

VACCINATE WOMEN

A periodical for obstetrician/gynecologists from the Immunization Action Coalition

Highlighting the latest developments in routine immunization and hepatitis B prevention.

Ask the Experts

IAC extends thanks to our experts, William L. Atkinson, MD, MPH, and Andrew T. Kroger, MD, MPH, medical epidemiologists at the National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention (CDC); and Joanna Buffington, MD, MPH, medical epidemiologist, Division of Viral Hepatitis (DVH), CDC; and Linda A. Moyer, RN, IAC consultant, who until her retirement, was an epidemiologist and chief, Education and Training Team, at DVH.

General vaccine questions

In addition to annual influenza vaccination, which vaccinations should be given to healthcare personnel?

The recommendations for healthcare personnel include vaccination for or evidence of immunity to influenza, hepatitis B, MMR, varicella, pertussis, and for certain laboratory personnel only, meningococcal vaccination. You can find a summary of these recommendations on page 4 of this issue of *Vaccinate Women*.

Please provide information about the newly published recommendations for the use of Tdap (tetanus, diphtheria, and pertussis) vaccine in adults.

The following recommendations for a single dose of Tdap (ADACEL®) apply to adults ages 19–64 years who have not yet received Tdap. After receiving Tdap, adults should receive the standard Td booster every 10 years.

- **Routine:** Adults should receive a single dose of Tdap to replace a single dose of Td for booster immunization against tetanus, diphtheria, and pertussis if they received their most recent tetanus toxoid-containing vaccine (e.g., Td) 10 or more years earlier.
- **Short intervals between Td and Tdap:** Tdap can be administered at an interval of less than 10 years since the last dose of Td to protect against pertussis. The safety of intervals as short as approximately 2 years between administration of Td and Tdap is supported by a Canadian study of children and adolescents; intervals shorter than 2 years also may be used.
- **Prevention of pertussis among infants younger than age 12 months by vaccinating adult contacts:** Adults who have or who anticipate having close contact with an infant younger than age 12 months (e.g., parents, grandparents, child-care providers, and healthcare personnel) should receive a single dose of Tdap. An interval as short as 2 years since the most recent tetanus toxoid-containing vaccine is suggested; intervals shorter than 2 years may be used. Ideally, Tdap should be administered at least 2 weeks before beginning close contact with the infant. Women should

receive a dose of Tdap in the immediate postpartum period if they have not previously received Tdap. Any woman who might become pregnant is encouraged to receive a single dose of Tdap.

- **Vaccination of healthcare personnel (HCP):** HCP in hospitals and ambulatory care settings who have direct patient contact should receive a single dose of Tdap as soon as feasible if they have not previously received Tdap. An interval as short as 2 years from the last dose of Td is recommended; intervals shorter than 2 years may be used. Other HCP should receive a single dose of Tdap according to the routine recommendation; they are encouraged also to receive Tdap at an interval as short as 2 years. Priority should be given to vaccination of HCP who have direct contact with infants younger than age 12 months. Hospitals and ambulatory care facilities should

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)

provide Tdap for HCP and use approaches that maximize vaccination rates.

- **History of pertussis:** Adults with a history of pertussis generally should receive Tdap according to the routine recommendations.
- **Pregnancy:** Pregnancy is not a contraindication for Tdap or Td vaccination. Guidance on the use of Tdap during pregnancy is published separately in provisional recommendations for use of Tdap in pregnant women. See www.cdc.gov/nip/recs/provisional_recgs/default.htm.

To obtain a copy of the complete CDC recommendations “Preventing Tetanus, Diphtheria, and Pertussis Among Adults,” go to www.cdc.gov/mmwr/PDF/rr/rr5517.pdf.

(continued on page 2)

Today I'm giving you HPV vaccine to prevent cervical cancer. Vaccinations are just as important to protecting your health as Pap smears.

I'm really glad you're catching me up on my vaccinations. This is my primary clinic and I don't see any other doctors routinely.



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Vaccinate Women

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IAC publishes two free email news services (*IAC Express* and *Hep Express*) and three free print periodicals (*Needle Tips*, *Vaccinate Adults*, and *Vaccinate Women*). To subscribe to any or all of them, go to www.immunize.org/subscribe. IAC, a 501(c)3 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; HBsAg screening for all pregnant women; testing and vaccination for high-risk groups; and education and treatment for people chronically infected with hepatitis B virus.

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Which women should receive HPV vaccine?

Human papillomavirus (HPV) vaccine, Gardasil™ (Merck), is recommended for all women through age 26 years. Ideally, the vaccine should be administered before onset of sexual activity, but sexually active females should still be vaccinated.

