

# 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.

## 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, chief of the Hepatitis Branch, are CDC liaisons to the Coalition. Ms. Moyer is an epidemiologist at the Hepatitis Branch.*

### General vaccine questions

by William L. Atkinson, MD, MPH

**By law, when vaccinating adults, must I give Vaccine Information Statements (VISs)?**  
 The National Childhood Vaccine Injury Act requires that a VIS must be given to adult patients or to parents/guardians before administering a vaccine containing diphtheria, tetanus, pertussis, hepatitis B, measles, mumps, rubella, varicella, Hib, polio, or pneumococcal conjugate. A VIS must be provided prior to each dose, not just the first. Providers should be sure they are using the most current version of each VIS. Current VISs and their dates are available from the National Immunization Program website at [www.cdc.gov/nip/publications/vis](http://www.cdc.gov/nip/publications/vis) and from IAC's website at [www.immunize.org/vis](http://www.immunize.org/vis)

**Which vaccines should be given before one becomes pregnant? Which vaccines may be given during pregnancy?**

Women who intend to become pregnant should have documentation of immunity (either vaccination or serology) to tetanus, diphtheria, measles, mumps, rubella, and varicella. A history of chickenpox is considered adequate evidence of varicella immunity. Hepatitis B immunity is also recommended for women with occupational or behavioral risk factors for hepatitis B virus infection. Verification of rubella immunity is particularly important for women born outside the U.S. where rubella vaccine may not be part of routine childhood immunization. Live virus vaccines should not be given to a woman known to be pregnant or planning to become pregnant in the next 1-3 months, although yellow fever vaccine may be considered under some travel circumstances. Inactivated vaccines and toxoids may be administered to pregnant women for whom the vaccines are indicated. Influenza vaccine is recommended for women who will be in the second or third trimester of pregnancy during influenza season.

**If a patient is on steroids, when should vaccines be withheld?**  
 Steroid therapies that are short term (<2 weeks); alternate-day; physiologic replacement; topical

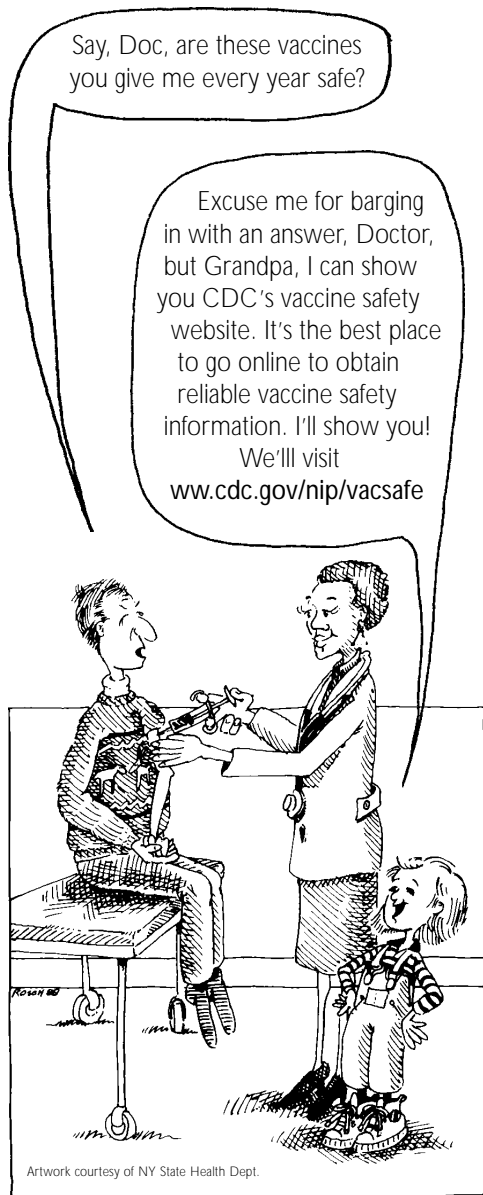
(skin or eyes); aerosol; or given by intra-articular, bursal or tendon injection are not considered contraindications to the use of live virus vaccines. The immunosuppressive effects of corticosteroid treatment vary, but many clinicians consider a dose equivalent to either 2 mg/kg of body weight or a total of 20 mg per day of prednisone for ≥2 weeks as sufficiently immunosuppressive to raise concern about the safety of vaccination with live virus vaccines (MMR, varicella, yellow fever).

Providers should wait at least 1 month after discontinuation of therapy or reduction of dose before administering a live virus vaccine to patients who have received high systemically absorbed doses of corticosteroids for 2 weeks or more. Inactivated vaccines and toxoids can be administered to all immunocompromised patients, although the response to these vaccines may be suboptimal. All inactivated vaccines are recommended for immunocompromised persons in usual doses and schedules.

