Volume 5 – Number 2 Fall/Winter 2001–2002

VACCINATE ADULTS!

A bulletin for adult medicine specialists from the Immunization Action Coalition

Highlighting the latest developments in routine adult immunization and chronic hepatitis B virus infection.

Artwork courtesy of NY State Health Dept.

What's Inside?

Ask the Experts

Editor's note: The Immunization Action Coalition thanks William L. Atkinson, MD, MPH; Harold S. Margolis, MD; and Linda A. Moyer, RN, of the Centers for Disease Control and Prevention for answering the following questions for our readers. Dr. Atkinson, medical epidemiologist at the National Immunization Program, and Dr. Margolis, Director, Division of Viral Hepatitis, serve as CDC liaisons to the Coalition. Ms. Moyer is an epidemiologist at the Division of Viral Hepatitis.

General vaccine questions

by William L. Atkinson, MD, MPH

What are the risks of not aspirating prior to an IM or SQ vaccination?

Aspiration prior to injection is intended to reduce the risk of injecting vaccine into a vein or artery. Although aspiration is recommended by some experts, there are few data that support the need to aspirate.

Immunization questions?

- E-mail nipinfo@cdc.gov
- Call CDC's Immunization Information Hotline at (800) 232-2522

I've heard that multidose vaccine vials should be disposed of after being open for 30 days. Is this true?

No. Multidose vials may be used through the expiration date printed on the label or box as long as the vaccine is not visibly contaminated.

Is there any reason to be concerned about latex allergies with respect to vaccine vial stoppers?

Some vial stoppers are made with natural rubber, which may contain latex as well as other impurities from the original latex material. Latex and other impurities may therefore be present in very small quantities in the vaccine, or on the needle as it passes through the stopper. Persons with anaphylactic reactions to latex should generally not be given vaccines that have been in contact with natural rubber, either in the vial or in a syringe. Persons with latex allergies that are not anaphylactic may be vaccinated as usual.

How do I decide whether to report an adverse event to the Vaccine Adverse Events Reporting System (VAERS)?

All significant health events that may have been related to a dose of vaccine—particularly those that lead to hospitalization, disability, or death—should be reported to VAERS. The health care provider doesn't need to be certain the event was vaccine-related in order to report it. It is not necessary to report minor adverse reactions, such as local reactions or low-grade fever. For more information about VAERS, visit www.vaers.org or call (800) 822-7967.

Tetanus, diphtheria

by William L. Atkinson, MD, MPH

Why is there a shortage of tetanus/diphtheria vaccine? What should we tell our patients?

The shortage of adult Td occurred because Wyeth Lederle discontinued production of Td. The remaining vaccine manufacturer, Aventis Pasteur, has increased production to meet national need, but 11 months are required for vaccine production, meaning the shortage could extend into 2002. CDC recommends that providers delay all routine Td boosters among adolescents and adults until 2002. Available vaccine should be used for persons traveling to a country where the risk of diphtheria is high, for wound management, for completing the series in persons who have received less than three doses of Td-containing vaccine, and for pregnant women who have not been vaccinated with Td during the preceding 10 years. Providers should record the names of patients whose booster doses are delayed during the shortage and recall these patients when the supply improves.

Measles, mumps, rubella

by William L. Atkinson, MD, MPH

What is the recommendation for MMR vaccine for health care workers?

All persons who work in a medical facility should have evidence of immunity to measles and rubella.

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Important CDC publication revised Oct. 1, 2001

"Vaccine Information Statements: What You Need to Know"

To order, call (800) 232-2522 or visit www.immunize.org/vis

VACCINATE ADULTS!

Immunization Action Coalition
Hepatitis B Coalition

1573 Selby Avenue, Suite 234
St. Paul, MN 55104
Phone: (651) 647-9009
Fax: (651) 647-9131
E-mail: admin@immunize.org
Website: www.immunize.org

VACCINATE ADULTS! is a semiannual publication of the Immunization Action Coalition (IAC) written for health professionals. All information in ***VACCINATE ADULTS!*** is reviewed by the Centers for Disease Control and Prevention (CDC) for technical accuracy, with the exception of opinion pieces written by non-CDC authors. Circulation is now approximately 160,000. ISSN 1526-1824.

This publication is supported by CDC Grant Nos. U66/CCU518372-02 and U50/CCU518789-02. The contents of the publication are solely the responsibility of IAC and do not necessarily represent the official views of CDC.

Publication Staff
Editor: Deborah L. Wexler, MD
Associate Editors: Lynn Bahta, RN, Kristine Vesley, Caryn Pernu
Editorial Assistant: Janelle Tangonan
Layout: Kathy Cohen
Artwork: Isaac and Sarah Wexler-Mann

IAC Staff
Executive Director: Deborah L. Wexler, MD
Office Administrator: Patricia Storti
Bookkeeper: Robin VanOss
Administrative Assistant: Sara Dickie
Consultant: Teresa Anderson, DDS, MPH
Website design: Lantern Web™

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

The Hepatitis B Coalition, a program of IAC, promotes hepatitis B vaccination for all children 0–18 years; HBsAg screening for all pregnant women; testing and vaccination for high-risk groups; and education and treatment for people chronically infected with hepatitis B.

Vaccine highlights

Latest recommendations and schedules

The next ACIP meetings

Editor's note: The information on these pages is current as of November 27, 2001.

The Advisory Committee on Immunization Practices (ACIP) is a committee of 10 national experts that provides advice and guidance to CDC regarding the most appropriate use of vaccines and immune globulins. ACIP meetings are held three times a year in Atlanta, Ga., and are open to the public. The next meetings will be held February 20–21 and June 20–21, 2002.

ACIP statements

No clinic should be without a set of these public health recommendations on vaccines, which are published in the *Morbidity and Mortality Weekly Report (MMWR)*. Continuing education credits (CMEs, CEUs, CNEs) are available for reading the statement and completing the brief test at the end of the statement.

To get a complete set of ACIP statements or just the ones you want:

- Download individual statements from CDC's website: www.cdc.gov/mmwr
- Visit IAC's website to download individual statements: www.immunize.org/acip
- E-mail your request to nipinfo@cdc.gov
- Call CDC's Immunization Hotline at (800) 232-2522.
- Order them online from CDC's National Immunization Program at www.cdc.gov/nip/publications

Recently published ACIP statements:

- "Vaccinia (Smallpox) Vaccine" (June 22, 2001)
- "Prevention and Control of Influenza" (April 20, 2001)

Hepatitis A & B vaccine news

On May 11, 2001, the FDA licensed Twinrix, a combination hepatitis A and hepatitis B vaccine manufactured by GlaxoSmithKline. This vaccine contains 20mcg/ml of HBsAg protein and 720 Elisa Units of inactivated hepatitis A virus. It is licensed for use in persons 18 years of age and older who have an indication for both hepatitis A and hepatitis B vaccines. It is recommended for administration on a 0-, 1-, 6-month schedule.

Keep yourself up to date on immunization news!

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Rubella vaccine news

On July 13, 2001, "Control and Prevention of Rubella: Evaluation and Management of Suspected Outbreaks, Rubella in Pregnant Women, and Surveillance for Congenital Rubella Syndrome" was published in *MMWR* (vol. 50, no. RR-12). Outbreaks of rubella continue to occur in the U.S. despite widespread use of the measles-mumps-rubella (MMR) vaccine. Throughout the mid- to late-1990s, rubella outbreaks were characterized by increased numbers of cases among adults born in countries that do not have or have only recently instituted a national rubella vaccination program. A link to this document is available on IAC's website: www.immunize.org/acip

Td vaccine news

On May 25, 2001, "Deferral of Routine Booster Doses of Tetanus and Diphtheria Toxoids for Adolescents and Adults" was published in *MMWR*. A shortage of tetanus and diphtheria toxoids (Td) and tetanus toxoid (TT) in the United States occurred because one of only two manufacturers discontinued production of tetanus toxoid-containing products. Aventis Pasteur has increased production of Td to meet national needs; however, because 11 months are required for vaccine production, the shortage is expected to last for the remainder of 2001. To assure vaccine availability for priority indications, all routine Td boosters in adolescents and adults should be delayed until 2002. Td use should follow existing recommendations for all other indications.

(continued on page 14)

If you vaccinate children or adults, you need this new video!

