

Immunization Update from CDC

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Disclosures

- Donna Weaver is a federal government employee with no financial interest or conflict with the manufacturer of any product named in this presentation
- Donna will discuss the off-label use of HPV, Tdap, Influenza and PCV13 vaccines
- Donna will not discuss a vaccine not currently licensed by the FDA

Objectives

- Increase provider knowledge regarding immunizations and the importance of promoting immunizations in the community.
- Explain at least one recent change to immunization recommendations from the Advisory Committee on Immunization Practices (ACIP)

Overview

- **2012 schedules**
- **Immunization coverage**
- **Outbreaks**
- **ACIP recommendations**
 - Influenza
 - Healthcare personnel
 - PCV13
 - Hepatitis B
- **Brief updates**
 - VISs
 - Barcoding
 - Vaccine supply
- **Best practices**
 - Storage & Handling
- **The future**
- **Resources**

2012 Recommended Childhood & Adolescent Immunization Schedules

<http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html>



2012 Recommended Adult Immunization Schedules

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

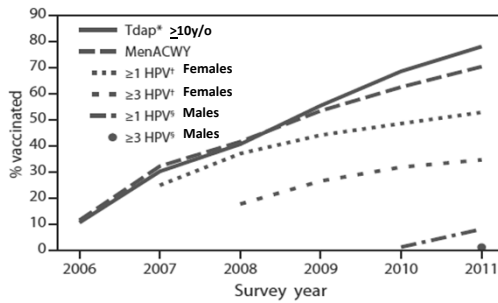


Estimated Coverage of Vaccines Among Children Aged 19-35 Months, NIS, U.S., 2011

State/Area	Vaccine Series* 4:3:1:3:1:4
United States	73.6%
Wisconsin	79.2%

*Includes ≥4 doses DTaP/DT/DTP, ≥ 3 doses polio, ≥ 1 dose MMR, ≥ 3 doses Hep B, ≥ 1 varicella, and ≥ 4 PCV. Hib is excluded
MMWR 2012;61(33):657-652

Estimated Coverage Adolescents 13–17 Years, National Immunization Survey-Teen, United States, 2006–2011



MMWR 2012;61(34):671-77

HPV Vaccines

HPV4 Types 6, 11, 16, 18	HPV2 Types 16, 18
Females Routine: 11-12 yrs Catch-up: 13-26 yrs	Females ONLY Routine: 11-12 yrs Catch-up: 13-26 yrs
Males Routine: 11-12 yrs Catch-up: 13-21 yrs Immunocompromised: 11-26 yrs MSM: 11-26 yrs May be given as young as 9 yrs	May be given as young as 9 yrs
0, 1-2, 6 mos	0, 1-2, 6 mos
Intramuscular (IM)	Intramuscular (IM)

HPV Series Completion

- Significant number of girls who began the HPV series do not receive all three doses
- Related factors include:
 - parents often lack awareness of the importance of vaccinating preteen girls
 - not receiving a strong recommendation for HPV vaccination from healthcare providers

HPV Immunization Rates 13-17 years of age

HPV Vaccine	U.S.	WI
1 or more doses*	53.0%	65.7%
3 dose series completion **	70.7%	80.3%

*Percentages ≥1 human papillomavirus vaccine, either HPV4 or HPV2 reported among females only (n=11,2360)
 ** Percentage of females who received 3 or more HPV doses, either HPV4 or HPV2

MMWR 2011; 60 (No. 33):1117-11123

Strategies for Increasing HPV Vaccination Rates in Clinical Practices

- Recommend HPV vaccine
 - include HPV vaccine when discussing other needed vaccines
- Integrate standard procedures
 - assess for needed vaccines at every clinical encounter
 - immunize at every opportunity
 - standing orders
- Use reminder and recall
- Use AFIX (assessment, feedback, incentives, eXchange of information)
- Report to ShowMeVax
- HEDIS measure (Jan 2012)
 - proportion of 13 year old girls who have not received 3 doses

Measles Epidemiology in the Post Elimination Era

Year	U.S. Reported Cases Total (indigenous/imported)
2011	222
2010	63 (23/40)
2009	71 (51/20)
2008	140 (115/25)
2007	43 (14/29)
2006	55 (24/31)

