download them from links on IAC's website: www.immunize.org/acip.
- Download them from CDC's website: www.cdc.gov/vaccines/pubs/acip-list.htm.

Influenza news

On August 17, CDC published ACIP's 2012 influenza recommendations, "Prevention and Control of Influenza with Vaccines." The recommendations include information regarding vaccinating people with a history of egg allergy and development of quadrivalent influenza vaccines for use in future influenza seasons. To obtain a copy of recommendations in HTML format, go to www.cdc.gov/mmwr/preview/mmwrhtml/mm6132a3.htm. To obtain them in PDF format, go to www.cdc.gov/mmwr/pdf/wk/mm6132.pdf and see pages 613–618.

On July 2, CDC released two VISs for 2012–13 influenza vaccine: one for trivalent inactivated influenza vaccine (TIV; injectable) and one for live attenuated influenza vaccine (LAIV; nasal spray). To access the VIS for TIV, go to www.immunize.org/vis/flu_inactive.pdf. To access the VIS for LAIV, go to www.immunize.org/vis/flu_live.pdf.

Tdap vaccine news

On June 29, CDC published recommendations titled "Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis (Tdap) Vaccine in Adults Aged 65 Years and Older." CDC recommends that all adults age 19 years and older who have not yet received a dose of Tdap receive a one-time dose. Tdap should be administered regardless of interval since last

tetanus or diphtheria toxoid-containing vaccine. After receipt of Tdap, people should continue to receive Td for routine booster immunization against tetanus and diphtheria according to previously published guidelines. To obtain a copy of recommendations in HTML format, go to www.cdc.gov/mmwr/preview/mmwrhtml/mm6125a4.htm. To obtain them in PDF format, go to: www.cdc.gov/mmwr/pdf/wk/mm6125.pdf (pages 468–470).

PCV13 vaccine news

At its June 2012 meeting, ACIP voted to recommend administering 1 dose of pneumococcal conjugate vaccine (PCV13) to adults age 19 and older who are at highest risk for invasive pneumococcal disease. This includes adults who are immunosuppressed and those with functional for anatomic asplenia, renal disease, CSF leaks, and cochlear implants. See pages 1 and 5 of "Ask the Experts" for additional information.

To date, ACIP has not issued recommendations for routine use of PCV13 for adults. ACIP recommendations become CDC recommendations once they are accepted by director of CDC and the Secretary of Health and Human Services and are published in *MMWR*.

Typhoid news

On May 29, CDC released an updated VIS for typhoid vaccine. CDC recommends that providers start using the updated VIS immediately when planning to administer typhoid vaccine. To access it, go to www.immunize.org/vis/typhoid.pdf.

CDC news

On June 1, CDC published *Summary of Notifiable Diseases—United States, 2010*. It contains the official statistics, in tabular and graphic form, for the reported occurrences of nationally notifiable infectious diseases in 2010. To access it, go to www.cdc.gov/mmwr/PDF/wk/mm5953.pdf.

On July 6, CDC published *MMWR Recommendations and Reports* titled *Updated CDC Recommendations for the Management of Hepatitis B Virus-Infected Health-Care Providers and Students*. The primary goal of the recommendations is to promote patient safety while providing risk management and practice guidance to hepatitis B virus-infected healthcare providers and students, particularly those performing exposure-prone procedures such as certain types of surgery. To obtain a copy of the recommendations, go to www.cdc.gov/mmwr/pdf/rr/rr6103.pdf.

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On August 17, CDC published *MMWR Recommendations and Reports* titled *Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965*. The recommendations call for one-time hepatitis C virus (HCV) testing of people born during 1945–1965, a population with a disproportionately high prevalence of HCV infection and related disease. To obtain a copy of the recommendations, go to www.cdc.gov/mmwr/preview/mmwrhtml/rr6104a1.htm.

HHS news

On June 5, the Office of Inspector General of the U.S. Department of Health and Human Services (HHS) released a report titled *Vaccines for Children Program: Vulnerabilities in Vaccine Management*. For a two-week period in 2011, the Inspector General's office conducted site visits at the practice locations of 45 Vaccines for Children (VFC) providers and independently measured the providers' vaccine storage unit temperatures. Although the majority of storage temperatures were within the required ranges, VFC vaccines stored by 76 percent of the 45 selected providers were exposed to inappropriate temperatures for at least 5 cumulative hours during the two-week monitoring period. Access a report summary at <http://oig.hhs.gov/oei/reports/oei-04-10-00430.asp>. The complete report is available at <http://oig.hhs.gov/oei/reports/oei-04-10-00430.pdf>.

