Inside Edition: CDC Pediatric and Adolescent Update

2019

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Disclosures

- The speaker is a federal government employee with no financial interest in or conflict with the manufacturer of any product named in this presentation
- The speaker will not discuss a vaccine not currently licensed by the FDA
- Use of trade names is for identification purposes only
- The speaker will discuss the off-label use of some vaccines in a manner consistent with ACIP recommendations

Disclosures

- **The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP):**
  - Composed of 15 nongovernment 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
- **Watch the live webcast**
  - https://www.cdc.gov/vaccines/acip/meetings/webcast-instructions.html

February 2020

CDC ACIP meeting website http://www.cdc.gov/vaccines/acip/meetings/upcoming-dates.html

Vaccination Coverage

Estimated Vaccination Coverage among Children Aged 19–35 Months, NIS 2017

State/Area	Combined Series* 4:3:1:3:3:1:4
United States	70.4%
Michigan	69.9%

*The combined (4:3:1:3:3:1:4) vaccine series includes ≥4 doses of DTaP, ≥3 doses of poliovirus vaccine, ≥1 dose of measles-containing vaccine, full series of Hib vaccine (≥3 or ≥4 doses, depending on product type), ≥3 doses of HepB, ≥1 dose of varicella vaccine, and ≥4 doses of PCV

MMWR 67(40):1123–1128

Estimated Vaccination Coverage among Adolescents Aged 13–17 Years, NIS-Teen, 2018

Vaccine	United States	Michigan
≥ 1 Tdap	88.9%	93.8%
≥ 1 HPV (M and F)	68.1%	72.5%
HPV UTD* (M and F)	51.1%	55.0%
≥ 1 MenACWY	86.6%	95.9%
≥ 2 MenACWY	50.8%	NA

**HPV UTD includes those with ≥3 doses, and those with 2 doses when the first HPV vaccine dose was initiated at age <15 years and at least 5 months minus 4 days elapsed between the first and second dose.*

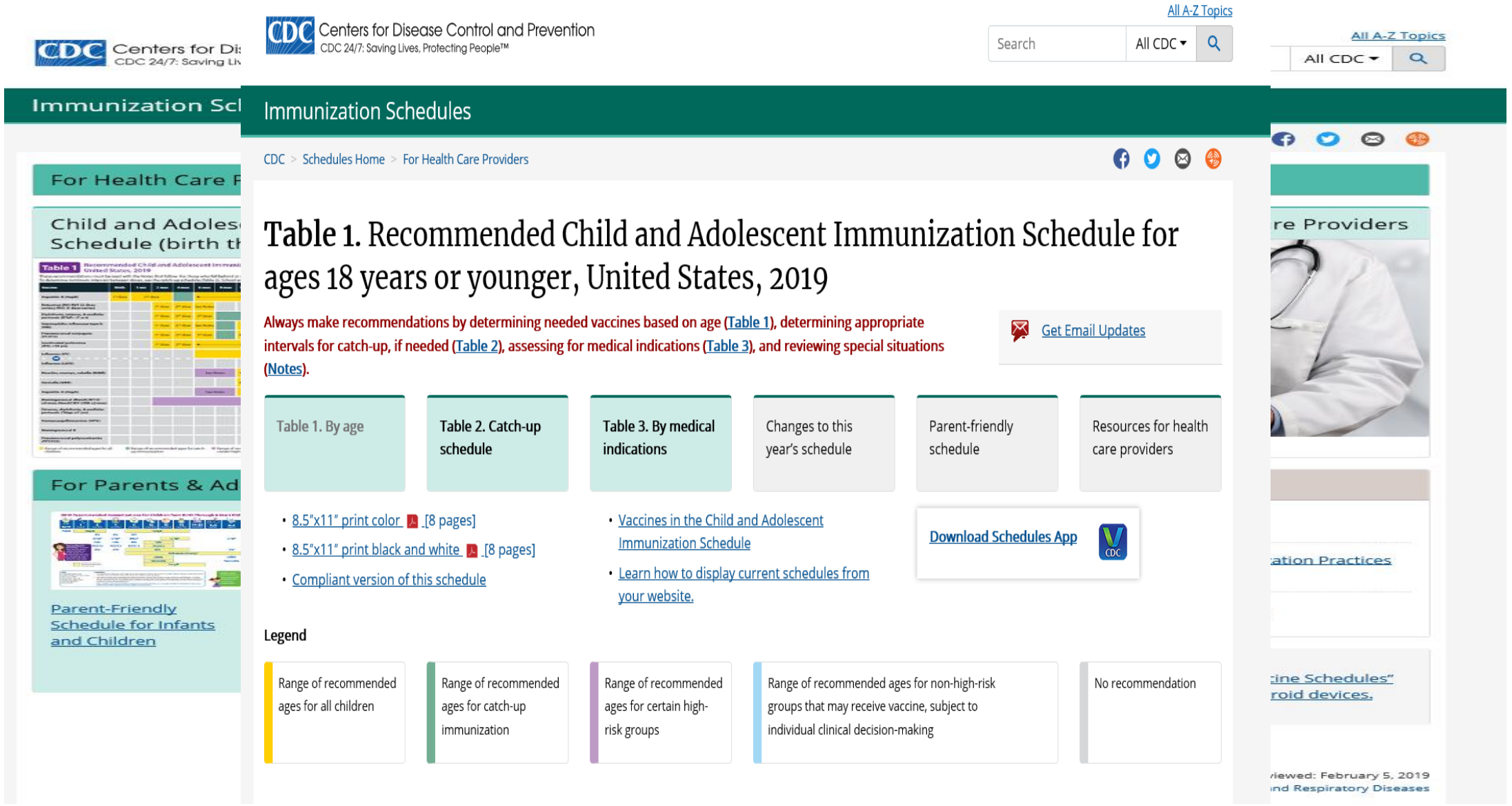
MMWR August 23, 2019 / 68(33);718–723 and https://www.cdc.gov/vaccines/imz-managers/coverage/teenvaxview/data-reports/index.html

