



2014 Adult Immunization Schedule

IMMUNIZATION PROGRAM

www.publichealth.lacounty.gov/ip

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2014 Adult Immunization Schedule Training Materials

<http://publichealth.lacounty.gov/ip/trainconf/Adult-InService.htm>



Courtesy & Disclosure Statement

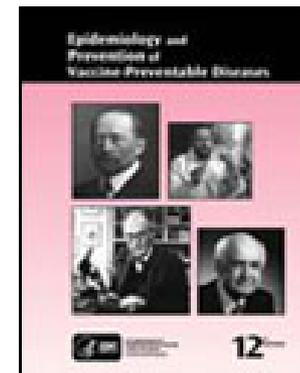


~The speaker has disclosed that there is NO financial interests related to the content of this presentation (see evaluation form)

Learning Objectives:



1. Explain two configurations used to interpret the immunization recommendations on the 2014 adult schedule.
2. List four immunizations for adults that are recommended by the Advisory Committee on Immunization Practices (ACIP)
3. State three major high-risk medical indications for adult vaccine administration.
4. List two major reasons Healthcare Personnel (HCP) are recommended for vaccination.
5. Identify two primary indications for immunizing ethnically diverse adults, age 19 years and older in Los Angeles County.





Why Do Adults Need Immunizations?

Why Are IZs & Infectious Diseases Important?

- Some adults incorrectly assume that immunizations received as a child will protect them for life. **NO!**
 - Some adults were *never* vaccinated as children or **not** completely immunized.
 - Newer vaccine were not available when many adults were children
 - Immunity can begin to fade over time.
 - As we age we're more susceptible to serious VPDs (e.g. flu, pertussis, pneumococcal, zoster, etc).
- VPDs still occur in the U.S.A.
 - Viral Hepatitis, flu, TB remain the leading causes of illness/death; account for substantial spending on the VPDs.
 - VPD surveillance at Federal, State & local levels is an essential tool to fight against new/emerging/re-emerging infectious diseases.
 - Important defenses are vaccines, antibiotics; screening/testing guideline
 - Vaccines are among the most cost-effective clinical preventive services.



**Please Pull Out the
2014 Recommended Adult
Immunization (IZ) Schedule
Provided for Review...**



Recommended Adult Immunization Schedule United States - 2014

The 2014 ACIP Adult Immunization Schedule was approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), the American College of Obstetricians and Gynecologists (ACOG), and the American College of Nurse-Midwives (ACNM). On February 3, 2014, the adult immunization schedule and a summary of changes from 2013 were published in *Annals of Internal Medicine*, and a summary of changes was published in the *MMWR* on February 7, 2014.

All clinically significant postvaccination reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Additional details regarding ACIP recommendations for each of the vaccines listed in the schedule can be found at: <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>

American Academy of Family Physicians (AAFP)

<http://www.aafp.org/home.html>

American College of Physicians (ACP)

<http://www.acponline.org/>

American College of Obstetricians and Gynecologists (ACOG)

<http://www.acog.org/>

American College of Nurse-Midwives (ACNM)

<http://www.midwife.org/>





Recommended Adult Immunization Schedule—United States - 2014

Note: These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

Figure 1. Recommended adult immunization schedule, by vaccine and age group¹

VACCINE ▼	AGE GROUP ►	19-21 years	22-26 years	27-49 years	50-59 years	60-64 years	≥ 65 years
Influenza ^{2,*}		1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap) ^{3,*}		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					
Varicella ^{4*}		2 doses					
Human papillomavirus (HPV) Female ^{5,*}		3 doses					
Human papillomavirus (HPV) Male ^{5,*}		3 doses					
Zoster ⁶						1 dose	
Measles, mumps, rubella (MMR) ^{7,*}		1 or 2 doses					
Pneumococcal 13-valent conjugate (PCV13) ^{8,*}		1 dose					
Pneumococcal polysaccharide (PPSV23) ^{9,10}		1 or 2 doses					1 dose
Meningococcal ^{11,*}		1 or more doses					
Hepatitis A ^{12,*}		2 doses					
Hepatitis B ^{13,*}		3 doses					
<i>Haemophilus influenzae</i> type b (Hib) ^{14,*}		1 or 3 doses					

*Covered by the Vaccine Injury Compensation Program

- For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster
- Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indication)
- No recommendation

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. - 8:00 p.m. Eastern Time, Monday - Friday, excluding holidays.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG) and American College of Nurse-Midwives (ACNM).



Figure 2. Vaccines that might be indicated for adults based on medical and other indications¹

VACCINE ▼	INDICATION ►	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]) ^{4,6,7,8,15}	HIV infection CD4+ T lymphocyte count ^{4,6,7,8,15}		Men who have sex with men (MSM)	Kidney failure, end-stage renal disease, receipt of hemodialysis	Heart disease, chronic lung disease, chronic alcoholism	Asplenia (including elective splenectomy and persistent complement deficiencies) ^{8,14}	Chronic liver disease	Diabetes	Healthcare personnel
				< 200 cells/μL	≥ 200 cells/μL							
Influenza ^{2,*}				1 dose IIV annually		1 dose IIV or LAIV annually		1 dose IIV annually				1 dose IIV or LAIV annually
Tetanus, diphtheria, pertussis (Td/Tdap) ^{3,*}		1 dose Tdap each pregnancy		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs								
Varicella ^{4,*}			Contraindicated		2 doses							
Human papillomavirus (HPV) Female ^{5,*}				3 doses through age 26 yrs			3 doses through age 26 yrs					
Human papillomavirus (HPV) Male ^{5,*}				3 doses through age 26 yrs			3 doses through age 21 yrs					
Zoster ⁶			Contraindicated		1 dose							
Measles, mumps, rubella (MMR) ^{7,*}			Contraindicated	1 or 2 doses								
Pneumococcal 13-valent conjugate (PCV13) ^{8,*}							1 dose					
Pneumococcal polysaccharide (PPSV23) ^{9,10}							1 or 2 doses					
Meningococcal ^{11,*}						1 or more doses						
Hepatitis A ^{12,*}							2 doses					
Hepatitis B ^{13,*}							3 doses					
<i>Haemophilus influenzae</i> type b (Hib) ^{14,*}				post-HSCT recipients only		1 or 3 doses						

*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

No recommendation



These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of February 1, 2014. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/hcp/acip-recs/index.html). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.



Footnotes

Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014

1. Additional information

- Additional guidance for the use of the vaccines described in this supplement is available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- Information on vaccination recommendations when vaccination status is unknown and other general immunization information can be found in the General Recommendations for Immunization at www.cdc.gov/mmwr/preview/mmwrhtml/r6002a1.htm.
- Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) is available at <http://wwwnc.cdc.gov/travel/destinations/list>.

2. Influenza vaccination

- Annual vaccination against influenza is recommended for all persons aged 6 months or older.
- Persons aged 6 months or older, including pregnant women and persons with HIV, only allergy to eggs, can receive the inactivated influenza vaccine (IIV). An age-appropriate IIV formulation should be used.
- Adults aged 18 to 49 years can receive the recombinant influenza vaccine (rIV) (FluBlok). rIV does not contain any egg protein.
- Healthy, nonpregnant persons aged 2 to 49 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or IIV. Health care personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive IIV or rIV rather than LAIV.
- The intramuscularly or intradermally administered IIV are options for adults aged 18 to 64 years.
- Adults aged 65 years or older can receive the standard-dose IIV or the high-dose IIV (Fluzone High-Dose).

3. Tetanus, diphtheria, and acellular pertussis (Tdap) vaccination

- Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferred during 27 to 36 weeks' gestation) regardless of interval since prior Td or Tdap vaccination.
- Persons aged 11 years or older who have not received Tdap vaccine or for whom vital status is unknown should receive a dose of Tdap followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter. Tdap can be administered regardless of interval since the most recent tetanus or diphtheria-toxoid containing vaccine.
- Adults with an unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete primary vaccination series including a Tdap dose.
- For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6 to 12 months after the second.
- For incompletely vaccinated (i.e., less than 3 doses) adults, administer remaining doses.
- Refer to the ACP statement for recommendations for administering Td/Tdap as prophylaxis in wound management (see footnote 1).

4. Varicella vaccination

- All adults without evidence of immunity to varicella (as defined below) should receive 2 doses of single-antigen varicella vaccine or a second dose if they have received only 1 dose.
- Vaccination should be emphasized for those who have close contact with persons at high risk for severe disease (e.g., health care personnel and family contacts of persons with immunocompromising conditions) or are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).
- Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health care facility. The second dose should be administered 4 to 8 weeks after the first dose.
- Evidence of immunity to varicella in adults includes any of the following:
 - documentation of 2 doses of varicella vaccine at least 4 weeks apart;
 - US-born before 1980, except health care personnel and pregnant women;
 - history of varicella based on diagnosis or verification of varicella disease by a health care provider;
 - history of herpes zoster based on diagnosis or verification of herpes zoster disease by a health care provider; or
 - laboratory evidence of immunity or laboratory confirmation of disease.