Hepatitis A, B, and C: Learn the Differences

Copy this for
your patients

	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?	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • 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 	<p>There is no vaccine to prevent HCV. Testing for HCV is recommended for the following groups of people.</p> <ul style="list-style-type: none"> • 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 <p>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.</p>
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?	<ul style="list-style-type: none"> • There is no treatment for HAV other than supportive care. • Avoid alcohol. It can worsen liver disease. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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?	<ul style="list-style-type: none"> • 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). 	<ul style="list-style-type: none"> • 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). 	<ul style="list-style-type: none"> • 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.

Vaccinations for Adults

Copy this for
your patients

You're never too old to get immunized!

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

Vaccine	Do you need it?
Hepatitis A (HepA)	Maybe. You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6–18 months apart.
Hepatitis B (HepB)	Maybe. You need this vaccine if you have a specific risk factor for hepatitis B virus infection* or simply want to be protected from this disease. The vaccine is given in 3 doses, usually over 6 months.
Human papillomavirus (HPV)	Maybe. You need this vaccine if you are a woman age 26 years or younger or a man age 21 years or younger. Men age 22 through 26 years with a risk condition* also need vaccination. Any other man age 22 through 26 who wants to be protected from HPV may receive it, too. The vaccine is given in 3 doses over 6 months.
Influenza	Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you.
Measles, mumps, rubella (MMR)	Maybe. You need at least 1 dose of MMR if you were born in 1957 or later. You may also need a 2nd dose.*
Meningococcal (MCV4, MPSV4)	Maybe. You need this vaccine if you have one of several health conditions, or if you are 19–21 and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16.*
Pneumococcal (PPSV23, PCV13)	Maybe. You need 1 dose of PPSV23 at age 65 years (or older) if you've never been vaccinated or you were previously vaccinated at least 5 years ago when you were younger than age 65 years. You also need 1–2 doses if you smoke cigarettes or have certain chronic health conditions. Some adults with certain high risk conditions also need vaccination with PCV13. Talk to your healthcare provider to find out if you need this vaccine.*
Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td)	Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine). After that, you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus- and diphtheria-containing shots sometime in your life or have a deep or dirty wound.
Varicella (Chickenpox)	Maybe. If you've never had chickenpox or were vaccinated but received only 1 dose, talk to your healthcare provider to find out if you need this vaccine.*
Zoster (shingles)	Maybe. If you are age 60 years or older, you should get a 1-time dose of this vaccine now.

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

Are you planning to travel outside the United States? If so, you may need additional vaccines. The Centers for Disease Control and Prevention (CDC) provides information to assist travelers and their healthcare providers in deciding which vaccines, medications, and other measures are necessary to prevent illness and injury during international travel. Visit CDC's website at www.cdc.gov/travel or call 800-CDC-INFO (800-232-4636). You may also consult a travel clinic or your healthcare provider.

Two Vaccination Handouts for High-Risk Adults

These newly designed patient handouts show which vaccines are recommended for adults with HIV or hepatitis C infection

Vaccinations for Adults with HIV Infection

The table below shows which vaccinations you should have to protect your health if you have HIV infection. Make sure you and your healthcare provider keep your vaccinations up to date.