**What vaccinations are recommended for new immigrants to the United States?**

In 1996 Congress amended the Immigration and Nationality Act and added vaccination requirements for anyone applying for permanent resident status in the U.S. Adults and children must have evidence of having received (or at least having started the series of) the same vaccines recommended for an American citizen of the same age. Children must be vaccinated according to the current U.S. childhood schedule. Adults 18 years of age and older must have evidence of vaccination for tetanus and diphtheria. People born after 1956 must have evidence of immunity (vaccination or serology) for measles, mumps, and rubella. All persons 12 months of age and older must have evidence of varicella immunity (vaccination or

*(continued on page 9)*



Artwork courtesy of NY State Health Dept.

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### Immunization questions?

- Call your state health department
- E-mail: [nipinfo@cdc.gov](mailto:nipinfo@cdc.gov)
- Call CDC's Immunization Information Hotline at (800) 232-2522

## VACCINATE ADULTS!

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**VACCINATE ADULTS!** is a semiannual publication of the Immunization Action Coalition (IAC) written for health professionals. All information contained 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 approximately 160,000. ISSN 1526-1824

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

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**www.immunize.org** is IAC's website. Visit often for the most current resources. Website design by Lantern Web™.

**The Immunization Action Coalition (IAC)**, a 501(c)3 nonprofit organization, works to increase immunization rates and prevent disease. IAC promotes physician, community, and family awareness of and responsibility for appropriate immunization of all people of all ages against all vaccine-preventable diseases.

**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.

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# Vaccine highlights

## Latest recommendations and schedules

### The next ACIP meetings

*Editor's note: The information on these pages is current as of April 14, 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 June 20–21 and October 17–18.

### ACIP statements

No practice should be without a set of these public health recommendations on vaccines, which are published in the *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](http://www.cdc.gov/mmwr) You can also request a free electronic subscription to the *MMWR* at this site. For a subscription by mail, call the Massachusetts Medical Society at (800) 843-6356. Cost is \$98/year.
- Visit IAC's website to download individual statements: [www.immunize.org/acip](http://www.immunize.org/acip)
- E-mail your request to [nipinfo@cdc.gov](mailto:nipinfo@cdc.gov)
- Call CDC's Immunization Hotline at (800) 232-2522.
- Call your state's immunization program. Phone numbers are available at [www.immunize.org/nsltd/n18/coord18.htm](http://www.immunize.org/nsltd/n18/coord18.htm)
- Request them from your medical library.

### Recently published ACIP statements:

- "Use of Anthrax Vaccine in the United States" (12/15/00)

### Td vaccine news

On Mar. 16, 2001, "Update on Supply of TT, Td, and DTaP" was published in the *MMWR*. During the last quarter of 2000, the U.S. Public Health Service learned of a shortage of Td and TT resulting from decreased production of these vaccines by the two U.S. manufacturers. The shortage was expected to be resolved by early 2001; however, on Jan. 10, 2001,

Wyeth Lederle announced it had stopped production of all products containing tetanus toxoid, leaving Aventis Pasteur as the sole nationwide distributor of Td and TT. Now the shortage is not expected to be resolved for 12–18 months.

Because of Td and TT shortages, clinics and hospitals that treat acute wounds will be given priority for vaccine until supplies are restored. Clinics and hospitals in need of vaccine for wound care should call Aventis Pasteur, telephone (800) 822-2463.

On Nov. 17, 2000, "Shortage of TT and Td" was published in the *MMWR*. CDC released the following list for prioritizing available Td doses.

1. Persons traveling to a country where the risk for diphtheria is high.
2. Persons requiring tetanus vaccination for prophylaxis in wound management.
3. Persons who have received fewer than 3 doses of vaccine containing Td.
4. Pregnant women and persons at occupational risk for tetanus-prone injuries who have not been vaccinated with Td within the preceding 10 years.
5. Adolescents who have not been vaccinated with Td within the preceding 10 years.
6. Adults who have not been vaccinated with Td within the preceding 10 years.

### Hepatitis A vaccine news

On Oct. 13, 2000, FDA approved a supplemental license for Merck's hepatitis A vaccine, Vaqta. The new approval extends the age range for the pediatric dose of Vaqta an extra year—it is now approved for use from ages 2 through 18 instead of from ages 2 through 17. It also extends the interval of the adult second dose of Vaqta from 6 months following the initial dose to 6 to 12 months.