"Immunization Techniques: Safe, Effective, Caring"

developed by

California Dept. of Health Services Immunization Branch, 2001

Every clinic in the United States that delivers vaccination services should have a copy of this **brand-new** 35-minute video available for staff members. Each video comes with presenter's notes and includes a skills checklist.

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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 stool (feces) of HAV-infected persons. HAV is usually spread from person to person by putting something in the mouth (even though it may look clean) that has been contaminated with the stool of a person with hepatitis A. This can happen when people don't wash their hands after using the toilet and then touch other people's food.	HBV is found in blood and certain body fluids. It 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 sex with an infected person without a condom, sharing needles or "works" when "shooting" drugs, needlesticks or sharps exposures on the job, or from an infected mother to her baby during birth. Exposure to blood in ANY situation can be a risk for transmission.	HCV is found in blood and certain body fluids. It is spread when blood or body fluids from an infected person enters another person's body. HCV is spread through sharing needles or "works" when "shooting" drugs, through needlesticks or sharps exposures on the job, or sometimes from an infected mother to her baby during birth. It is possible to transmit HCV from sex, but it is uncommon.
Who is at risk?	• Household contacts of infected persons • Sex partners of infected persons • Persons, especially children, living in regions of the U.S. with consistently elevated rates of hepatitis A during 1987–1997* • Persons traveling to countries where hepatitis A is common (everywhere except Canada, Western Europe, Japan, Australia, and New Zealand) • Men who have sex with men • Injecting and non-injecting drug users	• Persons with more than one sex partner in a 6-month period • Persons diagnosed with a sexually transmitted disease • Men who have sex with men • Sex partners of infected persons • Injecting drug users • Household contacts of infected persons • Infants born to infected mothers • Infants/children of immigrants from areas with high HBV rates • Health care and public safety workers who are exposed to blood • Hemodialysis patients	• Injecting drug users • Health care and public safety workers **Who should be tested for HCV?** People with increased risk of HCV infection include: • Injecting drug users • Recipients of clotting factors made before 1987 • Hemodialysis patients • Recipients of blood/solid organs before 1992 • People with undiagnosed liver problems • Infants born to infected mothers (after 12 mos of age) • Health care/public safety workers (only after known exposure) **People for whom testing may or may not be indicated:** • People having sex with multiple partners • People having sex with an infected steady partner
What if you are infected?	Viral hepatitis symptoms are similar no matter which type of hepatitis a person has. If symptoms occur, the individual may experience any or all of the following: jaundice, fever, loss of appetite, fatigue, dark urine, joint pain, abdominal pain, diarrhea, nausea, and vomiting. Very rarely, a new case (acute) 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: Symptoms are less common in children than adults, and people who have HCV infection are less likely to experience symptoms.		
	Incubation period: 15 to 50 days There is no chronic (long-term) infection. Once you have had hepatitis A you cannot get it again. About 15% of people infected with HAV will have prolonged illness or relapsing symptoms over a 6–9 month period.	**Incubation period:** 45 to 160 days, average 90 days Chronic infection occurs in 90% of infants infected at birth; 30% of children infected at age 1–5 years; 6% of persons infected after age 5 years. In the U.S., 5000 people die each year from HBV. Death from chronic liver disease occurs in 15-25% of chronically infected persons. People who have chronic HBV infection have a much higher risk of liver failure (cirrhosis) and liver cancer.	**Incubation period:** 14 to 180 days, average 45 days Chronic infection: 75–85% of infected persons Chronic liver disease: 70% of chronically infected persons. In the U.S., 8–10,000 people die each year from HCV. People who have chronic HCV infection have a much higher risk of liver failure (cirrhosis) and liver cancer. Chronic HCV-related liver disease is the leading indication for liver transplant.
What treatment helps?	• There is no treatment for hepatitis A. • Avoid alcohol. It can worsen liver disease.	• HBV-infected persons should have a medical evaluation for liver disease every 6–12 months. Alpha-interferon and lamivudine are the two drugs licensed for the treatment of persons with chronic hepatitis B. These drugs are effective in up to 40% of patients. Liver transplant is the last resort, but livers are not always available. • Avoid alcohol. It can worsen liver disease.	• HCV-positive persons should have a medical evaluation for liver disease every 6–12 months. Interferon, pegylated interferon, and ribavirin are the only drugs licensed for the treatment of persons with chronic hepatitis C. Interferon can be taken alone or in combination with ribavirin. Combination therapy is currently the treatment of choice and can eliminate the virus in up to 40% of patients. • Get vaccinated against hepatitis A, and ask your doctor if you need hepatitis B vaccine as well. • Avoid alcohol. It can worsen liver disease.
How is it prevented?	• Hepatitis A vaccine is the best protection. It is recommended for people ≥2 yrs of age who are in risk groups for HAV infection. It is recommended as a routine vaccination for children living in certain states and geographic areas where hepatitis A occurs at consistently higher rates than average. • For a recent exposure to someone with HAV or if travel is imminent (leaving in less than 4 weeks) to an area of the world where hepatitis A is common, see your doctor about your need for a dose of immune globulin (IG). • Always wash your hands with soap and water after using the toilet, changing a diaper, and before preparing and eating food.	• Hepatitis B vaccine is the best protection. Routine vaccination is recommended for all persons 0–18 years of age, and for persons of all ages who are in risk groups for HBV infection. For optimal protection all babies should be given their first dose of hepatitis B vaccine at birth before leaving the hospital. • Whenever a woman is pregnant, she should be tested for hepatitis B; infants born to HBV-infected mothers should be given HBIG (hepatitis B immune globulin) and vaccine within 12 hours of birth. • Persons who have more than one steady sex partner should use latex condoms correctly and for every sexual encounter. (The efficacy of latex condoms in preventing infection with HBV is unknown, but their proper use may reduce transmission.)	There is no vaccine to prevent hepatitis C. HCV can be spread by sex, but this is rare. If you are having sex with more than one steady partner, use condoms correctly and every time to prevent the spread of sexually transmitted diseases. (The efficacy of latex condoms in preventing infection with HCV is unknown, but their proper use may reduce transmission.) You should also get vaccinated against hepatitis B.
		More information to help you prevent hepatitis B and hepatitis C: • Don't share personal care items that might have blood on them, such as razors, toothbrushes, and washcloths. • Consider the risks if you are thinking about getting a tattoo or body piercing. You might get infected if the tools or dye have someone else's blood on them or if the artist or piercer does not follow good sterilization practices. • Health care or public safety workers should always follow routine barrier precautions and safely handle needles and other sharps. In addition, they should be vaccinated against hepatitis B. • If you have or have had HBV or HCV infection, do not donate blood, organs, or tissue. • Don't shoot drugs. If you do, try to stop by getting into a treatment program. If you can't stop, never share needles, syringes, water, or "works." Get vaccinated against hepatitis A and B.	

*Disease rates are available from your state or local health department.

Item #P4075 (1/02)

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

Your name: _____ Date of birth: ___/___/___ Today's date: ___/___/___
(mo.) (day) (yr.) (mo.) (day) (yr.)

Do I Need Any Vaccinations Today?

Many adults are behind on their vaccinations. Do you know if you are completely up to date? These checklists will help you determine if you need any vaccinations today. Please check the boxes that pertain to you.

Influenza vaccination

❑ I am 50 years of age or older, so I should get a flu shot.

❑ I am less than 50 years old, and I have one or more of the following, so I should get a flu shot:

- ___ lung disease
- ___ heart disease
- ___ kidney disease
- ___ diabetes mellitus
- ___ HIV/AIDS
- ___ a disease that affects the immune system
- ___ I live in a nursing home or chronic care facility.
- ___ I live with someone who is in one of the above risk groups.
- ___ I will be in my 2nd or 3rd trimester of pregnancy during influenza season (December–March).
- ___ I am a health care worker.
- ___ I provide essential community services.

❑ I am not in one of the groups listed above, but I'd like a flu shot to avoid getting influenza this season.

Pneumococcal vaccination

❑ I am 65 years of age or older, and I have never had a dose of pneumococcal vaccine, so I need this vaccination.

❑ I am less than 65 years old, and I have one of the following health problems, and I have never had a dose of pneumococcal vaccine, so I need one dose:

- ___ lung disease (not asthma)
- ___ heart disease
- ___ diabetes mellitus
- ___ kidney disease
- ___ liver disease
- ___ cerebrospinal fluid leak
- ___ alcoholism

❑ I am less than 65 years old, and I have one of the following health problems listed below that puts me at high risk for pneumococcal disease and:

❑ I have never had a dose of pneumococcal vaccine, so I need two doses spaced 5 years apart.