Vaccine	Do you need it?
Hepatitis A (HepA)	Maybe. You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6 months apart.
Hepatitis B (HepB)	Yes! Because you are HIV positive, you are at higher risk for hepatitis B virus infection. If you haven't had a series of hepatitis B vaccinations, you need 3 doses of this vaccine. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B.
Human papillomavirus (HPV)	Maybe. You should be vaccinated against HPV if you are age 26 in 3 doses over 6 months.
Influenza	Yes! You need a flu shot every fall (or winter) for your protection and for the protection of others around you.
Measles, mumps, rubella (MMR)	Maybe. Most adults are already protected because they got MMR as children. If you weren't previously vaccinated or only mild symptoms, you need at least 1 dose. If you have severe symptoms from HIV, you should not receive MMR. If you are at risk of death from HIV, you should not receive MMR. If you get measles, you are at risk of death from your HIV infection.
Meningococcal (MCV4, MPSV4)	Maybe. Because of your HIV infection, you may be at increased risk for meningococcal disease, an uncommon but sometimes fatal bacterial infection. If you are age 16-23, you need this vaccine. If you are living in a residence hall and you either have never been vaccinated or you also need this vaccine. Talk to your healthcare provider about this.
Pneumococcal (PCV13, PPSV23)	Yes! Vaccination with both types of pneumococcal vaccine is recommended. If you haven't been vaccinated with both of these vaccines, you need both. If you were vaccinated with PPSV23 and you are 65 years or older now, you should get PCV13. If you were vaccinated with PCV13 and you are 65 years or older now, you should get PPSV23. If you were vaccinated with both and you are 65 years or older now, you should get both. If you were vaccinated with both and you are 65 years or older now, you should get both. If you were vaccinated with both and you are 65 years or older now, you should get both.
Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td)	Yes! All adults need to get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine). After that you need a Td booster dose every 10 years. Consult your healthcare provider about when to get these shots. You should get 3 tetanus- and diphtheria-containing shots sometime in your life.
Varicella (Chickenpox)	Maybe. Most adults are already protected because they had chickenpox as children. If you were born in the U.S. in 1980 or later, have no HIV symptoms or chickenpox or the vaccine, you can be vaccinated with this 2-dose series.
Zoster (shingles)	Maybe. This vaccine is recommended for adults age 60 years and older. If you have any symptoms of HIV, you should not be vaccinated. Talk to your healthcare provider about this.

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

Are you planning to travel outside the United States? If so, you may need additional vaccines. The Centers for Disease Control and Prevention (CDC) provides information to assist travelers and their healthcare providers in deciding which vaccines, medications, and other measures are necessary to prevent illness and injury during international travel. Visit CDC's website at www.cdc.gov/travel or call 800-CDC-INFO (800-232-4636). You may also consult a travel clinic or your healthcare provider.



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Vaccinations for Adults with Hepatitis C Infection

This table shows which vaccinations you should have to protect your health if you have hepatitis C. Make sure you and your healthcare provider keep your vaccinations up to date.

Vaccine	Do you need it?
Hepatitis A (HepA)	Yes! Your chronic liver disease puts you at risk for serious complications if you get infected with the hepatitis A virus. If you've never been vaccinated against hepatitis A, you need 2 doses of this vaccine, usually spaced 6 months apart.
Hepatitis B (HepB)	Yes! Because of your chronic liver disease, you need to be vaccinated. If you haven't had a series of hepatitis B vaccinations, you need 3 doses of this vaccine. If you started the 3-dose series earlier but didn't complete it, you can simply continue from where you left off. Ask your healthcare provider if you need screening blood tests for hepatitis B.
Human papillomavirus (HPV)	Maybe. You need this vaccine if you are a woman age 26 years or younger or a man age 21 years or younger. Men age 22 through 26 years with a risk condition* also need vaccination. Any other man age 22 through 26 who wants to be protected from HPV may receive this vaccine, too. The vaccine is given in 3 doses over 6 months.
Influenza	Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you.
Measles, mumps, rubella (MMR)	Maybe. You need at least 1 dose of MMR if you were born in 1957 or later. You may also need a second dose.*
Meningococcal (MCV4, MPSV4)	Maybe. You need this vaccine if you have one of several health conditions* or if you are age 19-21 years and a first-year college student living in a residence hall and you either have never been vaccinated or were vaccinated before age 16.
Pneumococcal polysaccharide (PPSV23)	Yes! This vaccine is specifically recommended for you because of your chronic liver disease. If you haven't been vaccinated, you should get 1 dose now. You need a second dose when you are age 65 years or older, provided at least 5 years have passed since your first dose.
Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td)	Yes! You should get a 1-time dose of Tdap vaccine (the adult whooping cough vaccine). After that you need a Td booster dose every 10 years. Consult your healthcare provider if you haven't had at least 3 tetanus- and diphtheria-containing shots sometime in your life or if you have a deep or dirty wound.
Varicella (Chickenpox)	Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but received only 1 dose, talk to your healthcare provider about getting this vaccine.*
Zoster (shingles)	Maybe. If you are age 60 years or older, you should get a 1-time dose of this vaccine now.

