

Vaccination 101

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Presenter Disclosure Information Mary Conant-Cantor BSN, RN

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Off Label Use of Vaccines	Will be discussed, but in accordance with current ACIP recommendations

Outline

- ▣ Principles of vaccination
- ▣ Types of vaccines
- ▣ Tips on using the 2015 Adult Schedules
- ▣ Screening prior to vaccination
- ▣ Contraindications and Precautions to vaccination
- ▣ Vaccine Information Statements (VIS)
- ▣ Vaccine administration documentation requirements
- ▣ Vaccine adverse events and medical error reporting

Principles of Vaccination

Active Immunity

- Protection produced by the person's own immune system
- Occurs due to natural exposure to antigen or by vaccination
- Usually permanent

Passive Immunity

- Protection transferred from another person or animal
- Temporary protection that wanes with time

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Principles of Vaccination

Antigen

- A live or inactivated substance (e.g., protein, polysaccharide) capable of producing an immune response

Antibody

- Protein molecules (immuno-globulin) produced by B lymphocytes to help eliminate an antigen

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Classification of Vaccines

- Live attenuated
 - viral
 - bacterial
- Inactivated

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2015 Adult Immunization Schedule



MMWR 2015;64:91.
Annals of Internal Medicine 2015;64:214
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Recommended Adult Immunization Schedule—United States - 2015

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

**PCV13
Routinely at 65
Years**

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

Vaccine	Age Group	18-24 years	25-29 years	30-39 years	40-49 years	50-59 years	60-64 years	≥65 years
Influenza ^{2,3}		1 dose annually						
Tetanus, diphtheria, pertussis (Td/Tdap) ^{2,3}		Substitute 1 dose dose of Tdap for Td booster; then boost with Td every 10 yrs						
Varicella ^{2,3}		2 doses						
Human papillomavirus (HPV) Female ^{2,3}		3 doses						
Human papillomavirus (HPV) Male ^{2,3}		2 doses						
Zoster ^{2,3}		1 dose						
Meningococcal, mening, rabies (MMR) ^{2,3}		1 or 2 doses						
Pneumococcal 13-valent conjugate (PCV13) ^{2,3}		1 dose						
Pneumococcal polysaccharide (PPSV23) ^{2,3}		1 or 2 doses						
Hepatitis A ^{2,3}		1 or more doses						
Hepatitis B ^{2,3}		2 doses						
Hepatitis B ^{2,3}		3 doses						
Hemophilus influenzae type b (Hib) ^{2,3}		1 or 2 doses						

Footnotes:

¹ For all persons in this category who report the age requirements and who have no evidence of previous infection, either serologic or clinical (for pertussis).

² Report all clinically significant pertussis (whoop) 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: 800-858-1353. For a claim for vaccine injury contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, DC 20001, telephone: 202-415-7000.

³ Additional information about the vaccines in this schedule, as well as available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines/imz/immunization/0-64.html in English and Spanish. 800-858-1353, 800-955-4647, 800-955-5271, Monday through Friday.

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), the American College of Obstetrics and Gynecologists (ACOG), and the American College of Nurse-Midwives (ACNM).

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

Vaccine	Indication	18-24 years	25-29 years	30-39 years	40-49 years	50-59 years	60-64 years	≥65 years
Influenza ^{2,3}		1 dose IV annually						
Tetanus, diphtheria, pertussis (Td/Tdap) ^{2,3}		Substitute 1 dose dose of Tdap for Td booster; then boost with Td every 10 yrs						
Varicella ^{2,3}		2 doses						
Human papillomavirus (HPV) Female ^{2,3}		3 doses through age 26 yrs						
Human papillomavirus (HPV) Male ^{2,3}		2 doses through age 21 yrs						
Zoster ^{2,3}		1 dose						
Meningococcal, mening, rabies (MMR) ^{2,3}		1 or 2 doses						
Pneumococcal 13-valent conjugate (PCV13) ^{2,3}		1 dose						
Pneumococcal polysaccharide (PPSV23) ^{2,3}		1 or 2 doses						
Hepatitis A ^{2,3}		1 or more doses						
Hepatitis B ^{2,3}		2 doses						
Hepatitis B ^{2,3}		3 doses						
Hemophilus influenzae type b (Hib) ^{2,3}		1 or 2 doses						

Footnotes:

¹ For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection, either serologic or clinical (for pertussis).

