

CDC Immunization Update 2015

Donna L. Weaver, RN, MN
Nurse Educator
Immunization Services Division

AZ Immunization Conference
April 22, 2015



Disclosures

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

Disclosures

Advisory Committee on Immunization Practices (ACIP)

Vaccines Home

ACIP Home Page

Recommendations

Meetings

Committee Information

About

Related Links

Immunization Schedules

Instant Childhood Immunization Schedule

WHO IIVB vaccines and diseases

VFC Resolutions

Status of Licensure and Recommendations for New Vaccines

Vaccines Home

Print page

Recommend Tweet Share

ACIP The Advisory Committee on Immunization Practices (ACIP) is a group of medical and public health experts that develop recommendations on how to use vaccines to control diseases in the United States...[more](#)

Register for upcoming June ACIP meeting
June 24-25, 2015
(Wednesday - Thursday)

Deadline for registration:
Non-US Citizens: June 3, 2015
US Citizens: June 10, 2015

Registration is NOT required to watch the meeting via webcast

Sign up to be notified when this page is updated

What's New

February meeting presentation slides

FINAL February Agenda [1 page]

October meeting minutes [3 MB, 160 pages]

Nominations deadline

Get email updates

To receive email updates about this page, enter your email address:

What's this?

ACIP Recommendations

Recommendations

Complete list of ACIP recommendations published in the MMWR.

Immunization Schedules

Links to the childhood, adolescent, catch-up, and adult immunization schedules; plus vaccine recording and screening forms.

GRADE (Grading of Recommendations Assessment, Development & Evaluation)

Find tables referenced in ACIP recommendations published in MMWR and learn about GRADE.

General Committee-related Information

Charter

Defines ACIP's purpose, authority, and function; its structure, meetings,

ACIP Meetings

Meeting Information

Recent ACIP meeting agendas, detailed meeting minutes, live meetings, and presentation slides.

Upcoming Meetings

List of scheduled ACIP meeting dates.

Register for a Meeting

Contact ACIP

Advisory Committee on Immunization Practices (ACIP)
1600 Clifton Road, N.E., Mailstop A27
Atlanta, GA 30333

1-404-639-8836

acip@cdc.gov

□ The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP)

- Composed of 15 non-government experts in clinical medicine and public health
- Provides guidance on use of vaccines and other biologic products to DHHS, CDC, and the U.S. Public Health Service

Next ACIP Meeting
June 24-25, 2015
October 21-22, 2015

<http://www.cdc.gov/vaccines/acip/meetings/meetings-info.html>

What's New?

- ❑ **2015 Immunization Schedules**
- ❑ **Vaccination coverage rates**
- ❑ **VIS updates**
- ❑ **Measles**
- ❑ **Influenza**
- ❑ **Recent ACIP Recommendations**
 - HPV
 - PCV13
- ❑ **New Immunization Products**
 - ❑ MenB
 - ❑ DTaP-IPV
- ❑ **Immunization resources**



Immunization Schedules

Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2015.

(FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]).

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are shaded.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16–18 yrs
Hepatitis B ¹ (HepB)	1 st dose	2 nd dose			3 rd dose											
Rotavirus ² (RV) RV1 (2-dose series); RV5 (3-dose series)			1 st dose	2 nd dose	See footnote 2											
Diphtheria, tetanus, & acellular pertussis ³ (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose				4 th dose			5 th dose				
Tetanus, diphtheria, & acellular pertussis ⁴ (Tdap: ≥7 yrs)														(Tdap)		
<i>Haemophilus influenzae</i> type b ⁵ (Hib)			1 st dose	2 nd dose	See footnote 5				3 rd or 4 th dose, See footnote 5							
Pneumococcal conjugate ⁶ (PCV13)			1 st dose	2 nd dose	3 rd dose				4 th dose							
Pneumococcal polysaccharide ⁶ (PPSV23)																
Inactivated poliovirus ⁷ (IPV: <18 yrs)			1 st dose	2 nd dose									3 rd dose	4 th dose		
Influenza ⁸ (IIV; LAIV) 2 doses for some: See footnote 8					Annual vaccination (IIV only) 1 or 2 doses						Annual vaccination (LAIV or IIV) 1 or 2 doses			Annual vaccination (LAIV or IIV) 1 dose only		
Measles, mumps, rubella ⁹ (MMR)					See footnote 9				1 st dose						2 nd dose	
Varicella ¹⁰ (VAR)									1 st dose						2 nd dose	
Hepatitis A ¹¹ (HepA)										2-dose series, See footnote 11						
Human papillomavirus ¹² (HPV2: females only; HPV4: males and females)															(3-dose series)	
Meningococcal ¹³ (Hib-MenCY ≥ 6 weeks; MenACWY-D ≥ 9 mos; MenACWY-CRM ≥ 2 mos)					See footnote 13										1 st dose	Booster

Range of recommended ages for all children
Range of recommended ages for catch-up immunization
Range of recommended ages for certain high-risk groups
Range of recommended ages during which catch-up is encouraged and for certain high-risk groups
Not routinely recommended

This schedule includes recommendations in effect as of January 1, 2015. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (<http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm>) or by telephone (800-CDC-INFO [800-232-4636]).

This schedule is approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/vaccines/acip>), the American Academy of Pediatrics (<http://www.aap.org>), the American Academy of Family Physicians (<http://www.aafp.org>), and the American College of Obstetricians and Gynecologists (<http://www.acog.org>).

NOTE: The above recommendations must be read along with the footnotes of this schedule.

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

FIGURE 2. Catch-up immunization schedule for persons aged 4 months through 18 years who start late or who are more than 1 month behind —United States, 2015.

The figure below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. Always use this table in conjunction with Figure 1 and the footnotes that follow.

Children age 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B ¹	Birth	4 weeks	8 weeks and at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.		
Rotavirus ²	6 weeks	4 weeks	4 weeks ²		
Diphtheria, tetanus, and acellular pertussis ³	6 weeks	4 weeks	4 weeks	6 months	6 months ³
<i>Haemophilus influenzae</i> type b ⁵	6 weeks	4 weeks if first dose was administered before the 1 st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months. No further doses needed if first dose was administered at age 15 months or older.	4 weeks ⁵ if current age is younger than 12 months and first dose was administered at younger than age 7 months, and at least 1 previous dose was PRP-T (ActHib, Pentacel) or unknown. 8 weeks and age 12 through 59 months (as final dose) ⁵ • if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR • if current age is 12 through 59 months and first dose was administered before the 1 st birthday, and second dose administered at younger than 15 months; OR • if both doses were PRP-OMP (PedvaxHIB; Comvax) and were administered before the 1 st birthday. No further doses needed if previous dose was administered at age 15 months or older.	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1 st birthday.	
Pneumococcal ⁶	6 weeks	4 weeks if first dose administered before the 1 st birthday. 8 weeks (as final dose for healthy children) if first dose was administered at the 1 st birthday or after. No further doses needed for healthy children if first dose administered at age 24 months or older.	4 weeks if current age is younger than 12 months and previous dose given at <7 months old. 8 weeks (as final dose for healthy children) if previous dose given between 7-11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was given before age 12 months. No further doses needed for healthy children if previous dose administered at age 24 months or older.	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age.	
Inactivated poliovirus ⁷	6 weeks	4 weeks ⁷	4 weeks ⁷	6 months ⁷ (minimum age 4 years for final dose).	
Meningococcal ⁸	6 weeks	8 weeks ¹³	See footnote 13	See footnote 13	
Measles, mumps, rubella ⁹	12 months	4 weeks			
Varicella ¹⁰	12 months	3 months			
Hepatitis A ¹¹	12 months	6 months			
Children and adolescents age 7 through 18 years					
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis ⁴	7 years ⁴	4 weeks	4 weeks if first dose of DTaP/DT was administered before the 1 st birthday. 6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1 st birthday.	6 months if first dose of DTaP/DT was administered before the 1 st birthday.	
Human papillomavirus ¹²	9 years	0, 2, 6 months	Routine dosing intervals are recommended. ¹²		
Hepatitis A ¹¹	Not applicable (N/A)	6 months			
Hepatitis B ¹	N/A	4 weeks	8 weeks and at least 16 weeks after first dose.		
Inactivated poliovirus ⁷	N/A	4 weeks	4 weeks ⁷	6 months ⁷	
Meningococcal ⁸	N/A	8 weeks ¹³			
Measles, mumps, rubella ⁹	N/A	4 weeks			
Varicella ¹⁰	N/A	3 months if younger than age 13 years. 4 weeks if age 13 years or older.			

NOTE: The above recommendations must be read along with the footnotes of this schedule.

Catch-up Guidance Job Aids

Pneumococcal Conjugate Vaccine (PCV) Catch-Up Guidance for Children 4 Months through 18 Years of Age 2015

IF current age is	AND # of previous doses is	AND	THEN	NEXT DOSE
4 - 6 Months	0 or unknown			Give Dose 2 at least
	1			
	2			
7-11 Months	0			
	1			
	2			

Haemophilus Influenzae type b-Containing Vaccines Catch-Up Guidance for Children 4 Months through 18 Years of Age 2015

Hib Vaccine Products: ActHIB, Pentacel, MenHibRix, or Unknown

IF current age is	AND # of previous doses is	AND	THEN	Next dose due
4 through 6 months	Unknown or 0	→	Give Dose 1 today	Give Dose 2 at least 4 weeks after Dose 1
	1			

Haemophilus Influenzae type b-Containing Vaccines Catch-Up Guidance for Children 4 Months through 18 Years of Age 2015

Hib Vaccine Products: Pedvax and Comvax Vaccines Only

IF current age is	AND # of previous doses is	AND	THEN	Next dose due
4 through 6 Months	0			
	1			
7 through 11 Months	0			
	1			
12 through 14 Months	0			
	1			

Diphtheria, Tetanus, and Pertussis-Containing Vaccines Catch-Up Guidance for Children 4 Months through 18 Years of Age 2015

IF current age is	AND # of previous Doses of DTaP or DT	AND	AND	THEN	Next Dose Due
4 months through 11 months	Unknown or 0	→	→	Give Dose 1 (DTaP) today	Give Dose 2 (DTaP) at least 4 weeks after Dose 1
	1	It has been at least 4 weeks since Dose 1	→	Give Dose 2 (DTaP) today	Give Dose 3 (DTaP) at least 4 weeks after Dose 2
		It has not been at least 4 weeks since Dose 1	→	No dose today	Give Dose 2 (DTaP) at least 4 weeks after Dose 1
	2	It has been at least 4 weeks since Dose 2	→	Give Dose 3 (DTaP) today	Give Dose 4 (DTaP) at least 6 calendar months after Dose 3 and at least 15 months of age
It has not been at least 4 weeks since Dose 2		→	No dose today	Give Dose 3 (DTaP) at least 4 weeks after Dose 2	
1 through 3 years	1	Unknown or 0	→	Give Dose 1 (DTaP) today	Give Dose 2 (DTaP) at least 4 weeks after Dose 1
		It has been at least 4 weeks since Dose 1	→	Give Dose 2 (DTaP) today	Give Dose 3 (DTaP) at least 4 weeks after Dose 2
	It has not been 4 weeks since Dose 1	→	No dose today	Give Dose 2 (DTaP) at least 4 weeks after Dose 1	
	2	It has been at least 4 weeks since Dose 2	→	Give Dose 3 (DTaP) today	Give Dose 4 (DTaP) at least 6 calendar months after Dose 3
		It has not been 4 weeks since Dose 2	→	No dose today	Give Dose 3 (DTaP) at least 4 weeks after Dose 2
	3	It has been at least 6 calendar months since Dose 3	→	If 12 through 14 months of age, no dose today	Give Dose 4 (DTaP) at 15 through 18 months of age
It has not been 6 calendar months since Dose 3		→	If 15 months of age or older, give Dose 4 (DTaP) today	Give Dose 5 (DTaP) at least 6 months after Dose 4 and at 4 through 6 years of age	
			No dose today	Give Dose 4 (DTaP) at least 6 months after Dose 3	

Reference: Recommended immunization schedule for children aged 0 through 18 years - United States, 2015.
<http://www.cdc.gov/vaccines/schedules/downloads/child-0-18yrs-child-combined-schedule.pdf>

Reference: Recommended immunization schedule for children aged 0 through 18 years - United States, 2015.
<http://www.cdc.gov/vaccines/schedules/downloads/child-0-18yrs-child-combined-schedule.pdf>

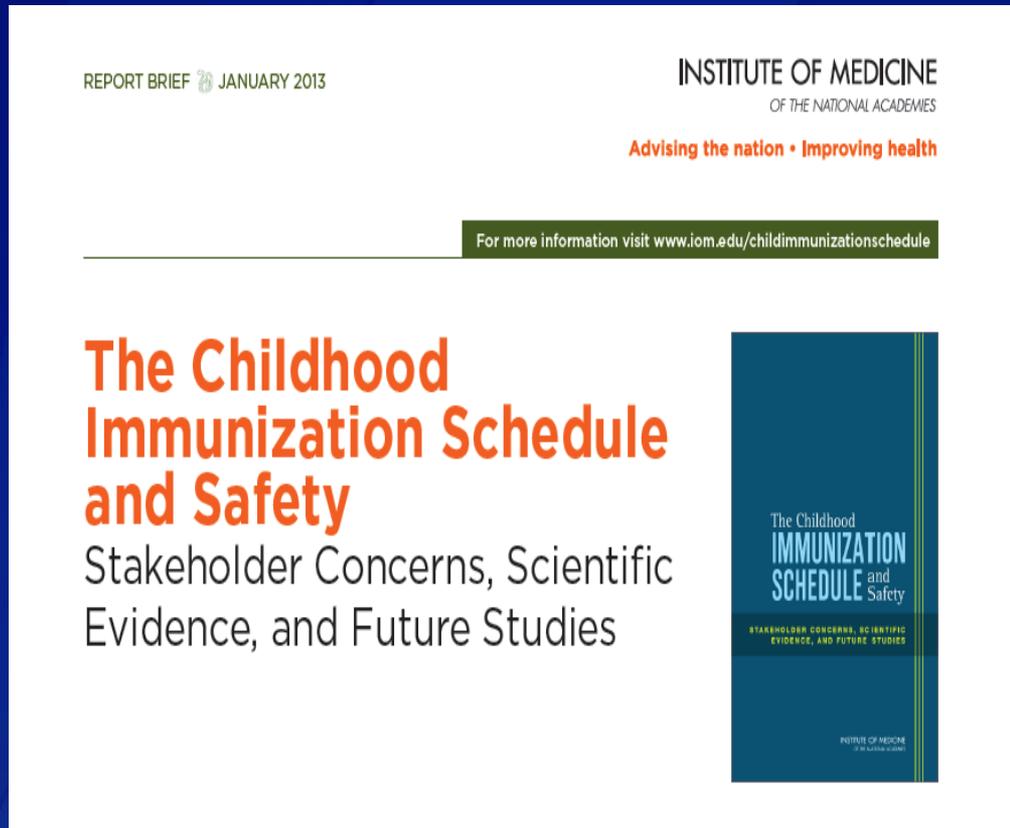
Reference: Recommended immunization schedule for children aged 0 through 18 years - United States, 2015.
<http://www.cdc.gov/vaccines/schedules/downloads/child-0-18yrs-child-combined-schedule.pdf>