### Vax and bone marrow recipients

On Oct. 2, 2000, CDC published "Guidelines for Preventing Opportunistic Infections Among Hematopoietic Stem Cell Transplant Recipients" in the *MMWR*. This 125-page report offers guidelines for preventing opportunistic infections and provides tables with detailed vaccination recommendations. The vaccination information been excerpted and is available on CDC's website at [www.cdc.gov/nip/publications/HSCTrecs.pdf](http://www.cdc.gov/nip/publications/HSCTrecs.pdf)

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# What's your state doing?

## Current U.S. immunization information by state

For more information about state immunization mandates and vaccination rates visit [www.immunize.org/laws](http://www.immunize.org/laws)

State	Mandates to offer vaccination in long-term care facilities, with implementation dates		Are pharmacists explicitly authorized to vaccinate?
	Influenza	Pneumococcal (PPV23)	
AL			yes
AK			yes
AZ	residents 4/00	residents 4/00	yes
AR	staff* and residents 9/00	residents 9/00	yes
CA			yes
CO			yes
CT			
DE	residents 1990	residents 1990	yes
DC			
FL			
GA			yes
HI			
ID			yes
IL			yes
IN			yes
IA			yes
KS			yes
KY			yes
LA			
ME			
MD	residents and staff 10/00	residents 10/00	
MA			yes
MI			yes
MN			
MS			yes
MO			yes
MT			
NE			yes
NV			yes
NH			
NJ	residents 5/98	residents 5/98	
NM			yes
NY	residents and staff 4/00	residents and staff 4/00	
NC			
ND			
OH			yes
OK			yes
OR			yes
PA			
RI	residents and staff 1/00	residents 1/00	
SC			yes
SD	residents* 1995	residents 1995	yes
TN	residents 9/99	residents 9/99	yes
TX	residents and staff 8/00	residents 8/00	yes
UT			yes
VT			
VA			yes
WA			yes
WV			
WI			yes
WY			

\*Indicates a mandate requiring (rather than offering) vaccination.

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# Are You at Risk for Hepatitis A?

The following questions will help us determine your risk for hepatitis A virus infection. Please check the boxes that apply to you. If you prefer not to answer personal questions in writing, let your health care provider know if one or more of the following risk factors applies to you. Your health care provider will advise you on hepatitis A testing and vaccination.



- |  | Yes                      | No                       | Not sure                 |
|--|--------------------------|--------------------------|--------------------------|
| 1. Do you believe you've been exposed to hepatitis A in the past 2 weeks? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Have you ever been told you have hepatitis or liver disease? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Do you travel or work in areas outside the United States where hepatitis A is a problem? (This includes everywhere except Australia, New Zealand, Western Europe, Japan, and Canada.) ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Do you have a blood clotting factor disorder? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do you live in a community where cases of hepatitis A are occurring?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Are you a Native American or an Alaska Native?.....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Do you live or work on a reservation?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. If you are a man, do you have sex with other men? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Do you engage in anal pleasuring with your partner (licking or fingering the anus)? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Do you inject or snort illegal drugs? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

# Are You at Risk for Hepatitis B?

The following questions will help us determine your risk for hepatitis B virus infection. Please check the boxes as they apply to you. If you prefer not to answer personal questions in writing, let your health care provider know if one or more of the following risk factors applies to you. Your health care provider will advise you on hepatitis B testing, vaccination, and/or treatment.



**Yes      No      Not sure**

- |  |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|
| 1. Have you ever been told you have hepatitis? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Have you traveled or do you plan to travel for 3 months or more to a place where hepatitis B is common (Asia, Africa, Middle East, Eastern Europe, Amazon Basin of South America, Pacific Islands)? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Were you or your parents born in an area of the world where hepatitis B is common, or are your parents Alaska Natives? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Was your mother infected with hepatitis B virus when you were born? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Have you ever lived with a person who has hepatitis B virus infection? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Have you come in direct contact with the blood of another person? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Have you worked in health care or another occupation where you might have come in contact with someone else's blood or body fluids? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Have you provided services for or lived in a home for people with developmental disabilities? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Do you have hemophilia, have you had kidney dialysis, or did you receive a blood transfusion prior to 1975? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Have you ever had a tattoo or body piercing? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Have you ever been in prison? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Are you concerned that you might have been exposed to a sexually transmitted disease?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Have you or your sex partner ever had a sexually transmitted disease or hepatitis B? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Have you had more than one sex partner during a six-month period? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Are you a man who has sex with other men? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. How many sex partners have you had in your lifetime?   |                          |                          |                          |
| 0            1            2            3-5            6-20            more than 20   |                          |                          |                          |
| 17. Have you or your sex partner ever injected illegal drugs? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Have you ever shared equipment (needles, syringes, cotton, water, etc.) when injecting drugs with someone else? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Have you ever been vaccinated against hepatitis B? If so, when? _____  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## Are You at Risk for Hepatitis C?