² Recommended if some other risk factor is present (eg, on the basis of medical occupational, household, or other indications).

³ No recommendation.

These indications indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is currently recommended for adults aged 18 years and older as of February 1, 2015. For all vaccines being recommended on the Adult Immunization Schedule, a medical basis for the indication is included and either the vaccine or other components are not recommended. For detailed recommendations on all vaccines, including those not included in this schedule, please refer to the current recommendations for immunization of adults, available at www.cdc.gov/vaccines/imz/adult. 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.

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Your Opinion Counts!

A health care provider recommendation and offer is the single most important determinant of whether or not someone gets vaccinated.



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Try using a “presumptive” rather than “participatory” approach

2008 NFID Survey:

- 87% indicated they would be likely to get a vaccine if the provider recommended it
- 55% indicated they would get it *only* if their provider recommended it

Your Strong routine recommendation is critical!



NFID. National Survey on adult vaccination reports low consumer awareness of vaccines and risks of vaccine-preventable diseases. Bethesda, MD: 9 National Foundation for Infectious Diseases: 2008

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Screening Questions

- ❑ Are you sick today?
- ❑ Do you have allergies to medications, food, a vaccine component, or latex?
- ❑ Have you ever had a serious reaction after receiving a vaccination?
- ❑ Do you have a long term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g. diabetes), anemia, or other blood disorder?
- ❑ Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?

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Screening Questions, con't

- ❑ In the past 3 months, have you taken any medications that weaken your immune system, such as cortisone, prednisone, other steroids, or anticancer drugs, or had radiation treatments?
- ❑ Have you had a seizure or a brain or other nervous system problem?
- ❑ During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?
- ❑ For women: Are you pregnant or is there a chance you could become pregnant during the next month?
- ❑ Have you received any vaccinations in the past 4 weeks?

Screening Forms

- ❑ Available from:
 - Immunize.org
- ❑ Screening Forms
 - Adult Immunizations
 - Child and Teen Immunizations
 - TIV and LAIV Seasonal Influenza
 - Do I need any vaccines today

www.immunize.org/handouts/screening-vaccines.asp



Contraindication and Precautions

- ❑ Contraindication
 - A condition in a recipient that greatly increases the chance of a serious adverse reaction
- ❑ Precaution
 - A condition in a recipient that might increase the chance or severity of an adverse reaction, or
 - Might compromise the ability of the vaccine to produce immunity

AMERICAN COLLEGE OF PHYSICIANS
Immunization Portal

Download Full Guide:
Full Immunization (91 MB) | Case Studies (21.7 MB)
Full Guide (348 KB)

Sections:

- 1. Practice Improvement
- 2. Practical Advice
- 3. Vaccines and Their Indications
- 4. Special Populations
 - Women who are Pregnant or Breastfeeding
 - Immunocompromised Persons
 - Patients with Anatomical or Functional Asplenia
 - Childhood Catch-up
 - Health Care Workers (HCWs)

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

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Immunization Action Coalition

www.immunize.org

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Question: Can varicella vaccine be used as immunization prophylaxis for a 5-month-old?

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New IAC Initiative to Give Birth to the end of Hep B

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Vaccination of Pregnant Women

- ❑ Live vaccines should not be administered to women known to be pregnant
- ❑ In general inactivated vaccines may be administered to pregnant women for whom they are indicated
- ❑ Tdap is recommended for pregnant women with each pregnancy between 27 and 36 weeks gestation
- ❑ HPV vaccine should be deferred during pregnancy

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ACOG's Immunization Program
<http://www.immunizationforwomen.org/>





- Tool Kits
 - General Immunization
 - Tdap
 - HPV
 - Flu
- Policy Statements
- Q and As
- Scripts for providers
- Links

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CDC Guidelines for Vaccinating Pregnant Women