Vaccine Information: DTaP: Administer to children 6 weeks through 6 years of age without a contraindication or precaution to pertussis vaccine. DT: Administer to children 6 weeks through 6 years of age with a contraindication to pertussis vaccine. Tdap: Administer to persons 7 years of age and older without a contraindication or precaution to pertussis vaccine. Td: Administer to persons 7 years of age and older previously vaccinated with Tdap or with a contraindication to pertussis vaccine.
 Reference: Recommended immunization schedule for persons aged 0 through 18 years - United States, 2015.
<http://www.cdc.gov/vaccines/schedules/downloads/child-0-18yrs-child-combined-schedule.pdf>



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

Institute of Medicine Report: The Childhood Immunization Schedule and Safety



Upon reviewing stakeholder concerns and scientific literature regarding the entire childhood immunization schedule, the IOM committee finds no evidence that the schedule is unsafe

http://www.cdc.gov/vaccinesafety/Concerns/childhood_immunization_iomstudies.html

2015 Adult Immunization Schedule Changes from 2014

- ❑ **September 2014 pneumococcal vaccine recommendation**
 - Routine administration of 13-valent pneumococcal conjugate vaccine (PCV13) in series with 23-valent pneumococcal polysaccharide vaccine (PPSV23) for all adults aged 65 years or older
- ❑ **August 2014 influenza vaccine contraindications and precautions for live attenuated influenza vaccine (LAIV)**
 - Move "influenza antiviral use within the last 48 hours" from precautions to contraindications
 - Move asthma and chronic lung diseases; cardiovascular, renal, and hepatic diseases; and diabetes and other conditions from contraindications to precautions
- ❑ **October 2014 approval by Food and Drug Administration to expand approved age for recombinant influenza vaccine (RIV)**
 - Adults aged 18 years or older (changed from 18 through 49 years) can receive RIV

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*}							
Human papillomavirus (HPV) Male ^{5*}							
Zoster ⁶							
Measles, mumps, rubella (MMR) ^{7*}							
Pneumococcal 13-valent conjugate (PCV13) ^{8*}							
Pneumococcal polysaccharide (PPSV23) ^{9,10}							
Meningococcal ^{11*}							
Hepatitis A ^{12*}							
Hepatitis B ^{13*}							
<i>Haemophilus influenzae</i> type b (Hib) ^{14*}							

*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

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) ^{9,14}	Chronic liver disease	Diabetes	Healthcare personnel
Influenza ^{2*}				< 200 cells/μL	≥ 200 cells/μL						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/pubs/acip-list.htm). 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.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

There is a Schedule App!

- For Health Care Professionals
- For Everyone: Easy-to-read Schedules
- Display Schedules on Your Website
- Web Buttons
- Past Immunization Schedules

[Recommend](#) [Tweet](#) [Share](#)

CDC Vaccine Schedules App for Clinicians and Other Immunization Providers

Note: If you previously downloaded the tool, check that you have version 2.0.1 with 2015 schedules and footnotes.

Healthcare professionals who recommend or administer vaccines can immediately access all CDC recommended immunization schedules and footnotes using the CDC Vaccine Schedules app. Optimized for tablets and useful on smartphones, the app is recommended by the Advisory Committee on Immunization Practices.

The app visually mimics the printed schedules and is published annually. Users can view schedules and timing with 2 or 3 clicks. Any changes are released through app updates. This collection of applications from CDC is each optimized for your mobile device.

This free tool provides the most current information on:

- Child and adolescent schedule recommendations from birth through age 18
- Catch-up schedule for children and adolescents
- Adult schedule, including recommended conditions
- Contraindications and precautions

Features of the app:

- Color coding coordinates with the printed schedules

On this Page

- [Download App](#)
- [Product Approval](#)
- [Access Content on the Web](#)

Contact Us:

 Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333
 800-CDC-INFO
(800-232-4636)
TTY:
(888) 232-6348
[Contact CDC-INFO](#)

Related Links

- [Vaccine Information Statements](#)
- [ACIP Vaccination Recommendations](#)
- [Why Immunize?](#)
- [Vaccines: The Basics](#)

[Top of Page](#)

Download the App

Note: If you previously downloaded the tool, check that you have version 2.0.1 with 2015 schedules and footnotes.

Download "CDC Vaccine Schedules" free for iOS and Android devices.



Product Specs

Version: 2.0.1

Requirements: Requires iOS 5.0 or later and Android 2.1 or later; optimized for tablets and useful on smartphones.

Updates: Changes in the app are released through app updates.

Download app free for **iOS**



Download app free for **Android**



[Top of Page](#)

<http://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html#download>



Immunization Coverage

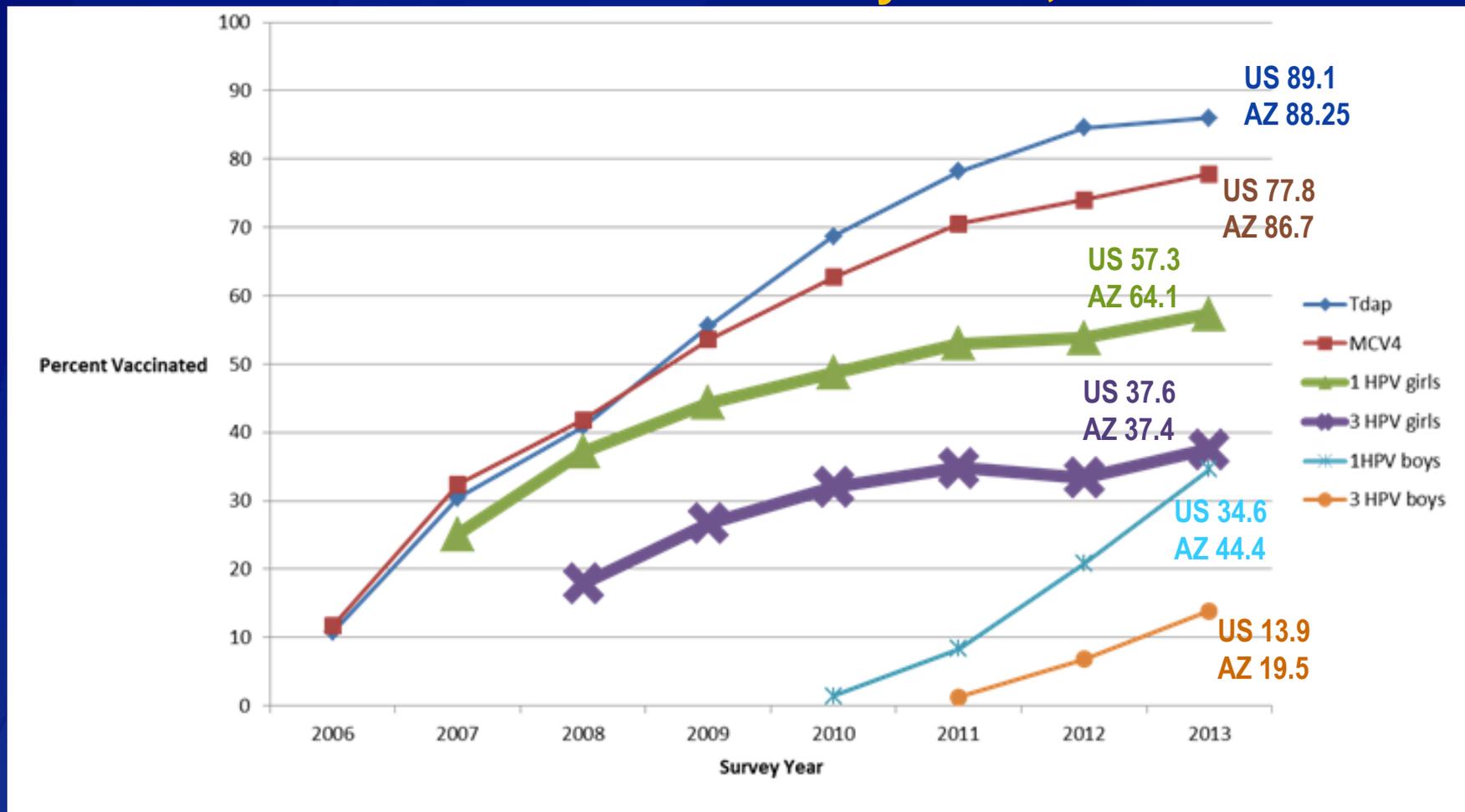
Estimated Coverage of Vaccines Among Children Aged 19-35 Months, NIS 2013

State/Area	Vaccine Series* 4:3:1:4:3:1:4
United States	70.4%
Arizona	65.1%

*Includes ≥ 4 doses DTaP/DT/DTP, ≥ 3 doses polio, ≥ 1 dose MMR, Full Series Hib, ≥ 3 doses Hep B, dose ≥ 1 varicella, and doses ≥ 4 PCV.

MMWR 2014; 63(34): 741-48

National Estimated Vaccination Coverage Levels among Adolescents 13-17 Years, National Immunization Survey-Teen, 2006-2013



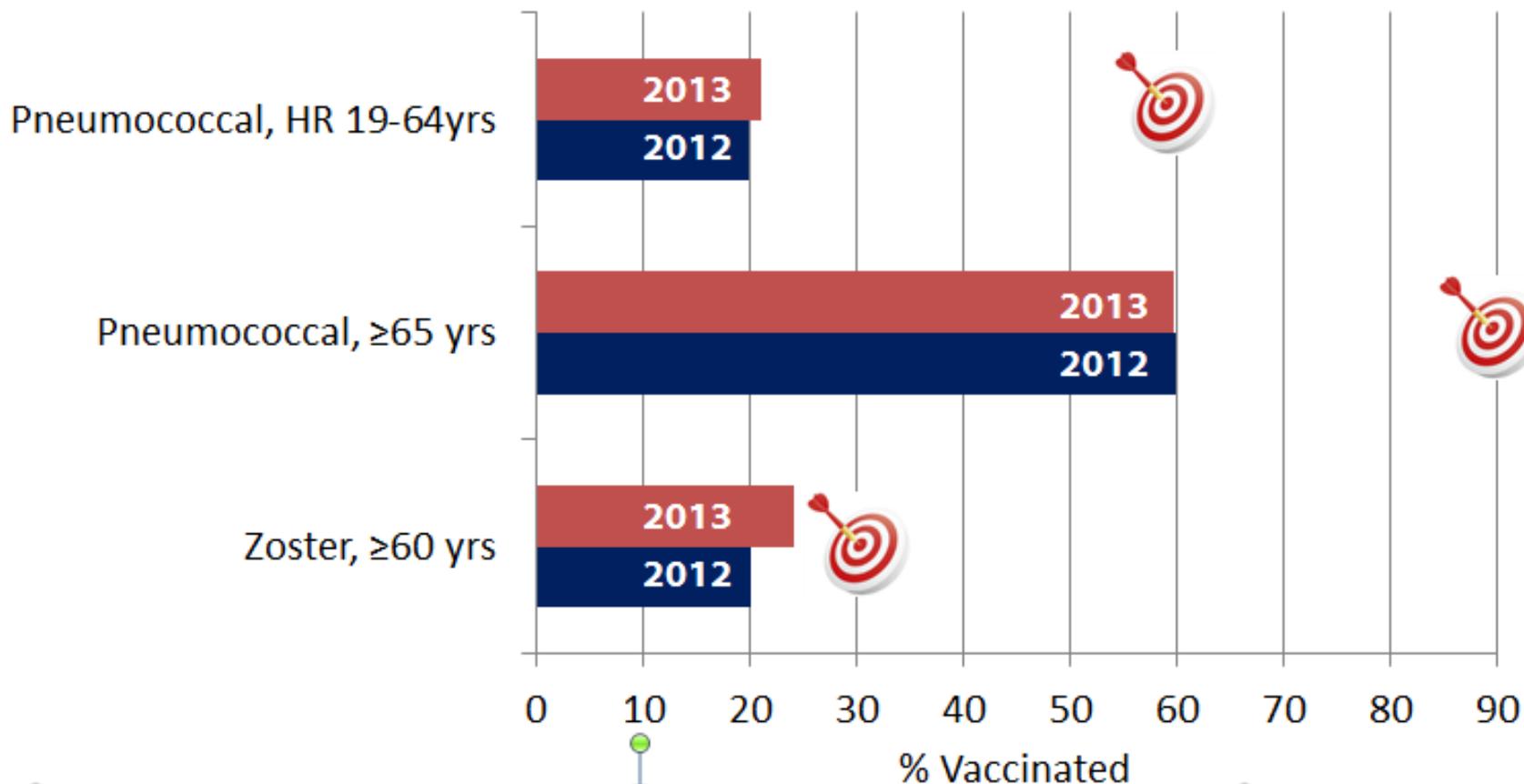
MMWR: July 25, 2014 / 63(29);625-33

Avoid Missed Opportunities

- ❑ **Recommend HPV vaccine**
 - Include HPV vaccine when discussing other needed vaccines
- ❑ **HPV vaccine can safely be given at the same time as the other recommended adolescent vaccines**
- ❑ **Integrate standard procedures**
 - Assess for needed vaccines at every clinical encounter, including acute care visits
 - Immunize at every opportunity
 - Use standing orders
- ❑ **Document doses in the medical record**
- ❑ **Use reminder and recall**