ACIP Immunization Schedule Updates

CDC Website

2019 Immunization Schedules

New Design for Schedule Web Pages



Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html Accessed 3/31/2019

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger — UNITED STATES 2019

olescent Immunization Schedule 2019

Vaccines in the Child and Adolescent Immunization Schedule*

Vaccines	Abbreviations	Trade names
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Diphtheria, tetanus vaccine	DT	
Haemophilus influenzae type b vaccine	Hil Hil	
Hepatitis A vaccine	He	
Hepatitis B vaccine	He	
Human papillomavirus vaccine	HP	
Influenza vaccine (inactivated)	IIV	
Influenza vaccine (live, attenuated)	LA	
Measles, mumps, and rubella vaccine	MI	
Meningococcal serogroups A, C, W, Y vaccine	Me Me	
Meningococcal serogroup B vaccine	Me Me	
Pneumococcal 13-valent conjugate vaccine	PC	
Pneumococcal 23-valent polysaccharide vaccine	PP	
Poliovirus vaccine (inactivated)	IPV	
Rotavirus vaccine	RV RV	
Tetanus, diphtheria, and acellular pertussis vaccine	Td	
Tetanus and diphtheria vaccine	Td	
Varicella vaccine	VA	
Combination Vaccines *(Use combination vaccines instead of separate injections when*		
DTaP, hepatitis B, and inactivated poliovirus vaccine	DT	
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	DT	
DTaP and inactivated poliovirus vaccine	DT	
Measles, mumps, rubella, and varicella vaccines	MI	

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or a intervals between doses. When a vaccine is not administered at the recommended age, administer at a su for identification purposes only and does not imply endorsement of the ACIP or CDC.

How to use the child/adolescent immunization schedule

1 2 3 4

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger United States, 2019

These recommendations must be read with the Notes 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 Table 1. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