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




- Guidelines for vaccination
- Travel and other vaccines
- Breast feeding and vaccination
- Prenatal screening

www.cdc.gov/vaccines/pubs/preg-guide.htm#prenatal

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Immunizations and Pregnancy



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 IV	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
MWR	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


http://www.cdc.gov/vaccines/pubs/downloads/1_preg_chart.pdf

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MMWR Morbidity and Mortality Weekly Report
 Recommendations and Reports, Vol. 61, No. 2
 February 9, 2013

ACIP General Recommendations

General Recommendations on Immunization
 Recommendations of the Advisory Committee
 on Immunization Practices (ACIP)



- Vaccine administration guidelines
- Contraindication and precautions
- Table 1 Recommended and Minimum Ages and Intervals Between Doses and its footnotes

<http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf>

Table 1. Recommended and minimum ages and intervals between vaccine doses*

Vaccine	Recommended age	Minimum age	Interval	Minimum interval
Diphtheria, tetanus, and acellular pertussis (DTaP)	2, 4, 6, 15-18 months	12 weeks	2-6 months	4 weeks
Poliovirus (IPV)	2, 4, 6, 18-24 months	12 weeks	2-6 months	4 weeks
Human papillomavirus (HPV)	11-12 years	9 years	4-6 months	4 weeks
Typhoid conjugate (TIV)	2, 4, 6, 12-23 months	12 weeks	2-6 months	4 weeks
Measles, mumps, and rubella (MMR)	12-23 months	12 months	2-4 months	4 weeks
MMR2	4-6 years	4 years	3-5 months	4 weeks
MMR	11-15 years	11 years	2-6 months	4 weeks
MMR2	16-18 years	16 years	2-6 months	4 weeks
MMR	19-26 years	19 years	2-6 months	4 weeks
MMR2	19-26 years	19 years	2-6 months	4 weeks
MMR	27-59 years	27 years	2-6 months	4 weeks
MMR2	27-59 years	27 years	2-6 months	4 weeks
MMR	60-69 years	60 years	2-6 months	4 weeks
MMR2	60-69 years	60 years	2-6 months	4 weeks
MMR	70-79 years	70 years	2-6 months	4 weeks
MMR2	70-79 years	70 years	2-6 months	4 weeks
MMR	80-89 years	80 years	2-6 months	4 weeks
MMR2	80-89 years	80 years	2-6 months	4 weeks
MMR	90-99 years	90 years	2-6 months	4 weeks
MMR2	90-99 years	90 years	2-6 months	4 weeks

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/age-interval-table.pdf>

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Vaccine Information Statements (VISs)

- VISs requirements
 - benefits
 - risks
 - injury compensation program
- Healthcare provider requirements
 - give VISs before vaccine is administered
 - offer a copy of the VISs to take away
 - applies to every dose of a vaccine series not just the first dose

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VISs Webpage

- www.cdc.gov/vaccines/pubs/vis
- downloadable PDF files
- links to RTF files
- links to translations in 40 different languages
- link to one-page instruction sheet with essential VISs information titled "Mandatory Instructions for the Use of Vaccine Information Statements"

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VIS Updates – E-mail

- Almost 100,000 subscribers *



* As of August 2012

Healthcare Provider Requirements

- Record in medical record or permanent office log
 - date vaccine was administered
 - vaccine manufacturer
 - lot number
 - name, address and title of person administering vaccine
 - VIS edition date
 - date VIS was provided
- MDPH also recommends the vaccine type, dose, site and route of administration be documented

MDPH Vaccine Administration Record

Vaccine Administration Record - All Ages

MDPH Form 7400-001-01 (01/15)

Use this form to record the date and type of vaccine administered.

Record the parent/guardian's signature and date of consent on the back of this form.

Record the parent/guardian's signature and date of consent on the back of this form.