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

For more information about hepatitis C, call the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636), or visit www.cdc.gov/hepatitis.

Are you planning to travel outside the United States? If so, you may need additional vaccines. The Centers for Disease Control and Prevention (CDC) provides information to assist travelers and their healthcare providers in deciding which vaccines, medications, and other measures are necessary to prevent illness and injury during international travel. Visit CDC's website at www.cdc.gov/travel or call 800-CDC-INFO (800-232-4636). You may also consult a travel clinic or your healthcare provider.



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Vaccinations for Adults with HIV Infection: www.immunize.org/catg.d/P4041.pdf

Vaccinations for Adults with Hepatitis C Infection: www.immunize.org/catg.d/P4042.pdf

How to Administer IM and SC Vaccine Injections to Adults

Intramuscular (IM) Injections

Administer these vaccines via IM route

Tetanus, diphtheria (Td), or with pertussis (Tdap); hepatitis A; hepatitis B; human papillomavirus (HPV); trivalent inactivated influenza (TIV); pneumococcal conjugate (PCV13); and quadrivalent meningococcal conjugate (MCV4). Administer polio (IPV) and pneumococcal polysaccharide vaccine (PPSV23) either IM or SC.

Injection site

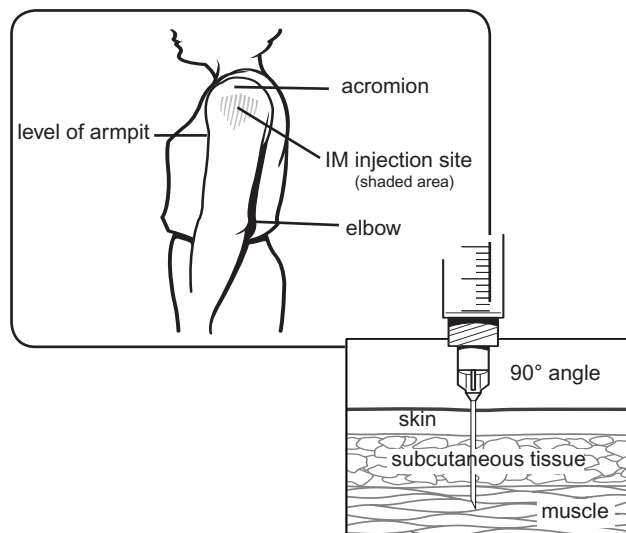
Give in the central and thickest portion of the deltoid—above the level of the armpit and below the acromion (see the diagram).

Needle size

22–25 gauge, 1–1½" needle (see note at right)

Needle insertion

- Use a needle long enough to reach deep into the muscle.
- Insert the needle at a 90° angle to the skin with a quick thrust.
- Separate two injections given in the same deltoid muscle by a minimum of 1".



*Note: A 5/8" needle is sufficient in adults weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle **only** if the subcutaneous tissue is not bunched and the injection is made at a 90-degree angle; a 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 152–200 lbs (70–90 kg) and men weighing 152–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (90 kg) or men weighing more than 260 lbs (more than 118 kg).*

Subcutaneous (SC) Injections

Administer these vaccines via SC route

MMR, varicella, meningococcal polysaccharide (MPSV4), and zoster (shingles). Administer polio (IPV) and pneumococcal polysaccharide vaccine (PPSV23) either SC or IM.

Injection site

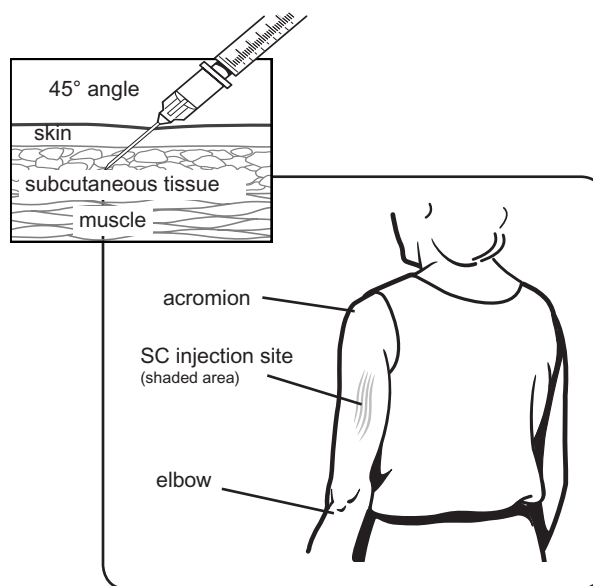
Give in fatty tissue over the triceps (see the diagram).