❑ It has been at least 5 years since my first dose of pneumococcal vaccine, so I need a second dose now.

- ___ sickle cell disease
- ___ had my spleen removed
- ___ HIV/AIDS
- ___ Hodgkin's disease
- ___ leukemia
- ___ on medication or receiving x-ray treatment that affects my immune system
- ___ organ or bone marrow transplant
- ___ lymphoma
- ___ multiple myeloma
- ___ generalized malignancy

Approximate date that I last had pneumococcal vaccine: _____

Tetanus-diphtheria (Td) vaccination

❑ I have not yet had at least 3 Td shots in my lifetime (usually given as DTP in childhood), so I need to be vaccinated now with one or more doses to bring me up to date, and then I will need one dose every 10 years.

❑ I have had at least 3 Td shots (or DTPs) in my lifetime, but I think it's been 10 years or more since I received my last Td, so I need one dose now, and subsequently I will need one dose every 10 years.

Approximate date(s) that I had my last Td(s): _____

❑ I have no idea if I ever received Td vaccination in school, the military, or elsewhere, so I probably need to be vaccinated and will talk with my doctor about how many doses I should receive.

Item #P4036 (11/01)

Hepatitis A vaccination

❑ I am in one of the following risk groups, **but I do not wish to disclose which one,** so I need to be vaccinated.

❑ I am in one of the following risk groups, so I need to be vaccinated:

- ___ I travel outside of the U.S., Western Europe, Canada, Japan, Australia, and New Zealand.*
- ___ I live in a community where cases of hepatitis A are occurring and I am 18 or younger.
- ___ I am a man who has sex with men.
- ___ I use street drugs.
- ___ I have chronic liver disease.
- ___ I have a clotting factor disorder.

Hepatitis B vaccination

❑ I am in one of the following risk groups, **but I do not wish to disclose which one,** so I need to be vaccinated.

❑ I am in one of the following risk groups, so I need to be vaccinated:

- ___ I live with a person who has hepatitis B.
- ___ I have a bleeding disorder that requires transfusion.
- ___ I am or will be on kidney dialysis.
- ___ I am an immigrant from an area of the world with moderate or high rates of hepatitis B.†
- ___ I inject street drugs.
- ___ I am a sex partner of a person with hepatitis B.
- ___ I've been treated for a sexually transmitted disease.
- ___ I have or had more than one sex partner during a 6-month time period.
- ___ I am a man who has sex with men.
- ___ I am a health care or public safety worker who is exposed to blood.
- ___ I provide direct services for people with developmental disabilities.
- ___ I travel outside of the U.S.*† and plan to stay for 6 months or longer.

Measles-Mumps-Rubella (MMR) vaccination

❑ I was born after 1956 and never received a dose of MMR, so I need to be vaccinated.

❑ I am a woman thinking about a future pregnancy and do not know if I'm immune to rubella, so I need to be tested or vaccinated.

❑ I am included in one of the following groups for whom two doses of MMR are recommended, but I have only received one dose of MMR, so I need a second dose.

- ___ I am a health care worker.
- ___ I travel internationally.
- ___ I am entering college or a post–high-school educational institution.
- ___ I had a rubella titer that shows I do not have immunity.

Chickenpox (Varicella) vaccination

❑ I have never had chickenpox, so I need to be tested or vaccinated.

❑ I'm not sure if I've had chickenpox or not, so I need to be tested or vaccinated.

❑ I may become pregnant and do not know if I'm immune to chickenpox, so I need to be tested or vaccinated.

Meningococcal vaccination

❑ I am (or I'll be) a college freshman living in a dorm, so tell me more about the meningococcal vaccine.

❑ I am traveling to an area of the world where meningococcal disease is common, so I need to be vaccinated.*

❑ I have one of the following health conditions that has affected my immune system: sickle cell disease, HIV/AIDS, cancer treatment with drugs or x-rays, bone marrow or organ transplant, or a spleen that isn't working or has been removed, so I need to be vaccinated.

Lyme disease vaccination

❑ I either live, work, or regularly recreate in areas where Lyme disease is common, so I would like to be vaccinated.

Haemophilus influenzae type b (Hib) vaccination

❑ I have one of the following health conditions that has affected my immune system: sickle cell disease, HIV/AIDS, cancer treatment with drugs or x-rays, bone marrow or organ transplant, or a spleen that isn't working or has been removed, so I need to be vaccinated.

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

†Adults from these areas should be tested for hepatitis B infection prior to vaccination. Areas with high rates of hepatitis B include: Africa; China; Korea; Southeast Asia including Indonesia and the Philippines; the Middle East except Israel; South and Western Pacific Islands; interior Amazon Basin; and certain parts of the Caribbean, i.e., Haiti and the Dominican Republic. Areas of moderate endemicity include South Central and Southwest Asia, Israel, Japan, Eastern and Southern Europe, Russia, and most of Central and South America.

Summary of Recommendations for Adult Immunization

Adapted from the Advisory Committee on Immunization Practices (ACIP) recommendations by the Immunization Action Coalition, November 2001

Vaccine name and route	For whom it is recommended	Schedule for routine and "catch-up" administration	Contraindications (mild illness is not a contraindication)
Influenza Give IM	• Adults who are 50yrs of age or older. • People 6m–50yrs of age with medical problems such as heart disease, lung disease, diabetes, renal dysfunction, hemoglobinopathies, immunosuppression, and/or people living in chronic care facilities. • People (≥6m of age) working or living with at-risk people. • Pregnant women who have underlying medical conditions should be vaccinated before influenza season, regardless of the stage of pregnancy. • Healthy pregnant women who will be in their 2nd or 3rd trimesters during influenza season. • All health care workers and those who provide key community services. • Travelers who go to areas where influenza activity exists or who may be among people from areas of the world where there is current influenza activity (e.g., on organized tours). • Anyone who wishes to reduce the likelihood of becoming ill with influenza.	• Given every year. • October through November is the *optimal* time to receive an annual flu shot to maximize protection. • Influenza vaccine may be given at any time during the influenza season (typically December through March) or at other times when the risk of influenza exists. • May give with all other vaccines but as a separate injection.	• Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs. • Moderate or severe acute illness. **Note:** Pregnancy and breastfeeding are not contraindications to the use of this vaccine.
Pneumococcal polysaccharide (PPV23) Give IM or SC	• Adults who are 65yrs of age or older. • People 2–64yrs of age who have chronic illness or other risk factors, including chronic cardiac or pulmonary diseases, chronic liver disease, alcoholism, diabetes mellitus, CSF leaks, as well as people living in special environments or social settings (including Alaska Natives and certain American Indian populations). Those at highest risk of fatal pneumococcal infection are people with anatomic asplenia, functional asplenia, or sickle cell disease; immunocompromised persons including those with HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure, or nephrotic syndrome; persons receiving immunosuppressive chemotherapy (including corticosteroids); and those who received an organ or bone marrow transplant. Pregnant women with high-risk conditions should be vaccinated if not done previously.	• Routinely given as a one-time dose; administer if previous vaccination history is unknown. • One-time revaccination is recommended 5yrs later for people at highest risk of fatal pneumococcal infection or rapid antibody loss (e.g., renal disease) and for people ≥65yrs of age if the 1st dose was given prior to age 65 and ≥5yrs have elapsed since previous dose. • May give with all other vaccines but as a separate injection.	• Previous anaphylactic reaction to this vaccine or to any of its components. • Moderate or severe acute illness. **Note:** Pregnancy and breastfeeding are not contraindications to the use of this vaccine.
Hepatitis B (Hep-B) Give IM Brands may be used interchangeably.	• All adolescents. • High-risk adults, including household contacts and sex partners of HBsAg-positive persons; users of illicit injectable drugs; heterosexuals with more than one sex partner in 6 months; men who have sex with men; people with recently diagnosed STDs; patients receiving hemodialysis and patients with renal disease that may result in dialysis; recipients of certain blood products; health care workers and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; and certain international travelers. **Note:** Prior serologic testing may be recommended depending on the specific level of risk and/or likelihood of previous exposure. **Note:** In 1997, the NIH Consensus Development Conference, a panel of national experts, recommended that hepatitis B vaccination be given to all anti-HCV positive persons. **Ed. note:** Provide serologic screening for immigrants from endemic areas. When HBsAg-positive persons are identified, offer appropriate disease management. In addition, screen their sex partners and household members and, if found susceptible, vaccinate.	• Three doses are needed on a 0, 1, 6m schedule. • Alternative timing options for vaccination include 0, 2, 4m and 0, 1, 4m. • There must be 4wks between doses #1 and #2, and 8wks between doses #2 and #3. Overall there must be at least 16wks between doses #1 and #3. • **Schedule for those who have fallen behind:** If the series is delayed between doses, DO NOT start the series over. Continue from where you left off. • May give with all other vaccines but as a separate injection. For Twinrix™ (hepatitis A and B combination vaccine [GSK]) three doses are needed on a 0, 1, 6m schedule.	• Previous anaphylactic reaction to this vaccine or to any of its components. • Moderate or severe acute illness. **Note:** Pregnancy and breastfeeding are not contraindications to the use of this vaccine.
Hepatitis A (Hep-A) Give IM Brands may be used interchangeably.	• People who travel outside of the U.S. (except for Western Europe, New Zealand, Australia, Canada, and Japan). • People with chronic liver disease, including people with hepatitis C; people with hepatitis B who have chronic liver disease; illicit drug users; men who have sex with men; people with clotting-factor disorders; people who work with hepatitis A virus in experimental lab settings (not routine medical laboratories); and food handlers when health authorities or private employers determine vaccination to be cost effective. **Note:** Prevaccination testing is likely to be cost effective for persons >40yrs of age as well as for younger persons in certain groups with a high prevalence of hepatitis A virus infection.	• Two doses are needed. • The minimum interval between dose #1 and #2 is 6m. • If dose #2 is delayed, do not repeat dose #1. Just give dose #2. • May give with all other vaccines but as a separate injection.	• Previous anaphylactic reaction to this vaccine or to any of its components. • Moderate or severe acute illness. • Safety during pregnancy has not been determined, so benefits must be weighed against potential risk. **Note:** Breastfeeding is not a contra-indication to the use of this vaccine.