U.S. Measles Outbreaks in 2012

- 51 reported measles cases as of September 22
- Most measles cases associated with importation
 - travelers from other countries coming into the U.S. who are infected
 - returning U.S. citizens infected while traveling internationally

MMWR 2011; 61 (No.38)

Controlling Measles Outbreaks

- Healthcare providers should:
 - be sure they are immune to measles
 - continue to encourage high vaccination rates
 - review patients' vaccination history, especially anyone planning international travel

MMR Immunization Rates Children 19-35 Months of Age

+1 MMR	U.S.	WI
2011	91.6%	94.9%

MMWR 2012; 61 (No. 34): 671- 677

Measles Immunization for Infants Traveling Internationally

- Infants 6 months through 11 months of age
 - should receive a single dose of MMR
 - still need routinely recommended doses at 12 months and 4 to 6 years of age
- Children 13 months and older traveling internationally should have 2 doses of MMR
 - ensure at least 4 weeks between doses

Controlling Measles Outbreaks

- Clinicians should:
 - be alert and maintain high level of suspicion for measles in patients with febrile rash illness and recent travel outside the United States
 - immediately report suspected measles cases to local health department
 - obtain viral specimens for confirmation and genotyping

Pertussis Outbreaks - U.S. in 2012

- Provisional data as of September 29
 - 4,036 reported cases – Washington
 - 4,640 reported cases - Wisconsin
- Nationwide
 - 30,908 reported cases (11,969 in 2011)

Tdap Recommendations

- **Tdap is indicated for:**
 - Children 7 through 10 years of age who are not fully vaccinated against pertussis and who do not have a contraindication to pertussis vaccine*
 - Anyone 11 years of age or older who has not received a dose of Tdap, especially healthcare personnel with direct patient contact, pregnant and postpartum women, and anyone who will have close contact with an infant younger than 12 months of age

*Off-label

Tdap – Additional Information

- “Fully Vaccinated Against Pertussis”
 - 5 doses of DTaP, or
 - 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday
- There is no minimum interval between the last dose of tetanus toxoid-containing vaccine and a dose of Tdap
- Either Tdap brand may be used, but Boostrix preferred (if available) for adults 65 and older (off-label for Adacel)
- Administer to pregnant women in the 3rd trimester or late in the 2nd trimester (after 20 weeks gestation)
- Tdap may be used for wound prophylaxis
- Tdap FDA approved for ONLY one dose

Persons without Documentation of Pertussis Vaccination

- Preferred schedule
 - single dose of Tdap
 - Td at least 4 weeks after the Tdao dose
 - second dose of Td at least 6 months after the prior Td dose

Pertussis Strategies

- Short-term - optimize current vaccine recommendations
 - DTaP for infants and children
 - Tdap for adolescents and adults
 - Tdap for pregnant women (pass protective antibodies onto infant)
- Long-term
 - Improve diagnostic testing to improve surveillance
 - Enhance surveillance
 - Evaluate effectiveness of cocooning/maternal vaccination
 - Evaluate Tdap duration of protection
 - Assess temporal trends in susceptibility/infection




Influenza A (H3N2) Variant Virus (“H3N2v”)

<http://www.cdc.gov/flu/swineflu/h3n2v-outbreak.htm>

- In 2011, new influenza A (H3N2)v virus detected
- Beginning July 2012, human infections with H3N2v virus detected
- 305 H3N2v reported cases in 2011 – 2012 in 10 states
- 20 cases reported in WI
- 16 hospitalizations
- One H3N2v-associated death reported in Ohio 20
- Vast majority of confirmed cases are associated with swine exposure
- Virus seems to be more transmissible to humans from swine than previous variant viruses

As of September 28, 2012

Three Step Approach to Prevent Flu

-  Take time to get a flu vaccine
-  Take everyday preventive actions to stop the spread of germs that can cause respiratory illness like the flu
-  Take flu antiviral drugs if your doctor prescribes them