Needle size

23–25 gauge, 5/8" needle

Needle insertion

- Pinch up on the tissue to prevent injection into the muscle. Insert the needle at a 45° angle to the skin.
- Separate two injections given in the same area of fatty tissue by a minimum of 1".



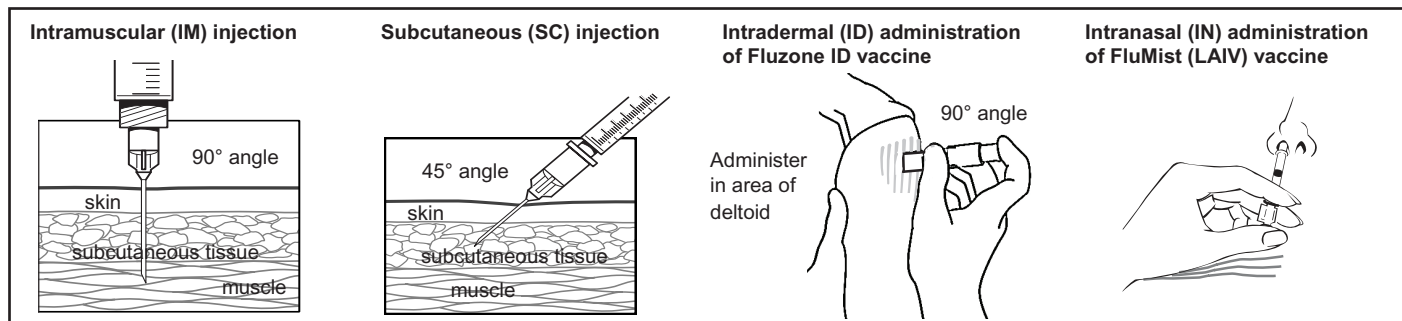
Adapted by the Immunization Action Coalition, courtesy of the Minnesota Department of Health

Administering Vaccines to Adults: Dose, Route, Site, and Needle Size

Vaccine	Dose	Route
Hepatitis A (HepA)	≤18 yrs: 0.5 mL	IM
	≥19 yrs: 1.0 mL	
Hepatitis B HepB)	≤19 yrs: 0.5 mL	IM
	≥20 yrs: 1.0 mL	
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL	IM
Human papillomavirus (HPV)	0.5 mL	IM
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL into each nostril)	Intranasal spray
Influenza, trivalent inactivated (TIV), including Fluzone High-Dose	0.5 mL	IM
Influenza (TIV) Fluzone Intradermal, for ages 18 through 64 years	0.1 mL	Intradermal
Measles, Mumps, Rubella (MMR)	0.5 mL	SC
Meningococcal, conjugate (MCV4)	0.5 mL	IM
Meningococcal, polysaccharide (MPSV4)	0.5 mL	SC
Pneumococcal, conjugate (PCV13)	0.5 mL	IM
Pneumococcal, polysaccharide (PPSV)	0.5 mL	IM
		SC
Tetanus, Diphtheria (Td) with Pertussis (Tdap)	0.5 mL	IM
Varicella (VAR)	0.5 mL	SC
Zoster (Zos)	0.65 mL	SC

Injection Site and Needle Size	
Subcutaneous (SC) injection	
Use a 23–25 gauge, 5/8", needle. Inject in fatty tissue over triceps.	
Intramuscular (IM) injection	
Use a 22–25 gauge needle. Inject in deltoid muscle of arm. Choose the needle length as indicated below:	
Gender/Weight	Needle Length
Male or female less than 130 lbs	5/8"–1"
Female 130–200 lbs	1–1½"
Male 130–260 lbs	
Female 200+ lbs	1½"
Male 260+ lbs	

*A 5/8" needle may be used for patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the subcutaneous tissue is not bunched and the injection is made at a 90-degree angle.