The following questions will help us determine your risk for hepatitis C virus infection. Please check the boxes as they apply to you. If you prefer not to answer personal questions in writing, let your health care provider know if one or more of the following risk factors applies to you. Your health care provider will advise you on hepatitis C testing and/or treatment.



- |   | Yes                      | No                       | Not sure                 |
|---|--------------------------|--------------------------|--------------------------|
| 1. Did you receive a blood transfusion or solid organ transplant (heart, lung, liver, pancreas, kidney) before July 1992? .....                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Did you receive clotting factor concentrates produced before 1987? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Were you ever on long-term hemodialysis? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Have you had blood tests that showed a liver problem? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Have you had a needlestick injury working in a health care setting? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Did your mother have hepatitis C when you were born? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Have you shared a toothbrush, razor, or any other item that might have blood on it (visible or not) with a person who has hepatitis C? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Have you had a sex partner who has hepatitis C? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Have you or your sex partner had a sexually transmitted disease? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Have you or your sex partner injected illegal drugs, even if it was only one time many years ago? .....                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

# Summary of Recommendations for Adult Immunization

Adapted from the Advisory Committee on Immunization Practices (ACIP) by the Immunization Action Coalition with review by ad hoc team, April 2001

Vaccine name and route	For whom it is recommended	Schedule for routine and “catch-up” administration	Contraindications (mild illness is not a contraindication)
<p><b>Influenza</b></p> <p>Give IM</p>	<ul style="list-style-type: none"> <li>Adults who are 50yrs of age or older.</li> <li>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.</li> <li>People (≥6m of age) working or living with at-risk people.</li> <li>All health care workers and those who provide key community services.</li> <li>Healthy pregnant women who will be in their 2nd or 3rd trimesters during influenza season.</li> <li>Pregnant women who have underlying medical conditions should be vaccinated before influenza season, regardless of the stage of pregnancy.</li> <li>Travelers to areas where influenza activity exists or when traveling among people from areas of the world where there is current influenza activity.</li> <li>Anyone who wishes to reduce the likelihood of becoming ill with influenza.</li> </ul>	<ul style="list-style-type: none"> <li>Given every year.</li> <li>October through November is the <i>optimal</i> time to receive an annual flu shot to maximize protection.</li> <li>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.</li> <li>May give with all other vaccines but as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> Pregnancy and breastfeeding are not contraindications to the use of this vaccine.</p>
<p><b>Pneumococcal polysaccharide (PPV23)</b></p> <p>Give IM or SC</p>	<ul style="list-style-type: none"> <li>Adults who are 65yrs of age or older.</li> <li>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 or 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.</li> </ul>	<ul style="list-style-type: none"> <li>Routinely given as a one-time dose; administer if previous vaccination history is unknown.</li> <li>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.</li> <li>May give with all other vaccines but as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> Pregnancy and breastfeeding are not contraindications to the use of this vaccine.</p>
<p><b>Hepatitis B (Hep-B)</b></p> <p>Give IM</p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> <li>All adolescents.</li> <li>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.</li> </ul> <p><b>Note:</b> Prior serologic testing may be recommended depending on the specific level of risk and/or likelihood of previous exposure. <b>Note:</b> 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. <b>Ed. note:</b> 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.</p>	<ul style="list-style-type: none"> <li>Three doses are needed on a 0, 1, 6m schedule.</li> <li>Alternative timing options for vaccination include: 0, 2, 4m 0, 1, 4m</li> <li>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.</li> <li><b>Schedule for those who have fallen behind:</b> If the series is delayed between doses, DO NOT start the series over. Continue from where you left off.</li> <li>May give with all other vaccines but as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> Pregnancy and breastfeeding are not contraindications to the use of this vaccine.</p>
<p><b>Hepatitis A (Hep-A)</b></p> <p>Give IM</p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> <li>People who travel outside of the U.S. (except for Western Europe, New Zealand, Australia, Canada, and Japan).</li> <li>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.</li> </ul> <p><b>Note:</b> Prevacination testing is likely to be cost effective for persons &gt;40yrs of age 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"> <li>Two doses are needed.</li> <li>The minimum interval between dose #1 and #2 is 6m.</li> <li>If dose #2 is delayed, do not repeat dose #1. Just give dose #2.</li> <li>May give with all other vaccines but as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Moderate or severe acute illness.</li> <li>Safety during pregnancy has not been determined, so benefits must be weighed against potential risk.</li> </ul> <p><b>Note:</b> Breastfeeding is not a contraindication to the use of this vaccine.</p>