5. Human papillomavirus (HPV) vaccination

- Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).
- For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 26 years, if not previously vaccinated.
- For males, HPV4 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 21 years, if not previously vaccinated. Males aged 22 through 26 years may be vaccinated.

5. Human papillomavirus (HPV) vaccination (cont'd)

- HPV4 is recommended for men who have sex with men through age 26 years for those who did not get any or all doses when they were younger.
- Vaccination is recommended for immunocompromised persons (including those with HIV infection) through age 26 years for those who did not get any or all doses when they were younger.
- A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 4 to 8 weeks (minimum interval of 4 weeks) after the first dose; the third dose should be administered 24 weeks after the first dose and 16 weeks after the second dose (minimum interval of at least 12 weeks).
- HPV vaccines are not recommended for use in pregnant women. However, pregnancy testing is not needed before vaccination. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remainder of the 3-dose series should be delayed until completion of pregnancy.

6. Zoster vaccination

- A single dose of zoster vaccine is recommended for adults aged 60 years or older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends that vaccination begin at age 60 years.
- Persons aged 50 years or older with chronic medical conditions may be vaccinated if their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.

7. Measles, mumps, rubella (MMR) vaccination

- Adults born before 1957 are generally considered immune to measles and mumps. All adults born in 1957 or later should have documentation of 1 or more doses of MMR vaccine unless they have a medical contraindication to the vaccine or laboratory evidence of immunity to each of the three diseases. Documentation of provider-diagnosed disease is not considered acceptable evidence of immunity for measles, mumps, or rubella.
- Measles component:**
 - A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:
 - are students in postsecondary educational institutions;
 - work in a health care facility; or
 - plan to travel internationally.
 - Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type during 1963–1967 should be revaccinated with 2 doses of MMR vaccine.
- Mumps component:**
 - A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:
 - are students in a postsecondary educational institution;
 - work in a health care facility; or
 - plan to travel internationally.
 - Persons vaccinated before 1979 with either killed mumps vaccine or mumps vaccine of unknown type who are at high risk for mumps infection (e.g., persons who are working in a health care facility) should be considered for revaccination with 2 doses of MMR vaccine.

Rubella component:

- For women of childbearing age, regardless of birth year, rubella immunity should be determined. If there is no evidence of immunity, women who are not pregnant should be vaccinated. Pregnant women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the health care facility.
- Health care personnel born before 1957:**
 - For unvaccinated health care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health care facilities should consider vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

8. Pneumococcal conjugate (PCV13) vaccination

- Adults aged 19 years or older with immunocompromising conditions (including chronic renal failure and nephrotic syndrome), functional or anatomic asplenia, cerebrospinal fluid leaks, or cochlear implants who have not previously received PCV13 or PPSV23 should receive a single dose of PCV13 followed by a dose of PPSV23 at least 8 weeks later.
- Adults aged 19 years or older with the aforementioned conditions who have previously received 1 or more doses of PPSV23 should receive a dose of PCV13 one or more years after the last PPSV23 dose was received. For adults who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years after the most recent dose of PPSV23.
- When indicated, PCV13 should be administered to patients who are uncertain of their vaccination status history and have no record of previous vaccination.
- Although PCV13 is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends PCV13 for adults aged 19 years or older with the specific medical conditions noted above.

9. Pneumococcal polysaccharide (PPSV23) vaccination

- When PCV13 is indicated, PCV13 should be given first (see footnote 8).
- Vaccinate all persons with the following indications:
 - all adults aged 65 years or older;
 - adults younger than 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma), chronic cardiovascular diseases, diabetes mellitus, chronic renal failure, nephrotic syndrome, chronic liver disease (including cirrhosis), alcoholism, cochlear implants, cerebrospinal fluid leaks, immunocompromising conditions, and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);
 - residents of nursing homes or long-term care facilities; and
 - adults who smoke cigarettes.
- Persons with immunocompromising conditions and other selected conditions are recommended to receive PCV13 and PPSV23 vaccines. See footnote 8 for information on timing of PCV13 and PPSV23 vaccinations.
- Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.
- When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
- Routine use of PPSV23 vaccine is not recommended for American Indians/Alaska Natives or other persons aged 65 years or older unless they have underlying medical conditions that are PPSV23 indications. However, public health authorities may consider recommending PPSV23 for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.
- When indicated, PPSV23 vaccine should be administered to patients who are uncertain of their vaccination status and have no record of vaccination.

10. Revaccination with PPSV23

- One-time revaccination 5 years after the first dose of PPSV23 is recommended for persons aged 65 years or older with chronic renal failure or nephrotic syndrome, functional or anatomic asplenia (e.g., sickle cell disease or splenectomy), or immunocompromising conditions.
- Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses of PPSV23 are needed for persons vaccinated with PPSV23 at or after age 65 years.

11. Meningococcal vaccination

- Administer 2 doses of quadrivalent meningococcal conjugate vaccine (MenACWY-D [Menactra]) at least 2 months apart to adults of all ages with functional asplenia or persistent complement component deficiencies. HIV infection is not an indication for routine vaccination with MenACWY-D. If an HIV-infected person of any age is vaccinated, 2 doses of MenACWY-D should be administered at least 2 months apart.
- Administer a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of *Neisseria meningitidis*, military recruits, persons at risk during an outbreak attributable to a vaccine serogroup, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.
- First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
- MenACWY-D is preferred for adults with any of the preceding indications who are aged 55 years or younger as well as for adults aged 56 years or older who a) were vaccinated previously with MenACWY-D and are recommended for revaccination, or b) for whom multiple doses are anticipated. Meningococcal polysaccharide vaccine (MenACWY-CRM [Menveo]) is preferred for adults aged 56 years or older who have not received MenACWY-D previously and who require a single dose only (e.g., travelers).
- Revaccination with MenACWY-D every 5 years is recommended for adults previously vaccinated with MenACWY-D or MenACWY-CRM who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia, persistent complement component deficiencies, or microbiologists).

12. Hepatitis A vaccination

- Vaccinate any persons seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:
 - men who have sex with men and persons who use injection or non-injection illicit drugs;
 - persons working with HAV-infected primates or with HAV in a research laboratory setting;
 - persons with chronic liver disease and persons who receive clotting factor concentrates;
 - persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and

12. Hepatitis A vaccination (cont'd)

- unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. (See footnote 1 for more information on travel recommendations.) The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally 2 to 8 weeks before the arrival of the adoptee.
- Single-antigen vaccine formulations should be administered in a 2-dose schedule at 0 and 6 to 12 months (Havrix), or 0 and 6 to 18 months (Vaqta). If the combined hepatitis A and hepatitis B vaccine (Twinnix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule may be used, administered on days 0, 7, and 21 to 30 followed by a booster dose at month 12.

13. Hepatitis B vaccination

- Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:
 - sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than 1 sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection drug users; and men who have sex with men;
 - health care personnel and public safety workers who are potentially exposed to blood or other infectious body fluids;
 - persons with diabetes who are younger than age 60 years as soon as feasible after diagnosis or older than age 60 years at age 60 years or older at the discretion of the treating clinician based on the likelihood of acquiring HBV infection, including the risk posed by an increased need for assisted blood glucose monitoring in long-term care facilities; the likelihood of experiencing chronic sequelae if infected with HBV; and the likelihood of HBV response to vaccination;
 - persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection, and persons with chronic liver disease;
 - household contacts and sex partners of hepatitis B surface antigen-positive persons, clients and staff members of institutions for persons with developmental disabilities, and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and
 - all adults in the following settings: STD treatment facilities, HIV testing and treatment facilities, facilities providing drug abuse treatment and prevention services, health care settings targeting services to injection drug users or men who have sex with men, correctional facilities, end-stage renal disease programs and facilities for chronic hemodialysis patients, and institutions and nonresidential day care facilities for persons with developmental disabilities.
- Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. The second dose should be administered 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinnix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinnix schedule, administered on days 0, 7, and 21 to 30 followed by a booster dose at month 12 may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 mcq/mL (Recombivax HB) administered on a 3-dose schedule at 0, 1, and 6 months or 2 doses of 20 mcq/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

14. Haemophilus influenzae type b (Hib) vaccination

- One dose of Hib vaccine should be administered to persons who have functional or anatomic asplenia or sickle cell disease or are undergoing elective splenectomy if they have not previously received Hib vaccine. Hib vaccination 14 or more days before splenectomy is suggested.
- Recipients of a hematopoietic stem cell transplant should be vaccinated with a 3-dose regimen 6 to 12 months after a successful transplant, regardless of vaccination history; at least 4 weeks should separate doses.
- Hib vaccine is not recommended for adults with HIV infection since their risk for Hib infection is low.

15. Immunocompromising conditions

- Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and inactivated influenza vaccine) and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.



Immunization & Pregnancy

Vaccines help keep a pregnant woman and her growing family healthy.