Gardasil is licensed as a 3-dose series, with dose #2 given 2 months after dose #1, and dose #3 given 6 months after dose #1. The minimum interval between doses #1 and #2 is 4 weeks, and between doses #2 and #3 is 12 weeks. The vaccine should be administered IM in the deltoid.

To obtain a copy of CDC's official recommendations for the use of HPV vaccine, go to www.cdc.gov/mmwr/pdf/rr/rr5602.pdf.

I've heard that a nasal influenza vaccine formulation that is stable at refrigerator temperatures will be available next fall. True?

Yes, a new FluMist® product was recently licensed. It will be stored in refrigerators rather than freezers (as was the previous product). This vaccine will be available for the 2007–08 influenza vaccination season.

For whom is shingles (zoster) vaccination recommended?

A single dose of zoster vaccine is recommended for adults 60 years of age and older whether or not they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless a contraindication or precaution exists for their condition.

Hepatitis A and B

According to the recently released ACIP hepatitis B recommendations for adults, which adults should be vaccinated?

The following groups are recommended for hepatitis B vaccination.

- Sex partners of HBsAg-positive persons
- Sexually active persons who are not in long-term, mutually monogamous relationships
- Persons seeking evaluation or treatment for a sexually transmitted disease (STD)
- Men who have sex with men (MSM)
- Current or recent injection-drug users
- Household contacts of HBsAg-positive persons
- Residents and staff of facilities for developmentally challenged persons
- Healthcare and public safety workers with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids
- Persons with end-stage renal disease, including

predialysis, hemo-, peritoneal-, and home-dialysis patients

- International travelers to regions with intermediate or high levels (i.e., HBsAg prevalence greater than or equal to 2%) of endemic hepatitis B virus (HBV) infection.
- Persons with chronic liver disease
- Persons with HIV infection
- All other persons who wish to be protected from HBV infection

Acknowledgement of a specific risk factor is NOT a requirement for vaccination.

The official CDC recommendations are available at www.cdc.gov/mmwr/PDF/rr/rr5516.pdf.

(continued on page 3)

How do I interpret the results of some of the commonly ordered panels of hepatitis B tests?

Tests	Results	Interpretation	Vaccinate?
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible	vaccinate if indicated
HBsAg anti-HBc anti-HBs	negative negative positive with ≥10mIU/mL*	immune due to vaccination	no vaccination necessary
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	acutely infected	no vaccination necessary
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected	no vaccination necessary (may need treatment)
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible†	use clinical judgment

*Postvaccination testing, when it is recommended, should be performed 1–2 months after the last dose of vaccine (except for infants born to HBsAg-positive mothers who should be tested 3–9 months after the last dose).

- †
1. May be recovering from acute HBV infection
 2. May be distantly immune, but the test may not be 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

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

Can you provide some guidance for implementing hepatitis B vaccination in primary care settings?

In primary care and specialty medical settings, CDC recommends implementation of standing orders for identifying adults recommended for hepatitis B vaccination and for administering vaccination as part of routine services. To ensure vaccination of adults at risk for HBV infection who have not completed the vaccine series, CDC recommends the following:

- Provide information to all adults regarding the health benefits of hepatitis B vaccination, including risk factors for HBV infection and persons for whom vaccination is recommended.
- Help all adults assess their need for vaccination by obtaining a history that emphasizes risks for sexual transmission and percutaneous or mucosal exposure to blood.
- Vaccinate all adults who report risks for HBV infection.
- Vaccinate all adults requesting protection from HBV infection, without requiring them to acknowledge a specific risk factor.

For your use, a hepatitis B vaccination screening questionnaire is available at www.immunize.org/catg.d/2191hepb.pdf. Standing orders for administering hepatitis B vaccine to adults are available at www.immunize.org/catg.d/p3076.pdf.

How do I manage a patient with a sexual exposure to HBV?

These recommendations are too lengthy to address in *Vaccinate Women*. Refer to Appendix B of the ACIP adult hepatitis B recommendations at www.cdc.gov/mmwr/pdf/rr/rr5516.pdf. It fully covers this topic.

If a person wants to be protected from hepatitis A and isn't in a risk group, is there any reason not to vaccinate him?

No. ACIP recommends hepatitis A vaccination for any person who wants to be protected from hepatitis A virus (HAV) infection.

Which travelers should be vaccinated against HAV infection?

Optimally, all U.S. travelers who travel to or work in countries outside the U.S.—except Western Europe, New Zealand, Australia, Canada, and Japan—should receive hepatitis A vaccine at least 1 month prior to departure.

For hepatitis A, is it really necessary to vaccinate travelers to Latin America who will be staying in four-star hotels?

Yes. Data have shown that persons acquire HAV infection even in such places as four-star hotels located in Latin America. ♦

Looking for the latest vaccine recommendations and resources?