Tools for improving uptake of HPV: www.cdc.gov/vaccines/teens

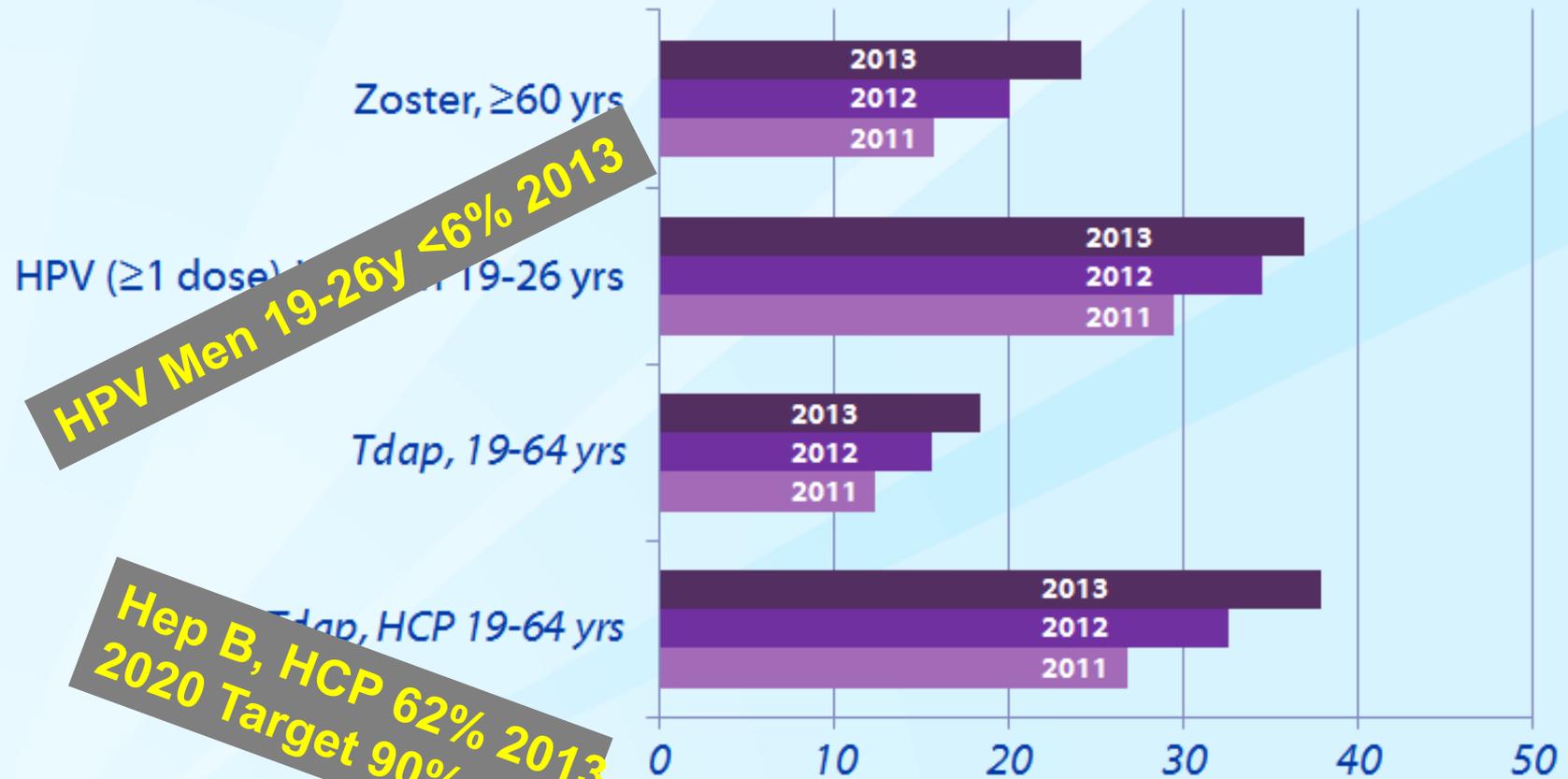
Adult Immunization Coverage, Selected Vaccines by Age and High-risk Status, United States



HP2020 Targets: 90% PPV ≥65 yrs, 60% PPV HR 19-64 yrs, 30% zoster ≥60 yrs

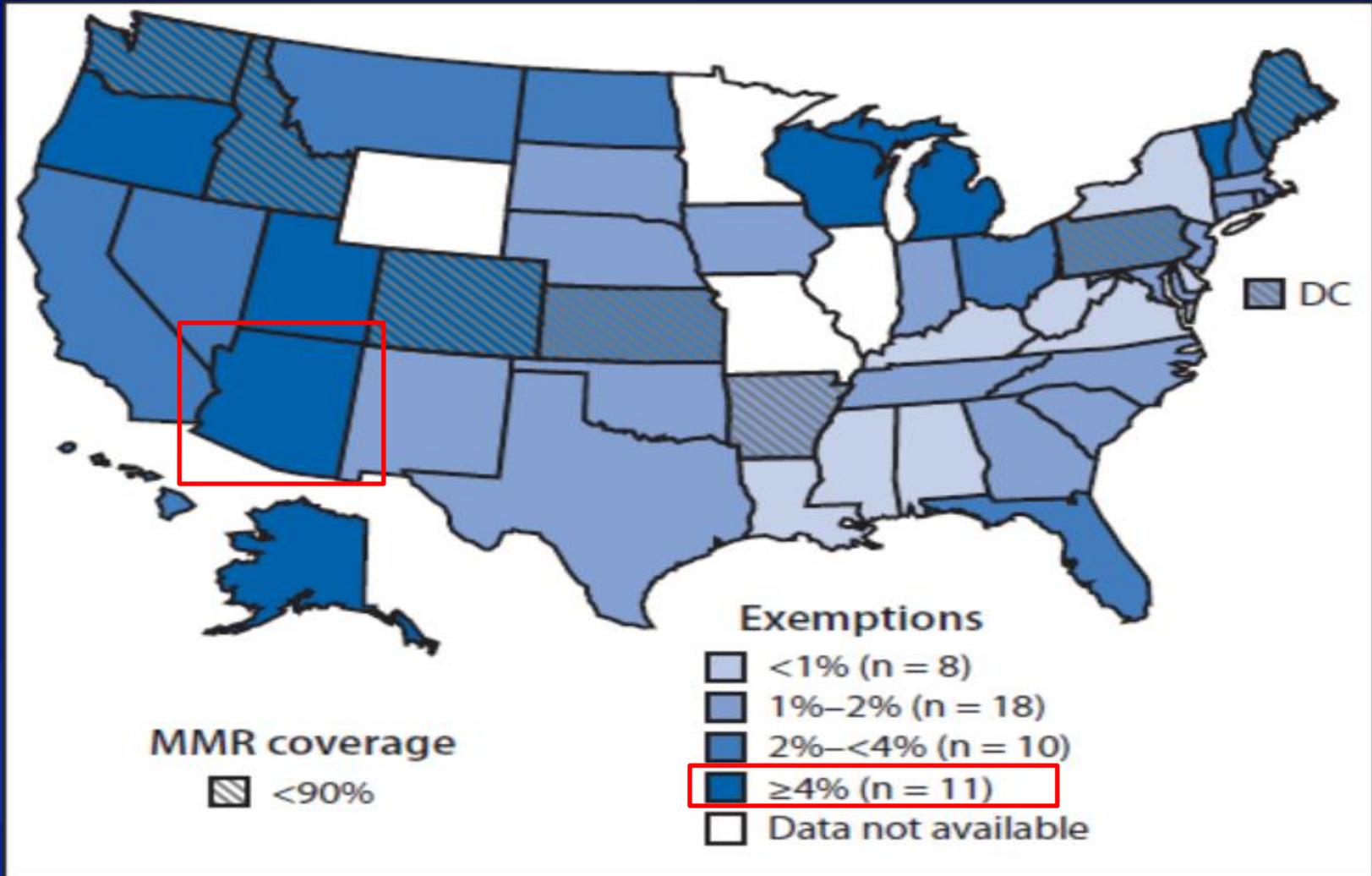
Data Source: 2012 and 2013 NHIS

Non-Influenza Adult Vaccination Coverage Vaccines with Increases from 2011 to 2013



Data Source: NHIS 2011-2013

Estimated Percentage of Kindergarten Children Who Have Been Exempted from Receiving One or More Vaccines, 2013-14 School Year



MMWR 2014; 63(41): 913-920

**IMPORTANT
INFORMATION**



Vaccine Information Statements (VIS)

Your Baby's First Vaccines

What You Need to Know

Your baby will get t

- DTaP
- Hib
- Hepatitis B

(Provider: Check appro

VACCINE INFORMATION STATEMENT

Rotavirus Vaccine

What You Need to Know

1 Why get vaccinated?

Rotavirus is a virus that c and young children. The to dehydration. Vomiting babies with rotavirus.

Before rotavirus vaccine, common and serious had United States. Almost all one rotavirus infection be

Every year:

- more than 400,000 you for illness caused by ro
- more than 200,000 had
- 55,000 to 70,000 had to
- 20 to 60 died.

Rotavirus vaccine has be United States. Because ch vaccine, hospitalizations, rotavirus have dropped d

2 Rotavirus

Two brands of rotavirus v will get either 2 or 3 dose is used.

Doses of rotavirus vaccine are:

- First Dose: 2 month
- Second Dose: 4 month
- Third Dose: 6 month

Rotavirus vaccine is a lig shot.

Rotavirus vaccine may s as other vaccines.

Rotavirus vaccine is very and vomiting caused by r who get rotavirus vaccine rotavirus diarrhea. And m rotavirus diarrhea at all. T diarrhea or vomiting cas

These diseases are caused by pertussis are spread from person to g secretions from coughing or sneezin body through cuts, scratches, or we

Before vaccines, as many as 200,000 200,000 cases of pertussis, and limd tetanus, were reported in the United Since vaccination began, reports of diphtheria have dropped by about 95 by about 80%.

VACCINE INFORMATION STATEMENT

Hib Vaccine

What You Need to Know

1 Why get vaccinated?

Haemophilus influenzae type b (Hib) d disease caused by bacteria. It usually aff under 5 years old. It can also affect adu medical conditions.

Before Hib vaccine, Hib disease was the of bacterial meningitis among children u in the United States. Meningitis is an infl of the brain and spinal cord. It ca damage and death. Hib disease can a

• pneumonia

- severe swelling in the throat, making e
- infections of the blood, joints, bones, e the heart
- death

Before Hib vaccine, about 20,000 childr States under 5 years old got Hib disease about 3% - 6% of them died.

Hib vaccine can prevent Hib disease. S Hib vaccine began, the number of case Hib disease has decreased by more than more children would get Hib disease if v vaccination.

These diseases are caused by pertussis are spread from person to g secretions from coughing or sneezin body through cuts, scratches, or we

Before vaccines, as many as 200,000 200,000 cases of pertussis, and limd tetanus, were reported in the United Since vaccination began, reports of diphtheria have dropped by about 95 by about 80%.

Before vaccines, as many as 200,000 cases of diphtheria and hundreds of cases of tetanus were reported in the United States each year. Since vaccination began, reports of cases for both diseases have dropped by about 99%.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

Td may safely be given at the same time as other vaccines.

Td vaccine can protect adolescents and adults from tetanus and diphtheria. Td is usually given as a booster dose every 10 years but it can also be given earlier after a severe and dirty wound or burn.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

Td may safely be given at the same time as other vaccines.

VACCINE INFORMATION STATEMENT

Tdap Vaccine

What You Need to Know

1 Why get vaccinated?

Tetanus, diphtheria and pertussis d diseases. Tdap vaccine can protect y diseases. And, Tdap vaccine gives c protect newborn babies against TETANUS (Lockjaw) is rare in the It causes painful muscle tightening e all over the body.

• It can lead to tightening of muscle neck so you can't open your mouth sometimes even breathe. Tetanus k 10 people who are infected even a best medical care.

DIPHTHERIA is also rare in the U It can cause a thick coating to form in the throat.

• It can lead to breathing problems, paralysis, and death.

PERTUSSIS (Whooping Cough) or coughing spells, which can cause di vomiting and disturbed sleep.

• It can also lead to weight loss, inc rib fractures. Up to 2 in 100 adole 100 adults with pertussis are hosp complications, which could lead death.

These diseases are caused by tetanus are spread from person to g secretions from coughing or sneezin body through cuts, scratches, or we

Before vaccines, as many as 200,000 200,000 cases of pertussis, and limd tetanus, were reported in the United Since vaccination began, reports of diphtheria have dropped by about 95 by about 80%.

Before vaccines, as many as 200,000 cases of diphtheria and hundreds of cases of tetanus were reported in the United States each year. Since vaccination began, reports of cases for both diseases have dropped by about 99%.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

Td may safely be given at the same time as other vaccines.

Td vaccine can protect adolescents and adults from tetanus and diphtheria. Td is usually given as a booster dose every 10 years but it can also be given earlier after a severe and dirty wound or burn.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

VACCINE INFORMATION STATEMENT

Td Vaccine

What You Need to Know

1 Why get vaccinated?

Tetanus and diphtheria are very serious diseases. They are rare in the United States today, but people who do become infected often have severe complications. Td vaccine is used to protect adolescents and adults from both of these diseases.

Both tetanus and diphtheria are infectious caused by bacteria. Diphtheria spreads from person to person through coughing or sneezing. Tetanus-causing bacteria enter the body through cuts, scratches, or wounds.

TETANUS (Lockjaw) causes painful muscle tightening and stiffness, usually all over the body.

• It can lead to tightening of muscles in the head and neck so you can't open your mouth, swallow, or sometimes even breathe. Tetanus kills about 1 out of every 10 people who are infected even after receiving the best medical care.

DIPHTHERIA can cause a thick coating to form in the back of the throat.

• It can lead to breathing problems, paralysis, heart failure, and death.

Before vaccines, as many as 200,000 cases of diphtheria and hundreds of cases of tetanus were reported in the United States each year. Since vaccination began, reports of cases for both diseases have dropped by about 99%.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

Td may safely be given at the same time as other vaccines.

Td vaccine can protect adolescents and adults from tetanus and diphtheria. Td is usually given as a booster dose every 10 years but it can also be given earlier after a severe and dirty wound or burn.