Vaccine	Before pregnancy	During pregnancy	After pregnancy	Type of Vaccine
Hepatitis A	Yes, if indicated	Yes, if indicated	Yes, if indicated	Inactivated
Hepatitis B	Yes, if indicated	Yes, if indicated	Yes, if indicated	Inactivated
Human Papillomavirus (HPV)	Yes, if indicated, through 26 years of age	No, under study	Yes, if indicated, through 26 years of age	Inactivated
Influenza IIV	Yes	Yes	Yes	Inactivated
Influenza LAIV	Yes, if less than 50 years of age and healthy; avoid conception for 4 weeks	No	Yes, if less than 50 years of age and healthy; avoid conception for 4 weeks	Live
MMR	Yes, if indicated, avoid conception for 4 weeks	No	Yes, if indicated, give immediately postpartum if susceptible to rubella	Live
Meningococcal: polysaccharide conjugate	If indicated	If indicated	If indicated	Inactivated
Pneumococcal Polysaccharide	If indicated	If indicated	If indicated	Inactivated
Tdap	Yes, if indicated	Yes, vaccinate during each pregnancy ideally between 27 and 36 weeks of gestation	Yes, immediately postpartum, if not received previously	Toxoid/inactivated
Tetanus/Diphtheria Td	Yes, if indicated	Yes, if indicated, Tdap preferred	Yes, if indicated	Toxoid
Varicella	Yes, if indicated, avoid conception for 4 weeks	No	Yes, if indicated, give immediately postpartum if susceptible	Live

For information on all vaccines, including travel vaccines, use this table with www.cdc.gov/vaccines

Get an answer to your specific question by e-mailing cdcinfo@cdc.gov or calling 800-CDC-INFO (232-4636) - English or Spanish

National Center for Immunization and Respiratory Diseases
Immunization Services Division



CS228038 03/07

Immunization & Pregnancy

Vaccines help keep a pregnant woman and her growing family healthy.

Before pregnancy

Before becoming pregnant, a woman should be up-to-date on routine adult vaccines. This will help protect her and her child. Live vaccines should be given a month or more before pregnancy. Inactivated vaccines can be given before or during pregnancy, if needed.

During pregnancy

Flu Vaccine

It is safe, and very important, for a pregnant woman to receive the inactivated flu vaccine. A pregnant woman who gets the flu is at risk for serious complications and hospitalization. To learn more about preventing the flu, visit the CDC website www.cdc.gov/flu.

Tdap Vaccine

Women should get adult tetanus, diphtheria and acellular pertussis vaccine (Tdap) during each pregnancy. Ideally, the vaccine should be given between 27 and 36 weeks of pregnancy.

Travel

Many vaccine-preventable diseases, rarely seen in the United States, are still common in other parts of the world. A pregnant woman planning international travel should talk to her health professional about vaccines. Information about travel vaccines can be found at CDC's traveler's health website at www.cdc.gov/travel.

Childhood Vaccines

Pregnancy is a good time to learn about childhood vaccines. Parents-to-be can learn more about childhood vaccines from the CDC parents guide and from the child and adolescent vaccination schedules. This information can be downloaded and printed at www.cdc.gov/vaccines.

Did you know that a mother's immunity is passed along to her baby during pregnancy? This will protect the baby from some diseases during the first few months of life until the baby can get vaccinated.

After pregnancy

It is safe for a woman to receive routine vaccines right after giving birth, even while she is breastfeeding. A woman who has not received the new vaccine for the prevention of tetanus, diphtheria and pertussis (Tdap) should be vaccinated right after delivery. Vaccinating a new mother against pertussis (whooping cough) reduces the risk to her infant too. Also, a woman who is not immune to measles, mumps and rubella and/or varicella (chicken pox) should be vaccinated before leaving the hospital. If inactivated influenza vaccine was not given during pregnancy, a woman should receive it now because it will protect her infant. LAIV may be an option.

Visit CDC's website at www.cdc.gov for more information. Or get an answer to your specific question by e-mailing cdcinfo@cdc.gov or calling 800-CDC-INFO (232-4636) - English or Spanish

National Center for Immunization and Respiratory Diseases
Immunization Services Division



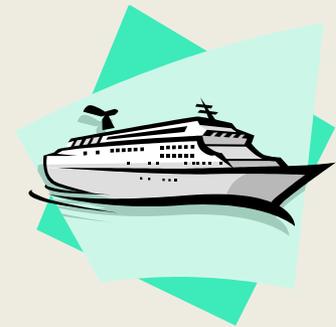
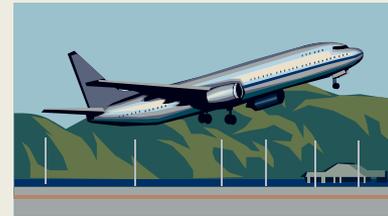
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Travelers' Health: Travel Safe. Travel Smart.

Important to get Immunized before You Travel!

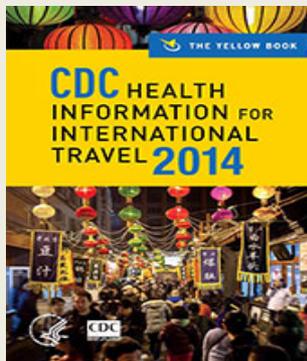
CDC Travel Health

<http://wwwnc.cdc.gov/travel>



ACIP Vaccine Recommendations

<http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>



CDC Health Information for International Travel (**commonly called *the Yellow Book***) is published every two years by CDC as a reference for those who advise international travelers about health risks. The Yellow Book is written primarily for health professionals, although others will find it useful.

<http://wwwnc.cdc.gov/travel/page/yellowbook-home-2014>



TABLE. Contraindications and precautions to commonly used vaccines in adults^{1,2}

Vaccine	Contraindications	Precautions
Influenza, inactivated vaccine (IV) ²	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IV or LAIV or to a vaccine component, including egg protein.	Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination. Persons who experience only hives with exposure to eggs may receive RIV (if age 18-49 years) or, with additional safety precautions, IV. ³
Influenza, recombinant (RIV)	Severe allergic reaction (e.g., anaphylaxis) after previous dose of RIV or to a vaccine component. RIV does not contain any egg protein. ²	Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination.
Influenza, live attenuated (LAIV) ^{2,3}	Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IV or LAIV or to a vaccine component, including egg protein. Conditions for which the Advisory Committee on Immunization Practices (ACIP) recommends against use, but which are not contraindications in vaccine package insert: immune suppression, certain chronic medical conditions (such as asthma, diabetes, heart or kidney disease), and pregnancy. ^{2,3}	Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination. Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) within 48 hours before vaccination. Avoid use of these antiviral drugs for 14 days after vaccination.
Tetanus, diphtheria, pertussis (Tdap); tetanus, diphtheria (Td)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of Tdap or diphtheria and tetanus toxoids and pertussis (DTP) or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.	Moderate or severe acute illness with or without fever. Guillain-Barré Syndrome within 6 weeks after a previous dose of tetanus toxoid-containing vaccine. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine. For pertussis-containing vaccines: progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Varicella ²	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy ⁴) or patients with human immunodeficiency virus (HIV) infection who are severely immunocompromised. Pregnancy.	Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Human papillomavirus (HPV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Zoster ¹	Severe allergic reaction (e.g., anaphylaxis) to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy ⁴) or patients with HIV infection who are severely immunocompromised. Pregnancy.	Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Measles, mumps, rubella (MMR) ¹	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy ⁴) or patients with HIV infection who are severely immunocompromised. Pregnancy.	Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). History of thrombocytopenia or thrombocytopenic purpura. Need for tuberculin skin testing. ⁵
Pneumococcal conjugate (PCV13)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including to any vaccine containing diphtheria toxoid.	Moderate or severe acute illness with or without fever.
Pneumococcal polysaccharide (PPSV23)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Meningococcal, conjugate, (MenACWY-D); meningococcal, polysaccharide (MenACWY-CRM)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Hepatitis A (HepA)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Hepatitis B (HepB)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
<i>Haemophilus influenzae</i> Type b (Hib)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.

1. Vaccine package inserts and the full ACIP recommendations for these vaccines should be consulted for additional information on vaccine-related contraindications and precautions and for more information on vaccine excipients. Events or conditions listed as precautions should be reviewed carefully. Benefits of and risks for administering a specific vaccine to a person under these circumstances should be considered. If the risk from the vaccine is believed to outweigh the benefit, the vaccine should not be administered. If the benefit of vaccination is believed to outweigh the risk, the vaccine should be administered. A contraindication is a condition in a recipient that increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present.

2. For more information on use of influenza vaccines among persons with egg allergies and a complete list of conditions that CDC considers to be reasons to avoid receiving LAIV, see CDC. Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP) – United States, 2013–14. *MMWR* 2013;62(04):1-143.

3. LAIV, MMR, varicella, or zoster vaccines can be administered on the same day, if not administered on the same day, live vaccines should be separated by at least 28 days.

4. Immunosuppressive steroid dose is considered to be ≥ 2 weeks of daily receipt of 20 mg of prednisone or the equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.

5. Vaccines should be deferred for the appropriate interval if replacement immune globulin products are being administered. See CDC. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2011;60(No. RR-2). Available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

6. Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test, do so with the understanding that reactivity might be reduced by the vaccine.