Look here!

www.immunize.org/newreleases
www.immunize.org/new

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.

IgM anti-HAV: *IgM antibody subclass of anti-HAV.* Its presence indicates a recent infection with HAV (6 mos or less). 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 (total): *Antibody to hepatitis B core antigen* is a nonspecific 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 (within the past 6 mos). Its presence indicates acute 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 HBV infection.

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Healthcare Personnel Vaccination Recommendations

Vaccine	Recommendations in brief
Hepatitis B	Give 3-dose series (dose #1 now, #2 in 1 month, #3 approximately 5 months after #2). Give IM. Obtain anti-HBs serologic testing 1–2 months after dose #3.
Influenza	Give 1 dose of TIV or LAIV annually. Give TIV intramuscularly or LAIV intranasally.
MMR	For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below. Give SC.
Varicella (chickenpox)	For HCP who have no serologic proof of immunity, prior vaccination, or history of varicella disease, give 2 doses of varicella vaccine, 4 weeks apart. Give SC.
Tetanus, diphtheria, pertussis	Give all HCP a Td booster dose every 10 years, following the completion of the primary 3-dose series. Give a 1-time dose of Tdap to all HCP younger than age 65 years with direct patient contact. Give IM.
Meningococcal	Give 1 dose to microbiologists who are routinely exposed to isolates of <i>N. meningitidis</i> .

Hepatitis A, typhoid, and polio vaccines are not routinely recommended for HCP who may have on-the-job exposure to fecal material.

Hepatitis B

Healthcare personnel (HCP) who perform tasks that may involve exposure to blood or body fluids should receive a 3-dose series of hepatitis B vaccine at 0-, 1-, and 6-month intervals. Test for hepatitis B surface antibody (anti-HBs) to document immunity 1–2 months after dose #3.

- If anti-HBs is at least 10 mIU/mL (positive), the patient is immune. No further serologic testing or vaccination is recommended.
- If anti-HBs is less than 10 mIU/mL (negative), the patient is unprotected from hepatitis B virus (HBV) infection; revaccinate with a 3-dose series. Retest anti-HBs 1–2 months after dose #3.
 - If anti-HBs is positive, the patient is immune. No further testing or vaccination is recommended.
 - If anti-HBs is negative following 6 doses of vaccine, the patient is a non-responder.

For non-responders: HCP who are non-responders should be considered susceptible to HBV and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to hepatitis B surface antigen (HBsAg)-positive blood.¹ It is also possible that non-responders are persons who are HBsAg positive. Testing should be considered. HCP found to be HBsAg positive should be counseled and medically evaluated.

Note: Anti-HBs testing is not recommended routinely for previously vaccinated HCP who were not tested 1–2 months after their original vaccine series. These HCP should be tested for anti-HBs when they have an exposure to blood or body fluids. If found to be anti-HBs negative, the HCP should be treated as if susceptible.¹

Influenza

Trivalent (Inactivated) Influenza Vaccine (TIV): May give to any HCP. **Live, Attenuated Influenza Vaccine (LAIV):** May give to any non-pregnant healthy HCP age 49 years and younger.

1. All HCP should receive annual influenza vaccine. Groups that should be targeted include all personnel (including volunteers) in hospitals, outpatient, and home-health settings who have any patient contact.
2. TIV is preferred over LAIV for HCP who are in close contact with severely immunosuppressed persons (e.g., stem cell transplant patients) when patients require a protective environment.

Measles, Mumps, Rubella (MMR)

HCP who work in medical facilities should be immune to measles, mumps, and rubella.

- HCP born in 1957 or later can be considered immune to measles, mumps, or rubella only if they have documentation of (a) physician-diagnosed

measles or mumps disease; or (b) laboratory evidence of measles, mumps, or rubella immunity (HCP who have an “indeterminate” or “equivocal” level of immunity upon testing should be considered nonimmune); or (c) appropriate vaccination against measles, mumps, and rubella (i.e., administration on or after the first birthday of two doses of live measles and mumps vaccines separated by 28 days or more, and at least one dose of live rubella vaccine).

- Although birth before 1957 generally is considered acceptable evidence of measles, mumps, and rubella immunity, healthcare facilities should consider recommending a dose of MMR vaccine (two doses during a mumps outbreak) to unvaccinated HCP born before 1957 who are in either of the following categories: (a) do not have a history of physician-diagnosed measles and mumps disease or laboratory evidence of measles and mumps immunity and (b) do not have laboratory evidence of rubella immunity.

Varicella

It is recommended that all HCP be immune to varicella. Evidence of immunity in HCP includes documentation of 2 doses of varicella vaccine given at least 28 days apart, history of varicella or herpes zoster based on physician diagnosis, laboratory evidence of immunity, or laboratory confirmation of disease.