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 yrs	17-18 yrs
Hepatitis B (HepB)	1st dose	2nd dose			3rd dose												
Rotavirus (RV) RV1 (2-dose series); RV5 (3-dose series)			1st dose	2nd dose	See Notes												
Diphtheria, tetanus, & acellular pertussis (DTaP: <7 yrs)			1st dose	2nd dose	3rd dose												
Haemophilus influenzae type b (Hib)			1st dose	2nd dose	See Notes												
Pneumococcal conjugate (PCV13)			1st dose	2nd dose	3rd dose												
Inactivated poliovirus (IPV: <18 yrs)			1st dose	2nd dose													
Influenza (IIV)																	
or																	
Influenza (LAIV)																	
Measles, mumps, rubella (MMR)																	
Varicella (VAR)																	
Hepatitis A (HepA)																	
Meningococcal (MenACWY-D ≥9 mos; MenACWY-CRM ≥2 mos)																	
Tetanus, diphtheria, & acellular pertussis (Tdap: ≥7 yrs)																	
Human papillomavirus (HPV)																	
Meningococcal B																	
Pneumococcal polysaccharide (PPSV23)																	

Range of recommended ages for all children

Range of recommended ages for catch-up immunization

02/22/19

Table 2 Catch-up immunization schedule for persons aged 4 months—18 years who start late or who are more than 1 month behind, United States, 2019

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 Table 1 and the notes 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	Birth	**4 weeks**	**8 weeks** Minimu		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days	**4 weeks**	**4 weeks** Maximu		
Diphtheria, tetanus, and acellular pertussis	6 weeks	**4 weeks**	**4 weeks**		
Haemophilus influenzae type b	6 weeks	**No further doses needed** if first dose was administered at age 15 months or older. **4 weeks** if first dose was administered before the 1st birthday. **8 weeks (as final dose)** if first dose was administered at age 12 through 14 months.	**No furth** **4 weeks** if curren ***and*** at l **8 weeks** if curren OR if curren dose ad OR if both c		
Pneumococcal conjugate	6 weeks	**No further doses needed** for healthy children if first dose was administered at age 24 months or older. **4 weeks** if first dose administered before the 1st birthday. **8 weeks (as final dose for healthy children)** if first dose was administered at the 1st birthday or after.	**No furth** **4 weeks** if curren **8 weeks** if previo OR if curren		
Inactivated poliovirus	6 weeks	**4 weeks**	4 weeks 6 month		
Measles, mumps, rubella	12 months	**4 weeks**			
Varicella	12 months	**3 months**			
Hepatitis A	12 months	**6 months**			
Meningococcal	2 months MenACWY-CRM 9 months MenACWY-D	**8 weeks**	See Not		

Childr

Meningococcal	Not Applicable (N/A)	**8 weeks**	
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis	7 years	**4 weeks**	**4 weeks** If first d **6 month** If first d
Human papillomavirus	9 years	**Routine dosing intervals are recommended.**	
Hepatitis A	N/A	**6 months**	
Hepatitis B	N/A	**4 weeks**	**8 weeks**
Inactivated poliovirus	N/A	**4 weeks**	**6 month** A fourth 6 month
Measles, mumps, rubella	N/A	**4 weeks**	
Varicella	N/A	**3 months** if younger than age 13 years. **4 weeks** if age 13 years or older.	

02/01/19

Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication United States, 2019

VACCINE	INDICATION: Pregnancy	Immunocompromised status (excluding HIV infection)	HIV infection CD4+ count[1]: <15% and total CD4 cell count of <200/mm3	HIV infection CD4+ count[1]: ≥15% and total CD4 cell count of ≥200/mm3	Kidney failure, end-stage renal disease, on hemodialysis	Heart disease, chronic lung disease	CSF leaks/ cochlear implants	Asplenia and persistent complement component deficiencies	Chronic liver disease	Diabetes
Hepatitis B										
Rotavirus		SCID[2]								
Diphtheria, tetanus, & acellular pertussis (DTaP)										
Haemophilus influenzae type b										
Pneumococcal conjugate										
Inactivated poliovirus										
Influenza (IIV) or Influenza (LAIV)						Asthma, wheezing: 2-4yrs[3]				
Measles, mumps, rubella										
Varicella										
Hepatitis A										
Meningococcal ACWY										
Tetanus, diphtheria, & acellular pertussis (Tdap)										
Human papillomavirus										
Meningococcal B										
Pneumococcal polysaccharide										

Vaccination according to the routine schedule recommended

Recommended for persons with an additional risk factor for which the vaccine would be indicated

Vaccination is recommended, and additional doses may be necessary based on medical condition. See Notes.