Note: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

Meningococcal Vaccination Recommendations

by Age and/or Risk Factor

This table summarizes the recommendations of CDC's Advisory Committee on Immunization Practices for the use of meningococcal vaccine.

MCV4 = Menactra (sanofi) and Menveo (Novartis)
MCV4-D = Menactra MPSV = Menomune (sanofi)

TARGETED GROUP BY AGE AND /OR RISK FACTOR	PRIMARY DOSE(S)	BOOSTER DOSE(S)
People ages 11 through 18 years	Give 1 dose of MCV4, preferably at age 11 or 12 years ¹	Give booster at age 16 years if primary dose given at age 12 years or younger
		Give booster at age 16 through 18 years if primary dose given at age 13 through 15 years ²
People age 19 through 21 years who are in college and living in residence halls	Give 1 dose of MCV4 ¹ if not previously vaccinated	Give booster if previous dose given at age younger than 16 years
Certain travelers, people present during outbreaks caused by a vaccine serogroup, ³ and other people with prolonged increased risk for exposure (e.g., travelers to or residents of countries where meningococcal disease is hyperendemic or epidemic and microbiologists routinely working with <i>Neisseria meningitidis</i>)		
▪ for age 9 through 23 months	Give 2 doses of MCV4-D, 3 months apart ⁴	If risk continues, give initial booster after 3 years, followed by boosters every 5 years
▪ for age 2 through 55 years	Give 1 dose of MCV4 ¹	Boost every 5 years with MCV4 ^{5,6}
▪ for age 56 years and older	Give 1 dose of MPSV	Boost every 5 years with MPSV ⁶
People with persistent complement component deficiencies, ⁷ or functional or anatomic asplenia		
▪ for age 9 through 23 months with persistent complement component deficiencies only (<i>does not include children with functional or anatomic asplenia</i>)	Give 2 doses of MCV4-D, 3 months apart	Give booster after 3 years, followed by boosters every 5 years
▪ for age 2 through 55 years	Give 2 doses of MCV4, 2 months apart ⁸	Boost every 5 years with MCV4 ^{5,9}
▪ for age 56 years and older	Give 1 dose of MPSV	Boost every 5 years with MPSV ⁹

FOOTNOTES

1. If the person is HIV-positive, give 2 doses, 2 months apart.
2. The minimum interval between doses of MCV4 is 8 weeks.
3. Seek advice of local public health authority to determine if vaccination is recommended.
4. If a child age 9 through 23 months will enter an endemic area in less than 3 months, give doses as close as 2 months apart.
5. If primary dose(s) given when younger than age 7 years, give initial booster after 3 years, followed by boosters every 5 years.
6. Boosters are recommended if the person remains at increased risk.
7. Persistent complement component deficiencies include C5-C9, properdin, factor H, and factor D.
8. Children with functional or anatomic asplenia should complete a PCV13 vaccine series before vaccination with MCV4; if MCV4-D is to be given, vaccinate at least 4 weeks following last dose of PCV13.
9. If the person received a 1-dose primary series, give booster at the earliest opportunity, then boost every 5 years.

Technical content reviewed by the Centers for Disease Control and Prevention

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www.immunize.org/catg.d/p2018.pdf • Item #P2018 (8/12)

Current Dates of Vaccine Information Statements (VISs) as of July 2, 2012

Check your supply of VISs against this list. If you have out-dated VISs, get current versions at www.immunize.org/vis

Adenovirus.....	7/14/11	MMRV.....	5/21/10
Anthrax.....	3/10/10	Meningococcal.....	10/14/11
Chickenpox.....	3/13/08	Multi-vaccine.....	9/18/08
DTaP.....	5/17/07	PCV13.....	4/16/10
Hib.....	12/16/98	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.....	12/6/10
HPV-Gardasil.....	2/22/12	Shingles.....	10/6/09
Influenza.....	7/2/12	Td/Tdap.....	1/24/12
Japanese enceph.....	12/7/11	Typhoid.....	5/29/12
MMR.....	4/20/12	Yellow fever.....	3/30/11

www.immunize.org/catg.d/p2029.pdf

Immunization Action Coalition

Item #P2029 (7/12)

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Influenza.....	7/2/12	Td/Tdap.....	1/24/12
Japanese enceph.....	12/7/11	Typhoid.....	5/29/12
MMR.....	4/20/12	Yellow fever.....	3/30/11