Tetanus/Diphtheria/Pertussis (Td/Tdap)

All adults who have completed a primary series of a tetanus/diphtheria-containing product (DTP, DTaP, DT, Td) should receive Td boosters every 10 years. As soon as feasible, HCP younger than age 65 years with direct patient contact should be given a 1-time dose of Tdap, with priority given to those having contact with infants younger than age 12 months.

Meningococcal

Vaccination is recommended for microbiologists who are routinely exposed to isolates of *N. meningitidis*. Use of MCV4 is preferred among persons ages 11–55 years; give IM. If MCV4 is unavailable, MPSV is an acceptable alternative for HCP ages 11–55 years. Use of MPSV is recommended for HCP older than age 55; give SC.

References

1. See Table 3 in “Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis,” *MMWR*, June 29, 2001, Vol. 50, RR-11.

For additional specific ACIP recommendations, refer to the official ACIP statements published in *MMWR*. To obtain copies, visit CDC’s website at www.cdc.gov/nip/publications/ACIP-list.htm; or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip.

Adapted with thanks from the Michigan Department of Community Health

Viral hepatitis education materials for patients and staff

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

The collage features five educational materials:

- Should You Be Vaccinated Against Hepatitis A?**: A screening questionnaire for adults. It explains that Hepatitis A is a serious liver disease caused by the hepatitis A virus (HAV), which is found in the feces (poop) of people with hepatitis A and is usually spread by close personal contact such as living in a household with someone who has hepatitis A. It includes a section for "Who should be vaccinated?" and a "Screening before vaccination" section.
- Should You Be Tested For Hepatitis C?**: A screening questionnaire for adults. It states that Hepatitis C is a liver disease caused by the hepatitis C virus (HCV), which is found in the blood of people who have this infection. HCV is spread by blood-to-blood contact, such as sharing needles. It includes a section for "Who should be tested?" and a "Screening before vaccination" section.
- Should You Be Vaccinated Against Hepatitis B?**: A screening questionnaire for adults. It describes Hepatitis B as a serious liver disease caused by the hepatitis B virus (HBV), which is spread through contact with blood or certain body fluids of an infected person. It includes a section for "Who should be vaccinated?" and a "Screening before vaccination" section.
- Hepatitis B Facts: Testing and Vaccination**: A table providing information on testing and vaccination for Hepatitis B. The table has columns for "Test", "Results", "Interpretation", and "Treatment".
- Hepatitis A, B, and C: Learn the Differences**: A table comparing the three types of hepatitis. The table has columns for "Hepatitis A", "Hepatitis B", and "Hepatitis C".

For 8-1/2" x 11" copies of the pieces above, visit IAC's website: www.immunize.org.

1. Should you be vaccinated against hepatitis A?: www.immunize.org/catg.d/2190hepa.pdf
2. Should you be vaccinated against hepatitis B?: www.immunize.org/catg.d/2191hepb.pdf
3. Should you be tested for hepatitis C?: www.immunize.org/catg.d/2192hepc.pdf
4. Hepatitis B Facts: Testing and Vaccination: www.immunize.org/catg.d/p2110.pdf
5. Hepatitis A, B, and C: Learn the Differences: www.immunize.org/catg.d/p4075abc.pdf

Vaccination Basics for Healthcare Professionals

Here is a list of vaccination resources every practice should have!

Vaccine handling and storage information

Checklist for safe vaccine handling and storage: www.immunize.org/catg.d/p3035chk.pdf

Don't be guilty of these errors in vaccine storage and handling: www.immunize.org/catg.d/p3036.pdf

Temperature log for vaccines (Fahrenheit): www.immunize.org/catg.d/p3039.pdf

Temperature log for vaccines (Celsius): www.immunize.org/news.d/celsius.pdf

How to decide who needs to be vaccinated

Screening questionnaire for adult immunization: www.immunize.org/catg.d/p4065scr.pdf

Screening questionnaire for injectable influenza vaccination: www.immunize.org/catg.d/p4066.pdf

Screening questionnaire for intranasal influenza vaccination: www.immunize.org/catg.d/p4067.pdf

Do I need any vaccinations today? www.immunize.org/catg.d/4036need.pdf

Give these people influenza vaccine! www.immunize.org/catg.d/2013flu.pdf

How to administer vaccine to patients

How to administer IM and SC injections to adults: www.immunize.org/catg.d/p2020A.pdf

Administering vaccines to adults: Dose, route, site, needle size, and preparation: www.immunize.org/catg.d/p3084.pdf

IAC's standing orders for vaccination web section: www.immunize.org/standingorders