Vaccine	Type of Vaccine*	Date Given	Dose	Route (IM, SC, SQ, etc.)	Site (e.g., L1, R1, etc.)	Signature	Vaccine Information Statement	Parent/Guardian Signature
Hepatitis B								
Diphtheria, Tetanus, Pertussis								
Polio								
MM								
MM2								
MM3								
MM4								
MM5								
MM6								
MM7								
MM8								
MM9								
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CONFIDENTIAL

OVER FOR MORE VACCINES

<http://www.mass.gov/ehhs/docs/ehhs/immunization/record-vaccine-admin-01-15.pdf>

MIIS Reporting Requirements

- Legislation passed in June 2010, charging MDPH to establish an immunization registry (M.G.L. c. 111, s.24M)
 - Mandatory reporting of all immunizations administered in MA
 - Access given to healthcare professionals that administer immunizations, as well as schools, LBOH, WIC, and other state agencies' programs involved in immunizations
- MIIS Regulations
 - outlines information on system access, confidentiality, and requirements for reporting immunizations
 - describes a provider's duty to inform patients, and a patient's right to object to data sharing across providers
- See MIIS table or www.contactmiis.info for more information

MIIS Reporting Compliance

- "What date do I need to be reporting my immunization data to the MIIS by what date?"
 - Providers without an electronic health record (EHR) must report by 9/1/2015
 - Provider with an EHR who administer more than 1,000 doses of vaccine will submit data via electronic data exchange by 12/1/2015
 - Providers with an EHR who administer less than 1,000 doses of vaccine per year will submit data via electronic data exchange by 6/1/2016

Adverse Event Classification

- Vaccine-induced
- Vaccine-potentiated
- Programmatic error
- Coincidental

Vaccine Adverse Reactions

□ Adverse reaction

- extraneous effect *caused by vaccine*
- side effect

□ Adverse event

- *any* event following vaccination
- may be true adverse reaction
- may be only coincidental

Vaccine Adverse Reactions

□ Systemic

- fever, malaise, headache
- nonspecific
- may be unrelated to vaccine

Vaccine Adverse Event Reporting System (VAERS)

- National reporting system
- Jointly administered by CDC and FDA
- Passive (depends on healthcare providers and others to report)
- Receives about 28,000 reports per year

Vaccine Adverse Event Reporting System (VAERS)

- Detects
 - new or rare events
 - increases in rates of known side effects
 - patient risk factors
 - Additional studies required to confirm VAERS signals
 - Not all reports of adverse events are causally related to vaccine
 - File electronically using the VAERS website
- www.vaers.hhs.gov

Vaccine Safety Datalink (VSD)

- Involves partnerships with 10 large managed care organizations
- Links vaccination and health records
- Allows for planned immunization safety studies
- Allows for investigations of hypotheses that arise from review of medical literature, reports to VAERS changes in immunization schedules, or the introduction of new vaccines

Recent IOM report states: The federal surveillance infrastructure for detecting adverse events is robust, particularly Vaccine Safety Datalink, and provides confidence about safety of current schedule

Vaccine Injury Compensation Program (VICP)

- Established by National Childhood Vaccine Injury Act (1986)
- "No fault" program
- Covers all routinely recommended childhood vaccines
- Vaccine Injury Table

www.hrsa.gov/vaccinecompensation

Institute of Safe Medication Practices (ISMP)

- What to report?
 - Errors in the prescribing, transcribing, dispensing, administering, and monitoring of medications;
 - Wrong drug, wrong strength, or wrong dose errors;
 - Wrong patient errors;
 - Confusion over look-alike/sound-alike drugs or similar packaging;
 - Wrong route of administration errors;
 - Calculation or preparation errors; and
 - Misuse of medical equipment.
- Report all medical errors online to ISMP at:
www.ismp.org

Adult Immunization Practice Standards

- All providers, including those who don't provide vaccine services, have role in ensuring patients up to date on vaccines
- Call to action for healthcare professionals to
 - Assess immunization status of all patients at every clinical encounter
 - Strongly recommend vaccines that patients need
 - Administer needed vaccines or refer to a provider who can immunize
 - Document vaccines received by patients in state vaccine registries

*What you say matters.
How you say it matters even more!*

ADULT IMMUNIZATION PRACTICE STANDARDS

<http://www.cdc.gov/vaccines/hcp/patient-ed/adults/for-practice/standards/>



Model Standing Orders

- Adult and Childhood Vaccines
 - Recommended use
 - Contraindications and precautions
- Emergency Orders

IAC
<http://www.immunize.org/handouts/screening-vaccines.asp>



Questions?