¹ Adapted from CDC. Table 6. Contraindications and precautions to commonly used vaccines. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2011;60(No. RR-2):40–41 and from Atkinson W, Wolfe S, Hamborsky J, eds. Appendix A. Epidemiology and prevention of vaccine preventable diseases. 12th ed. Washington, DC: Public Health Foundation, 2011. Available at www.cdc.gov/vaccines/pubs/pinkbook/index.html.

² Regarding latex allergy, consult the package insert for any vaccine administered.



Adult IZ Schedule 2014 Footnotes Update (1)

- **Flu vaccine** - recombinant hemagglutinin influenza (RIV) and the use of inactivated Influenza vaccine (IIV) among egg allergic patients was added.
- **Td/Tdap** - a single dose of Tdap vaccine is recommended for previously unvaccinated persons 11 years or older; Td booster recommended every 10 years.
- **Varicella** - immunocompromised adults born in the US before 1980 may not be immune to varicella.

- **HPV / Zoster** - both vaccines footnote were simplified, with removal of the bullet regarding health care personnel (HCP). Being a health care worker is not a specific indication for these vaccines, but they should be given to HCP and others who meet age and other indications .
- **PCV13 / PPSV23** - exchanged places on the schedule so that providers seeing patients who have indications for both vaccines will have information about the recommendation to administer PCV13 before PPSV23.

1. Footnote Changes

<http://www.cdc.gov/vaccines/schedules/hcp/adult.html#tool>

2. MMWR "Immunization of Health-Care Personnel"

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>

Recommended Adult Immunization Schedule—United States, DRAFT 2014

Notes: *This schedule is intended to be used by the Centers for Disease Control and Prevention (CDC) and state, local, and territorial health departments.

Disease	Age Group	Recommendation
Pneumococcal polysaccharide vaccine (PPSV23)	65 years and older	1 dose
	19 years and older with certain medical conditions	1 dose
Pneumococcal conjugate vaccine (PCV13)	65 years and older	1 dose
	19 years and older with certain medical conditions	1 dose



Adult IZ Schedule 2014 Footnotes Update (2)

- **Meningococcal vaccine**

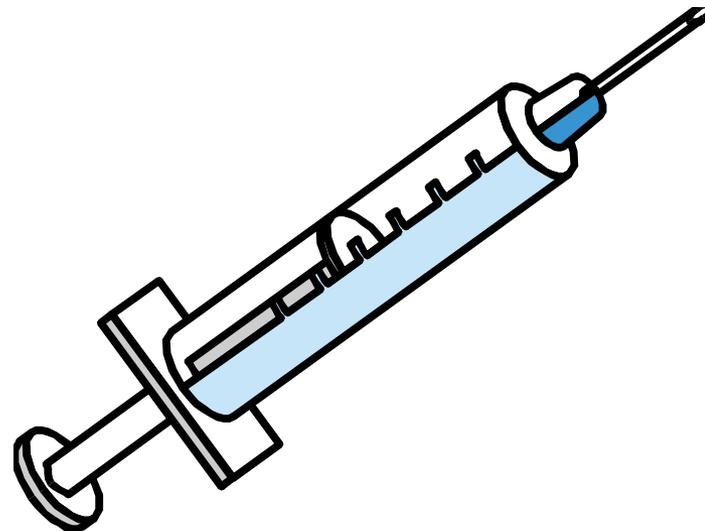
Clarifies which persons need either 1 or 2 doses of vaccine and to provide greater clarity regarding which patients should receive the meningococcal conjugate (MenACWY) versus the meningococcal polysaccharide (MPSV4) quadrivalent vaccines.

- ***Haemophilus influenzae* type b (Hib vaccine)**

ACIP approved recommendations for adults at increased risk for Hib who have not received the vaccine before and/or immunocompromised adults. **NEW to schedule**

- Added separate page of details regarding ACIP group; websites listed; and Contraindication/Precautions Tables updated.

Adult Vaccine Recommendations



2013-14 Flu Vaccination Recommendations

Flu Vaccine Virus Strains for 2013-2014

- Trivalent vaccines contain:
 - **A/California/7/2009 (H1N1)**-like virus,
 - **H3N2** virus antigenically like the cell-propagated prototype virus **A/Victoria/361/2011**, and;
 - **B/Massachusetts/2/2012**-like virus (Yamagata lineage).
- *New* Quadrivalent vaccines, will contain, in addition:
B/Brisbane/60/2008-like virus
Victoria lineage

ACIP Flu Vaccination Recommendations

- All persons aged 6 months and older;
- All pregnant women;
- All Healthcare personnel (HCP);
- Persons with chronic medical conditions, severely immunocompromised, and those living in a protective environment;
- Household contacts and caregivers of children aged less than 59 months and adults aged 50 years and older,
- Persons who live with or have direct contact with children <6 months; and caregivers of persons with medical conditions that put them at higher risk for severe complications from the disease.

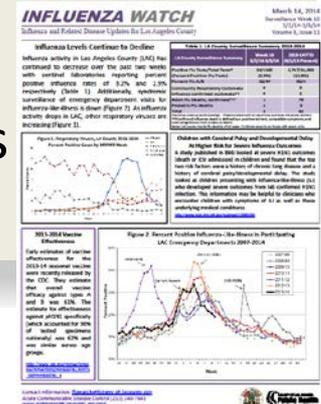
2013-2014 Flu Vaccine Abbreviation Changes

- TIV (Trivalent Inactivated Influenza Vaccine) changed to IIV (Inactivated Influenza Vaccine):
 - IIV refers to inactivated vaccines (egg and cell-culture based)
 - Includes trivalent (IIV3) and quadrivalent (IIV4) vaccines;
 - Cell-culture-based IIV is referred to as cIIV/cIIV3 (for 18 years and older)

- RIV refers to recombinant hemagglutinin (HA) influenza vaccine (a Trivalent called RIV3):
 - Egg-free; Aged 18-49 years
- LAIV refers to Live Attenuated Influenza Vaccine
 - Quadrivalent (LAIV4)
 - Intranasal spray
 - For healthy persons **NOT pregnant** aged 2-49 years
- Intradermal (ID) for 18-64 yrs
- High-Dose for age 65 yrs/older

Flu LA County Case Presentation (2014)

- LA County confirmed a flu death of a pregnant woman and her unborn baby from the South Bay area.
 - influenza A (H1N1)
- Pregnant and post partum women are at increased risk for severe illness and serious complications from flu infection.
- Although flu activity has been on the decline locally, it is still widespread and will continue at least through March.
 - 82 deaths (3 pediatric) as of 3/8/14
- The flu vaccine is recommended for everyone ≥ 6 mos of age and older, including pregnant women at any stage of their pregnancy.



2014 Flu Update





Tetanus, diphtheria, and acellular pertussis (Td/Tdap)

- Adults with unknown or incomplete history of a 3-dose series with Td-containing vaccines should begin or complete a primary vaccination series including a Tdap dose.
- For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6 to 12 months after the second.
- For adults not completely vaccinated (i.e., received less than 3 doses) administer remaining doses.
- ACIP recommends administering Tdap as prophylaxis in wound management if adult not previously vaccinated.
- Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferred during 27 to 36 weeks' gestation) regardless of interval since prior Td or Tdap vaccination.
 - Practice Cocooning Strategy of vaccinating household contacts and other family members 2-weeks prior to delivery.



Pertussis (whooping cough) Death in CA (2014)

- First infant death in California since 2010
 - Latino infant; only 50% of births in CA are to Latina mothers; more than 80% of the state's infant pertussis-associated deaths since 1990 have been Latino infants.
 - Pertussis can be deadly for infants; best way to protect infants against fatal or severe pertussis infection is to vaccinate pregnant women with Tdap during every pregnancy (27-36 weeks).
 - Vaccinated pregnant women develop antibodies to protect the infant until they are old enough to be vaccinated.
- 2,372 pertussis cases reported in 2013; double the number of cases in 2012.
- Prenatal care providers are strongly recommended to vaccinate their pregnant patients with Tdap to help prevent infant pertussis deaths.



Varicella (chickenpox) Vaccination

- All adults without evidence of immunity. Evidence of immunity includes:
 - written documentation of 2 doses of varicella vaccine;
 - a history of varicella disease or herpes zoster (shingles) based on healthcare-provider diagnosis;
 - laboratory evidence of immunity or confirmation of disease;
 - and/or birth in the U.S. before 1980.
- HCP born in the U.S. before 1980 who do not meet any of the criteria above should be tested or given the 2-dose vaccine series.
 - If not immune give 2-doses at 0 and 4-8 weeks.
- Pregnant women should be assessed for evidence of varicella immunity. Women without evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the hospital. The 2nd dose should be administered 4 to 8 weeks after the first dose.