Contraindicated or use not recommended—vaccine should not be administered because of risk for serious adverse reaction

Precaution—vaccine might be indicated if benefit of protection outweighs risk of adverse reaction

Delay vaccination until after pregnancy if vaccine indicated

No recommendation

1 For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization "Altered Immunocompetence" at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html, and Table 4-1 (footnote D) at: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.
2 Severe Combined Immunodeficiency
3 LAIV contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.

02/01/19 Centers for Disease Control and Prevention | Recommended Child and Adolescent Immunization Schedule, United States, 2019 | Page 4

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html .Accessed 3/31/2019

Table 2. Catch-up immunization schedule for persons aged 4 months–18 years who start late or who are more than 1 month behind, United States, 2019

Always make recommendations by determining needed vaccines based on age (Table 1), determining appropriate intervals for catch-up, if needed (Table 2), assessing for medical indications (Table 3), and reviewing special situations (Notes).

Get Email Updates

The tables below provide 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.

Table 1. By age | Table 2. Catch-up schedule | Table 3. By medical indications | Changes to this year's schedule | Parent-friendly schedule | Resources for health care providers

- 8.5"x11" print color [8 pages]
- 8.5"x11" print black and white [8 pages]
- Vaccines in the Child and Adolescent Immunization Schedule

Download Schedules App

Vaccine Catch-Up Guidance

CDC has developed catch-up guidance job aids to assist health care providers in interpreting Table 2 in the childhood and adolescent immunization schedule.

- Pneumococcal Conjugate Vaccine (PCV) Catch-Up Guidance for Children 4 Months through 4 Years of Age [3 pages]
- *Haemophilus influenzae* type b-Containing Vaccines Catch-Up Guidance for Children 4 Months through 4 Years of Age
  - Hib vaccine products: ActHIB, Pentacel, Hiberix, or unknown [3 pages]
  - Hib vaccine products: PedvaxHIB vaccine only [2 pages]
- Diphtheria-, Tetanus-, and Pertussis-Containing Vaccines Catch-Up Guidance for Children 4 Months through 6 Years of Age [2 pages]
- Tetanus-, Diphtheria-, and Pertussis-Containing Vaccines Catch-Up Guidance for Children 7 through 18 Years of Age [2 pages]

https://www.cdc.gov/vaccines/schedules/hcp/imz/catchup.html

Catch-Up Guidance: DTaP, Tdap, Hib and PCV Vaccines

Catch-Up Guidance for Healthy[1] Children 4 Months through 4 Years of Age

Pneumococcal Conjugate Vaccine: PCV

The table below provides guidance for children whose vaccinations have bee
child's age and information on previous doses (previous doses must be docu
minimum age requirements and minimum intervals between doses). Use this t
table 2 of the Recommended Child and Adolescent Immunization Schedule fo
found at www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html.

IF current age is	AND # of previous doses is	AND		THEN
4 through 6 months	0 or unknown	→	→	Give Dose 1 today
	1	→	It has been at least 4 weeks since Dose 1	Give Dose 2 today
		→	It has **not** been at least 4 weeks since Dose 1	No dose today
	2	→	It has been at least 4 weeks since Dose 2	Give Dose 3 today
		→	It has **not** been at least 4 weeks since Dose 2	No dose today
7 through 11 months	0	→	→	Give Dose 1 today
	1	Dose 1 was given **before** 7 months of age	It has been at least 4 weeks since Dose 1	Give Dose 2 today
			It has **not** been 4 weeks since Dose 1	No dose today
		Dose 1 was given at 7 months or older	It has been at least 4 weeks since Dose 1	Give Dose 2 today
			It has **not** been 4 weeks since Dose 1	No dose today
	2	Dose 2 was given **before** 7 months of age	It has been at least 4 weeks since Dose 2	Give Dose 3 today
			It has **not** been 4 weeks since Dose 2	No dose today
		Dose 2 was given at 7 months or older	→	No dose today

[1]Refer to the notes of the 2019 Recommended Child and Adolescent Immunization Schedule for Ages 18 Y
guidance for children at increased risk for pneumococcal disease.

Reference: Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger–United States, 2019. www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf.