For specific ACIP immunization recommendations refer to the statements which are published in the *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](http://www.cdc.gov/nip/publications/ACIP-list.htm) or visit IAC’s website: [www.immunize.org/acip](http://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](http://www.immunize.org/adultrules) to make sure you have the most current version. The Coalition thanks William Atkinson, MD, MPH; Beth Bell, MD; Judith Coates, RN, FNP; Anthony

Fiore, MD; Stanley Gall, MD; Pierce Gardner, MD; John Grabenstein, RPh, PhD; Neal Holtan, MD, MPH; Aisha Jumaan, PhD, MPH; Margaret Keane; Anne Kuettel, PHN; Margaret Morrison, MD; Linda Moyer, RN; Diane Peterson; Greg Poland, MD; Fred Ruben, MD; William Schaffner, MD; Jane Seward, MBBS; Thomas Vernon, MD; and Rick Zimmerman, MD, MPH, for their comments on 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](mailto:admin@immunize.org)

## 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)
<p><b>Td</b> (Tetanus, diphtheria)</p> <p>Give IM</p>	<ul style="list-style-type: none"> <li>All adolescents and adults.</li> <li>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.</li> <li>A booster dose as early as 5yrs later may be needed for the purpose of wound management, so consult ACIP recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>Give booster dose every 10yrs after the primary series has been completed.</li> <li>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.</li> <li>May give with all other vaccines but as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic or neurologic reaction to this vaccine or to any of its components.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> Pregnancy and breastfeeding are not contraindications to the use of this vaccine.</p>
<p><b>MMR</b> (Measles, mumps, rubella)</p> <p>Give SC</p>	<ul style="list-style-type: none"> <li>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 1st birthday.</li> <li>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.</li> <li>Adults born before 1957 are usually considered immune but proof of immunity may be desirable for health care workers.</li> <li>All women of childbearing age (i.e., adolescent girls and premenopausal adult women) who do not have acceptable evidence of rubella immunity or vaccination.</li> <li>Special attention should be given to immunizing women born outside the United States in 1957 or later.</li> </ul>	<ul style="list-style-type: none"> <li>One or two doses are needed.</li> <li>If dose #2 is recommended, give it no sooner than 4wks after dose #1.</li> <li>May be given with all other vaccines but as a separate injection.</li> <li>If varicella vaccine and MMR are both needed and are not administered on the same day, space them at least 4wks apart.</li> <li>If a pregnant woman is found to be rubella-susceptible, administer MMR postpartum.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine, or to any of its components.</li> <li>Pregnancy or possibility of pregnancy within 3 months (use contraception).</li> </ul> <p><b>Note:</b> Breastfeeding is not a contraindication to the use of this vaccine.</p> <ul style="list-style-type: none"> <li>HIV positivity is NOT a contraindication to MMR except for those who are severely immunocompromised.</li> <li>Persons immunocompromised due to cancer, leukemia, lymphoma, immunosuppressive drug therapy, including high-dose steroids or radiation therapy.</li> <li>If blood products or immune globulin have been administered during the past 11 months, consult the ACIP recommendations regarding time to wait before vaccinating.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> 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.</p>
<p><b>Varicella</b> (Var) (Chickenpox)</p> <p>Give SC</p>	<p>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).</p> <p><b>Note:</b> 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.</p>	<ul style="list-style-type: none"> <li>Two doses are needed.</li> <li>Dose #2 is given 4–8wks after dose #1.</li> <li>May be given with all other vaccines but as a separate injection.</li> <li>If varicella vaccine and MMR are both needed and are not administered on the same day, space them at least 4wks apart.</li> <li>If the second dose is delayed, do not repeat dose #1. Just give dose #2.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Pregnancy, or possibility of pregnancy within 1 month.</li> <li>Immunocompromised persons due to malignancies and primary or acquired cellular immunodeficiency including HIV/AIDS. (See <i>MMWR</i> 1999, Vol. 28, No. RR-6.) <b>Note:</b> For those on high dose immunosuppressive therapy, consult ACIP recommendations regarding delay time.</li> <li>If blood products or immune globulin have been administered during the past 5m, consult the ACIP recommendations regarding time to wait before vaccinating.</li> <li>Moderate or severe acute illness.</li> </ul> <p><b>Note:</b> Breastfeeding is not a contraindication to the use of this vaccine.</p> <p><b>Note:</b> Manufacturer recommends that salicylates be avoided for 6wks after receiving varicella vaccine because of a theoretical risk of Reye’s syndrome.</p>
<p><b>Polio</b> (IPV)</p> <p>Give IM or SC</p>	<p>Not routinely recommended for persons 18yrs of age and older.</p> <p><b>Note:</b> 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.</p>	<ul style="list-style-type: none"> <li>Refer to ACIP recommendations regarding unique situations, schedules, and dosing information.</li> <li>May be given with all other vaccines as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to ACIP recommendations.</li> </ul>
<p><b>Lyme disease</b></p> <p>Give IM</p>	<ul style="list-style-type: none"> <li>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.</li> <li>Persons with a history of previous uncomplicated Lyme disease who are at continued high risk for Lyme disease. (See description in the first bullet.)</li> <li>See ACIP statement for a definition of high and moderate risk.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>If given with other vaccines, give as a separate injection.</li> </ul>	<ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Pregnancy.</li> <li>Moderate or severe acute illness.</li> <li>Persons with treatment-resistant Lyme arthritis.</li> <li>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, chronic health conditions due to Lyme disease.</li> </ul>
<p><b>Mening.</b></p>	<p>Meningococcal disease risk and vaccine availability should be discussed with college students. Give SC. Consult the ACIP statement <i>Meningococcal Disease and College Students</i> (6/30/00) for details.</p>		