Influenza Vaccine Strains for 2012-13 Season

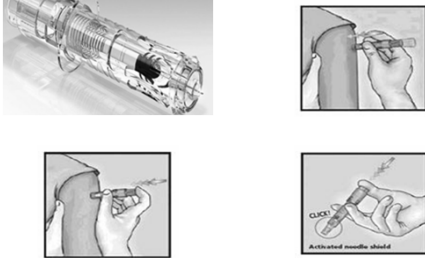
- A/California/7/2009 (H1N1)pdm09, the pandemic strain
- A/Victoria/361/2011 (H3N2), which replaces A/Perth/16/2009
- B/Wisconsin/1/2010, which replaces B/Brisbane/60/2008
- *Quadravalent TIV and LAIV are in various stages of FDA review, but will not be available for the 2012-13 season*
- *MMWR 2012;61(32):613-618*

Influenza Vaccine Products 2012-2013

Vaccine	Age Indications	Manufacturer
Fluzone	6 months and older	Sanofi Pasteur
Fluzone High-Dose	65 years and older	
Fluzone Intradermal	18 through 64 years	
Fluarix	3 years and older	GlaxoSmithKline (GSK)
FluLaval	18 years and older	
Fluvirin	4 years and older	Novartis
Agriflu	18 years and older	
Afluria	9 years and older*	CSL
FluMist	2 through 49 years	MedImmune

*Afluria may be administered to children 5 through 8 years of age with a high-risk condition if no other age appropriate inactivated seasonal influenza vaccine is available

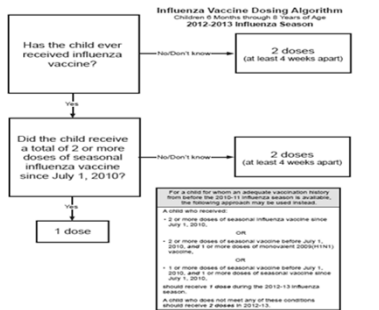
Intradermal Fluzone 18 through 64 years of age ONLY



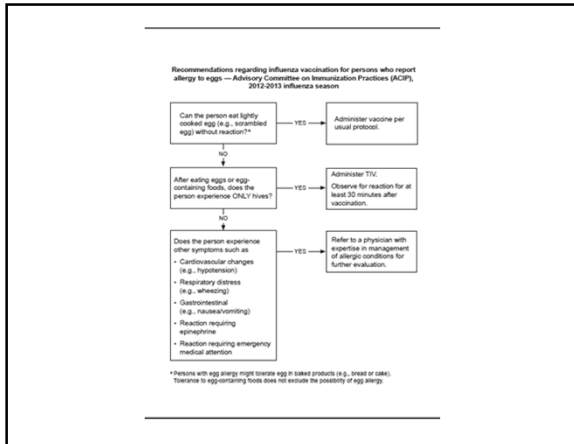
www.vaccineshoppe.com

Influenza Dosing for Children 6 Months through 8 Years of Age

- These children need only 1 dose of vaccine in 2012-2013 if they have received any of the following:
 - 2 or more doses of seasonal influenza vaccine since July 1, 2010 or;
 - 2 or more doses of seasonal influenza vaccine before July 1, 2010 AND 1 or more doses of monovalent 2009 H1N1 vaccine or;
 - 1 or more doses of seasonal influenza vaccine before July 1, 2010 AND 1 or more doses of seasonal influenza vaccine since July 1, 2010
- Children for whom one of these conditions is not met require 2 doses in 2012-2013



NCIRD - www.cdc.gov/vaccines/ed/imzupdate/downloads/doses-algorithm.pdf
 ACIP - www.cdc.gov/mmwr/pdf/wk/mm6132.pdf
 IAC - www.immunize.org/catg.d/p3093.pdf



http://www.cdc.gov/mmwr/pdf/rr/rr6007.pdf

- Healthcare personnel
 - all paid and unpaid persons working in healthcare settings who have the potential for exposure to patients and/or to infectious materials

Healthcare Personnel

Healthcare Personnel Vaccination Recommendations ¹	
Vaccine	Recommendations in brief
Hepatitis B	Give 3-dose series (dose #1 now, #2 in 1 month, #3 approximately 5 months after #2). Give IM. Obtain anti-HBs serologic testing 1–2 months after dose #3.
Influenza	Give 1 dose of influenza vaccine annually. Give inactivated injectable influenza vaccine intramuscularly or live attenuated influenza vaccine (LAIV) intranasally.
MMR	For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below. Give SC.
Varicella (chickenpox)	For HCP who have no serologic proof of immunity, prior vaccination, or history of varicella disease, give 2 doses of varicella vaccine, 4 weeks apart. Give SC.
Tetanus, diphtheria, pertussis	Give a one-time dose of Tdap as soon as feasible to all HCP who have not received Tdap previously. Give Td boosters every 10 years thereafter. Give IM.
Meningococcal	Give 1 dose to microbiologists who are routinely exposed to isolates of <i>N. meningitidis</i> . Give IM or SC.