Catch-Up Guidance for Healthy[1] Children 4 Months through 4 Years of Age

Haemophilus influenzae type B Vaccines ActHIB, Pentacel, Hiberix, or Unknown

The table below provides guidance for children whose vaccination
with the child's age and information on previous doses (previous d
and must meet minimum age requirements and minimum intervals
table in conjunction with table 2 of the Recommended Child and A
Schedule for Ages 18 Years or Younger, found at www.cdc.gov/vac
adolescent.html.

IF current age is	AND # of previous doses is	AND		THEN
4 through 6 months	Unknown or 0	→		Give Dose 1 today
	1	It has been at least 4 weeks since Dose 1		Give Dose 2 today
		It has **not** been 4 weeks since Dose 1		No dose today
	2	It has been at least 4 weeks since Dose 2		Give Dose 3 today
		It has **not** been 4 weeks since Dose 2		No dose today
7 through 11 months	Unknown or 0	→	→	Give Dose 1 today
	1	It has been at least 4 weeks since Dose 1	→	Give Dose 2 today
		It has **not** been 4 weeks since Dose 1	→	No dose today
	2	Dose 1 was given **before** 7 months of age	It has been at least 4 weeks since Dose 2	Give Dose 3 today
			It has **not** been 4 weeks since Dose 2	No dose today
		Dose 1 was given at 7 months of age or older	→	No dose today

[1]Refer to notes of the Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger – United States, 2019, for immunization guidance for children at increased risk for *Haemophilus influenzae* type b disease.

Reference: Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger–United States, 2019. www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

Revised January 2019 1

Catch-Up Guidance for Healthy[1] Children 4 Months through 4 Years of Age

Haemophilus influenzae type b Vaccines: PedvaxHI

The table below provides guidance for children whose vaccinations have been d
child's age and information on previous doses (previous doses must be documen
minimum age requirements and minimum intervals between doses). Use this tabl
table 2 of the Recommended Child and Adolescent Immunization Schedule for Ac
found at www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html.

IF current age is	AND # of previous doses is	AND	AND	THEN
4 through 6 months	0	→	→	Give Dose 1 today
	1	→	It has been at least 4 weeks since Dose 1	Give Dose 2 today
		→	It has **not** been 4 weeks since Dose 1	No dose today
7 through 11 months	0	→	→	Give Dose 1 today
	1	→	It has been at least 4 weeks since Dose 1	Give Dose 2 today
		→	It has **not** been 4 weeks since Dose 1	No dose today
12 through 14 months	0	→	→	Give Dose 1 today
	1	Dose 1 was given **before** 12 months of age	It has been at least 4 weeks since Dose 1	Give Dose 2 today
			It has **not** been 4 weeks since Dose 1	No dose today
		Dose 1 was given at 12 months of age or older	It has been at least 8 weeks since Dose 1	Give Dose 2 **(Final Dose)** today
			It has **not** been 8 weeks since Dose 1	No dose today
	2	Dose 1 was given **before** 12 months of age	It has been at least 8 weeks since Dose 2	Give Dose 3 **(Final Dose)** today
			It has **not** been 8 weeks since Dose 2	No dose today
		Dose 1 was given at 12 months of age or older	→	No dose today

[1]Refer to notes of the Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Young
immunization guidance for children at increased risk for *Haemophilus influenzae* type b disease.

Reference: Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger – Unite
www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

Revised January 2019 1

Catch-Up Guidance for Children 7 through 18 Years of Age

Tetanus, Diphtheria, and Pertussis-Containing Vaccines: Tdap/Td[1]