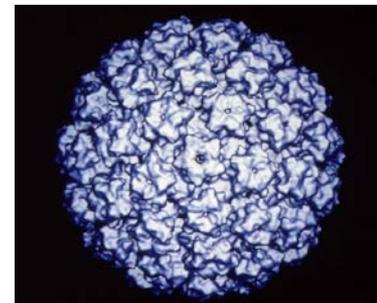
Varicella (chickenpox) LA County Case Presentation (2013)

- Large exercise seminar with 300+ students.
- Students were all in an enclosed room.
- A student developed varicella
 - Exposed 31 hotel staff
 - 38 other students exposed
 - One participant was immunocompromised
 - Total cases were 3
- Student hospitalized at local hospital.
 - HCPs, patients, family and others potentially exposed to disease



Human papillomavirus (HPV) Infection (1)

- Many females and males will be infected with at least one type of HPV at some point in their lives.
 - Cervical cancer is the most common HPV-associated cancer among women
 - Sexually Transmitted Infection is the term used, not STD
 - Estimated 79 million Americans currently infected
 - 14 million new infections/year in the US
 - HPV infection is most common in people in their teens and early 20s
- Most people will never know that they have been infected with the viruses.



HPV Virus

HPV Adult Vaccination

(2)

Females:

- 3-dose series for routine vaccination at age 11 or 12 years and those aged 13-26 years, if not previously vaccinated.
- HPV not recommended for use in pregnant women; pregnancy testing is not needed before vaccination. If found to be pregnant after being vaccinated, no intervention needed; the remainder dose series should be delayed until delivery.

Males:

- 3-dose series for routine vaccination at age 11 or 12 years and those aged 13-21 years, if not previously vaccinated.
- Recommended for men aged 22-26 years who have sex with men and did not get any or all doses when younger.
- Vaccination is recommended for immunocompromised persons (including HIV infection). Also applies to females



HPV Vaccines



(3)

Quadrivalent/HPV4 (Gardasil)	Name	Bivalent/HPV2 (Cervarix)
Merck	Manufacturer	GlaxoSmithKline (GSK)
6, 11, 16, 18	Types	16, 18
Females: Anal, cervical, vaginal and vulvar precancer and cancer; Genital warts Males: Anal precancer and cancer; Genital warts	Indications	Females: Cervical pre-cancer and cancer Males: Not approved for use in males
Pregnancy Hypersensitivity to yeast	Contraindications	Pregnancy Hypersensitivity to latex <i>(latex only contained in pre-filled syringes, not single-dose vials)</i>
3 dose series: 0, 2, 6 months	Schedule (IM)	3 dose series: 0, 1, 6 months



Zoster (Shingles)

- A single dose of zoster vaccine is recommended for adults aged 60 years and older regardless of whether they report a prior episode of herpes zoster.
 - Although the vaccine is licensed by the U.S. Food and Drug Administration (FDA) for use among persons aged 50 years and older, ACIP recommends that vaccination begin at age 60 years
- Persons aged 60 years and older with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
- If 2 or more of the following live virus vaccines are to be given—MMR, Varicella, Zoster or yellow fever— they should be given on the same day. If they are not administered on the same day, separate vaccines by at least 28 days.



Measles, mumps, rubella (MMR)

- Adults **born before 1957** generally are considered immune to measles/mumps.
- All adults **born in 1957 or later** should have documentation of 1 or more doses of MMR unless they have a medical contraindication to the vaccine, lab evidence of immunity to each of the three diseases, or documentation of provider-diagnosed measles or mumps disease.
- **For unvaccinated HCP born before 1957** who lack lab evidence of measles, mumps, and/or rubella immunity or lab confirmation of disease, consider vaccinating personnel with 2 doses of MMR.
- A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:
 - are students in postsecondary educational institutions; work in a health-care facility or; plan to travel internationally.



Measles LA County Case Presentation (2013)

- Unvaccinated 61 year old female exposed HCPs/patients at doctors office and Radiology Dept.
- Hospitalized for rash and flu-like symptoms where 15 HCPs and 6 infants were exposed to measles.
- Hospital did not use appropriate precautions per policy; negative pressure room (Isolation).
- Discharged from hospital but remained infectious; exposed over 100 family/friends at a funeral.



Measles LA County Case Presentations (2014)

- 37 yr. old mom and 5-month old baby presented to doctor office with fever and running nose.
 - Exposed in the waiting room to an unvaccinated 10-yr old child who recently returned from the Philippines
 - Office uses the Dr. Sears delayed immunization schedule
- 36 yr. old male without travel history possibly exposed at work.
 - Unknown IZ history; only foreign contacts were guests from India; escorted to conference room
- As of March 3rd there are 10 cases; 3 cases in 2013.

Dr. Sears theory **but not** supported by ACIP/CDC/DPH-IP

<http://www.whattoexpect.com/blogs/awaitingbabyandbeyond/dr-sears-alternative-vaccine-schedule-news-to-me>

PCV13 & PPV23 Recommendations In Adults aged 19 years and older

*Pneumococcal conjugate
13-valent vaccine*



*Pneumococcal
polysaccharide vaccine*

PCV13: Adult Recommendations (1)

- Persons with: sickle cell disease/other hemoglobinopathies, congenital or acquired asplenia, congenital or acquired immunodeficiencies, HIV infection, chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin's disease, generalized malignancy, iatrogenic immunosuppression, solid organ transplant, multiple myeloma
 - *A 45 year-old with an immunocompromising illness (i.e. HIV, leukemia)*
- Persons with CSF leaks, cochlear implants
 - Cerebrospinal fluid surrounds brain/spinal cords causes pressure
 - Cochlear implants are a surgically implanted electronic device that provides a sense of sound to deaf or severely hard of hearing person.



PPSV23: Adult Recommendations (2)

- PPSV 23 vaccination recommendations:
 - **All** adults 65 years and older without history of vaccination.
 - Persons 2-64 years of age who have chronic illness;
 - *immunocompromising conditions;*
 - *functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy)*
 - *Healthy 32 year old man without a spleen*
 - Adults age 19-64 years who have asthma or smoke cigarettes.



Revaccination 



PPSV23 Revaccination Recommendations (3)

- One-time revaccination 5 years after the first dose is recommended for persons aged 19-64 years with:
 - chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions.
- Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses are needed for persons vaccinated with PPSV23 at or after age 65 years.



Recommendations for Use of PCV13 in Adults \geq 19 Years with Immune-Compromising Conditions (4)

Recommendations for persons who <u>HAVE</u> received PPSV	Recommendations for persons who have <u>NOT</u> received PPSV
<ul style="list-style-type: none">• Administer 1 dose of PCV13 one or more years after PPSV23	<ul style="list-style-type: none">• Administer 1 dose of PCV13 followed by PPSV23 eight (8) weeks later
<ul style="list-style-type: none">• If an additional dose of PPSV is required it can be given at least 8 weeks after the PCV13 and at least 5 years after the last PPSV23• Note: a second dose of PPSV is not required for persons with cochlear implants or CSF leaks until age 65 or older.	<ul style="list-style-type: none">• Administer a 2nd dose of PPSV 5 years later.• Note: a second dose of PPSV is not required for persons with cochlear implants or CSF leaks until age 65 or older.



Meningococcal Adult Vaccination (1)

- Two doses of meningococcal conjugate at least 2 months apart to adults with functional asplenia or persistent complement component deficiencies.
 - HIV infected persons who are vaccinated also should receive 2 doses
- First year college students age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday
- Revaccination is recommended every 5 years for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia or persistent complement component deficiencies).
- Microbiologists, routinely exposed to isolates of *Neisseria meningitidis*, military recruits, persons at risk during an outbreak to a vaccine serogroup, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.



Meningococcal Products Pertinent to each Usage/Age Recommendations (2)

- Routine Vaccination of Adolescents (11 through 18 yrs -- conjugate vaccines: MenACWY-D (Menactra) or MenACWY-CRM (Menveo)
- Persons \geq aged 2 mos with certain medical conditions through 18 mos: Hib-MenCY-TT (Menhibrix)
- Persons \geq aged 9 mos through 55 yrs with certain medical conditions and exposure risks: MenACWY-D
- Persons \geq aged 2 yrs through 55 yrs with certain medical conditions and exposure risks: MenACWY-CRM
- Persons \geq aged 56 yrs and older: MPSV4 (Menomune)

Hep A Vaccination Recommendations

- Hepatitis A vaccine recommendations updated to clarify vaccination for persons with a history of either injection or non-injection illicit drug use.
 - Men who have sex with men (MSM);
 - Persons working with HAV-infected primates OR in a research lab; with chronic liver disease, who receive clotting factor concentrates; and traveling to or working in countries with high endemicity of Hep A; and
 - Unvaccinated persons who anticipate close personal contact with international adoptees.