For specific ACIP immunization recommendations refer to the statements, which are published in *MMWR*. To obtain a complete set of ACIP statements, call (800) 232-2522, or to access individual statements, visit CDC's website: www.cdc.gov/nip/publications/ACIP-list.htm or visit IAC's website: www.immunize.org/acip

This table is revised yearly due to the changing nature of U.S. immunization recommendations. Visit the Immunization Action Coalition's website at www.immunize.org/adultrules to make sure you have the most current version. The Coalition thanks William L. Atkinson, MD, MPH, from CDC's National Immunization Program, and Linda A. Moyer, RN, and Harold S. Margolis, MD, both from the Division of Viral Hepatitis, at CDC's National Center for Infectious Diseases, for their review of this table. Responsibility for errors or omissions lies with the editor, Deborah L. Wexler, MD. This table is published by the Immunization Action Coalition, 1573 Selby Avenue, St. Paul, MN 55104. Telephone: (651) 647-9009. E-mail: admin@immunize.org

Item #P2011 (11/01)

Summary of Recommendations for Adult Immunization – side 2

Vaccine name and route	For whom it is recommended	Schedule for routine and "catch-up" administration	Contraindications (mild illness is not a contraindication)
Td (Tetanus, diphtheria) Give IM	• All adolescents and adults. • After the primary series has been completed, a booster dose is recommended every 10yrs. Make sure your patients have received a primary series of 3 doses. • A booster dose as early as 5yrs later may be needed for the purpose of wound management, so consult ACIP recommendations.	• Give booster dose every 10yrs after the primary series has been completed. • For those who are unvaccinated or behind, complete the primary series (spaced at 0, 1–2m, 6–12m intervals). Don't restart the series, no matter how long since the previous dose. • May give with all other vaccines but as a separate injection.	• Previous anaphylactic or neurologic reaction to this vaccine or to any of its components. • Moderate or severe acute illness. **Note:** Pregnancy and breastfeeding are not contraindications to the use of this vaccine.
MMR (Measles, mumps, rubella) Give SC	• Adults born in 1957 or later who are ≥18yrs of age (including those born outside the U.S.) should receive at least one dose of MMR if there is no serologic proof of immunity or documentation of a dose given on or after the first birthday. • Adults in high-risk groups, such as health care workers, students entering colleges and other post–high school educational institutions, and international travelers, should receive a total of two doses. • Adults born before 1957 are usually considered immune but proof of immunity may be desirable for health care workers. • All women of childbearing age (i.e., adolescent girls and premenopausal adult women) who do not have acceptable evidence of rubella immunity or vaccination. • Special attention should be given to immunizing women born outside the United States in 1957 or later.	• One or two doses are needed. • If dose #2 is recommended, give it no sooner than 4wks after dose #1. • May be given with all other vaccines but as a separate injection. • If varicella vaccine and MMR are both needed and are not administered on the same day, space them at least 4wks apart. • If a pregnant woman is found to be rubella-susceptible, administer MMR postpartum.	• Previous anaphylactic reaction to this vaccine, or to any of its components. • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). • Persons immunocompromised due to cancer, leukemia, lymphoma, immunosuppressive drug therapy, including high-dose steroids or radiation therapy. **Note:** HIV positivity is NOT a contraindication to MMR except for those who are severely immunocompromised. • If blood products or immune globulin have been administered during the past 11 months, consult the ACIP recommendations regarding time to wait before vaccinating. • Moderate or severe acute illness. **Note:** Breastfeeding is not a contraindication to the use of this vaccine. **Note:** MMR is not contraindicated if a PPD test was recently applied. If PPD and MMR not given on same day, delay PPD for 4–6wks after MMR.
Varicella (Var) (Chickenpox) Give SC	All susceptible adults and adolescents should be vaccinated. It is especially important to ensure vaccination of the following groups: susceptible persons who have close contact with persons at high risk for serious complications (e.g., health care workers and family contacts of immunocompromised persons) and susceptible persons who are at high risk of exposure (e.g., teachers of young children, day care employees, residents and staff in institutional settings such as colleges and correctional institutions, military personnel, adolescents and adults living with children, non-pregnant women of childbearing age, and international travelers who do not have evidence of immunity). **Note:** People with reliable histories of chickenpox (such as self or parental report of disease) can be assumed to be immune. For adults who have no reliable history, serologic testing may be cost effective since most adults with a negative or uncertain history of varicella are immune.	• Two doses are needed. • Dose #2 is given 4–8wks after dose #1. • May be given with all other vaccines but as a separate injection. • If varicella vaccine and MMR are both needed and are not administered on the same day, space them at least 4wks apart. • If the second dose is delayed, do not repeat dose #1. Just give dose #2.	• Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy, or possibility of pregnancy within 1 month. • Immunocompromised persons due to malignancies and primary or acquired cellular immunodeficiency including HIV/AIDS. (See *MMWR* 1999, Vol. 28, No. RR-6.) **Note:** For those on high-dose immunosuppressive therapy, consult ACIP recommendations regarding delay time. • If blood products or immune globulin have been administered during the past 5 months, consult the ACIP recommendations regarding time to wait before vaccinating. • Moderate or severe acute illness. **Note:** Breastfeeding is not a contraindication to the use of this vaccine. **Note:** Manufacturer recommends that salicylates be avoided for 6wks after receiving varicella vaccine because of a theoretical risk of Reye's syndrome.
Polio (IPV) Give IM or SC	Not routinely recommended for persons 18yrs of age and older. **Note:** Adults living in the U.S. who never received or completed a primary series of polio vaccine need not be vaccinated unless they intend to travel to areas where exposure to wild-type virus is likely. Previously vaccinated adults can receive one booster dose if traveling to polio endemic areas.	• Refer to ACIP recommendations regarding unique situations, schedules, and dosing information. • May be given with all other vaccines as a separate injection.	• Previous anaphylactic or neurologic reaction to this vaccine or to any of its components. • Moderate or severe acute illness. **Note:** Pregnancy and breastfeeding are not contraindications to the use of this vaccine.
Lyme disease Give IM	• Consider for persons 15–70yrs of age who reside, work, or recreate in areas of high or moderate risk and who engage in activities that result in frequent or prolonged exposure to tick-infested habitat. • Persons with a history of previous uncomplicated Lyme disease who are at continued high risk for Lyme disease. (See description in the first bullet.) • See ACIP statement for a definition of high and moderate risk.	• Three doses are needed. Give at intervals of 0, 1, and 12m. Schedule dose #1 (given in yr 1) and dose #3 (given in yr 2) to be given several weeks before tick season. See ACIP statement for details. • If given with other vaccines, give as a separate injection.	• Previous anaphylactic reaction to this vaccine or to any of its components. • Pregnancy. • Moderate or severe acute illness. • Persons with treatment-resistant Lyme arthritis. • There are not enough data to recommend Lyme disease vaccine to persons with these conditions: immunodeficiency, diseases associated with joint swelling (including rheumatoid arthritis) or diffuse muscular pain, or chronic health conditions due to Lyme disease.
Mening.	Meningococcal disease risk and vaccine availability should be discussed with college students. Give SC. Consult the ACIP statement *Meningococcal Disease and College Students* (6/30/00) for details.		