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Japanese enceph.....	12/7/11	Typhoid.....	5/29/12
MMR.....	4/20/12	Yellow fever.....	3/30/11

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MMR.....	4/20/12	Yellow fever.....	3/30/11

www.immunize.org/catg.d/p2029.pdf

Immunization Action Coalition

IAC's
"Ask the
Experts"
team
from
CDC



Andrew T. Kroger, MD, MPH



Donna L. Weaver, RN, MN



Iyabode Akinsanya-Beysolow, MD, MPH

professionals wait 1 year since the previous dose of PPSV23 before giving PCV13 to avoid interference between the vaccines. More detail will be included when *MMWR* publishes the recommendations.

I am confused about which adults to vaccinate with Tdap vaccine and which product to use. Please help!

CDC published updated recommendations on Tdap vaccination for adults in *MMWR* on June 29, 2012, pages 468–470. ACIP recommends that ALL adults age 19 years and older who have not yet received a dose of Tdap receive a single dose. Tdap should be administered regardless of interval since the last tetanus- or diphtheria-toxoid-containing vaccine (e.g., Td). After receiving Tdap, people should receive Td every 10 years for routine booster immunization against tetanus and diphtheria, according to previously published guidelines.

Providers should not miss an opportunity to vaccinate adults age 65 and older with Tdap. Therefore, providers may administer any Tdap vaccine they have available. When feasible, providers should administer Boostrix (Tdap; GSK) to adults age 65 and older as it is licensed for this age group. Adacel (Tdap; sanofi) is licensed for use in people age 11 through 64. However, ACIP concluded that either vaccine administered to a person age 65 or older is immunogenic and will provide protection. A dose of either vaccine is considered valid.

When a tetanus-toxoid-containing vaccine is needed for wound management in a person who has not previously received Tdap, the use of Tdap is preferred over Td.

Is there guidance for pertussis protection for an adult who cannot receive the tetanus por-

tion of the Tdap vaccine because of allergy?

Usually, an "allergy" to tetanus toxoid is anecdotal and not a true anaphylactic reaction to modern tetanus toxoid. Patients often claim to be allergic to

**You can find translations
of VISs in more than
30 languages at
www.immunize.org/vis**

tetanus toxoid because of (1) an exaggerated local reaction (which is not an allergy) or (2) a reaction to a tetanus vaccine received many years ago (probably serum sickness from equine tetanus antitoxin). A history of one of these events is not a contraindication to modern tetanus toxoid, Td, or Tdap.

Only an allergist-confirmed anaphylactic allergy to tetanus toxoid should be accepted as a valid contraindication to a modern tetanus-toxoid-containing product. A person who has an allergist-confirmed anaphylactic allergy to tetanus toxoid has no recourse for pertussis vaccination because

no single-antigen pertussis vaccine is licensed for use in the United States.

Who should get a second dose of Tdap vaccine?

Currently, no one is recommended to receive more than 1 dose of Tdap. In the future, ACIP will discuss the need for administering additional doses of Tdap and the timing of revaccinating people who have received Tdap previously.

Why do we vaccinate pregnant women against influenza when it is not recommended to vaccinate infants younger than age 6 months?

ACIP has recommended vaccinating pregnant women with inactivated influenza vaccine (TIV) for a number of years. Pregnant women are a high-risk group for complications, hospitalization, and even death from influenza because of the increased physiologic strain of pregnancy on their heart, lungs, and immune system. Vaccination can occur in any trimester, including the first.

Influenza vaccine is not recommended for children younger than age 6 months because it is not approved for this age group. In addition, there are data that indicate that vaccinated pregnant women pass maternal antibodies to the fetus in the last few weeks of pregnancy; this helps protect the young infant against influenza. Vaccinating pregnant women thus protects women, their unborn babies, and their babies after birth.

If Cervarix (HPV2; GSK) is inadvertently administered to a male, does the dose need to be repeated with Gardasil (HPV4; Merck)?

Yes. Cervarix is recommended for use only in females. There is no minimum interval between the invalid dose of Cervarix and the dose of Gardasil.