history of chickenpox). Children adopted from outside the U.S. and political refugees are exempt from these requirements. Persons entering the U.S. as visitors are not required to provide proof of vaccination regardless of the length of stay.

**What should one do when the vaccine package insert does not agree with the ACIP recommendations?**

ACIP recommendations occasionally differ from those on the manufacturer's package insert. Usually, package insert information is somewhat more conservative than ACIP recommendations. The FDA has strict requirements for information the manufacturer may include on the package insert. ACIP sometimes makes recommendations based on expert opinion and public health considerations. Published recommendations of national advisory groups (such as ACIP or AAP's Committee on Infectious Diseases) should be considered equally as authoritative as those on the package insert.

**For patients undergoing bone marrow transplantation, are there special vaccine recommendations?**

In Oct. 2000, CDC, the Infectious Diseases Society of America, and the American Society of Blood and Marrow Transplantation jointly published comprehensive guidelines for the prevention of opportunistic infections among recipients of hematopoietic stem cell (HSC) transplants, which includes bone marrow transplants. (*MMWR* 2000; 49 [RR-10]). These guidelines include vaccination recommendations (see CDC's website at [www.cdc.gov/nip/publications/HSCTrans.pdf](http://www.cdc.gov/nip/publications/HSCTrans.pdf)). In short, all HSC transplant recipients should be revaccinated. Influenza vaccination should begin ≥6 months following the transplant and annually thereafter. Inactivated vaccines and toxoids (diphtheria, tetanus, Hib, polio for all persons; pertussis included for children <7 years) should begin 12 months after the transplant. Immunocompetent persons should receive MMR 24 months after transplant. Varicella and pneumococcal conjugate vaccines are not currently recommended for HSC transplant recipients.

## Tetanus, diphtheria

by William L. Atkinson, MD, MPH

**Because of the Td vaccine shortage, we are unable to get Td vaccine. Would it be okay to use pediatric DT or DTaP?**

Pediatric DT and DTaP are not approved by FDA for use in persons ≥7 years of age. These vaccines should not be used in lieu of adult Td. If adult Td is not available, single antigen tetanus toxoid (TT) should be used.

**When should adolescents and adults receive Td vaccine boosters?**

The first routine booster dose of adult Td should be given at 11–12 years of age, if at least 5 years have elapsed since the previous dose of DTaP, DT,

or Td. Thereafter, booster doses of Td should be routinely administered every 10 years.

**When should a person receive tetanus toxoid (TT) alone and NOT tetanus and diphtheria toxoids (Td) combined?**

Single antigen TT should be used only if a person has had a documented severe allergic response to diphtheria toxoid or if the combined adult Td vaccine is not available.

## Varicella

by William L. Atkinson, MD, MPH

**Who should be offered varicella vaccine?**

Any person of any age who has not had chickenpox and does not have a valid contraindication should be vaccinated. All persons (including staff) in all medical practices should have documentation on their records that they have either had the disease or have been vaccinated.

**Is waning immunity a problem with varicella vaccine?**

Waning immunity does not appear to be a significant problem with varicella vaccine. The duration of protection from any vaccine is never known when it is first introduced. Data from children vaccinated in prelicensure clinical trials indicate that protection from varicella vaccine lasts for at least 25 years (Japanese data) and 14 years (U.S. data). Experience with other live viral vaccines (e.g., measles, rubella) has shown that immunity remains intact throughout life. Studies will continue to evaluate the duration of protection from varicella vaccination in childhood.