IF current age is	AND # of previous Doses of DTaP, DT, Td or Tdap is	AND[2]	AND	AND[2]	THEN	Next Dose Due
7 through 18 years of age[2]	3	Dose 1 was given **before** 12 months of age	It has been at least 6 calendar months since Dose 3	Any dose was Tdap	**Give Dose 4 (Td) today**	Td in 10 years
				No dose was Tdap	**Give Dose 4 (Tdap) today**	
			It has **not** been 6 calendar months since Dose 3	Any dose was Tdap	**No dose today**	Give Dose 4 (Td) at least 6 calendar months after Dose 3
				No dose was Tdap	**No dose today**	Give Dose 4 (Tdap) at least 6 calendar months after Dose 3
		Dose 1 was given at 12 months of age or older	No dose was Tdap	→	**Give Dose 4 (Tdap) today**	Give Td 10 years after Dose 4
			Any dose was Tdap	→	→	Give Td 10 years after Dose 3
	4	7-10 years of age	Dose of DTaP or Tdap given after 4th birthday	→	**No dose today**	Give Tdap at 11-12 years of age[4]
			No DTaP or Tdap given after 4th birthday	→	**Dose of Tdap today[3]**	Give Tdap at 11-12 years of age[4]
		11 years of age or older	No Tdap was given after 7th birthday	→	**Dose of Tdap today[3]**	Td in 10 years
			Tdap was given at age 7-10	No Tdap given after age 10		
				2nd Tdap was given after age 10		
			Tdap was given after 10th birthday	→	**No dose today**	Td 10 years after Tdap dose

[1]Vaccine Information: Tdap: Administer to persons 7 years of age and older without a contraindication or precaution to tetanus, diphtheria, or pertussis-containing vaccine. Tdap products include Adacel and Boostrix. Td: Administer to persons 7 years of age and older previously vaccinated with Tdap or with a contraindication to pertussis vaccine.

[2]Tdap or Td given as doses 1-3 prior to 7 years of age should not be counted.

[3]For children who received Tdap between 7 through 10 years of age, an adolescent Tdap at 11-12 years of age may be administered. Otherwise, a dose of Td should be given 10 years after the dose of Tdap.

[4]Tdap may be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.

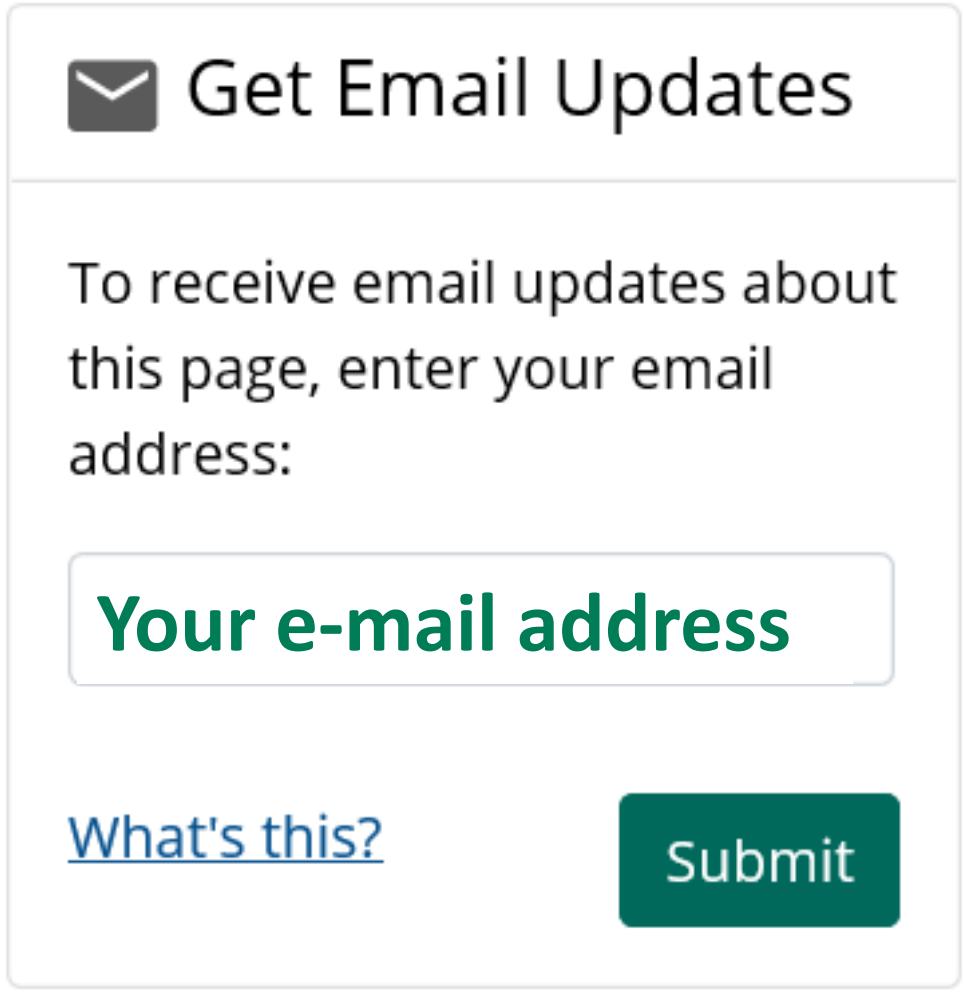
Reference: Recommended immunization schedule for persons aged 0 through 18 years- United States, 2016. www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