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

(continued on page 13)

Vaccinate Adults correction policy

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through 26 years may be vaccinated with HPV4; ACIP specifically recommends routine vaccination with HPV4 through age 26 years for immunocompromised males and men who have sex with men if they have not been vaccinated previously or have not completed the 3-dose series.

Is it safe to give the shingles vaccine (Zos-tavax; Merck) to patients age 60 years and older who have had a splenectomy? I am concerned because it's a live virus vaccine.

Yes, it is safe. Asplenic people can get all vaccines indicated. Immunosuppression is not a consideration unless the patient has other health issues or is undergoing treatments that suppress the immune system. A patient's response to shingles vaccination should not be affected by the lack of a functioning spleen.

If a healthcare worker does not have a history of varicella vaccination or disease but has had a clinically diagnosed case of shingles, does she or he still need varicella vaccination?

No. A healthcare provider's diagnosis or verification of a history of shingles is acceptable evidence of immunity to varicella. According to ACIP, acceptable evidence of varicella immunity in healthcare personnel includes (1) documentation of 2 doses of varicella vaccine given at least 28 days apart, (2) history of varicella or herpes zoster based on physician diagnosis, (3) laboratory evidence of immunity, or (4) laboratory confirmation of disease.

ACIP recommends that adolescents who receive the first dose of meningococcal conjugate vaccine (MCV4) at age 13–15 years receive a one-time booster dose at age 16–18 years. Given how hard it is to get teens into a medical office, is it okay to give the doses close together if the opportunity arises? For example, if a patient got the first dose at age 15, and then came back for a sports physical

at age 16, could we give the second dose of MCV4 then or should we try to space it out as far as possible (age 18)?

If the first dose is given at age 13 through 15 years, you can give the booster dose as early as age 16 years, with a minimum interval of 8 weeks from the previous dose. So, even if the patient got vaccinated at age 15 years 11 months, you could wait at least 8 weeks and then give the booster at age 16 years 1 month (or later) if you chose to do so.

Can you switch brands of rabies vaccine to complete the 4-dose series?

Yes. The two rabies vaccines licensed for use in the United States are interchangeable.

To submit an "Ask the Experts" question . . .

You can email your questions about immunization to us at admin@immunize.org. IAC will respond to your inquiry. Because we receive hundreds of emails each month, we cannot guarantee that we will use your question in "Ask the Experts." IAC works with CDC to compile new Q&As for our publications based on commonly asked questions. Most of the questions are thus a composite of several inquiries.

Adult Immunization Resources

Looking for practical tools and resources about adult immunization? You'll find an 8-page listing of useful online resources on the Immunization Action Coalition's website at

www.immunize.org/adult-vaccination

New Handouts and Web Sections from the Immunization Action Coalition

IAC developed the following handouts and web sections for healthcare staff and/or the general public. Download, print, and distribute them freely.

- Meningococcal Vaccination Recommendations by Age and/or Risk Factor
www.immunize.org/catg.d/p2018.pdf
- Current Dates of Vaccine Information Statements
www.immunize.org/catg.d/p2029.pdf
- Tips for Locating Old Immunization Records
www.immunize.org/catg.d/p3065.pdf
- Updated: Vaccinations for Adults—You're never too old to get immunized!
www.immunize.org/catg.d/p4030.pdf
- H3N2v Influenza Outbreak Information
www.immunize.org/influenza/h3n2v
- Cocooning and Tdap Vaccination
www.immunize.org/cocooning
- The Vaccine Handbook
www.immunize.org/vaccine-handbook
- Technically Speaking
www.immunize.org/technically-speaking
- Pharmacists and Immunization
www.immunize.org/pharmacists

To access all IAC's handouts (more than 250), go to www.immunize.org/handouts

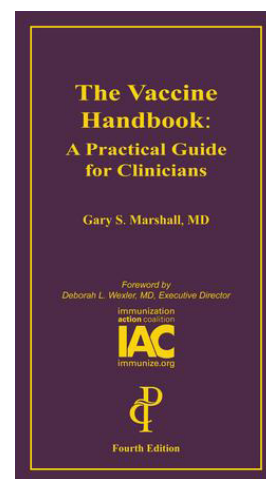
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each schedule includes a guide to vaccine contraindications and precautions, an additional feature that will help you make on-the-spot determinations about the safety of vaccinating patients of any age.

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

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