## Measles, mumps, rubella

by William L. Atkinson, MD, MPH

**If a new employee in a health care setting cannot produce documentation of receiving any dose of MMR, what should be done?**

Persons born in or after 1957 who work in health care facilities of any kind and cannot document prior vaccination should receive two doses of MMR separated by at least 4 weeks. Alternatively, serologic testing could determine if the person is immune to measles and rubella. Persons born before 1957 are generally considered immune to measles. However, ACIP recommends that at least one dose of MMR be considered for persons in this age group who do not have documentation of a measles-containing vaccination, history of physician-diagnosed measles, or laboratory evidence of measles and rubella immunity.

## Influenza

by William L. Atkinson, MD, MPH

**Do diabetics who control their disease with diet need influenza vaccine?**

People who needed regular medical followup or who were hospitalized for diabetes during the

previous year should receive annual influenza vaccine. All people 50 years of age and older should receive annual influenza vaccination regardless of the presence of chronic disease.

**Should influenza vaccine be given on a separate visit from other vaccines?**

No. Influenza vaccine can be given simultaneously with, or at any time before or after, any other vaccine.

**How long does immunity from influenza vaccine last?**

Protection from influenza vaccine is thought to persist for a year or less because of waning antibody and because of changes in the circulating influenza virus from year to year.

**In which month is it too late to receive influenza vaccine?**

Influenza vaccine can be administered whenever influenza is present in the community (generally through the end of March). For maximum protection, flu vaccine should be administered during October through mid-November, prior to the onset of influenza season.

## Pneumo poly vaccine (PPV23)

by William L. Atkinson, MD, MPH

**I've heard pneumococcal vaccine (PPV23) isn't very effective. Should I use it?**

Yes. PPV23 vaccine is 60–80% effective against invasive pneumococcal disease when it is given to immunocompetent persons ≥65 years of age or people with chronic illnesses. The vaccine is less effective in immunodeficient people. So, although PPV23 is not as effective as some other vaccines, it can significantly lower the risk of serious pneumococcal disease and its complications in most recipients.

**Are smokers at increased risk for pneumococcal disease? Should they be vaccinated?**

A recent study identified cigarette smoking as a strong independent risk factor for invasive pneumococcal disease among immunocompetent nonelderly adults (Nuorti et al. *NEJM* 342 [10]:

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681–9). However, ACIP does not currently recommend routine pneumococcal vaccination for people just because they smoke. People who smoke (sooner or later) develop chronic obstructive lung disease, heart disease, and/or various types of cancer. When end organ damage occurs, the person becomes a candidate for pneumococcal polysaccharide vaccine.

## Meningococcal disease

by William L. Atkinson, MD, MPH

### Which college students should receive meningococcal vaccine?

Routine meningococcal vaccination is recommended for college students (and other people 2 years of age and older) who have functional or anatomic asplenia or terminal complement component deficiency. College freshmen who reside in dormitories are at modestly increased risk of meningococcal disease compared to other persons of the same age. ACIP recommends that providers inform college freshmen of this increased risk and the availability of a vaccine. Providers are encouraged to administer the vaccine to college students who wish to reduce their risk, or to direct the student to a site where the vaccine is available.

## Hepatitis B

by Harold Margolis, MD, and Linda Moyer, RN

### Is it safe to give hepatitis B vaccine to a pregnant woman?

Yes. Hepatitis B vaccination has not been shown to have an adverse effect on the developing fetus. Hepatitis B vaccine contains no components that have been shown to pose a risk to the fetus at any time during gestation. If the mother is being vaccinated because she is at risk for HBV infection (e.g., a health care worker, a person with a sexually transmitted disease, an injection drug user), vaccination should be initiated as soon as her risk factor is identified during the pregnancy. The *in utero* or perinatal risk of infection to the fetus or newborn is greater than any theoretical risk of vaccination.

### Do you have patients who are HBsAg-positive?

They need medical monitoring and may 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.

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

Editor's note: See column three 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.

## Hepatitis A

by Harold Margolis, MD, and Linda Moyer, RN

### Please tell me the age ranges for adult hepatitis A vaccine formulations.

Adult formulations for GlaxoSmithKline's Havrix and Merck's Vaqta hepatitis A vaccines are licensed for administration to persons 19 years of age and older.

### Will one dose of hepatitis A vaccine protect a person who is unable to receive dose #2 before travel to a hepatitis A endemic country?