Vaccine administration record for adults: www.immunize.org/catg.d/p2023b.pdf

Federal vaccine recommendations and requirements

CDC's vaccination recommendations: www.cdc.gov/nip/publications/acip-list.htm or www.immunize.org/acip

IAC's Vaccine Information Statement (VIS) web section: www.immunize.org/vis

CDC's instructions for the use of Vaccine Information Statements (VISs): www.cdc.gov/nip/publications/VIS/vis-Instructions.pdf

Vaccine Adverse Events Reporting System (VAERS) website: <http://vaers.hhs.gov>

Immunization resources available from IAC

The Immunization Action Coalition website offers you more than one hundred free, ready-to-copy print materials for staff and patient education. Developed to enhance the quality and efficiency of immunization practice, all are reviewed by CDC for technical accuracy. To access IAC's complete collection, go to: www.immunize.org/free

IAC also makes a few products available to healthcare professionals for purchase. These include immunization record cards for three age groups—children and teens, adults, and lifetime—as well as laminated adult and childhood immunization schedules, the video *Immunization Techniques* for staff training in VHS and DVD formats, and the 2007 edition of CDC's "Vaccine Storage and Handling Toolkit" CD-ROM. For comprehensive product details and ordering information, go to:

www.immunize.org/shop

Summary of Recommendations for Adult Immunization

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p>Influenza Trivalent inactivated influenza vaccine (TIV) <i>Give IM</i></p>	<ul style="list-style-type: none"> • Anyone wishing to reduce the likelihood of becoming ill with influenza. • Persons age 50yrs and older. • Persons with medical problems (e.g., heart disease, lung disease, diabetes, renal dysfunction, hemoglobinopathy, immunosuppression) and/or people living in chronic care facilities. • Persons with any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, seizure disorder, or other neuromuscular disorder). • Persons working or living with at-risk people. • Women who will be pregnant during the influenza season (December–March). • All healthcare personnel and other persons who provide direct care to at-risk people. • Household contacts and out-of-home caregivers of children ages 0–59m. • Travelers at risk for complications of influenza 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). • Persons who provide essential community services. • Students or other persons in institutional settings (e.g., dormitory residents). 	<ul style="list-style-type: none"> • Given every year in the fall or winter. • October and November are the usual months to give TIV. • LAIV may be given as soon as it is available. • Continue to give TIV and LAIV through the influenza season from December through March (including when influenza activity is present in the community) and at other times when the risk of influenza exists. 	<p>Contraindication Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs.</p> <p>Precautions</p> <ul style="list-style-type: none"> • Moderate or severe acute illness. • History of Guillain-Barré syndrome (GBS) within 6wks of previous TIV.
<p>Influenza Live attenuated influenza vaccine (LAIV) <i>Give intranasally</i></p>	<ul style="list-style-type: none"> • Healthy, non-pregnant persons age 49yrs and younger who meet any of the criteria listed below. <ul style="list-style-type: none"> - Working or living with at-risk people as listed in the section above. - Healthcare personnel or other persons who provide direct care to at-risk people (except persons in close contact with severely immunosuppressed persons). - Household contacts and out-of-home caregivers of children ages 0–59m. - Travelers who may be among people from areas of the world where there is current influenza activity (e.g., on organized tours). - Persons who provide essential community services. - Students or other persons in institutional settings (e.g., dormitory residents). - Persons who wish to reduce the likelihood of becoming ill with influenza. 	<p>(This cell is shared with the previous row and contains the same schedule information.)</p>	<p>Contraindications</p> <ul style="list-style-type: none"> • Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs. • Pregnancy, asthma, reactive airway disease or other chronic disorder of the pulmonary or cardiovascular system; an underlying medical condition, including metabolic disease such as diabetes, renal dysfunction, and hemoglobinopathy; a known or suspected immune deficiency disease or receiving immunosuppressive therapy; history of GBS. <p>Precaution Moderate or severe acute illness.</p>
<p>Pneumococcal polysaccharide (PPV) <i>Give IM or SC</i></p>	<ul style="list-style-type: none"> • Persons age 65yrs and older. • Persons who have chronic illness or other risk factors, including chronic cardiac or pulmonary disease, chronic liver disease, alcoholism, diabetes, CSF leak, 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 persons 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); those who received an organ or bone marrow transplant; and candidates for or recipients of cochlear implants. 	<ul style="list-style-type: none"> • Routinely given as a one-time dose; administer if previous vaccination history is unknown. • One-time revaccination is recommended 5yrs later for persons at highest risk of fatal pneumococcal infection or rapid antibody loss (e.g., renal disease) and for persons age 65yrs and older if the 1st dose was given prior to age 65 and 5yrs or more have elapsed since the previous dose. 	<p>Contraindication Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p>Precaution Moderate or severe acute illness.</p>

*This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC's website at www.cdc.gov/nip/publications/ACIP-list.htm; or visit the Immunization Action

Coalition (IAC) website at www.immunize.org/acip. This table is revised periodically. Visit IAC's website at www.immunize.org/adultrules to make sure you have the most current version.