Another vaccine, called Tdap, which protects against pertussis in addition to tetanus and diphtheria, is sometimes recommended instead of Td vaccine.

Your doctor or the person giving you the vaccine can give you more information.

Td may safely be given at the same time as other vaccines.

Updated VIS

Multi-Vaccines

RV

Hib

Tdap

Td

Vaccine Information Statements (VIS)

- VIS Home
- Current VISs
- What's New with VISs
- About VISs

CDC > VIS Home

Current VISs

- Recommend
 - Tweet
 - Share
- CDC maintains a current English language VIS for each vaccine. You and your patients can
- View and display the web page
 - Download and print the PDF file
 - Import the RFP (text) file into an electronic system
 - View on a smartphone, tablet or other web-accessible mobile device

VIS Barcodes

Get Email Updates

To receive email updates about this page, enter your email address:

What's this? **Submit**

Multi-, Routine-, & Non-Routine-Vaccine VISs

Multi

- Multiple Vaccines (DTaP, Hib, Hepatitis B, Polio, and PCV13) (10/22/14) [Interim] **UPDATED**
- This VIS may be used in place of the Individual VISs for DTaP, Hib, Hepatitis B, Polio, and PCV13 when two or more of these vaccines are administered during the same visit. It may be used for infants through children receiving their routine 4-6 year vaccines.

Routine

- DTaP (5/17/07)
- Hepatitis A (10/25/11) [Interim]
- Hepatitis B (2/2/12) [Interim]
- Hib (*Haemophilus Influenzae* type b) (4/2/15) **UPDATED**
- HPV - Cervarix (5/3/11) [Interim]
- HPV - Gardasil (5/17/13) [Interim]
- Influenza - Live, Intranasal (8/19/14) [Interim]
- Influenza - Inactivated (8/19/14) [Interim]
- Measles/Mumps/Rubella (MMR) (4/20/12) [Interim]
- Measles/Mumps/Rubella & Varicella (MMRV) (5/21/10) [Interim]
- Meningococcal (10/14/2011) [Interim]
- Pneumococcal Conjugate (PCV13) (2/27/13) [Interim]
- Pneumococcal Polysaccharide (PPSV23) (10/06/09)
- Polio (11/08/11) [Interim]
- Rotavirus (8/26/13) [Interim]

Stay Current

Sign up for e-mail alerts when VISs are updated

Import the current VISs to your website



Measles Update

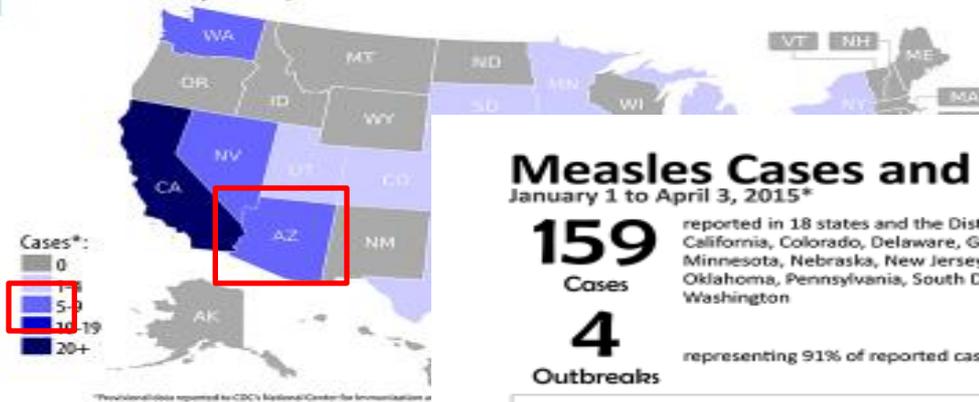
Measles Cases and Outbreaks

Measles Cases

From January 1 to April 3, 2015, 159 people from 18 states and the District of Columbia were reported to have measles [AZ (7), CA (101), CO (1), DC (2), DE (1), GA (1), IL (15), MI (1), MN (1), NE (2), NJ (2), NY (3), NV (9), OK (1), PA (1), SD (2) TX (1), UT (2), WA (7)]†. Most of these cases (117 cases (74%)) are part of a large, ongoing [multi-state outbreak linked to an amusement park in California](#). This week, 19 previously reported measles cases in California were reclassified from 2015 cases to 2014 cases.

2015 Measles Cases in the U.S.

January 1 to April 3, 2015



† CDC will update these data weekly on Mondays.

The United States experienced a record number of measles cases in 2014. For more information, visit the National Center for Immunization and Respiratory Diseases (NCIRD).

Measles Cases and Outbreaks

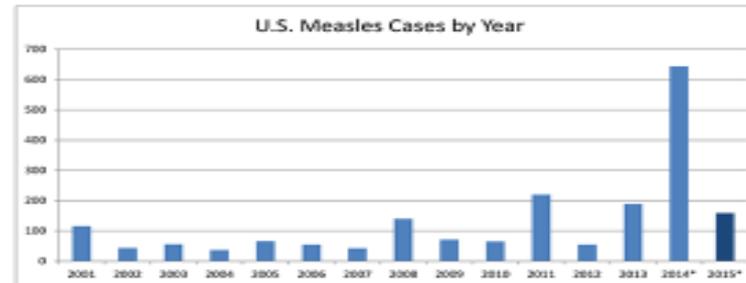
January 1 to April 3, 2015*

159
Cases

reported in 18 states and the District of Columbia: Arizona, California, Colorado, Delaware, Georgia, Illinois, Michigan, Minnesota, Nebraska, New Jersey, New York, Nevada, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Washington

4
Outbreaks

representing 91% of reported cases this year



- The majority of people who got measles were unvaccinated.
- Measles is still common in many parts of the world including some countries in Europe, Asia, the Pacific, and Africa.
- Travelers with measles continue to bring the disease into the U.S.
- Measles can spread when it reaches a community in the U.S. where groups of people are unvaccinated.

<http://www.cdc.gov/measles/cases-outbreaks.html>

Measles **anywhere** is a threat **everywhere**.

Measles Is Serious: Take Care Before and After Travel

HEALTH ADVISORY: MEASLES

Measles spreads easily and can cause serious illness.



Get vaccinated to prevent measles.



Protect yourself from measles.



For more information:
• Call 800-CDC-INFO (232-4636)
• Visit www.cdc.gov/travel



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Measles spreads easily and can cause serious illness. Get vaccinated to prevent measles. Protect yourself from measles.

[« Back](#)

Traveling abroad for spring or summer break?
Not protected against measles?
Get your measles vaccination.

Measles is a plane ride away.

Since measles is still common in many countries, **unvaccinated travelers** continue to **get measles in other countries** and bring it into the U.S., and spread it to others.



Get Vaccinated:
Bring home fun souvenirs, photos, and fantastic memories – **NOT measles!**



Passport

Since measles is still common, continue to **bring the disease** home.

Get Vaccinated: **P**

Make sure you and your family member **measles-mumps-rubella (MMR) vaccine** traveling internationally. Ask your doctor all recommended doses of MMR for babies. www.cdc.gov/Features/Measle

HEALTH ADVISORY: MEASLES

Measles spreads easily and can cause serious illness.



If you get fever and a rash in the next 3 weeks...



Call a doctor. Tell the doctor that you traveled.



For more information:
• Call 800-CDC-INFO (232-4636)
• Visit www.cdc.gov/travel



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Measles spreads easily and can cause serious illness. If you get a fever and a rash in the next 3 weeks, call a doctor. Tell the doctor that you traveled.

Make sure you are up to date on your **measles-mumps-rubella (MMR) vaccine**, including before travelling internationally. Ask your doctor, if you have received all recommended doses of MMR for best protection against measles.

www.cdc.gov/Features/MeaslesInternationalTravel/



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



www.cdc.gov/measles/importation-infographic.html

Measles Update

Measles (Rubeola)

Measles Home

About Measles +

Measles Vaccination

Cases and Outbreaks +

For Healthcare Professionals

For Travelers

Lab Tools +

Stats and Surveillance

Resources +

CDC > [Measles Home](#)

For Healthcare Professionals

[Recommend](#) [Tweet](#) [Share](#)

The United States is currently experiencing a large, multi-state outbreak of measles linked to an amusement park in California. The outbreak started in December 2014 and has spread to more than a dozen other states. CDC urges healthcare professionals to consider measles when evaluating patients with febrile rash and ask about a patient's vaccine status, recent travel history, and contact with individuals who have febrile rash illness.

[More >](#)

On this Page

- [Clinical Features](#)
- [The Virus](#)
- [Background](#)
- [Complications](#)
- [People at High Risk for Complications](#)
- [Transmission](#)
- [Diagnosis and Laboratory Testing](#)
- [Evidence of Immunity](#)
- [Vaccination](#)
- [Post-exposure Prophylaxis](#)
- [Isolation](#)
- [Treatment](#)
- [Photos](#)
- [Resources](#)

Related Links

[Measles and Rubella Initiative](#)

[World Health Organization](#)

[Pan American Health Organization](#)

Measles Clinical Features



See images of 3 children with measles infection [in this 3-minute video](#).

Clinical Features

Measles is an acute viral respiratory illness. It is characterized by a prodrome of fever (as high as 105°F) and malaise, cough, coryza, and conjunctivitis - the three "C"s - a pathognomonic enanthema (Koplik spots) followed by a [maculopapular rash](#). The rash usually appears about 14 days after a person is exposed; however, the incubation period ranges from 7 to 21 days. The rash spreads from the head to the trunk to the lower extremities. Patients are considered to be contagious from 4 days before to 4 days after the rash appears. Of note, sometimes immunocompromised patients do not develop the rash.

CDC's Dr. Jane Seward describes measles clinical features and what to do if a healthcare provider suspects measles. [in this 5-minute video](#).

The Virus

Measles is caused by a single-stranded, enveloped RNA virus with 1 serotype. It is classified as a member of the genus Morbillivirus in the Paramyxoviridae family. Humans are the only natural hosts of measles virus.

Background

In the decade before the live measles vaccine was licensed in 1963, an average of 549,000 measles cases and 495 measles deaths were reported annually in the United States. However, it is likely that, on average, 3 to 4 million people were infected with measles annually; most cases were not reported. Of the reported cases, approximately 48,000 people were hospitalized from measles and 1,000 people developed chronic disability from acute encephalitis caused by measles annually.

In 2000, measles was declared eliminated from the United States. Elimination is defined as the absence

[Advice for Travelers](#)

<http://www.cdc.gov/measles/hcp/index.html>

Guidance for Healthcare Personnel

- ❑ **Be vigilant about measles**
- ❑ **Ensure all patients are up-to-date on measles-mumps-rubella vaccination**
- ❑ **Consider measles in patients with febrile rash illness and clinically compatible measles symptoms (cough, coryza, and conjunctivitis)**
- ❑ **Ask patients about**
 - Recent travel internationally
 - Recent travel to domestic venues frequented by international travelers
 - Recent contact with international travelers
 - History of measles in the community
- ❑ **Promptly isolate patients with suspected measles**

Guidance for Healthcare Personnel

- ❑ Immediately report suspect measles case to the health department
- ❑ Obtain specimens for testing from patients with suspected measles, including viral specimens for genotyping
- ❑ Contact the local health department with questions about submitting specimens for testing
- ❑ Treat severe measles cases among children, such as those who are hospitalized, with vitamin A

<http://www.cdc.gov/measles/hcp/>

MMR Vaccine

- ❑ First dose at 12-15 months, second dose routinely at 4-6 years of age (minimum interval between doses is 4 weeks)
- ❑ Infants as young as 6 months should receive MMR before international travel*
- ❑ Infants older than 12 months of age can receive a 2nd dose of MMR before international travel (minimum interval between doses is 4 weeks)
- ❑ Unless they have evidence of measles immunity, college and other students, healthcare personnel, and international travelers need 2 appropriately spaced doses and other adults need 1 dose
- ❑ People who received 2 doses of MMR vaccine as children according to the U.S. vaccination schedule are considered protected for life

*ACIP Off-label recommendation; *MMWR* 2013;62(RR-4)

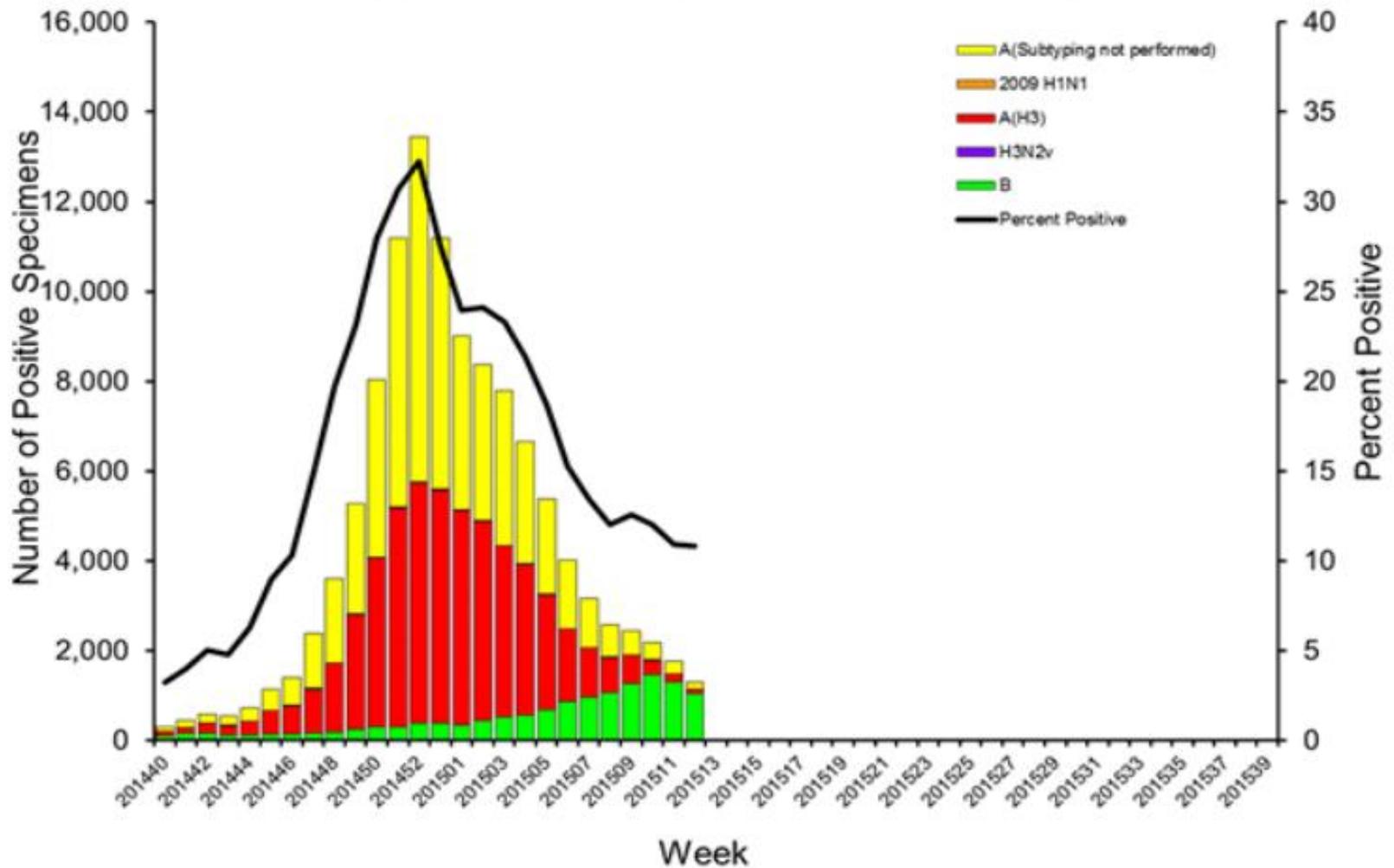
Evidence of Measles Immunity

- ❑ **Evidence of measles immunity:**
 - 2 appropriately spaced and documented doses of MMR vaccine
 - Laboratory evidence of immunity, or
 - Laboratory confirmation of disease
- ❑ **No additional doses are indicated or recommended even for HCP**
- ❑ **No serologic testing is recommended**