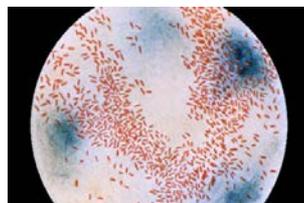




Hep B Vaccination Recommendations

- 3-doses are recommended for all adults;
- Household contacts and sex partners of HBsAg-positive people; injecting drug users; sexually active people not in a long-term, mutually monogamous relationship; men who have sex with men; people with HIV; people seeking STD evaluation or treatment;
 - hemodialysis patients and those with renal disease that may result in dialysis;
 - diabetics younger than age 60yrs (diabetics age 60yrs and older may be vaccinated at the clinician's discretion); and
 - HCP and public safety workers who are exposed to blood; clients/staff of institutions for the developmentally disabled;
 - inmates of long-term correctional facilities;
 - certain international travelers; and people with chronic liver disease.

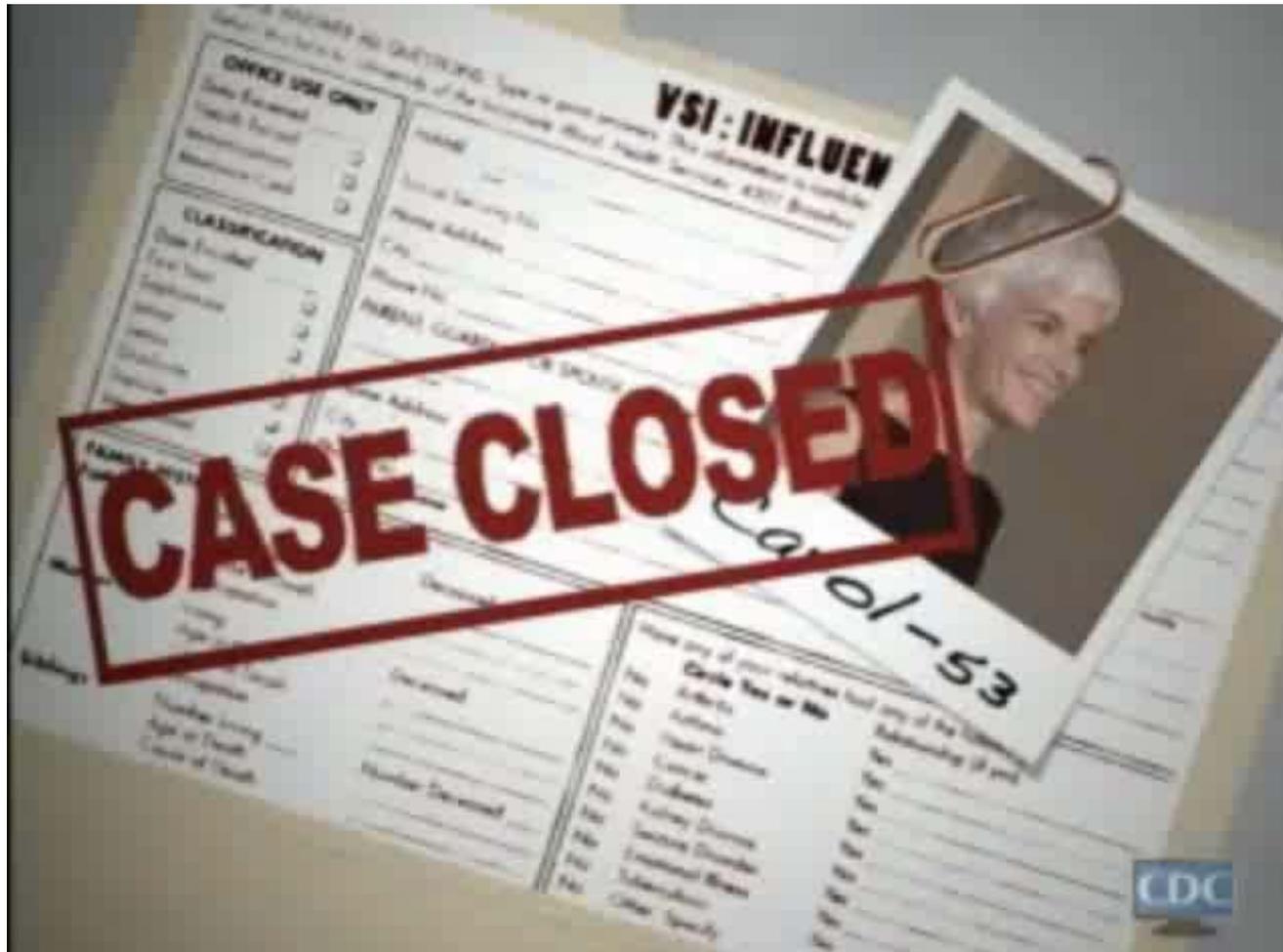
Haemophilus influenzae type b (Hib) Vaccine



Photos courtesy of CDC

- Hib recommendations were added to the 2014 schedule by ACIP. For certain adults at increased risk for Hib who have not received the vaccine before and/or for immunocompromised adults.
- Adults who have had a successful hematopoietic stem cell transplant (HSCT) are recommended to receive a 3-dose series, 6-12 months after the transplant regardless of prior Hib vaccination status.
- Prior Hib vaccine guidance recommended that Hib vaccination of persons infected with HIV be considered, but updated guidance no longer recommends Hib vaccination of previously unvaccinated adults with HIV infection because their risk for Hib infection is low.

Summary: Pneumococcal, Shingles (Zoster), and Pertussis (Tdap)





Any Questions about Adult Immunizations?





Before Vaccination

- Vaccine Information Statement (VIS)
 - It's a Federal Law to provide the VIS!
- Obtain Consent - vaccines are covered under general consents
- Screening questionnaire for adult immunizations
 - Review 2014 schedule, recommendations and contraindications

PNEUMOCOCCAL POLYSACCHARIDE VACCINE
WHAT YOU NEED TO KNOW

Other vaccine information statements are provided to help you understand this vaccine's benefits and risks.

1 Pneumococcal disease
Pneumococcal disease is caused by *Streptococcus pneumoniae* bacteria. It is a leading cause of vaccination-preventable illness and death in the United States. Anyone can get pneumococcal disease, but some people are at greater risk than others:

- People 65 years and older
- The very young
- People with certain health problems
- People with a weakened immune system
- Smokers

Pneumococcal disease can lead to serious infections of the:

- Lungs (pneumonia),
- Blood (bacteremia), and
- Covering of the brain (meningitis).

Pneumococcal pneumonia kills about 1 out of 20 people who get it. The average life span is 1 person in 11, and meningitis about 1 person in 10. People with the health problems described in Section 1 of this statement may be more likely to die from the disease.

2 Pneumococcal polysaccharide vaccine (PPSV)
Treatment of pneumococcal infections with penicillin and other drugs tend to be more effective. But some strains of the disease have become resistant to these drugs. This makes prevention of the disease through vaccination, even more important.

Pneumococcal polysaccharide vaccine (PPSV) protects against 23 types of pneumococcal bacteria, including those most likely to cause serious disease.

Most healthy adults who get the vaccine develop protection to most or all of these types within 2 to 3 weeks of getting the shot. Very old people, children under 2 years of age, and people with some long-term illnesses might not respond as well, or at all.

Another type of pneumococcal vaccine (pneumococcal conjugate vaccine, or PCV) is routinely recommended for children younger than 5 years of age. PCV is described in a separate Vaccine Information Statement.

3 Who should get PPSV?

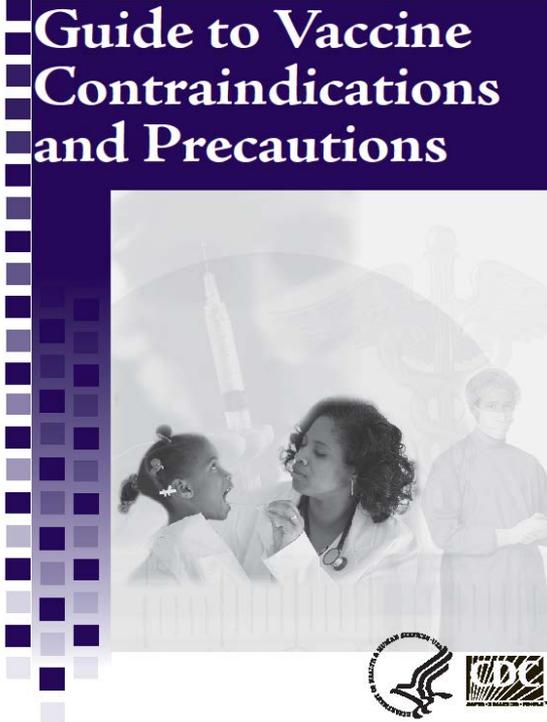
- All adults 65 years of age and older.
- Anyone 19 through the area of age who has a long-term health problem such as:
 - lung disease
 - heart disease
 - sickle cell disease
 - diabetes
 - alcoholism
 - cirrhosis
 - lack of development that is cochlear implant
- Anyone 19 through 64 years of age who has a disease or condition that lowers the body's resistance to infection, such as:
 - Hodgkin's disease
 - leukemia or leukemia
 - kidney failure
 - multiple myeloma
 - splenectomy or splenectomy
 - HIV infection or AIDS
 - damaged spleen, or no spleen
 - organ transplant
- Anyone 19 through 64 years of age who is taking a drug or treatment that lowers the body's resistance to infection, such as:
 - long-term steroids
 - certain cancer drugs
 - radiation therapy
- Any adult 19 through 64 years of age who:
 - is a smoker
 - has asthma

PPSV may be less effective for some people, especially those with lower resistance to infection.