https://www.cdc.gov/vaccines/schedules/hcp/imz/catchup.html

Vaccine Information Statements

2019 Vaccine Information Statement Updates

- **Recently updated VISs include:**
  - Cholera
  - HepB
  - Hib
  - HPV
  - Influenza IIV
  - Influenza LAIV
  - MMR
  - MMRV
  - MenACWY
  - MenB
  - Polio
  - Pneumococcal–PCV13, PPSV23
  - Rotavirus
  - Typhoid
  - Varicella
  - Zoster–Shingrix, Zostavax



Current VIS website https://www.cdc.gov/vaccines/hcp/vis/current-vis.html . Accessed 9/4/2019.

ACIP Immunization Recommendations: MMR Vaccine

Guidance for Health Care Personnel

- **Be vigilant about measles**
- **Consider measles in patients with febrile rash illness and clinically compatible measles symptoms–cough, coryza, and conjunctivitis**
- **Mask and promptly isolate patients with suspected measles**
- **Ask patients about:**
  - Recent international travel
  - Recent travel to domestic venues frequented by international travelers
  - Recent contact with international travelers
  - History of measles in the community

CDC Measles For Healthcare Professionals at www.cdc.gov/measles/hcp/index.html. Accessed 4/16/2019.

Presumptive 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

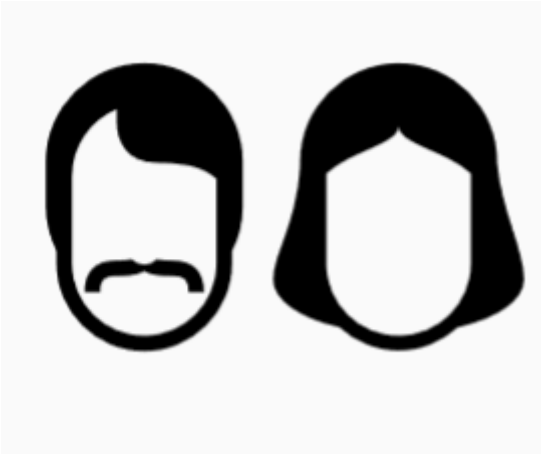
- **No additional doses are indicated or recommended**
- **Post-vaccination serologic testing is not recommended**

*At least 4 weeks apart

**2 doses for measles and mumps immunity, 1 dose for rubella immunity

MMWR 2013;62(RR-4)

ACIP Routine Immunization Recommendations*



- **Pediatric:**
  - Dose 1 at 12–15 months
  - Dose 2 at 4–6 years
- **Adults:**
  - Most adults need 1 dose
  - 2 doses, at least 28 days apart, for those at increased risk, including:
    - Health care personnel without evidence of immunity
    - College and post-high-school students
    - International travelers

*Without evidence of immunity

MMWR 2013;62(RR-4)

What You Need to Know About Vaccination during Outbreaks

- **Stay in contact with the health department for the most up-to-date recommendations**
  - May include guidance for additional doses (similar to travel recommendations)
- **Health departments may recommend 1 dose of MMR for infants 6–11 months of age**
  - Outbreak is affecting infants younger than 12 months of age
  - Outbreak demonstrates sustained, community-wide transmission
  - Weigh benefit of early protection against risk of decreased immune response
  - MMR given prior to 12 months of age does not count toward routine series

Most Measles Cases in 25 Years: Is This the End of Measles Elimination in the United States? CDC COCA webinar, 5/21/2019
Slides emergency.cdc.gov/coca/ppt/2019/slides_052119_Measles.pdf