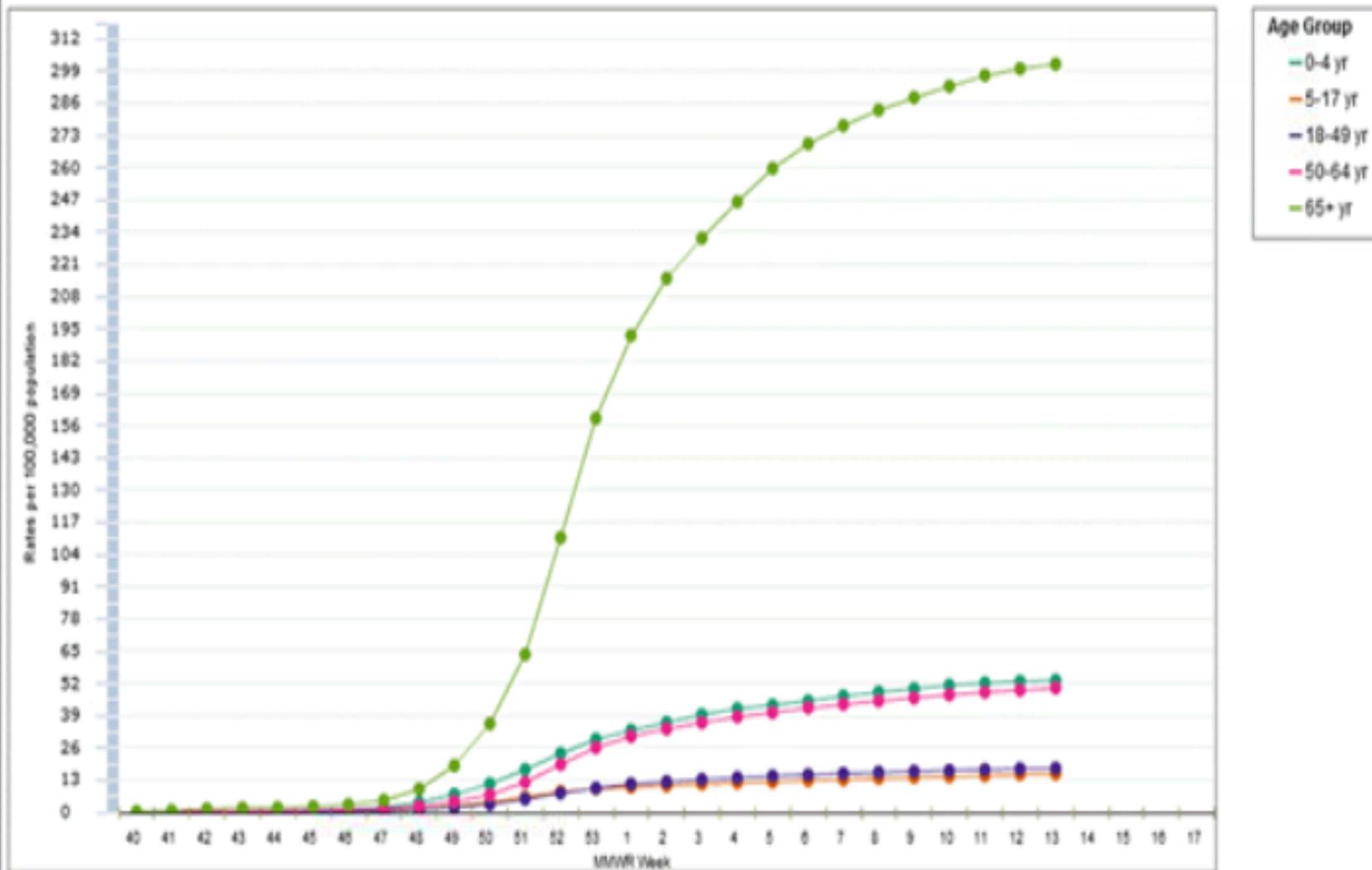
Seasonal Influenza Update

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2014-15

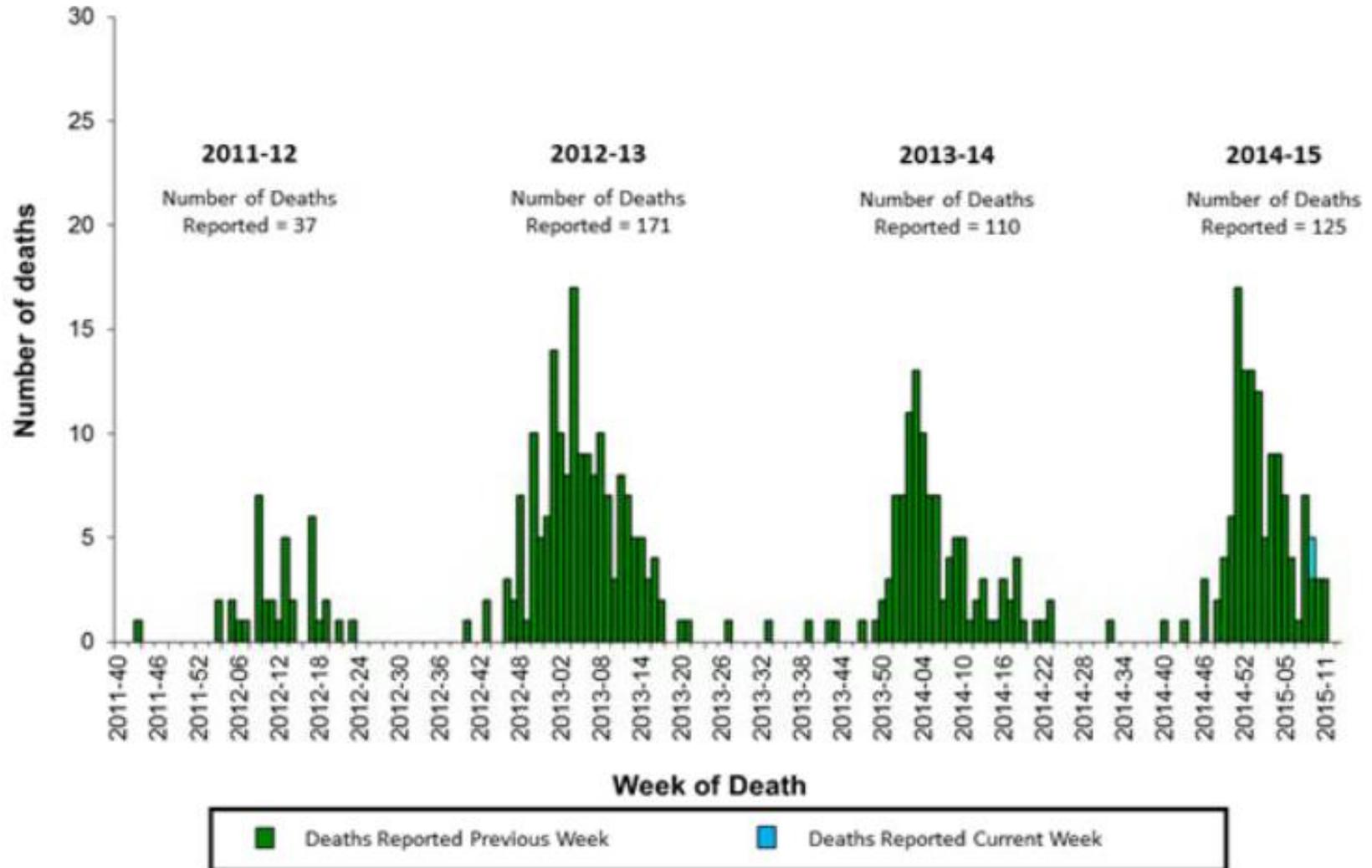


Laboratory-Confirmed Influenza Hospitalizations

Preliminary rates as of Apr 04, 2015

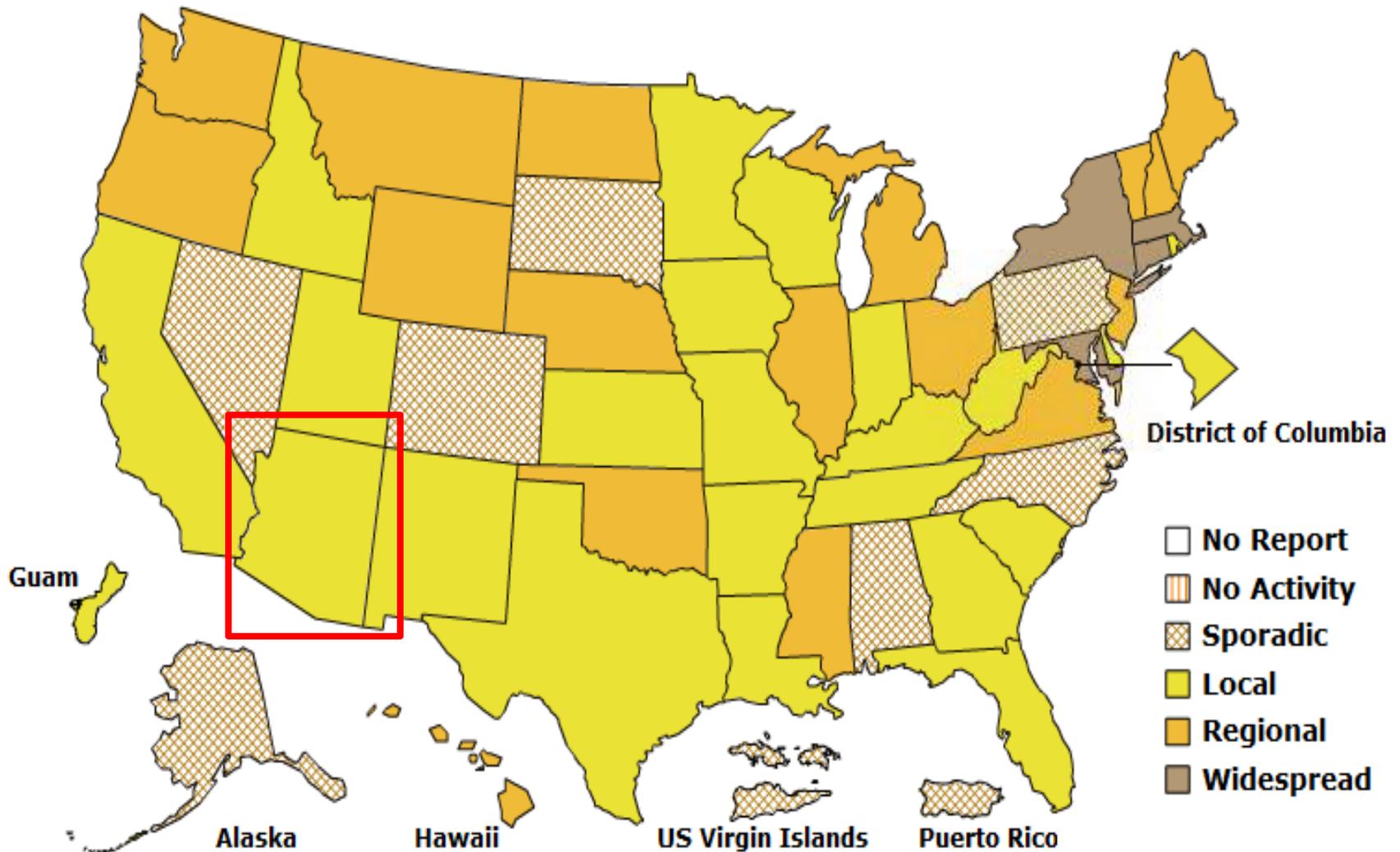


Number of Influenza-Associated Pediatric Deaths by Week of Death: 2011-12 season to present



A Weekly Influenza Surveillance Report Prepared by the Influenza Division
Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending April 04, 2015- Week 13



Influenza Vaccine Strains 2015-16

- ❑ 2 new vaccine strains for 2015-16 season
- ❑ Trivalent vaccine will contain:
 - A/California/7/2009 (H1N1)pdm09-like virus
 -  ■ A/Switzerland/9715293/2013 (H3N2)-like virus
 -  ■ B/Phuket/3073/2013-like virus
- ❑ Quadrivalent vaccine contains the above 3 strains plus:
 - B/Brisbane/60/2008-like virus

Influenza Vaccines for 2015-16

❑ **Inactivated (IIV3)**

- Age indications vary by product, formulation, and presentation
- Intramuscular or intradermal injection
- Trivalent