Summary of Recommendations for Adult Immunization (continued)

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p>Hepatitis B (Hep B) <i>Give IM</i></p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> All persons through age 18yrs. Any adult wishing to obtain immunity against hepatitis B virus infection. High-risk persons, including household contacts and sex partners of HBsAg-positive persons; injecting drug users; sexually active persons not in a long-term, mutually monogamous relationship; men who have sex with men; persons with HIV or a recently diagnosed STD; patients receiving hemodialysis and patients with renal disease that may result in dialysis; recipients of certain blood products; healthcare personnel and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; and certain international travelers. Persons with chronic liver disease. <p>Note: Provide serologic screening for immigrants from endemic areas. If patient is chronically infected, assure appropriate disease management. Screen sex partners and household members; give Hep B at the same visit if not already vaccinated.</p>	<ul style="list-style-type: none"> 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. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>For Twinrix® (hepatitis A and B combination vaccine [GSK]) for patients 18yrs and older only: three doses are needed on a 0, 1, 6m schedule. An accelerated schedule can also be used at 0, 7, 21–30d, and a booster at 12m.</p> </div>	<p>Contraindication Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p>Precaution Moderate or severe acute illness.</p>
<p>Hepatitis A (Hep A) <i>Give IM</i></p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> Anyone wishing to obtain immunity to hepatitis A virus infection. Persons who travel or work anywhere except the U.S., Western Europe, New Zealand, Australia, Canada, and Japan. Persons with chronic liver disease, including persons with hepatitis B and C; injecting and non-injecting drug users; men who have sex with men; people with clotting-factor disorders; persons 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 appropriate. <p>Note: Prevacination testing is likely to be cost effective for persons older than age 40yrs, as well as for younger persons in certain groups with a high prevalence of hepatitis A virus infection.</p>	<ul style="list-style-type: none"> Two doses are needed. The minimum interval between doses #1 and #2 is 6m. If dose #2 is delayed, do not repeat dose #1. Just give dose #2. 	<p>Contraindication Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p>Precautions</p> <ul style="list-style-type: none"> Moderate or severe acute illness. Safety during pregnancy has not been determined, so benefits must be weighed against potential risk.
<p>Td, Tdap (Tetanus, diphtheria, pertussis) <i>Give IM</i></p>	<ul style="list-style-type: none"> All adults who lack a history of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine. A booster dose of tetanus- and diphtheria-toxoid-containing vaccine may be needed for wound management as early as 5yrs after receiving a previous dose, so consult ACIP recommendations.* Using tetanus toxoid (TT) instead of Td or Tdap is <u>not</u> recommended. In pregnancy, when indicated, give Td or Tdap in 2nd or 3rd trimester. If not administered during pregnancy, give Tdap in immediate postpartum period. <p>For Tdap only:</p> <ul style="list-style-type: none"> All adults younger than age 65yrs who have not already received Tdap. Healthcare personnel who work in hospitals or ambulatory care settings and have direct patient contact and who have not received Tdap. Adults in contact with infants younger than age 12m (e.g., parents, grandparents younger than age 65yrs, childcare providers, healthcare personnel) who have not received a dose of Tdap should be prioritized for vaccination. 	<ul style="list-style-type: none"> For persons who are unvaccinated or behind, complete the primary series with Td (spaced at 0, 1–2m, 6–12m intervals). One dose of Tdap may be used for any dose if ages 19–64yrs. Give Td booster every 10yrs after the primary series has been completed. For adults ages 19–64yrs, a 1-time dose of Tdap is recommended to replace the next Td. Intervals of 2yrs or less between Td and Tdap may be used if needed. <p>Note: The two Tdap products are licensed for different age groups: Adacel™ (sanofi) for use in persons ages 11–64yrs and Boostrix® (GSK) for use in persons ages 10–18yrs.</p>	<p>Contraindications</p> <ul style="list-style-type: none"> Previous anaphylactic reaction to this vaccine or to any of its components. For Tdap only, history of encephalopathy within 7 days following DTP/DTPaP. <p>Precautions</p> <ul style="list-style-type: none"> Moderate or severe acute illness. GBS within 6wks of receiving a previous dose of tetanus-toxoid-containing vaccine. Unstable neurologic condition. History of arthus reaction following a previous dose of tetanus- and/or diphtheria-toxoid-containing vaccine, including MCV4. <p>Note: Use of Td/Tdap is not contraindicated in pregnancy. Either vaccine may be given during trimester #2 or #3 at the provider's discretion.</p>
<p>Polio (IPV) <i>Give IM or SC</i></p>	<p>Not routinely recommended for persons age 18yrs and older.</p> <p>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 (i.e., India, Pakistan, Afghanistan, and certain countries in Africa). Previously vaccinated adults can receive one booster dose if traveling to polio endemic areas.</p>	<ul style="list-style-type: none"> Refer to ACIP recommendations* regarding unique situations, schedules, and dosing information. 	<p>Contraindication Previous anaphylactic or neurologic reaction to this vaccine or to any of its components.</p> <p>Precautions</p> <ul style="list-style-type: none"> Moderate or severe acute illness. Pregnancy.