Patient Screening

Always screen for any contraindications and precautions to vaccine

- History of severe hypersensitivity to a prior dose
- Severe allergic reactions to vaccine component
- Moderate to severe acute illness



1. Guide to Vaccine Contraindications and Precautions
www.cdc.gov/vaccines/recs/vac-admin/downloads/contraindications-guide-508.pdf
2. CDC Vaccine Contraindications and Precautions
<http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm>



California Immunization Registry (CAIR)

CAIR - Patient Immunization History

[Main Menu](#)
[Patient Search](#)
[Delete Patient](#)
[Report](#)
[Help](#)

Registry ID: **1415088** Med. Rec. No: Kaiser No: Pref: **Y**
 Name: **DOE, JANE** Suf: Sex: **F** DOB: **03/03/1980** Age: **30y 11m 5d**
 Next Vac. Date: **Past Due** Reactions: [Create New Siblings](#)
[Waivers:](#) [Risks:](#) VFC Eligibility: **5-Not VFC-Eligible**

[History](#) | [Parent/Guardian](#) | [Address](#) | [Preferences](#) | [BirthInfo](#) | [Patient IDs](#) | [OtherInfo](#)

Immunization History

Vaccine	Group	Seq	Date Recv.	Age	Provider
Tdap	DTP	B	01/03/2011	30y10m 0d	LACDHS-CHC
PNUps	PNUps	1	01/03/2011	30y10m 0d	LACDHS-CHC
FLU	FLU	1	01/03/2011	30y10m 0d	LACDHS-CHC

Recommendations:

>HEPB	1	03/03/1980
>MMR	1	03/03/1981
>VZV	1	03/03/1981
>HAV	1	03/03/1981
>MCV4	1	03/03/1991
FLU	1	08/01/2011
DTP(Td)	B	01/03/2021

Accelerated Schedule
 [Had Chickenpox](#)

Archived: [Options for Recommendations](#)

To enroll in CAIR call the Help Desk 800-578-7889

Friendly Reminder
No Immunizations Back Here!



Adult IZ Administration Routes

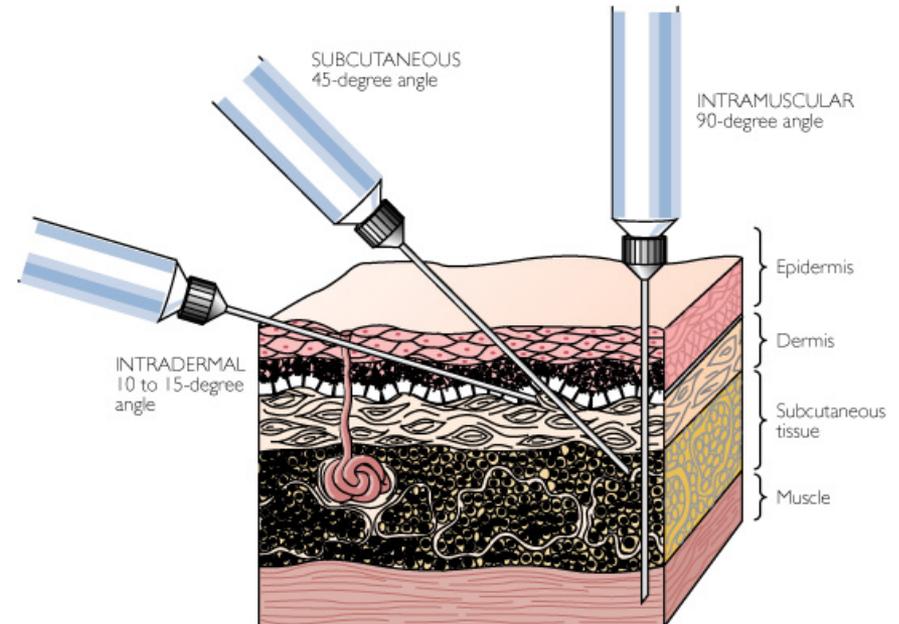
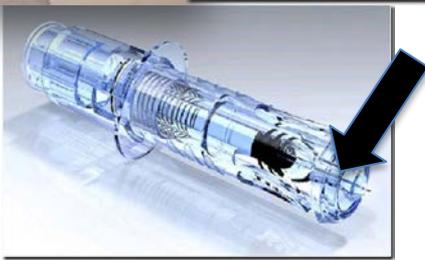


Deltoid Muscle IM injection



LAIV (FluMist) intranasal

Intradermal (ID) flu injection given in the deltoid muscle for persons 18-64 years



Important Vaccine Considerations

- Emergency Procedures



- Vaccine Adverse Event Reporting System form (VAERS)

www.vaers.hhs.gov

- Storage and Handling

refrigerate between 35 °F and 46 °F

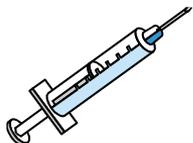


Guidelines for Anaphylaxis Care

- Call 911 immediately!
- Inject aqueous 1:1000 epinephrine intramuscularly (IM) into the deltoid or vastus lateralis muscle.

Epi can be injected into the same site as the vaccine

Recommended Age	Epinephrine Dose
12 months and younger	0.05 ml
1 – 4 years	0.15 ml
5 – 9 years	0.30 ml
10 years and older	0.50 ml





Vaccine Error Reporting Program

http://verp.ismp.org/ - Windows Internet Explorer

http://verp.ismp.org/

ISMP National Vaccine Error Reporting Program



Please consider the following items when completing this online reporting form:

- Answer the questions as best you can.
- Tell us the story of what went wrong, any causes or contributing factors, how the event was discovered or intercepted, and the outcome of the patient(s) involved.
- Share your recommendations for error prevention.
- Provide any associated materials (e.g., product photographs, containers, labels, de-identified prescription order scans) that help support the information being submitted.

ISMP guarantees confidentiality of information received. ISMP is a federally certified patient safety organization (PSO), providing legal protection and confidentiality for submitted patient safety data and error reports. [Click here](#) to learn more about legal protection of patient safety information submitted to ISMP.

The report information will be forwarded, in confidence, to the Vaccine Adverse Event Reporting System (VAERS), a national vaccine safety surveillance program co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). When applicable, the report information will be forwarded to product vendors to inform them about vaccine labeling, packaging, and nomenclature issues that may foster errors by their design. Your name and contact information will not be shared unless you grant permission.

If you are reporting an unpreventable adverse reaction to a vaccine product, please visit VAERS (<http://vaers.hhs.gov>).

(1 item remaining)

Internet | Protected Mode: Off

150%

3:01 PM
10/8/2013

So What Can We Say About Vaccines?

- Safe
- Highly effective
- Saves billions of lives
- Reduces the rates of infectious disease
- Decades of life-expectancy
- Have eliminated a huge burden of suffering and disability





Reasons For Low Adult IZ Rates

- Availability of Vaccines
- Adult Vaccine Referral Sites
- Cost-Related Barriers
- Patient –Related Barriers
- Provider-Related Barriers
- Use of Evidence-based Strategies
- Use of Pneumococcal Vaccines
 - PCV13 and PPSV23; and
 - Vaccination Practices



Strategies To Increase Adult Vaccination Rates (1)

- Computerized Record Reminders
 - Computer-generated list, printed of possible reminders that appear on a patient's record.
- Chart Reminders
 - Simple as a colorful sticker; or comprehensive checklist of preventive services.
- Performance Feedback
 - Evaluating providers performance of delivering one or more IZs to a client population and then reviewing their assessment data with providers.

Increasing Adult Vaccination Rates: What Works

<http://www2a.cdc.gov/vaccines/ed/whatworks/strategies.asp>



Strategies To Increase Adult Vaccination Rates (2)

- Mailed/Telephoned Reminders
 - Medical staff either call patient or send a postcard/letter *reminder* that a IZ is due or overdue (recall) and offer appointment.
- Expanding Access in Health Care Settings
 - Reduce patient travel distance/time for IZ services; more convenient hours; provide IZs in setting previously not used, and/or; reducing admin barriers (e.g., drop-in clinics or express lane IZs services).
- Patient Education
 - Patients handed VIS to review in clinic waiting room, prior to hospital discharge, or upon admission to a long-term care facility (e.g. flu, pneumococcal VIS).