❑ **Inactivated (IIV4)**

- Age indications vary by product and presentation
- Intramuscular injection
- Quadrivalent

❑ **Live, attenuated vaccine (LAIV4)**

- 2 years and older, healthy, not pregnant
- Intranasal
- Quadrivalent

Choice of Influenza Vaccine, 2014-15

- ❑ Randomized controlled trial demonstrated 55% reduction in culture-confirmed influenza among children who received LAIV compared to IIV
 - ❑ For healthy children aged 2 to 8 years of age LAIV is preferred
 - ❑ If IIV is not available, LAIV should be used
 - ❑ Vaccination should not be delayed to procure LAIV
- 

Choice of Influenza Vaccine, ACIP Recommendation, Feb. 26, 2015

- For implementation in 2015-16 season**
- For healthy children aged 2 through 8 years who have no contraindications or precautions, either LAIV or IIV is an appropriate option. No preference is expressed for LAIV or IIV for any person aged 2 through 49 years for whom either vaccine is appropriate.**
- Data analyses of LAIV and IIV vaccine effectiveness from 2014-15 disclose no significant differences in preliminary analyses**

Influenza High-dose Formulation



U.S. Department of Health and Human Services



U.S. Food and Drug Administration
Protecting and Promoting *Your Health*

[A to Z Index](#) | [Follow FDA](#) | [En Español](#)

Search FDA

[Home](#)

[Food](#)

[Drugs](#)

[Medical Devices](#)

[Radiation-Emitting Products](#)

[Vaccines, Blood & Biologics](#)

[Animal & Veterinary](#)

[Cosmetics](#)

[Tobacco Products](#)

Vaccines, Blood & Biologics

[Home](#)

[Vaccines, Blood & Biologics](#)

[Science & Research \(Biologics\)](#)

Science & Research (Biologics)

6% Hydroxyethyl Starch 130/0.4 in
0.9% Sodium Chloride Injection

[Biologics Research Projects](#)

High-dose influenza vaccine is significantly more effective than standard dose in elderly

A team of scientists including several from the U.S. Food and Drug Administration (FDA) found that a high-dose, trivalent, inactivated influenza vaccine provided significantly more protection than the standard dose in people 65 years of age and older. The [study](#), which covered the 2012-2013 influenza season, also found for the first time a significant reduction in influenza-related hospital admissions among the high-dose individuals compared to those receiving the standard dose. The team also included researchers from the Influenza Division of the Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services, and Acumen LLC.

The vaccine, called [Fluzone High-Dose](#), is referred to as trivalent because it contains a key component of each of three specific flu virus types or subtypes, which stimulate protective immune responses against infection and disease.

The findings are important because people aged [65 years and older](#) account for more than 90% of all influenza deaths. Therefore, reducing influenza disease and its complications in this age group is a public health priority. The results of the FDA study offer new information to support healthcare policy makers when they recommend influenza vaccinations for elderly people.

The scientists used Medicare records to compare the rates of influenza among 929,730 recipients of the high-dose vaccine and 1,615,545 recipients of standard-dose vaccines, all of whom received their vaccinations at community pharmacies. The researchers used data from Medicare records to identify vaccine recipients who later were treated for a likely episode of influenza illness.



ACIP Recommendations

Human Papillomavirus Vaccination Recommendations of the Advisory Committee on Immunization Practices (ACIP)



Continuing Education Examination available at <http://www.cdc.gov/mmwr/cms/content.html>.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Use of 9-Valent Human Papillomavirus (HPV) Vaccine: Updated HPV Vaccination Recommendations of the Advisory Committee on Immunization Practices

Emiko Petrosky, MD^{1,2}, Joseph A. Bocchini Jr, MD³, Susan Hariri, PhD², Harrell Chesson, PhD², C. Robinson Curtis, MD⁴, Mona Saraya, MD⁵, Elizabeth R. Unger, PhD, MD⁶, Lauri E. Markowitz, MD⁷ (Author affiliations at end of text)

During its February 2015 meeting, the Advisory Committee on Immunization Practices (ACIP) recommended 9-valent human papillomavirus (HPV) vaccine (9vHPV) (Gardasil 9, Merck and Co., Inc.) as one of three HPV vaccines that can be used for routine vaccination (Table 1). HPV vaccine is recommended for routine vaccination at age 11 or 12 years (1). ACIP also recommends vaccination for females aged 13 through 26 years and males aged 13 through 21 years not vaccinated previously. Vaccination is also recommended through age 26 years for men who have sex with men and for immunocompromised persons (including those with HIV infection) if not vaccinated previously (1). 9vHPV is a noninfectious, virus-like particle (VLP) vaccine. Similar to quadrivalent HPV vaccine (4vHPV), 9vHPV contains HPV 6, 11, 16, and 18 VLPs. In addition, 9vHPV contains HPV 31, 33, 45, 52, and 58 VLPs (2). 9vHPV was approved by the Food and Drug Administration (FDA) on December 10, 2014, for use in females aged 9 through 26 years and males aged 9 through 15 years (5). For those recommendations, ACIP reviewed additional data on 9vHPV in males aged 16 through 26 years (4). 9vHPV and 4vHPV are licensed for use in females and males. Bivalent HPV vaccine

(2vHPV), which contains HPV 16, 18 VLPs, is licensed for use in females (1). This report summarizes evidence considered by ACIP in recommending 9vHPV as one of three HPV vaccines that can be used for vaccination and provides recommendations for vaccine use.

Methods

From October 2013 to February 2015, the ACIP HPV Vaccine Work Group reviewed clinical trial data assessing the efficacy, immunogenicity, and safety of 9vHPV, modeling data on cost-effectiveness of 9vHPV, and data on burden of type-specific HPV-associated disease in the United States. Summaries of reviewed evidence and Work Group discussions were presented to ACIP before recommendations were proposed. Recommendations were approved by ACIP in February 2015. Evidence supporting 9vHPV use was evaluated using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework (5) and determined to be type 2 (moderate level of evidence) among females and 3 (low level of evidence) among males; the recommendation was categorized as a Category A recommendation (for all persons in an age- or risk-factor-based group) (6).

HPV-Associated Disease

HPV is associated with cervical, vulvar, and vaginal cancer in females, penile cancer in males, and anal cancer and oropharyngeal cancer in both females and males (7–10). The burden of HPV infection also includes cervical precancers, including cervical intraepithelial neoplasia grade 2 or 3 and adenocarcinoma in situ (aCIN2). The majority of all HPV-associated cancers are caused by HPV 16 or 18, types targeted by 2vHPV, 4vHPV and 9vHPV (2,11,12). In the United States, approximately 64% of invasive HPV-associated cancers are attributable to HPV 16 or 18 (65% for females; 63% for males; approximately 21,300 cases annually) and 10% are attributable to the five additional types in 9vHPV: HPV 31, 33, 45, 52, and 58 (14% for females; 4% for males; approximately 3,400 cases annually) (1,12,13). HPV 16 or 18 account for 66% and the five additional types for about 15% of cervical cancers (12). Approximately 50% of aCIN2 are caused by HPV 16 or 18

Recommendations for routine use of vaccines in children, adolescents and adults are developed by the Advisory Committee on Immunization Practices (ACIP). ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the Director of the Centers for Disease Control and Prevention (CDC) on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized to the greatest extent possible with recommendations made by the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetricians and Gynecologists (ACOG). Recommendations for routine use of vaccines in adults are harmonized with recommendations of AAFP, ACOG, and the American College of Physicians (ACP). ACIP recommendations approved by the CDC Director become agency guidance on the date published in the Morbidity and Mortality Weekly Report (MMWR). Additional information about ACIP is available at <http://www.cdc.gov/vaccines/acip/>.

HUMAN PAPILLOMAVIRUS (HPV) VACCINATION

<http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html>

HPV Vaccines	Bivalent 2vHPV (Cervarix)	Quadrivalent 4vHPV (Gardasil)	9-Valent 9vHPV (Gardasil9)
L1 VLP types	16, 18	6, 11, 16, 18,	6, 11, 16, 18, 31, 33, 45, 52, 58
Manufacturer	GSK	Merck	Merck
FDA Indications	Females (9-25 yrs.): Cervical precancer and cancer	Females: (9-26 yrs.): Anal, cervical, vaginal, and vulvar precancer and cancer; Genital warts	Females (9-26 yrs.): Anal, cervical, vaginal, and vulvar precancer and cancer; Genital warts
	Males: Not approved for use in males	Males (9-26 yrs.): Anal precancer and cancer; Genital warts	Males (9-15 yrs.): Anal precancer and cancer; Genital warts

Attribution of HPV 16/18 and HPV 31/33/45/52/58, United States

□ HPV-associated cancers

- ~33,000 per year
- 64% of cancers attributable to HPV 16/18
 - 66% of cervical cancer
 - Other cancers: range, 48% penile -80% anal
- 10% of cancers attributable to additional 5 types
 - 15% of cervical cancer
 - Other cancers: range, 4% oropharyngeal -18% vaginal
 - Differences by sex: 14% for females; 4% for males

□ ≥CIN2 lesions

- ~50% attributable to HPV 16/18
- ~25% attributable to 5 additional types

≥CIN, cervical intraepithelial neoplasia grade 2 or worse
% among all HPV-associated cancers

MMWR 2015;64:300-4 MMWR RR 2014; 63:1-30 Hariri et al. CEBP 2015

Updated ACIP Recommendations

- ❑ Routine vaccination at age 11 or 12 years*
- ❑ Vaccination recommended through age 26 for females and through age 21 for males not previously vaccinated
- ❑ Vaccination recommended for men who have sex with men and immunocompromised men (including persons HIV-infected) through age 26
- ❑ Females: Vaccinate with 2vHPV, 4vHPV (as long as this formulation is available), or 9vHPV
- ❑ Males: Vaccinate with 4vHPV (as long as this formulation is available) or 9vHPV**

*vaccination series can be started at 9 years of age

**ACIP off-label recommendation

MMWR 2015;64:300-4

Updated ACIP Recommendations Interchangeability*

- ❑ If vaccination providers do not know or do not have available the HPV vaccine product previously administered, or are in settings transitioning to 9vHPV, for protection against HPV 16 and 18:
 - Females: any HPV vaccine product may be used to continue or complete the series
 - Males: 4vHPV or 9vHPV* may be used to continue or complete the series for males

*ACIP off-label recommendation
MMWR 2015;64(29):300-4

Updated ACIP Recommendations Administration

❑ Administer in a 3-dose schedule*

- Dose #2: Administer at least 1 to 2 months after the first dose
- Dose #3: Administer at least:
 - 12 weeks after dose 2 AND
 - 6 months (24 weeks) after dose 1
- If the vaccination schedule is interrupted, the series does not need to be restarted

❑ IM injection

*ACIP off-label recommendation
MMWR 2015;64(29):300-4

Updated ACIP Recommendations HPV Vaccination During Pregnancy

- ❑ No change in recommendations
- ❑ HPV vaccine not recommended for use in pregnancy
- ❑ Information on vaccine in pregnancy registries updated
 - A new vaccine in pregnancy registry has been established for 9vHPV. Exposure during pregnancy can be reported to the respective manufacturer
 - Registries for 4vHPV and 2vHPV have been closed with concurrence from FDA
- ❑ Patients and healthcare providers can report an exposure to HPV vaccine during pregnancy to the Vaccine Adverse Event Reporting System (VAERS)

9vHPV Vaccination for Persons who Completed an HPV Vaccination Series

- ❑ The manufacturer did not seek an indication for 9vHPV vaccination for persons who previously completed an HPV vaccination series
- ❑ A study of 9vHPV in prior 4vHPV vaccinees was conducted
- ❑ Due to time limitations (abbreviated ACIP meeting), this was not discussed; will be discussed at a future ACIP meeting

CDC HPV Vaccination Resources

- ❑ ACIP website with slides, minutes, and recommendations
 - <http://www.cdc.gov/vaccines/acip/index.html>
- ❑ Additional resources for providers/patients/clients
 - <http://www.cdc.gov/vaccines/vpd-vac/hpv/>
 - <http://www.cdc.gov/vaccines/YouAreTheKey>
 - <http://www.cdc.gov/hpv/>

Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥65 Years: Recommendations of the Advisory Committee on Immunization Practices (ACIP)

Sara Tomczyk, MSc^{1,2}, Nancy M. Bennett, MD^{3,4}, Charles Stoecker, PhD⁵, Ryan Gierke, MPH⁶, Matthew R. Moore, MD⁷, Cynthia G. Whitney, MD⁸, Stephen Hadler, MD⁹, Tamara Pilavski, MPH¹⁰ (Author affiliations at end of text)

On August 13, 2014, the Advisory Committee on Immunization Practices (ACIP) recommended routine use of 13-valent pneumococcal conjugate vaccine (PCV13 [Prenar 13, Wyeth Pharmaceuticals, Inc., a subsidiary of Pfizer Inc.]) among adults aged ≥65 years. PCV13 should be administered in series with the 23-valent pneumococcal polysaccharide vaccine (PPSV23 [Pneumovax23, Merck & Co., Inc.]), the vaccine currently recommended for adults aged ≥65 years. PCV13 was approved by the Food and Drug Administration (FDA) in late 2011 for use among adults aged ≥50 years. In June 2014, the results of a randomized placebo-controlled trial evaluating efficacy of PCV13 for preventing community-acquired pneumonia among approximately

85,000 adults aged ≥65 years with no prior pneumococcal vaccination history (CAPITA trial) became available and were presented to ACIP (1). The evidence supporting PCV13 vaccination of adults was evaluated using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework and determined to be type 2 (moderate level of evidence); the recommendation was categorized as a Category A recommendation (2). This report outlines the new recommendations for PCV13 use, provides guidance for use of PCV13 and PPSV23 among adults aged ≥65 years, and summarizes the evidence considered by ACIP to make this recommendation.