Checklist for Safe Vaccine Handling and Storage

Here are the 20 most important things you can do to safeguard your vaccine supply. Are you doing them all? Reviewing this list can help you improve your clinic's vaccine management practices.

Yes	No		
____	____	1.	We have a designated person in charge of the handling and storage of our vaccines.
____	____	2.	We have a back-up person in charge of the handling and storage of our vaccines.
____	____	3.	A vaccine inventory log is maintained that documents: ____ Vaccine name and number of doses received ____ Date the vaccine was received ____ Arrival condition of vaccine ____ Vaccine manufacturer and lot number ____ Vaccine expiration date
____	____	4.	Our refrigerator for vaccines is either household-style or commercial-style, NOT dormitory-style. The freezer compartment has a separate door.
____	____	5.	We do NOT store any food or drink in the refrigerator or freezer.
____	____	6.	We store vaccines in the middle of the refrigerator or freezer, and NOT in the door.
____	____	7.	We stock and rotate our vaccine supply so that the newest vaccine of each type (with the longest expiration date) is placed behind the vaccine with the shortest expiration date.
____	____	8.	We check vaccine expiration dates and we first use those that will expire soonest.
____	____	9.	We post a sign on the refrigerator door showing which vaccines should be stored in the refrigerator and which should be stored in the freezer.
____	____	10.	We always keep a thermometer in the refrigerator.
____	____	11.	The temperature in the refrigerator is maintained at 35–46ºF (2–8ºC).
____	____	12.	We keep extra containers of water in the refrigerator to help maintain cold temperatures.
____	____	13.	We always keep a thermometer in the freezer.
____	____	14.	The temperature in the freezer is maintained at +5ºF (-15ºC) or colder.
____	____	15.	We keep ice packs and other ice-filled containers in the freezer to help maintain cold temperatures.
____	____	16.	We post a temperature log on the refrigerator door on which we record the refrigerator and freezer temperatures twice a day—first thing in the morning and at clinic closing time—and we know whom to call if the temperature goes out of range.
____	____	17.	We have a "Do Not Unplug" sign next to the refrigerator's electrical outlet.
____	____	18.	In the event of a refrigerator failure, we take the following steps: ____ We assure that the vaccines are placed in a location with adequate refrigeration. ____ We mark exposed vaccines and separate them from undamaged vaccines. ____ We note the refrigerator or freezer temperature and contact the manufacturer or state health department to determine how to handle the affected vaccines. ____ We follow the manufacturer's or health department's instructions as to whether the affected vaccines can be used, and, if so, we mark the vials with the revised expiration date provided by the manufacturer or health department.
____	____	19.	We have obtained a detailed written policy for general and emergency vaccine management from our local or state health department.
____	____	20.	If all above answers are "yes," we are patting ourselves on the back. If not, we have assigned someone to implement needed changes!

Item #P3035 (11/01)

Vaccine Products Licensed for Use in the United States, 2001

Vaccine	Brand name	Manufacturer	Type	How supplied
Diphtheria, Tetanus, acellular Pertussis	Infanrix	GlaxoSmithKline	Inactivated	single-dose vial
Diphtheria, Tetanus, acellular Pertussis	Tripedia	Aventis Pasteur	Inactivated	single-dose vial
Diphtheria, Tetanus, acellular Pertussis + Hib conjugate	TriHIBit	Aventis Pasteur	Inactivated	single-dose vial
Diphtheria, Tetanus (pediatric <7 yrs)	DT (pediatric)	Aventis Pasteur	Inactivated	10-dose vial
Tetanus, diphtheria, adsorbed (≥7 yrs)	Td	Aventis Pasteur	Inactivated	single-dose syringe and 10-dose vial
Tetanus toxoid (≥7 yrs), adsorbed	Tet Tox Adsorbed	Aventis Pasteur	Inactivated	10-dose vial
Tetanus toxoid (adult booster use only)	Tet Tox USP	Aventis Pasteur	Inactivated	15-dose vial
Tetanus toxoid, adsorbed	Te Anatoxal Berna	Berna Products	Inactivated	10-dose vial
Measles, Mumps, Rubella (MMR)	M-M-R II	Merck	Live virus	single- and 10-dose vial
Measles	Attenuvax	Merck	Live virus	single-dose vial
Rubella, Mumps	Biavax	Merck	Live virus	single-dose syringe and 10 ml vial
Measles, Rubella	M-R-VAX II	Merck	Live virus	single-dose and 10 ml vial
Rubella	MERUVAX II	Merck	Live virus	single-dose vial
Mumps	MUMPSVAX	Merck	Live virus	single-dose vial
Varicella	VARIVAX	Merck	Live virus	single-dose vial
Haemophilus b conjugate (PRP-T)	ActHIB	Aventis Pasteur	Inactivated	single-dose vial
Haemophilus b conjugate (HbOC)	HibTITER	Wyeth Lederle	Inactivated	single-dose vial
Haemophilus b conjugate (PRP-OMP)	PedvaxHIB	Merck	Inactivated	single-dose vial
Haemophilus b conjugate (PRP-OMP) + Hepatitis B	COMVAX	Merck	Inactivated	single-dose vial
Pneumococcal 7-valent conjugate	Prevnar	Wyeth Lederle	Inactivated	single-dose vial
Polio	IPOL	Aventis Pasteur	Inactivated	single-dose syringe and 10-dose vial
Hepatitis B: pediatric formulation	Engerix-B	GlaxoSmithKline	Inactivated	single-dose vial or syringe* w/ or w/o safety device
Hepatitis B: pediatric formulation	Recombivax HB	Merck	Inactivated	single-dose vial or syringe
Hepatitis B: adult formulation	Engerix-B	GlaxoSmithKline	Inactivated	single-dose vial or syringe*
Hepatitis B: adult formulation	Recombivax HB	Merck	Inactivated	single-dose vial or syringe
Hepatitis A: pediatric formulation	Havrix	GlaxoSmithKline	Inactivated	single-dose vial or syringe* w/ or w/o safety device
Hepatitis A: pediatric formulation	VAQTA	Merck	Inactivated	single-dose vial or syringe
Hepatitis A: adult formulation	Havrix	GlaxoSmithKline	Inactivated	single-dose vial or syringe*
Hepatitis A: adult formulation	VAQTA	Merck	Inactivated	single-dose vial or syringe
Hepatitis A + B: adult formulation	Twinrix	GlaxoSmithKline	Inactivated	single-dose vial or syringe*
Influenza	FluShield	Wyeth Lederle	Inactivated	10-dose vial
Influenza	FLUVIRIN	Evans Vaccines	Inactivated	single-dose syringe and 10-dose vial
Influenza	Fluzone	Aventis Pasteur	Inactivated	single-dose syringe and 10-dose vial
Pneumococcal polysaccharide, 23-valent	Pnu-Imune	Wyeth Lederle	Inactivated	single-dose syringe and 5-dose vial
Pneumococcal polysaccharide, 23-valent	PNEUMOVAX 23	Merck	Inactivated	single-dose vial or syringe and 5-dose vial
Meningococcal vaccine	Menomune-A/C/Y/W-135	Aventis Pasteur	Inactivated	single- and 10-dose vial
Lyme disease vaccine	LYMErix	GlaxoSmithKline	Inactivated	single-dose vial or syringe*
Rabies	Imovax	Aventis Pasteur	Inactivated	single-dose vial
Rabies	RabAvert	Chiron	Inactivated	single-dose vial
Rabies vaccine, adsorbed	BioRab	BioPort	Inactivated	single-dose vial
Japanese encephalitis	JE-VAX	Aventis Pasteur	Inactivated	single- and 10-dose vial
Typhoid vaccine	Typhim Vi	Aventis Pasteur	Inactivated	single-dose syringe and 20-dose vial
Typhoid vaccine live oral Ty21	Vivotif Berna	Berna Products	Live bacterial	4-capsule package
Yellow fever vaccine	YF-VAX	Aventis Pasteur	Live virus	single- and 5-dose vial
Anthrax vaccine, adsorbed	BioThrax	BioPort	Inactivated	multi-dose vial