Increasing Adult Vaccination Rates: What Works

<http://www2a.cdc.gov/vaccines/ed/whatworks/strategies.asp>

Estimated Proportion of Adults (19 years and older) who received selected vaccinations
by age group
National Health Interview Survey (NHIS), United States, 2011⁸

19 to 26 years



HPV (girls):
29.5%
HPV (boys):
2.1%

19 to 49 years



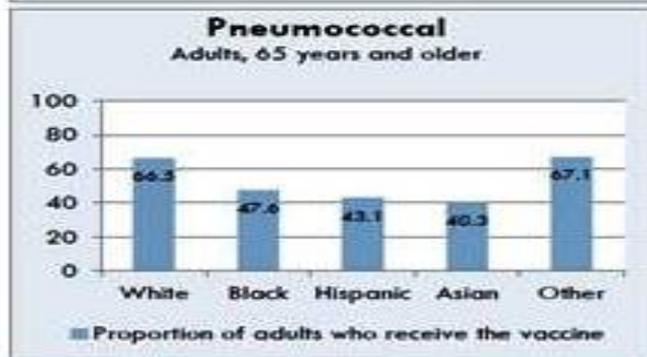
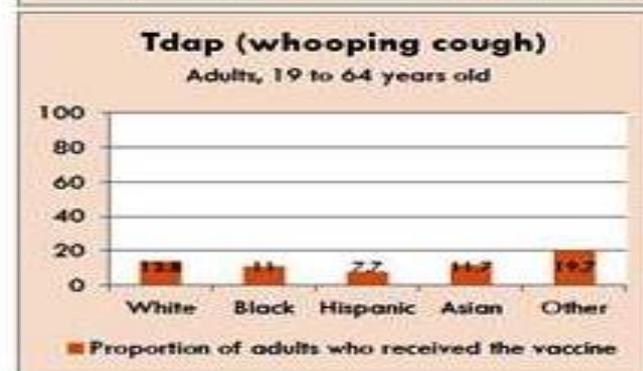
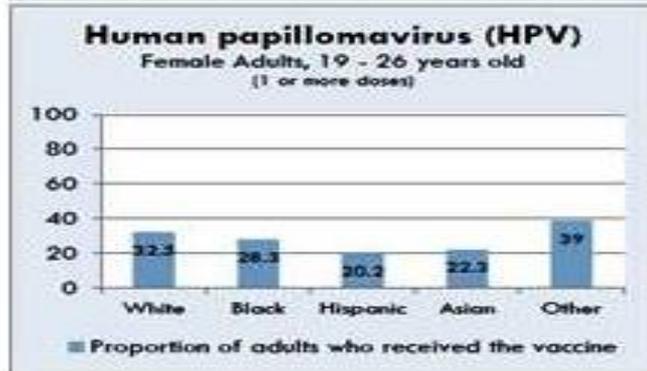
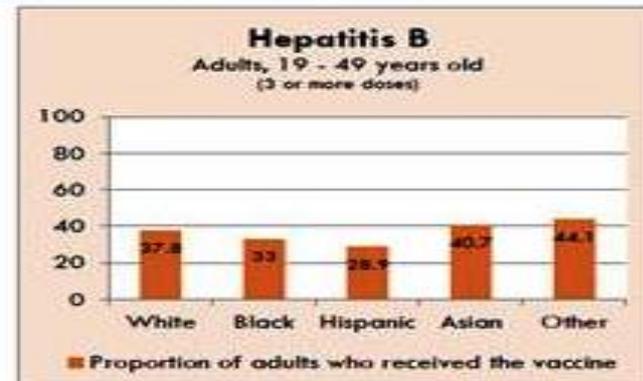
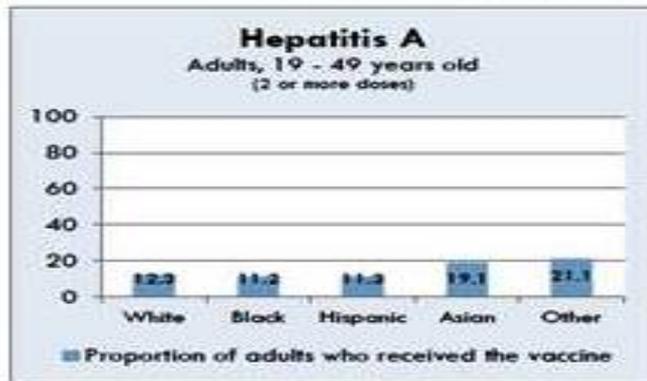
Hepatitis A:
12.5%
Hepatitis B:
35.9%
Tdap:
12.5%

65 years and older



Pneumococcal:
62.3%
Tetanus:
54.4%
Zoster (60 yrs+):
15.8%

Figure 3 -- Estimated Proportion of Adults (19 years and older) who received selected vaccinations by race/ethnicity, National Health Interview Survey (NHIS), United State, 2011^a



Together we can Improve Adult IZ Rates in the Clinical Setting!

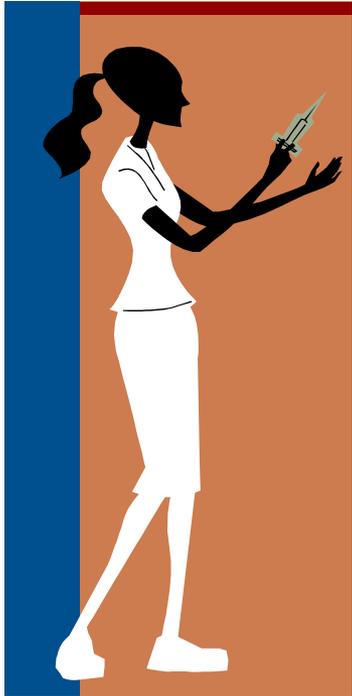
- Adult coverage remains low for routinely recommended vaccines and well below Healthy People 2020 targets.
- Strategies to improve vaccination rates:
 - Assess vaccination status during each health care visit
 - Educate adults and promote vaccinations in your practice
 - Use preventive flow sheets
 - Use patient/clinic reminders for needed vaccinations (i.e. immunization registry)
 - Develop tracking systems for vaccinations (i.e. immunization registry)
 - Provide walk-in immunization services





Immunization Resources

- Immunization Program - www.publichealth.lacounty.gov/ip/
 - General Information and Handouts
 - Vaccine Fact Sheets
 - B71 Recommendations (Info for Healthcare Providers)
 - Download forms (e.g. VIS, VAERs, etc.)
- EZIZ - www.eziz.org
- CDC - www.cdc.gov/vaccines/
- ACIP Recommendations- www.cdc.gov/vaccines/recs/acip/
- CA Dept. of Public Health
www.cdph.ca.gov/programs/immunize/Pages/default.aspx
- Merck Vaccines - www.merckhelps.com
- Needy Meds - www.needymeds.com
- Epidemiology & Prevention of VPDs “Pink Book”
www.cdc.gov/vaccines/pubs/pinkbook/genrec.html



Questions?

Please complete your
Post-test & Evaluation...

**Thank you all for promoting
“Adult Immunizations!”**

IMMUNIZATION PROGRAM

www.publichealth.lacounty.gov/ip

(213) 351-7800 phone

*

2014 Adult Immunization Schedule Training Materials

<http://publichealth.lacounty.gov/ip/trainconf/Adult-InService.htm>



2014 CEU Post-Test: Adult Immunization Recommendations

Date:		AM or PM	Site:	
-------	--	----------	-------	--

Your profession: Nurse (NP, RN, LVN) MA Physician Other _____

For each question, please check only one answer

1. When is it recommended for pregnant women to receive a Tdap vaccination:

(Please check one answer only)

- Between 27-36 weeks gestation
- With every pregnancy
- Immediately post-partum
- All of the above

2. Which of the following recommendations are not true for adult Hib vaccination:

(Please check one answer only)

- Recipients of a HSCT should not be vaccinated after a successful transplant
- Adults who have functional or anatomic asplenia or undergoing elective splenectomy
- Persons with sickle cell disease
- Immunocompromised adults

3. Which of the following flu vaccine(s) are not recommended for a 5-month pregnant woman:

(Please check one answer only)

- Recombinant hemagglutinin (RIV) the egg-free vaccine, if age requirement met
- Inactivated influenza Vaccine (IIV3)
- Live Attenuated Influenza Vaccine (LAIV) also known as FluMist
- Inactivated Influenza Vaccine (IIV4)

4. Which of the following persons would you recommend to receive PCV13:

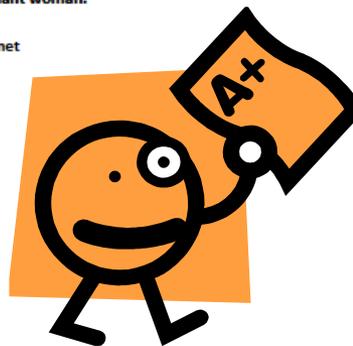
(Please check one answer only)

- A 19 year-old with asthma
- A 45 year-old with an immunocompromising (i.e. HIV, leukemia) illness
- A 30 year-old man who is a chronic cigarette smoker
- A 65 year-old with a history of hypertension

5. Which of the following statement(s) is true regarding HPV vaccine for males:

(Please check one answer only)

- Only ages 9-26 years can be vaccinated with HPV2 vaccine (Cervarix)
- HPV4 is recommended for those aged 13-21 years who have not completed the 3-dose series
- Ages 22-26 years are not recommended to be vaccinated
- All of the above



After you have turned-in your **post-test** along with the **evaluation** we can review the post-test.

Thank you!

Thank you for your time. Please return this form to the Presenter.