Summary of Recommendations for Adult Immunization (continued)

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p>Varicella (Var) (Chickenpox) <i>Give SC</i></p>	<ul style="list-style-type: none"> All adults without evidence of immunity. <p>Note: Evidence of immunity is defined as a history of two doses of varicella vaccine; born in the U.S. before 1980 (exception: healthcare personnel and pregnant women); a history of varicella disease or herpes zoster based on healthcare provider diagnosis; laboratory evidence of immunity; and/or laboratory confirmation of disease.</p>	<ul style="list-style-type: none"> Two doses are needed. Dose #2 is given 4–8wks after dose #1. If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. If the second dose is delayed, do not repeat dose #1. Just give dose #2. 	<p>Contraindications</p> <ul style="list-style-type: none"> Previous anaphylactic reaction to this vaccine or to any of its components. Pregnancy or possibility of pregnancy within 4wks. Persons immunocompromised because of malignancy and primary or acquired cellular immunodeficiency including HIV/AIDS. (See <i>MMWR</i> 1999, Vol. 48, No. RR-6.) Note: For those on high-dose immunosuppressive therapy, consult ACIP recommendations regarding delay time.* <p>Precautions</p> <ul style="list-style-type: none"> If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating. Moderate or severe acute illness.
<p>Meningococcal Conjugate vaccine (MCV4) <i>Give IM</i> Polysaccharide vaccine (MPSV4) <i>Give SC</i></p>	<ul style="list-style-type: none"> College freshmen living in dormitories. Persons with anatomic or functional asplenia or with terminal complement component deficiencies. Persons who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the “meningitis belt” of Sub-Saharan Africa). Microbiologists routinely exposed to isolates of <i>N. meningitidis</i>. 	<ul style="list-style-type: none"> One dose is needed. If previous vaccine was MPSV4, re-vaccinate after 5yrs if risk continues. Revaccination after MCV4 is not recommended. MCV4 is preferred over MPSV4 for persons age 55yrs and younger, although MPSV4 is an acceptable alternative. 	<p>Contraindication</p> <p>Previous anaphylactic or neurologic reaction to this vaccine or to any of its components, including diphtheria toxoid (for MCV4).</p> <p>Precautions</p> <ul style="list-style-type: none"> Moderate or severe acute illness. For MCV4 only, history of GBS.
<p>MMR (Measles, mumps, rubella) <i>Give SC</i></p>	<ul style="list-style-type: none"> Persons born in 1957 or later (especially 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. Persons in high-risk groups, such as healthcare personnel, students entering college and other post-high school educational institutions, and international travelers, should receive a total of two doses. Persons born before 1957 are usually considered immune, but proof of immunity (serology or vaccination) may be desirable for healthcare personnel. Women of childbearing age who do not have acceptable evidence of rubella immunity or vaccination. 	<ul style="list-style-type: none"> One or two doses are needed. If dose #2 is recommended, give it no sooner than 4wks after dose #1. If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. If a pregnant woman is found to be rubella susceptible, administer MMR postpartum. 	<p>Contraindications</p> <ul style="list-style-type: none"> Previous anaphylactic reaction to this vaccine or to any of its components. Pregnancy or possibility of pregnancy within 4wks. Persons immunocompromised because of 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. <p>Precautions</p> <ul style="list-style-type: none"> If blood, plasma, and/or immune globulin were given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating. Moderate or severe acute illness. History of thrombocytopenia or thrombocytopenic purpura. <p>Note: If PPD (tuberculosis skin test) and MMR are both needed but not given on same day, delay PPD for 4–6wks after MMR.</p>
<p>Human-papillomavirus (HPV) <i>Give IM</i></p>	<ul style="list-style-type: none"> All previously unvaccinated women through age 26yrs. 	<ul style="list-style-type: none"> Three doses are needed on a 0, 2, 6m schedule. The minimum interval between doses #1 and #2 is 4wks, and between #2 and #3 is 12wks. 	<p>Contraindication</p> <p>Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p>Precaution</p> <p>Data on vaccination in pregnancy are limited. Vaccination should be delayed until after completion of the pregnancy.</p>
<p>Zoster (shingles) (Zos) <i>Give SC</i></p>	<p>ACIP has voted to recommend herpes zoster (shingles) vaccine for all persons age 60yrs and older who do not have contraindications. Provisional recommendations are online at www.cdc.gov/nip/recs/provisional_recs.</p>		