*this syringe has a detachable, locking needle (Luer-Lok)

Vaccine Company Contact Information

Aventis Pasteur, Inc. (www.aventispasteur.com) ..... (800) 822-2463
Berna Products Corp. (www.bernaproducts.com) ..... (800) 533-5899
BioPort Corp. (www.bioport.com) ..... (517) 327-1500
Chiron Corp. (www.chiron.com or www.rabavert.com) ..... (800) 244-7668
Evans Vaccines, Ltd. (www.powderject.com/evansvaccines_fs.htm) ..... (800) 200-4278
GlaxoSmithKline (www.GSKvaccines.com) ..... (888) 825-5249
Merck & Co. (www.merckvaccines.com) ..... (800) 672-6372
Wyeth Lederle Vaccines (www.vaccineworld.com) ..... (800) 358-7443

Item #P2019 (11/01)

For most persons born after 1956, this means documentation of two doses of MMR vaccine, or serologic evidence of measles and rubella immunity. Persons born before 1957 can generally be considered immune to all three diseases, but age does not guarantee immunity. As a result, ACIP recommends that facilities consider recommending a dose of MMR to persons born before 1957 if there is no other evidence of immunity (such as serologic testing).

What is the recommended length of time a woman should wait after receiving rubella (or MMR) vaccine before becoming pregnant?
Four weeks. In October 2001, ACIP voted to change its recommendation for the waiting interval following the administration of rubella vaccine. The interval was reduced from 3 months to 4 weeks. The waiting period for measles and mumps vaccine was already 1 month.

Our clinic has given MMR by the wrong route (IM rather than SC) for years. Should these doses be repeated?
All live injected vaccines (MMR, varicella, and yellow fever) are recommended to be given subcutaneously. However, intramuscular administration of any of these vaccines is not likely to decrease immunogenicity, and doses given IM do not need to be repeated.

Varicella

by William L. Atkinson, MD, MPH

How important is it to vaccinate adolescents and adults against varicella?
It is critical to vaccinate susceptible adolescents and adults against varicella whenever the opportunity arises. With young children being routinely vaccinated, the chance of being exposed to cases of chickenpox is decreasing. Adolescents and adults who have not had chickenpox now have a greater chance of remaining susceptible. These older individuals, when they contract chickenpox, are more likely to become seriously ill and have disease complications than younger children.

For postexposure prophylaxis for varicella, when is it too late to administer varicella vaccine?
Varicella vaccine given within 72 hours (3 days), and possibly even up to 5 days after exposure, can prevent varicella in the exposed person. However, not every exposure to varicella leads to infection, so for future immunity, varicella vaccine should be given, even if more than 5 days have passed since an exposure.

After administration of varicella vaccine, should the vaccinee be isolated from a non-immune pregnant woman or an immunosuppressed person?
Transmission of varicella vaccine virus to a contact is not common. Most documented instances of vaccine virus transmission have occurred when the vaccinated person developed a rash. If the vaccinee develops a rash 7–21 days following vaccination, it is prudent to avoid prolonged close contact between that person and a susceptible person.

Influenza

by William L. Atkinson, MD, MPH

Does CDC recommend getting influenza vaccination to reduce the number of flu-like illnesses that may raise concerns about possible anthrax-related illness?
No. CDC does not recommend that influenza vaccination be considered as a way to avoid confusing influenza disease with suspected anthrax illness. Influenza vaccine is the primary means to prevent influenza and its severe complications, including pneumonia, hospitalization, and death. Complications most often occur among persons ≥65 years and among persons <65 years who have certain medical conditions. (See www.cdc.gov/nip/flu/Public.htm#People.)

Many other infectious agents (including anthrax) can cause illnesses that begin with flu-like symptoms (fever, body aches, and headaches). Most flu-like illnesses are not caused by influenza (or anthrax). The flu shot can prevent 70–90%, but not all, influenza infections. The vaccine does not prevent flu-like illness caused by agents other than influenza.

Influenza vaccine should be targeted toward groups that are at increased risk of complications and toward health care workers. CDC recommends that these groups be prioritized for early receipt of vaccine and that efforts to vaccinate these groups continue throughout the influenza season. Lower influenza vaccine coverage of high-risk persons could lead to an increase in influenza-related hospitalizations and deaths. Receipt of influenza vaccine in November and later is encouraged for those who live with high-risk persons, for healthy people aged 50–64

(continued on page 12)

VACCINATE ADULTS! correction policy

The Immunization Action Coalition works tirelessly to ensure the accuracy of the information we make available. At times, however, mistakes occur and we welcome your helpful review of our content. If you find an error, please notify us immediately. We publish notification of significant errors in ***VACCINATE ADULTS!*** and on our free e-mail announcement service ***IAC EXPRESS.*** Be sure you're signed up for this service! Visit www.immunize.org/express to sign up or subscribe by sending an e-mail message to express@immunize.org Then enter the word SUBSCRIBE in the "Subject:" field.

Check your state's rates

Here are the current U.S. immunization rates from the BRFSS* (MMWR, 6/29/01).

State	Influenza**	Pneumococcal†
AL	64.6	53.9
AK	59.8	43.8
AZ	71.3	53.4
AR	67.3	50.2
CA	72.2	57.0
CO	74.8	62.7
CT	64.8	49.0
DE	67.7	66.5
DC	55.8	35.3
FL	63.3	53.5
GA	57.0	49.7
HI	74.1	55.8
ID	69.0	55.2
IL	67.5	47.4
IN	66.2	51.6
IA	69.6	61.2
KS	67.0	55.1
KY	68.4	52.0
LA	60.3	40.4
ME	73.7	57.3
MD	62.6	54.1
MA	69.4	56.8
MI	70.0	57.7
MN	64.0	51.9
MS	62.8	50.4
MO	68.4	52.8
MT	72.9	61.2
NE	69.2	54.8
NV	62.2	61.7
NH	65.1	60.4
NJ	65.3	55.1
NM	68.8	53.2
NY	63.8	50.0
NC	64.2	58.5
ND	67.2	55.0
OH	68.8	55.0
OK	71.8	53.7
OR	65.2	56.2
PA	63.1	52.2
RI	75.8	56.9
SC	69.9	56.1
SD	73.6	50.4
TN	65.5	54.3
TX	69.8	55.9
UT	75.1	61.3
VT	73.4	56.5
VA	65.7	55.2
WA	68.9	55.8
WV	62.9	54.3
WI	64.9	53.7
WY	73.8	61.5

* BRFSS: Behavioral Risk Factor Surveillance System is a random-digit-dialed telephone survey of U.S. adults to gather data. *(MMWR,* 6/29/01)

** Percentage of ≥65-year-olds who reported receiving influenza vaccine in the past year.

† Percentage of ≥65-year-olds who reported ever having received pneumococcal vaccine.

years, and for others who wish to reduce their chances of getting influenza.

If the influenza strains in vaccine do not change in two consecutive years, why is it necessary to receive a dose in year two?

It is unusual for influenza vaccine to contain all the same virus strains two years in a row. Since 1970, one out of the three vaccine viruses was changed, on average, every year. Annual vaccination is needed to produce immunity to the new vaccine strains. Further, antibody levels fall in the 6–12 months following vaccination, so annual vaccination will boost antibody levels into protective range.

Pneumococcal vaccine PPV23

by William L. Atkinson, MD, MPH

Is the frequency for revaccination for PPV23 every 3 years, 5 years, or 6 years?