Epidemiology of Pneumococcal Disease Among Adults Aged ≥65 Years

Streptococcus pneumoniae (pneumococcus) remains a leading infectious cause of serious illness, including bacteremia, meningitis, and pneumonia, among older adults in the United States. Use of a 7-valent pneumococcal conjugate vaccine (PCV7) since 2000 and PCV13 since 2010 among children in the United States has reduced pneumococcal infections directly and indirectly among children, and indirectly among adults. By 2013, the incidence of invasive pneumococcal disease (IPD) caused by serotypes unique to PCV13 among adults aged ≥65 years had declined by approximately 50% compared with 2010, when PCV13 replaced PCV7 in the pediatric immunization schedule (3). However, in 2013 an estimated 13,500 cases of IPD occurred among adults aged ≥65 years (3). Approximately, 20%–25% of IPD cases and 10% of community-acquired pneumonia cases in adults aged ≥65 years are caused by PCV13 serotypes and are potentially preventable with the use of PCV13 in this population (3,4).

PCV13 Vaccine in Adults

On December 30, 2011, PCV13 was approved for use among adults aged ≥50 years to prevent pneumonia and invasive disease caused by *S. pneumoniae* serotypes contained in the vaccine. The new use for Prenar 13 was approved under FDA's accelerated approval pathway, which allows for earlier approval of products that provide meaningful therapeutic benefit over existing

Recommendations for routine use of vaccines in children, adolescents, and adults are developed by the Advisory Committee on Immunization Practices (ACIP). ACIP is chartered as a federal advisory committee to provide expert external advice and guidance to the Director of the Centers for Disease Control and Prevention (CDC) on use of vaccines and related agents for the control of vaccine-preventable diseases in the civilian population of the United States. Recommendations for routine use of vaccines in children and adolescents are harmonized to the greatest extent possible with recommendations made by the American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the American College of Obstetrics and Gynecology (ACOG). Recommendations for routine use of vaccines in adults are harmonized with recommendations of AAFP, ACOG, and the American College of Physicians (ACP). ACIP recommendations adopted by the CDC Director become agency guidelines on the date published in the Morbidity and Mortality Weekly Report (MMWR). Additional information regarding ACIP is available at <http://www.cdc.gov/vaccines/acip>.

PNEUMOCOCCAL (PCV13 & PPSV23) VACCINATION

<http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html>

ACIP Recommendations for PCV13 and PPSV23 for Adults 65 Years and Older 2014

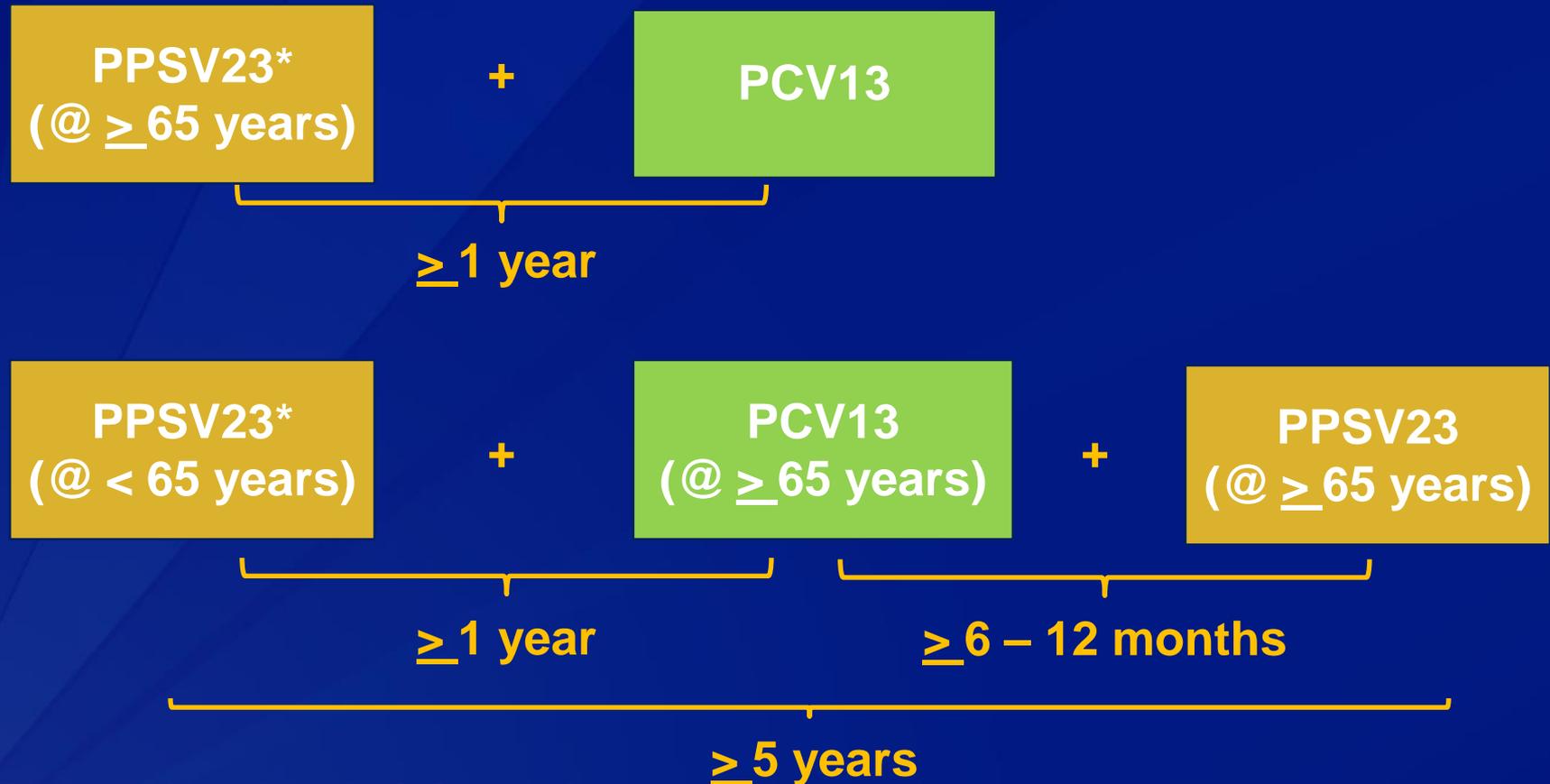
- Pneumococcal-naïve or Unknown vaccination history



- If PPSV23 cannot be given during 6-12 month window after PCV13, a dose of PPSV23 should be given during the next visit
- Minimum interval = 8 weeks

ACIP Recommendations for PCV13 and PPSV23 for Adults 65 Years and Older 2014

- Previously received one or more doses of PPSV23



*Doses already administered

Pneumococcal Disease: Hard to say it; easy to get vaccinated



Saving Lives:
Integrating
Vaccines for
Adults Into
Routine Care

Adult Pneumococcal Vaccination Guide for HCPs

Two types of pneumococcal vaccine are recommended for use in US adults: a 13-valent pneumococcal conjugate vaccine (PCV13) and a 23-valent pneumococcal polysaccharide vaccine (PPSV23). Recommendations for their use vary by age and risk factors. **Every adult age 65 years and older should receive both PCV13 and PPSV23.** The table below will aid in determining which adults age 19 to 64 years need pneumococcal vaccination. Details on sequence and timing of doses for adults in both age groups can be found on page 2 of this document. Additional information and clinical guidance regarding the use of PCV13 and PPSV23 can be found at: cdc.gov/vaccines/vpd-vac/pneumo/.

Indications for PCV13 and PPSV23 Administration for Adults Age 19 to 64 Years by Risk Group

Source: Centers for Disease Control and Prevention (CDC)¹

Risk Group	Underlying Medical Condition	PCV13		PPSV23	
		Recommended	Recommended	Recommended	Revaccination 5 years After First Dose
Immunocompromised persons*	Congenital or acquired immunodeficiency†	✓	✓	✓	✓
	HIV	✓	✓	✓	✓
	Chronic renal failure	✓	✓	✓	✓
	Nephrotic syndrome	✓	✓	✓	✓
	Leukemia	✓	✓	✓	✓
	Lymphoma	✓	✓	✓	✓
	Hodgkin disease	✓	✓	✓	✓
	Generalized malignancy	✓	✓	✓	✓
	Iatrogenic immunosuppression**	✓	✓	✓	✓
	Solid organ transplant	✓	✓	✓	✓
Persons with functional or anatomic asplenia*	Sickle cell disease/other hemoglobinopathy	✓	✓	✓	✓
	Congenital or acquired asplenia	✓	✓	✓	✓
Immunocompetent persons*	Cerebrospinal fluid leak	✓	✓	✓	✓
	Cochlear implant	✓	✓	✓	✓
Immunocompetent persons	Chronic heart disease†		✓		
	Chronic lung disease‡		✓		
	Diabetes mellitus		✓		
	Alcoholism		✓		
	Chronic liver disease, cirrhosis		✓		
	Cigarette smoking		✓		

* See Figure 1 for timing of these doses.
 † Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease).
 ‡ Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy.
 § Including congestive heart failure and cardiomyopathies, excluding hypertension.
 ¶ Including chronic obstructive pulmonary disease, emphysema, and asthma.

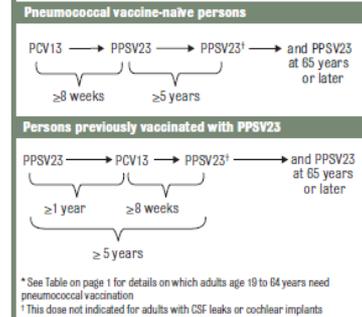
1. CDC. Pneumococcal ACIP vaccine recommendations. cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html. Accessed November 24, 2014.

Pneumococcal Disease: Hard to say it; easy to get vaccinated

People age 19 to 64 years with chronic heart, lung or liver disease, diabetes, alcoholism, cirrhosis, or who are cigarette smokers need one dose of PPSV23.

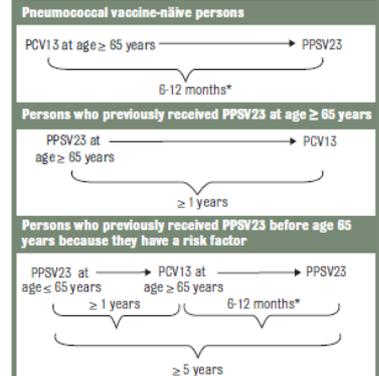
The charts below provide details on timing of PCV13 and PPSV23 doses for all others.

Figure 1: PCV13 and PPSV23 timing for US adults age 19 to 64 years with immunocompromising conditions, functional asplenia, CSF leaks, or cochlear implants*



* See Table on page 1 for details on which adults age 19 to 64 years need pneumococcal vaccination.
 † This dose not indicated for adults with CSF leaks or cochlear implants.

Figure 2: PCV13 and PPSV23 timing for US adults age 65 years and older



* PPSV23 can be given later than 6-12 months after PCV13 if this window is missed. Minimum interval between PCV13 and PPSV23 doses is 8 weeks.

Note: While in some cases a second pneumococcal vaccine is recommended as early as six months after the initial vaccination for people age 65 years and older, the second vaccine is only reimbursed by Medicare when administered at least one year (11 full months) after the first.

Additional Facts about Pneumococcal Vaccination

- Mild side effects include redness or pain at the injection site. In rare cases fever, muscle aches, or more severe injection site reactions may develop.
- Vaccination can be administered any time of year and one pneumococcal vaccine can be given at the same time as influenza vaccine.



This initiative is supported by unrestricted educational grants from Merck & Co., Inc. and Pfizer Inc. NFID policies restrict funders from controlling program content.

page 1 of 2

March 2015



This initiative is supported by unrestricted educational grants from Merck & Co., Inc. and Pfizer Inc. NFID policies restrict funders from controlling program content.

page 2 of 2

March 2015

Modifications to Medicare Part B Coverage of Pneumococcal Vaccinations

- ❑ Medicare Part B now cover full cost of 2nd pneumococcal vaccination for Medicare enrollees, provided 2nd pneumococcal vaccine is:
 - Different from 1st (e.g., first PCV13 then PPSV23)
 - Administered no less than 11 months after the 1st one

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Medicare & Medicaid Services

 **MLN Matters**[®] 
Official Information Health Care Professionals Can Trust

REVISED product from the Medicare Learning Network[®] (MLN)

- “[Medicare Enrollment and Claim Submission Guidelines](#)” Booklet (ICN 906764), Hard copy

MLN Matters[®] Number: MM9051 Related Change Request (CR) #: CR 9051
Related CR Release Date: December 31, 2014 Effective Date: September 19, 2014
Related CR Transmittal #: R202BP and R3159CP Implementation Date: February 2, 2015

Modifications to Medicare Part B Coverage of Pneumococcal Vaccinations

Provider Types Affected

This MLN Matters[®] Article is intended for physicians and other providers submitting claims to Medicare Administrative Contractors (MACs) for services provided to Medicare beneficiaries.

Provider Action Needed

Change Request (CR) 9051 provides an update to the Medicare pneumococcal vaccine coverage requirements, to align with new Advisory Committee on Immunization Practices (ACIP) recommendations. Make sure your billing staffs are aware of these updates.

Background

Medicare Part B covers certain vaccinations including pneumococcal vaccines. Specifically, Section 1861(s)(10)(A) of the Social Security Act, which is available at http://www.ssa.gov/OP_Home/ssact/title18/1861.htm, and regulations at 42 CFR 410.57 <http://www.ecfr.gov/cgi-bin/text>.

Disclaimer: This article was prepared as a service to the public and is not intended to grant rights or impose obligations. This article may contain references or links to statutes, regulations, or other policy materials. The information provided is only intended to be a general summary. It is not intended to take the place of either the written law or regulations. We encourage readers to review the specific statutes, regulations and other interpretive materials for a full and accurate statement of their contents. CPT copyright 2013 American Medical Association.