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An Open Letter to OB-GYNs from IAC's Executive Director



Deborah L. Wexler, MD
Executive Director

Dear Colleagues,

This is the seventh issue of *Vaccinate Women*, a collaborative production of the Immunization Action Coalition (IAC), Centers for Disease Control and Prevention (CDC), and American College of Obstetricians and Gynecologists (ACOG). IAC creates and designs its content and publishes it. CDC provides complete financial support for its production; CDC experts provide answers in the "Ask the Experts" section and review all other pages for accuracy. ACOG mails *Vaccinate Women* to its members and OB-GYN physicians-in-training.

Why have we created a publication dedicated to vaccinating women? Today, the obstetrician/gynecologist is the only doctor many women routinely see. For this reason, it's important that you make sure your patients are fully vaccinated. For example:

- Human papillomavirus (HPV) vaccine is recommended for all women through age 26 years.
- One dose of tetanus-diphtheria-pertussis (Tdap) vaccine is recommended for adults to prevent transmission of whooping cough. This is especially important in healthcare settings and for families, to protect vulnerable newborns and infants.
- Hepatitis B vaccine is now recommended for all patients who are sexually active but not in long-term, mutually monogamous relationships.
- Influenza vaccine is recommended for **all** women who will be pregnant during influenza season.

The importance of vaccinating patients throughout their lives is well documented. Still, it's a challenge for any practice to deliver vaccination services. Here are some ideas that can help advance vaccination practices in your clinical setting.

Make sure you get vaccinated, and vaccinate your staff!

Make sure you and your staff get vaccinated against influenza every fall. CDC estimates that only 40% of U.S. healthcare personnel receive influenza vaccine—a disgraceful situation that results in healthcare personnel putting their patients at unnecessary risk for influenza and its complications. Also, be sure to give hepatitis B vaccine to all staff who might have contact with blood or body fluids.

Implement standing orders.

Use of standing orders allows nurses to assess each patient's need for vaccination based on established criteria and then administer vaccine without your direct order. Studies have shown that the use of standing orders programs increases vaccination rates and decreases practitioner time. CDC recommends

their use in both outpatient and inpatient settings. To access CDC-reviewed standing orders for all vaccines and for the management of vaccination reactions, visit IAC's website at www.immunize.org/standingorders.

Order the video *Immunization Techniques*.

This video instructs your staff on administering intramuscular and subcutaneous vaccines to patients of all ages and includes information on correct needle lengths and injection sites for different vaccines. Developed by the State of California and available on VHS tape or DVD, the video is great for yearly staff updates. You can order it online at www.immunize.org/shop or use the order form on page 11.

Order CDC's "Vaccine Storage and Handling Toolkit" CD-ROM.

This CD-ROM offers guidelines on temperature monitoring, inventory management, and troubleshooting and includes print materials and two videos. To order, visit www.immunize.org/shop or use the order form on page 11.

Use IAC's Summary of Recommendations for Adult Immunization.

This chart (see pages 7–9) summarizes the most current recommendations from CDC on everything from schedules and routes of administration to contraindications. Some practices laminate or make cardstock copies of the summary and put them in each exam room as a ready-reference guide.

Subscribe to IAC Express, a free immunization new service.

Our weekly immunization news service arrives in your email inbox every Monday with the latest information about U.S. vaccine recommendations and resources. Stay up to date. Subscribe at www.immunize.org/subscribe.

Here are some other resources you'll find helpful.

For technical questions about vaccination and recommendations, email CDC at nipinfo@cdc.gov.

For immunization advice from a nurse consultant, contact your state or local health department's immunization program. Find them at www.immunize.org/coordinators. If you'd like online information, go to IAC's web section titled "Improving Immunization Practices" at www.immunize.org/izpractices.

For advice on coding and billing, contact your professional society. Many vaccine companies have resources to help you as well.

Print yourself a copy of *Adults Only Vaccination: A Step-By-Step Guide*. This resource book was written just for you! Visit www.immunize.org/guide.

If you have other questions related to vaccination, please send them to admin@immunize.org. If we can't help you, we'll refer you to someone who can.

Deborah L. Wexler, MD

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Executive Director

Immunization Action Coalition

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