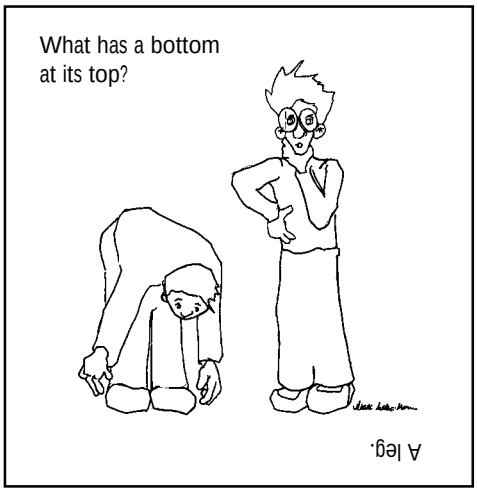
Most people who are candidates for pneumococcal polysaccharide vaccine need only a single dose. Some people with medical conditions that put them at very high risk of invasive pneumococcal disease (such as immunodeficiency and functional or anatomic asplenia) should receive a second dose 5 years after the first dose. People on dialysis are included in this category. No person should receive more than two doses of PPV23 unless they have had a bone marrow transplant.

Miscellaneous vaccines

by William L. Atkinson, MD, MPH

Please discuss the contraindications for the use of Lyme vaccine.

The vaccine is licensed only for persons 15–70 years of age, so people younger than 15 and older than 70 years should not be vaccinated. Persons with treatment-resistant Lyme arthritis should not be vaccinated because of the association of this condition with immune reactivity to the vaccine antigen (OspA). Persons who have a severe allergy to a vaccine component or following a prior dose should not be vaccinated. No data are available regarding the vaccination of pregnant women, immunosuppressed persons, or those with chronic joint, neurologic, or cardiac symptoms related to Lyme disease. Vaccination of these persons should be considered only if the benefit of the vaccine outweighs the theoretical risk of a vaccine adverse event. Vaccination of persons with acute moderate or severe illness should be deferred until the acute illness has improved.



If a bat is found in a room where a person is sleeping, do you need to give postexposure prophylaxis?

Yes, rabies postexposure prophylaxis (PEP) is recommended. When a bat is found in a dwelling, even in the absence of a known bite or scratch, the recommendation calls for aggressive use of PEP. If possible, the bat should be safely collected and submitted for rabies diagnosis. Details of these rabies recommendations were published in *MMWR*, 1998; vol. 47, no. 1. The indications for PEP are fairly complex, and depend on several factors. Providers who are responsible for decisions on PEP should also be familiar with the ACIP recommendations *(MMWR*, 1999; vol. 48, no. RR-1).

Will smallpox and anthrax vaccines be available for the general public anytime soon?

About 15 million doses of smallpox vaccine are currently available in the United States. The federal government has contracted to buy approximately 200 million additional doses from a British firm, Acambis, but these will not be available for 1–2 years. There is only one anthrax vaccine manufacturer in the United States. The Department of Defense will receive all anthrax vaccine in the foreseeable future for use among military personnel.

Hepatitis B

by Harold Margolis, MD, and Linda Moyer, RN

How do I interpret some of the common hepatitis B panel results?

Editor's note: See column three on page 13 for a glossary of hepatitis A and B laboratory terminology.

Tests	Results	Interpretation
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible
HBsAg anti-HBc anti-HBs	negative negative positive with ≥10mIU/mL*	immune due to vaccination
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible†

*Postvaccination testing, when it is recommended, should be performed 1–2 months following dose #3.

†1. May be recovering from acute HBV infection.

2. May be distantly immune and the test is not sensitive enough to detect a very low level of anti-HBs in serum.

3. May be susceptible with a false positive anti-HBc.

4. May be chronically infected and have an undetectable level of HBsAg present in the serum.

If I received the hepatitis B vaccination series 12 years ago and had a positive antibody titer 2 months later, am I still protected?

Yes. If you developed adequate hepatitis B surface antibody (anti-HBs ≥10mIU/mL) after the initial series, you should still be protected from clinical disease and chronic infection. Periodic testing and routine boosting are not necessary. Among persons who once produced a protective level of anti-HBs following immunization and who subsequently lost detectable anti-HBs, booster doses of vaccine induce a rapid rise in anti-HBs, indicative of an anamnestic (immune memory) response. Therefore, antibody levels obtained through repeat testing may not accurately reflect immunity and are not necessary.

(continued on page 13)

Who should have an anti-HBs test after receiving three doses of hepatitis B vaccine?
It is only necessary to confirm the immune response of persons in the following risk groups:

- health care workers who are at risk of exposure to blood or body fluids in the workplace
- infants born to HBsAg-positive mothers
- immunocompromised persons, e.g., dialysis patients, AIDS patients
- sex partners of HBsAg-positive persons

Testing is not recommended after routine vaccination of infants, children, or adolescents.

Do women who have been previously vaccinated against hepatitis B still need to be screened during pregnancy?
Yes. Women who have been vaccinated against hepatitis B should still be screened for HBsAg early with each pregnancy. Just because a woman has been vaccinated does not mean she is HBsAg-negative. Since postvaccination testing is not performed for most vaccinated persons, she could have been vaccinated even though she was already HBsAg-positive.

How long should a person wait to donate blood after a dose of hepatitis B vaccine?
Recent data have shown transient HBsAg-positivity as late as 21 days after a dose of hepatitis B vaccine. Based on these data, waiting 1 month until donation is advisable. (This updates "Ask the Experts" information published Oct. 1998.)

If you want to test and vaccinate your patient for hepatitis B on the same day, does it matter if you test or vaccinate first?
It might. You should draw the blood first and then administer the first dose of vaccine, because transient HBsAg-positivity has been found to occur after a dose of hepatitis B vaccine (see previous question).

If someone is found to have chronic HBV infection, does everyone in that person's household need to receive hepatitis B vaccine and HBIG?
All susceptible household members and sex partners of persons with chronic HBV infection should be vaccinated. The use of HBIG is not indicated in this situation for either sex partners or household contacts. When feasible, sex partners should have prevaccination testing to determine susceptibility because of the high likelihood that they are already infected. Susceptible partners should be vaccinated since vaccine alone provides a high level of postexposure protection; subsequently vaccinated partners should have postvaccination testing for anti-HBs. Until seroprotection is assured (anti-HBs of ≥10mIU/mL), condoms should be used. (The efficacy of latex condoms in preventing HBV infections is unknown, but their proper use may reduce transmission.)

Additionally, one may choose to do prevaccination testing on household contacts to aid in a complete health assessment.

How often do hemodialysis patients who have received hepatitis B vaccination have to be screened for anti-HBs and HBsAg?
Hemodialysis patients are considered immune as long as they have adequate anti-HBs (≥10 mIU/mL). For hemodialysis patients who have responded with adequate anti-HBs to hepatitis B vaccination, no HBsAg testing is needed but anti-HBs should be done annually. If anti-HBs declines below 10mIU/mL, a booster dose of hepatitis B vaccine should be given and then annual anti-HBs testing should be continued. Retesting immediately after the booster dose is not necessary. This recommendation is necessary because hemodialysis patients are immunocompromised; they do not retain immune memory as do patients whose immune systems are not compromised.

Hemodialysis patients who do not respond to an initial vaccine series should be revaccinated with three or four additional doses of hepatitis B vaccine (depending on the brand). Postvaccination testing for anti-HBs should follow 1–2 months later. Until the patient is found to have an adequate anti-HBs level, monthly HBsAg testing should be done. If the patient continues to have low (<10mIU/mL) or no anti-HBs and a total of six or eight doses (depending on the brand) of hepatitis B vaccine have been given, the patient should be considered a nonresponder to vaccination and susceptible to HBV infection. Monthly HBsAg testing should be continued and no periodic anti-HBs testing is needed.

Editor's note: On April 27, 2001, CDC published "Recommendations for Preventing Transmission of Infections Among Chronic Hemodialysis Patients" in *MMWR* (vol. 50, no. RR-5). To obtain a copy, call CDC's Immunization Hotline at (800) 232-2522, or to obtain a copy online, visit www.immunize.org/acip

(continued on page 14)

Do you have patients who are HBsAg-positive?

They need medical monitoring and many can benefit from treatment.

There are two FDA-licensed treatment options available in the United States:

1. interferon alfa-2b, recombinant administered subcutaneously
2. lamivudine administered orally

Consult a liver specialist experienced in the treatment of viral hepatitis for appropriate monitoring guidelines and to help you determine which of your patients might benefit from treatment.

Hepatitis A and B lab tests

Hepatitis A lab nomenclature

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

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

Hepatitis B lab nomenclature

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

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

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

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

IgG anti-HBc: *IgG antibody subclass of anti-HBc* is a marker of past or current infection with HBV. If it and HBsAg are both positive (in the absence of IgM anti-HBc), this indicates chronic HBV infection.