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

http://www.immunize.org/catg.d/p2017.pdf

Health Care Personnel and Influenza Vaccination

Influenza Vaccination Rates	
Type	Rate
Physicians	85.6%
Nurses	77.9%
Other	62.8%

- Be vaccinated with flu vaccine and encourage your coworkers to be vaccinated!
- When vaccinating HCP assess for other needed vaccines

MMWR 2011; 61(38): 753-757

Pneumococcal Conjugate Vaccine (PCV13) for Immunocompromised Adults

- December, 2011, PCV13 (Prenar) FDA approved for use among adults 50 years and older
- June, 2012, ACIP voted to recommend a dose of PCV13 for high-risk adults 19 years and older*
 - immunocompromised
 - functional or anatomic asplenia
 - cochlear implant
 - CSF leak
- PCV13 should be administered to eligible adults in addition to PPSV23

MMWR 2012;61(21):394-395

*ACIP Off-label

Recommendation for the use of PCV13 among pneumococcal vaccine naïve individuals:

- Adults 19 or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants, who have not previously received PCV13 or PPSV23, should receive a dose of PCV13 first followed by a dose of PPSV23 at least 8 weeks later
- Subsequent doses of PPSV23 should follow current PPSV23 recommendations for these adults.
 - A second PPSV23 dose is recommended 5 years after the first PPSV23 dose for persons aged 19–64 years with functional or anatomic asplenia and for persons with immunocompromising conditions
 - Persons with CSF leaks or cochlear implants should receive no additional doses of PPSV23 until age 65 years.
- Those who received 1 or 2 doses of PPSV23 before age 65 for any indication should receive another dose at 65 or later if at least 5 years have elapsed since their previous PPSV23 dose

Recommendations for use of PCV13 among adults who have previously been vaccinated with PPSV23

- Adults 19 or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants who have previously received one or more doses of PPSV23 should be given a dose of PCV13 one or more years after the last PPSV23 dose was received. For those 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 since the most recent dose of PPSV23

Administering PCV13 and PPSV23 Vaccines

- PCV13 and PPSV23 should not be administered simultaneously
- Administer PCV13 before PPSV23, whenever possible
- PPSV23 recommendations and indications for those at highest risk for invasive pneumococcal disease remain unchanged from earlier recommendations

<http://www.cdc.gov/vaccines/recs/provisional/downloads/pcv13-adults-ic.pdf>

10/4/2012

Table 1. Medical conditions or other indications for administration of 13-valent pneumococcal conjugate vaccine (PCV13), as well as indications for 23-valent pneumococcal polysaccharide vaccine (PPSV23) administration and revaccination for adults aged 19-64 years.

Risk Group	Underlying Medical Condition	PCV13		PPSV23
		Recommended	Recommended	Revaccination at 5 years
Immunocompetent persons	Chronic heart disease		✓	
	Chronic lung disease		✓	
	Diabetes mellitus		✓	
	CSF leaks	✓	✓	
	Cochlear implants	✓	✓	
	Alcoholism		✓	
	Chronic liver disease		✓	
Persons with functional or anatomic asplenia	Cigarette smoking		✓	
	Sickle cell disease/other hemoglobinopathies	✓	✓	✓
Immunocompromised persons	Congenital or acquired immunodeficiencies	✓	✓	✓
	HIV infection	✓	✓	✓
	Chronic renal failure	✓	✓	✓
	Nephrotic syndrome	✓	✓	✓
	Leukemia	✓	✓	✓
	Lymphoma	✓	✓	✓
	Hodgkin disease	✓	✓	✓
	Generalized malignancy	✓	✓	✓
	Iatrogenic immunosuppression	✓	✓	✓
	Solid organ transplant	✓	✓	✓
	Multiple myeloma	✓	✓	✓