The immunogenicity of one dose of hepatitis A vaccine is 94–100%. Immunogenicity is considered to be equal to efficacy. As long as dose #1 is given at least 4 weeks prior to travel, the person should be protected. The second dose is necessary to assure long-term protection. For adult formulations, the second dose should be administered 6–12 months after dose #1. If the second dose is delayed, do not start the series over again.

## Hepatitis A and B lab tests

### 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 virus infection.

### 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. ♦

# Adult Resources

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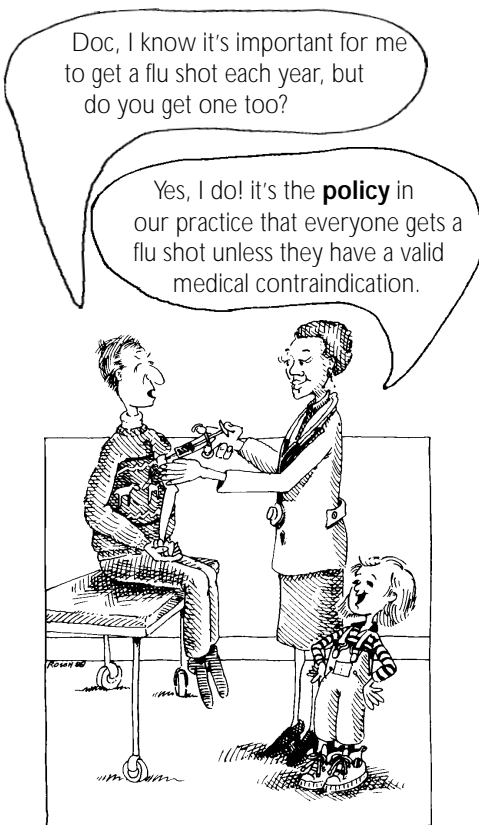
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# Health professionals can spread disease. Make sure you're vaccinated!



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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
- Chiron Vaccines
- GlaxoSmithKline
- Medical Arts Press
- Merck & Co.
- Nabi
- Wyeth Lederle Vaccines

IAC receives funding from a variety of sources, both public and private, and maintains strict editorial independence.

Dear Colleagues,

If you're like most people who work in medicine, your patients' well-being is of primary concern to you. Yet every year more than 200,000 MDs and RNs needlessly expose their patients to the influenza virus. Are you one of them?

According to CDC, only 34% of MDs and RNs get vaccinated annually against influenza. This means that over 2.3 million MDs and RNs are unvaccinated and at risk not only for contracting influenza but also for passing it on to others. On average, 20,000 people die annually in the U.S. from influenza or its complications. Some of these cases are unwittingly passed from health professionals to their patients.

Why are so many of us unvaccinated? According to surveys, here are some reasons:

### 1. I don't get sick and I never get influenza.

About 10–25% of people get influenza each year, and health professionals are not exempt. Many of us develop only mild symptoms of the disease, so we often don't get a florid influenza syndrome. But even with minimal symptoms, we can still transmit the full-blown illness to our patients. Health professionals are notorious for going to work even when sick. With mild illness—scratchy throats, muscle aches—we talk with patients, check blood pressures, examine throats. We breathe the air. We infect others with respiratory viruses.

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

If you are a healthy person under the age of 50, you might not be in an influenza risk group, but as a health professional, you put other people at risk. Unvaccinated health care workers put hundreds of others at risk for influenza. Our patients can get infected, need to be hospitalized, and even die from influenza. The only acceptable reason for your not being vaccinated is a valid medical contraindication. By not getting vaccinated against influenza, you endanger the lives of others.

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

No time? Plan ahead to make the time next fall. Make influenza vaccination a priority for all the employees in your practice or hospital. Establish a system so that everyone is vaccinated against influenza free of charge every year and no one forgets.

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

The most common side effect from influenza vaccine is arm soreness. Two recent studies demonstrated that influenza vaccine caused no significant difference in systemic side effects (fever, headache, fatigue, myalgias) when compared to placebo injection. (Margolis, KL et al., *JAMA*. 1990; 264: 1339–1141. Nichol, KL et al., *Arch Intern Med*. 1996;156:1546–1550.)

All clinics, hospitals, and long-term care facilities should require that their employees receive influenza vaccine and provide it free of charge. While the investment may seem high, in the long run, it often offers a cost savings to society and **it saves lives**. If your facility doesn't have a system in place to vaccinate all staff members, now is the time to start planning.

Make sure you get vaccinated every year and that all staff members in your facility do too. Make it a requirement. Once a year. It's so simple. And it's lifesaving. After all, isn't this what medicine is all about?

Deborah L. Wexler, MD  
Executive Director

## Immunization Action Coalition

### VACCINATE ADULTS!

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