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

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

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

Ask the Experts . . . *continued from page 13*

Hepatitis A

by Harold Margolis, MD, and Linda Moyer, RN

How should I use the new hepatitis A and hepatitis B combination vaccine called Twinrix?

Twinrix (GlaxoSmithKline) is indicated for persons 18 and older who need both hepatitis A and B vaccination. Primary immunization consists of three doses, given on a 0-, 1-, and 6-month schedule, the same schedule as that used for single-antigen hepatitis B vaccine.

How effective is this new hepatitis A and hepatitis B combination vaccine?

Twinrix appears to be as effective for preventing hepatitis A and hepatitis B as the monovalent vaccines.

We're thinking of using Twinrix and we're wondering whether we can use it for doses #1 and #3 only and use single-antigen hepatitis B vaccine for dose #2?

No. Twinrix contains 50% less hepatitis A antigen component than Havrix (GSK's single-antigen hepatitis A vaccine [720 vs 1440 Elisa Units]). For this reason, three doses of Twinrix must comprise the series.

If a mother is acutely infected with HAV, can she continue to breastfeed?

Yes. HAV has not been known to be transmitted through breast milk. However, immune globulin should be given to the baby and other household and sexual contacts. The mother should also be instructed to wash her hands well after using the toilet, before picking up her infant, and before preparing food.

When is it too late to give immune globulin following an exposure to hepatitis A?

Immune globulin should be administered within 2 weeks of exposure to HAV. Data suggests that effectiveness is diminished after this time period.

Who should have serologic testing for hepatitis A prior to vaccination?

Serologic testing to determine hepatitis A susceptibility is not indicated in children or adolescents. Testing may be cost effective for adults >40 years of age and for young adults in populations with high rates of HAV infection (i.e., American Indians/Alaska Natives, Hispanic populations, persons born and raised in countries with a high endemicity of HAV infection, illicit drug users, men who have sex with men). However, obtaining prevaccination test results should be balanced against the likelihood of achieving timely vaccination, especially in some high-risk populations. One approach is to give the first dose of vaccine at the time the blood is drawn for serologic testing. If the person is subsequently found to be anti-HAV positive, they should not get the second (booster) dose. ♦

Immunization Resources

New video! ***Immunization Techniques: Safe, Effective, Caring*** (Calif. Department of Health, 2001, 35 min). This brand-new video shows the latest injection techniques for immunizing adults and children. Each video comes with presenter's notes and a skills checklist. $15. For more information, call the Immunization Action Coalition at (651) 647-9009 or order online at: www.immunize.org/iztech

Directory of National Immunization Resources (Interim Update Edition, IAC, 2001). The IAC's 49-page directory is a concise yet comprehensive guide to organizations, websites, videos, hotlines, periodicals, books, and more. $10 for the first copy, less for multiple copies. For more information, call (651) 647-9009 or order online or download a copy free of charge from IAC's website at: www.immunize.org/resources

Resource Guide for Adult and Adolescent Immunization, 5th ed. (NCAI, 2001). This 188-page catalog lists immunization materials from numerous organizations. Resources are grouped by the ten major vaccine-preventable diseases. $20. To obtain a copy, call (301) 656-0003 or order online at: www.nfid.org

Vaccine Highlights . . . *continued from page 2*

National Iz. Survey data

On June 29, 2001, "Influenza and Pneumococcal Vaccination Levels Among Persons Aged 65 Years and Older—United States, 1999" was published in *MMWR*. According to CDC, the U.S. influenza vaccination coverage rate among adults aged 65 and older in 1999 was 66.9%, compared with 65.5% in 1997. Ethnic disparities in vaccination coverage continue, however. Although pneumococcal vaccination coverage increased from 45.4% in 1997 to 54.1% in 1999, ethnic disparities continued in pneumococcal vaccination rates as well.

Needle safety

On July 17, 2001, OSHA began enforcement of the requirements in its revised bloodborne pathogens standard. The new requirements direct employers to involve frontline employees who provide direct patient care in identifying and choosing safety devices; maintain a log of injuries from contaminated sharps for employers with 11 or more employees; and select safer needle devices as they become available and when feasible. For more information, visit OSHA's website: www.osha-slc.gov/SLTC/needlestick

Smallpox vaccine news

On June 22, 2001, "Vaccinia (Smallpox) Vaccine: Recommendations of the ACIP, 2001" was published in *MMWR*. The revised recommendations update those from 1991 and include current information regarding nonemergency use of vaccinia vaccine among laboratory and health care workers.

VISs (Vax. Info. Statements)

During the year 2001, CDC released new Vaccine Information Statements (VISs) for hepatitis B (7/11/01) and influenza (4/24/01). Health care providers in the U.S. who administer diphtheria, tetanus, measles, mumps, rubella, polio, hepatitis B, or varicella vaccine to adults are required by law to provide a copy of the relevant VIS to their patient prior to administration of each dose of the vaccine. For other vaccines given to adults (e.g., influenza and pneumococcal polysaccharide), use of the VIS is recommended, but not required by law. ♦

Current VISs

(as of Nov. 27, 2001)

Here are the most current VISs that may be administered to adults and the issue date that is printed at the bottom of each. Make sure you are using the current ones. Recycle your old copies.

anthrax	11/6/00	meningococcal	3/31/00
hepatitis A	8/25/98	MMR	12/16/98
hepatitis B	7/11/01	polio	1/1/00
Hib	12/16/98	pneumo (PPV23)	7/29/97
influenza	4/24/01	Td	6/10/94
Lyme	11/1/99	varicella	12/16/98

In October 2001, CDC updated its booklet "Vaccine Information Statements: What You Need to Know." This booklet contains information about the legal requirements for the use of VISs and copies of all VISs. To obtain a copy, call CDC's Immunization Hotline at (800) 232-2522 or download it from IAC's website: www.immunize.org/vis Need VIS translations? IAC has them in up to 26 languages on its website.

Adult Resources

Brochures, videos, and more

Before you order, remember . . .

All our materials are camera-ready, copyright free, and reviewed by national experts! Some are in other languages as well as in English. You can order one of any item and make as many copies as you need (including videos).

Join the Coalition! With a contribution of $60 or more, we'll send you all the print and video materials listed on this page, as well as our brightly colored mousepad. Your contribution will keep you on our mailing list and help us produce future issues of ***VACCINATE ADULTS!***

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It's the Immunization Action Coalition's 11th anniversary!

Dear Colleagues:

This is our eighth issue of *VACCINATE ADULTS!* and it may be the best issue ever! We've developed two new patient education pieces for this issue—and two clinical "tools." We hope you'll use "Do I Need Any Vaccinations Today?" in your practice. This two-page questionnaire was designed to help adult patients self-assess their need for vaccinations. As you well know, taking an immunization history from a patient without an immunization record can be a time-consuming and daunting task. While your patient is in your office waiting, s/he can fill out this immunization history questionnaire. By the time you enter the exam room, the patient may be telling YOU which vaccinations s/he needs! Let us know what you think of it. The other new pieces are "Checklist for Safe Vaccine Handling and Storage," "Vaccine Products Licensed for Use in the U.S., 2001," and, for your patients, "Hepatitis A, B, and C: Learn the Differences." All these items are found inside between pages 4 and 10, but we've left off page numbers so your photocopies will be clean.

A reminder—IAC materials are camera-ready and copyright free. We invite you to make copies of any of our educational items and give them to your patients or staff members. You may place your clinic or practice name on our pieces and call them your own, but we'd appreciate your including the words "adapted from Immunization Action Coalition" on the item.

Of course, we need and appreciate financial contributions to IAC. We don't send out fundraising solicitations, but we know that many of you value IAC's work. When you send a contribution of $60 or more, you'll receive a packet of our adult-focused print materials, two "how-to" vaccination videos, and an IAC mousepad. It's the end of the year and contributions are tax deductible.

It's also influenza season. Don't forget to protect your patients by making sure that YOU are vaccinated against flu, too!

Deborah L. Wexler MD

Deborah L. Wexler, MD
Executive Director

Thank you, readers!
We appreciate your financial support.

Thank you to CDC!
CDC provides invaluable technical support as well as two federal grants.

Thank you for your educational grants to all the following:

- American Pharmaceutical Association
- Aventis Pasteur
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- Medical Arts Press
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