Hepatitis B Epidemiology

- Since 1996, 29 outbreaks of hepatitis B in long-term care facilities
- 25 outbreaks involved use of blood glucose monitors among diabetics
- These exposures occurred through:
 - shared use of monitoring devices intended for single use
 - failure to follow basic principles of infection control by cleaning devices between uses

Hepatitis B Vaccine for Diabetics

- Unvaccinated adult diabetics 19 through 59 years of age should receive a 3-dose series of hepatitis B vaccine
- Hepatitis B vaccine may be administered to diabetics 60 years of age and older at the clinician's discretion

MMWR 2011;60(50):1709-1711

Vaccine Information Statements

The screenshot shows the CDC website's 'Vaccine Information Statements' page. At the top, there is a navigation bar with links for 'CDC Home', 'About CDC', 'Press Room', 'Activities', and 'Contact Us'. Below this is the CDC logo and the text 'Department of Health and Human Services, Centers for Disease Control and Prevention'. The main content area is titled 'Vaccine Information Statements' and includes a section for 'At a glance' which explains that these statements are provided by the CDC to help patients and their families understand the benefits and risks of a vaccine. There are also sections for 'Available VIDs' and 'Barcode information'. On the right side, there is a sidebar with 'Email this page', 'Print this page', 'Share on Facebook', 'Share on Twitter', 'Share on LinkedIn', and 'Share on YouTube'. At the bottom, there is a 'Get Email Updates' button.

Vaccine Shortage

- Daptacel (DTaP) – Sanofi Pasteur
- Pentacel (DTaP-IPV/Hib) – Sanofi Pasteur

<http://www.cdc.gov/vaccines/vac-gen/shortages/default.htm>

Completing Series Begun with Daptacel or Pentacel

- Supplies of single-antigen DTaP, IPV, and Hib are adequate to complete a series begun with Pentacel*
- Other combination vaccines may be used to complete a series begun with Pentacel

*As of September 14, 2012

Considerations When Changing Vaccine Products

- ACIP recommends using same brand of vaccine for all doses of vaccination series, when feasible
- If same brand is not known or not available, another brand may be used
- Do not miss an opportunity to vaccinate

Considerations When Changing Vaccine Products

- Hib vaccines are interchangeable (exception – Hiberix only for last booster dose)
- If different brands require different numbers of doses to complete a Hib series, use the higher number when mixing brands
- Hib vaccine component in Pentacel is licensed as a four-dose series

Vaccine Storage & Handling Interim Guidance

- The Interim Vaccine Storage and Handling Guidelines are a brief summary of changes in recommendations for vaccine storage and handling equipment. This guidance is intended for use by all public and private sector providers
- Several important changes have been made to previous recommendations issued by CDC

Vaccine Storage & Handling Interim Guidance

- Use of a biosafe glycol-encased probe or a similar temperature buffered probe rather than measurement of ambient air temperatures
- Use of digital data loggers with detachable probes that record and store temperature information at frequent programmable intervals for 24 hour temperature monitoring rather than non-continuous temperature monitoring

Vaccine Storage & Handling Interim Guidance

- Use of stand-alone refrigerator and stand-alone freezer units suitable for vaccine storage rather than combination (refrigerator+freezer) or other units not designed for storing fragile biologics, such as vaccines
- Discontinuing use of dorm-style or bar-style refrigerator/freezers for ANY vaccine storage, even temporary storage
- Weekly review of vaccine expiration dates and rotation of vaccine stock

Additional Resources

- Immunization Action Coalition
www.immunize.org
- EZIZ (CA VFC program)
www.eziz.org
- Vaccine Education Center
www.chop.edu
- American Academy of Pediatrics (AAP)
www.aap.org/immunize
- National Foundation for Infectious Diseases (NFID)
www.nfid.org

CDC Vaccines and Immunization Contact Information

- Telephone 800.CDC.INFO
(for patients and parents)
- Email nipinfo@cdc.gov
(for providers)
- Website www.cdc.gov/vaccines/
- Vaccine Safety www.cdc.gov/vaccinesafety/