Page 1 of 3

<http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/Downloads/MM9051.pdf>



New Immunization Products

Meningococcal B Vaccines

Product Name	FDA Age Indications	Dosage/Route/Schedule
Trumenba® (Pfizer)	10 through 25 years of age	<ul style="list-style-type: none">• Three 0.5 mL doses• IM injection• 0-, 2-, and 6-month
Bexsero® (Novartis)	10 through 25 years of age	<ul style="list-style-type: none">• Two 0.5 mL doses• IM injection• 0, 1–6 month

February 2015 meeting: ACIP voted to recommend meningococcal B vaccine to certain high-risk persons 10 years of age and older. Immunization recommendations will be published in the *MMWR*. Recorded proceedings at

www.cdc.gov/vaccines/acip/meetings/meetings-info.html

Quadracel

- ❑ **DTaP-IPV**
- ❑ **Manufacturer: sanofi pasteur**
- ❑ **FDA approved for use in children who received Pentacel or Daptacel**
 - 4 through 6 years of age
 - Fifth dose in the diphtheria, tetanus, pertussis vaccination (DTaP) series, and
 - Fourth or fifth dose in the inactivated poliovirus vaccination (IPV) series



Immunization Resources

CDC Immunization Resources

❑ Questions? Email CDC

- Providers

nipinfo@cdc.gov

- Parents and patients

www.cdc.gov/cdcinfo

❑ Website

www.cdc.gov/vaccines

❑ Influenza

www.cdc.gov/flu

❑ Vaccine Safety

www.cdc.gov/vaccinesafety

CDC Resources for Staff Education

- ❑ Competency-based education for staff is critical
- ❑ Multiple education products available free through the CDC website
 - Immunization courses (webcasts and online self-study)
 - Netconferences
 - You Call the Shots self-study modules
- ❑ Continuing education credits available

www.cdc.gov/vaccines/ed/default.htm

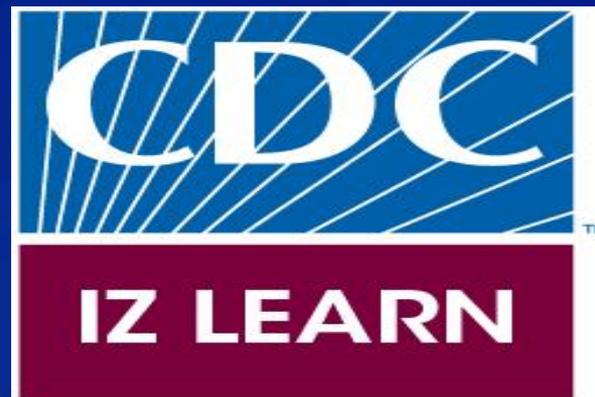
The screenshot shows the CDC website's 'Vaccines & Immunizations' section, specifically the 'Education & Training' page. The page header includes navigation links like 'CDC Home', 'About CDC', 'Press Room', 'A-Z Index', and 'Contact Us'. The main content area is titled 'Education & Training' and is intended for health professionals. It features a 'On This Page' section with links to 'Immunization Courses', 'Epidemiology & Prevention of Vaccine-Preventable Diseases course', 'NetConferences', 'Curriculum Brochure', and 'On-Site Training'. Below this, there are sections for 'Immunization Courses' and 'Epidemiology & Prevention of Vaccine-Preventable Diseases Course'. The 'Immunization Courses' section describes various formats like broadcasts, webcasts, DVD, and CD ROM, and mentions that continuing education (CE) is available. The 'Epidemiology & Prevention of Vaccine-Preventable Diseases Course' section provides a comprehensive overview of vaccination principles and recommendations. The page also includes a sidebar with 'Vaccine-Related Topics' and 'Additional Resources', and a 'Contact CDC' section at the bottom.



Immunization Twitter Just for You

@CDCIZlearn

is a leading source for healthcare providers on immunization training, recommendations and information across the lifespan





Vaccine Storage and Handling

Centers for Disease Control and Prevention
CDC 2471 Saving Lives. Protecting People.™

Vaccines and Immunizations

Vaccines and Immunizations Home

- Immunization Schedules
- Recommendations and Guidelines
- Advisory Committee on Immunization Practices (ACIP)
- Vaccine Storage & Handling**
- Vaccine Administration
- Recalled Vaccines
- Vaccine Systems and Strategies for Increasing Vaccination Rates
- Vaccines & Preventable Diseases
- Basics and Common Questions
- Vaccination Records
- Vaccine Safety and Adverse Events
- For Travelers
- For Specific Groups of People
- Campaign Materials
- Publications
- News and Media Resources
- Calendars and Events
- Education and Training Programs and Tools
- Statistics and Surveillance
- Partners' & Related Sites

Vaccine Storage and Handling

At a Glance

Proper vaccine storage and handling practices play a very important role in protecting individuals and communities from vaccine-preventable diseases.

Vaccine quality is the shared responsibility of everyone, from the time vaccine is manufactured until it is administered.

Resources on Proper Vaccine Storage and Handling

- Keys to Storing and Handling Your Vaccine Supply in a video designed to decrease vaccine storage and handling errors
- These storage or handling errors are the most common of the winter/2014
- These storage or handling errors are the most common of the winter/2014
- These storage or handling errors are the most common of the winter/2014
- These storage or handling errors are the most common of the winter/2014

Vaccines and Immunizations

Immunization Schedules

Recommendations and Guidelines

Vaccines & Preventable Diseases

Basics and Common Questions

Vaccination Records

Vaccine Safety and Adverse Events

For Travelers

For Specific Groups of People

Campaign Materials

Publications

News and Media Resources

Calendars and Events

Education and Training Programs and Tools

Statistics and Surveillance

Partners' & Related Sites

Vaccine Storage & Handling TOOLKIT

November | 2012

Centers for Disease Control and Prevention
National Center for Immunization and Respiratory Diseases

Keys to Storing and Handling Your Vaccine Supply

0:00 / 10:00

You Call The Shots

Web-based Training Course

Note: YOU CALL THE SHOTS IS UPDATED REGULARLY TO INCLUDE THE LATEST GUIDELINES AND RECOMMENDATIONS IN VACCINE PRACTICE. THE LATEST 2013 MODULES ARE BELOW.

COME BACK EVERY MONTH FOR THE LATEST TRAINING TO STAY UP TO DATE ON THE IMMUNIZATION PRACTICE.

At a Glance

This product was developed through the Project to Enhance Immunization Content in Nursing Education and Training, which is supported by funding from the National Center for Immunization and Respiratory Diseases (NCIRD) of the Centers for Disease Control and Prevention (CDC), through a Cooperative Agreement with the Association for Prevention Teaching and Research (APTR).

Need Continuing Education or a Certificate of Participation?

After viewing the modules, participants can go to CDC's [online learning system](#) to register for and obtain CE credit. General instructions are available in the [CE How-to Guide](#).

Now Available

- H1N1** Jan 2013
Scroll to bottom of page and click "continue" to start program
- Influenza** Jan 2013
Scroll to bottom of page and click "continue" to start program
- Vaccines For Children (VFC)** 2013 Jan 2013
Scroll to bottom of page and click "continue" to start program
- Vaccine Storage and Handling-2013** Jan 2013
Scroll to bottom of page and click "continue" to start program
- Understanding the Basics: General Recommendations on Immunization FRB 2013**

Contact Us:

- Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333
800-CDC-INFO (800-232-4636) or
TTY: (888) 232-6348
Contact: CDC-INFO

Vaccine Temperature Best Practices For Refrigerated Vaccine (1)

1. Store vaccine at ideal temperature: 40°F

Never freeze refrigerated vaccine. Exception: MMR can be stored in fridge or freezer.

Refrigerated Vaccine

Never freeze refrigerated vaccine. Exception: MMR can be stored in fridge or freezer.

Report out of range temperatures immediately!

2. Record daily temperatures

Three Steps - Twice a Day: Temperatures should be checked and recorded first thing in the morning and before leaving at night.

- 1 Current Temperature:** The temperature that the refrigerator is right now.
- 2 Min/Max:** The coldest and warmest the refrigerator has been since you last reset the thermometer.
- 3 Reset:** The button you push after you have checked the Min/Max.

Best Practices

- Take your time -** Read and record temperatures accurately.
- Make your mark!** Initial the log when recording temperatures.
- Leave it blank -** If a temp was not recorded, leave the space blank.

3. Take action if out of range!

- Contact your state or local health department immediately. Or if private vaccine call the manufacturer directly.
- Tell them the total amount of time the refrigerator was out of range.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Distributed by: www.cdc.gov/ncidod/diseases/immunization

Test Your Knowledge

Review the below temperature readings and select the correct answer.

- 40°F

39.4°F

40°F

40.4°F

A. Current temp and min/max are within range - no action necessary.

B. Current temp is within range, min/max out of range - take action necessary.

C. Current temp is within range, min/max out of range - no action necessary.

D. Current temp and min/max are out of range - take action necessary.
- 30°F

29.4°F

30°F

30.4°F

A. Current temp and min/max are within range - no action necessary.

B. Current temp is within range, min/max out of range - take action necessary.

C. Current temp is within range, min/max out of range - no action necessary.

D. Current temp and min/max are out of range - take action necessary.
- 34°F

33.4°F

34°F

34.4°F

A. Current temp and min/max are within range - no action necessary.

B. Current temp is within range, min/max out of range - take action necessary.

C. Current temp is within range, min/max out of range - no action necessary.

D. Current temp and min/max are out of range - take action necessary.
- 44°F

43.4°F

44°F

44.4°F

A. Current temp and min/max are within range - no action necessary.

B. Current temp is within range, min/max out of range - take action necessary.

C. Current temp is within range, min/max out of range - no action necessary.

D. Current temp and min/max are out of range - take action necessary.
- Take action means (circle any that apply)**

A. Remove all vaccines that were out of range and discard them.

B. Call the state/local HCP program for manufacturer. If private vaccine for guidance.

C. Notify appropriate vaccine coordinator to change the temperature controls to get the refrigerator back in range.

D. Thaw any vaccines that got frozen for 45 minutes.

<http://www.cdc.gov/vaccines/recs/storage/toolkit/>
<http://www.cdc.gov/vaccines/ed/youcalltheshots.htm>



Vaccine Administration

CDC Home
CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

A-Z Index [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) #

Injection Safety

Injection Safety
CDC's Role
CDC Statement
Information for Providers
Information for Patients
Preventing Unsafe Injection Practices
▶ **Safe Injection Practices**
CDC Clinical Reminder: Spinal Injection Procedures
Infection Prevention during Blood Glucose Monitoring and Insulin Administration
Recent Publications
Recent Meetings
The One & Only Campaign

Related Links
[One & Only Campaign](#)
[HICPAC](#)
[2007 Guideline for](#)

Injection Safety > Preventing Unsafe Injection Practices

[Email page link](#)
[Print page](#)

Safe Injection Practices to Prevent Transmission of Infections to Patients

Download the complete [2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings](#) [PDF - 3.80 MB]

III.A.1.b. Safe Injection Practices The investigation of four large outbreaks of HBV and HCV among patients in ambulatory care facilities in the United States identified a need to define and reinforce safe injection practices 453. The four outbreaks occurred in a private medical practice, a pain clinic, an endoscopy clinic, and a hematology/oncology clinic. The primary breaches in infection control practice that contributed to these outbreaks were 1) reinsertion of used needles into a multiple-dose vial or solution container (e.g., saline bag) and 2) use of a single needle/syringe to administer intravenous medication to multiple patients. In one of these outbreaks, preparation of medications in the same workspace where used needle/syringes were dismantled also may have been a contributing factor. These and other outbreaks of viral hepatitis could have been prevented by adherence to basic principles of aseptic technique for the preparation and administration of parenteral medications 453, 454. These include the use of a sterile, single-use, disposable needle and syringe for each injection given and prevention of contamination of injection equipment and medication.

Whenever possible, use of single-dose vials is preferred over multiple-dose vials, especially when medications will be administered to multiple patients. Outbreaks related to unsafe injection practices

Contact Us:
[Centers for Disease Control and Prevention](#)
1600 Clifton Rd
Atlanta, GA 30333
[800-CDC-INFO](#)
(800-232-4636)
TTY: (888) 232-6348
[Contact CDC-INFO](#)



http://www.cdc.gov/injectionsafety/IP07_standard_Precaution.html

CDC Home
CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Vaccines and Immunizations
All CDC Topics
Choose a topic above

A-Z Index [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) #

Vaccines and Immunizations

Vaccines and Immunizations Home
Immunization Schedules
Recommendations and Guidelines
Advisory Committee on Immunization Practices (ACIP)
Vaccine Storage & Handling
▶ **Vaccine Administration**
Recalled Vaccines
Reminder Systems and Strategies for Increasing Vaccination Rates
Vaccines & Preventable Diseases
Basics and Common Questions
Vaccination Records
Vaccine Safety and Adverse Events
For Travelers
For Specific Groups of People
Campaign Materials
Publications
News and Media Resources

Vaccines and Immunizations Home > Recommendations and Guidelines

[Email page link](#)
[Print page](#)

Vaccine Administration

Recommendations and Guidelines

Guidelines

- **Vaccine Administration Guidelines** [2 MB, 15 pages] from Pink Book Appendix (includes pictures of sites)
- **Vaccines with Diluents: How to Use Them** [1 page] PDF Contains a chart that lists the vaccines that require reconstitution with a diluent before they can be administered including maximum time allowed between reconstituting each vaccine and having to discard it. Plus the general steps to follow when reconstituting vaccines.
- **It's Federal Law - use of VISs and more in Pink Book appendix E** [1 MB, 10 pages] Appendix includes instructions for use of Vaccine Information Statements, how to get VISs, questions and answers, etc.
- **Dosage, Route, Site:**
 - All ages: **Dose, Route, Site, and Needle Size** [1 page] PDF
 - Adults: **Dose, Route, Site, Needle Size, and Preparation** [1 page] PDF
 - Adults: **How to administer IM and SC Injections to Adults** [1 page] PDF
- **Immunization Site Maps**
 - **Children**
Michigan Department of Community Health
 - **Under 12 months of age** [1 page] PDF
 - **12 months and older** [1 page] PDF
 - **Preteens and Adolescents** [1 page] PDF
Michigan Department of Community Health

On this Page

- Guidelines
- Screening and Checklists
- Reference Tables
- Comforting Techniques

Get email updates
To receive email updates about this page, enter your email address:

[What's this?](#)

Contact Us:
[Centers for Disease Control and Prevention](#)
1600 Clifton Rd
Atlanta, GA 30333
[800-CDC-INFO](#)
(800-232-4636)
TTY: (888) 232-6348
[Contact CDC-INFO](#)

<http://www.cdc.gov/vaccines/recs/vac-admin/default.htm>

Additional Resources

- ❑ **State of Arizona Immunization Program**
 - <http://azdhs.gov/phs/immunization/>
 - And local public health immunization programs, too!

- ❑ **Immunization Action Coalition** www.immunize.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



Donna L. Weaver, RN, MN
DWeaver1@cdc.gov