Measles Outbreak Toolkit for Healthcare Providers

For information about measles for healthcare professionals, visit https://www.cdc.gov/measles/hcp/index.html

If you are looking for **resources for you or your staff** to learn more about having effective vaccine conversations with parents, these may help:

- Guidance for Talking with Parents about Vaccines
- Tips for Preparing for Questions Parents may Ask about Vaccines
- Vaccine safety fact sheets, such as Understanding Thimerosal, Mercury, and Vaccine Safety
- You Call the Shots module on MMR

Examples of resources for providers **to share with parents** include:

- Parent-friendly immunization schedule for children ages 0-6
- Fact Sheet: Infant Immunization FAQs
- Fact Sheet: If You Choose Not to Vaccinate Your Child, Understand the Risks and Responsibilities
- Infographic: Measles: It Isn't Just a Little Rash
- Fact Sheet: Tips for a Less Stressful Shot Visit
- Infographic: Illustrated list of Six Reasons to Follow CDC's Immunization Schedule
- Fact sheet: Measles and the Vaccine (Shot) to Prevent It
- Fact Sheet: Vaccines When Your Child Is Sick

If you would like posters to display in your office, here are some that may be helpful:

- Superbaby: Power to Protect
- How Vaccines Strengthen Your Baby's Immune System
- Stop Serious Childhood Diseases in Their Tracks

Learn the signs and symptoms of measles for quicker diagnosing:

CDC Commentary: Suspect Measles and Act Fast

CDC Measles Outbreak Toolkit for Healthcare Providers www.cdc.gov/measles/toolkit/healthcare-providers.html. Accessed 5/20/2019
Measles Outbreak Fact Sheet www.cdc.gov/measles/cases-outbreaks.html. Accessed 9/4/2019.

2018-19 Influenza Season

2018–19 Influenza Season Summary

- **A moderately severe season with 2 waves of influenza A activity**
  - A(H1N1) predominated from October 2018 to mid-February 2019
  - A(H3N2) predominated from February to May 2019
- **2018–19 season lasted 21 weeks, making it the longest flu season in 10 years**
  - Activity began increasing in November, peaked in mid-February

2018-2019 U.S. Flu Season: Preliminary Burden Estimates www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm Accessed 10/28/2019

CDC estimates that, from **October 1, 2018,** through **May 4, 2019**, there have been:

37.4 million – 42.9 million
flu **illnesses**

17.3 million – 20.1 million
flu **medical visits**

531,000 – 647,000
flu **hospitalizations**

36,400 – 61,200
flu **deaths**

2018-2019 U.S. Flu Season: Preliminary Burden Estimates www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm Accessed 10/28/2019

2018–19 Influenza Season

- **When compared with the 2017–18 flu season, influenza-related:**
  - Hospitalizations were similar for adults
  - Hospitalizations and deaths remained high for children

2018-2019 U.S. Flu Season: Preliminary Burden Estimates www.cdc.gov/flu/about/burden/preliminary-in-season-estimates.htm Accessed 10/28/2019

NFID Moon Landing Video

2019–2020 Northern Hemisphere Vaccine Strains

- **For 2019–2020, trivalent (three-component) vaccines contain:**
  - A/Brisbane/02/2018 (H1N1)pdm09-like virus*
  - A/Kansas/14/2017 (H3N2)-like virus*
  - B/Colorado/06/2017-like virus (Victoria lineage)
- **Quadrivalent (four-component) vaccines, which protect against a second lineage of B viruses, also includes:**
  - B/Phuket/3073/2013-like virus (Yamagata lineage)

*New

MMWR 2019;68(3):1–21

Interim Estimates of 2018–19 Seasonal Influenza Vaccine Effectiveness — United States, February 2019

Influenza A and B	Vaccine effectiveness* Adjusted % (95% CI)†
Overall	47 (34 to 57)§
Age group	
6 mos–17 yrs	61 (44 to 73)§
18–49 yrs	37 (9 to 56)§
≥50 yrs	24 (-15 to 51)

* Vaccine effectiveness was estimated as 100% x (1 – odds ratio [ratio of odds of being vaccinated among outpatients with influenza-positive test results to the odds of being vaccinated among outpatients with influenza-negative test results]); odds ratios were estimated using logistic regression.

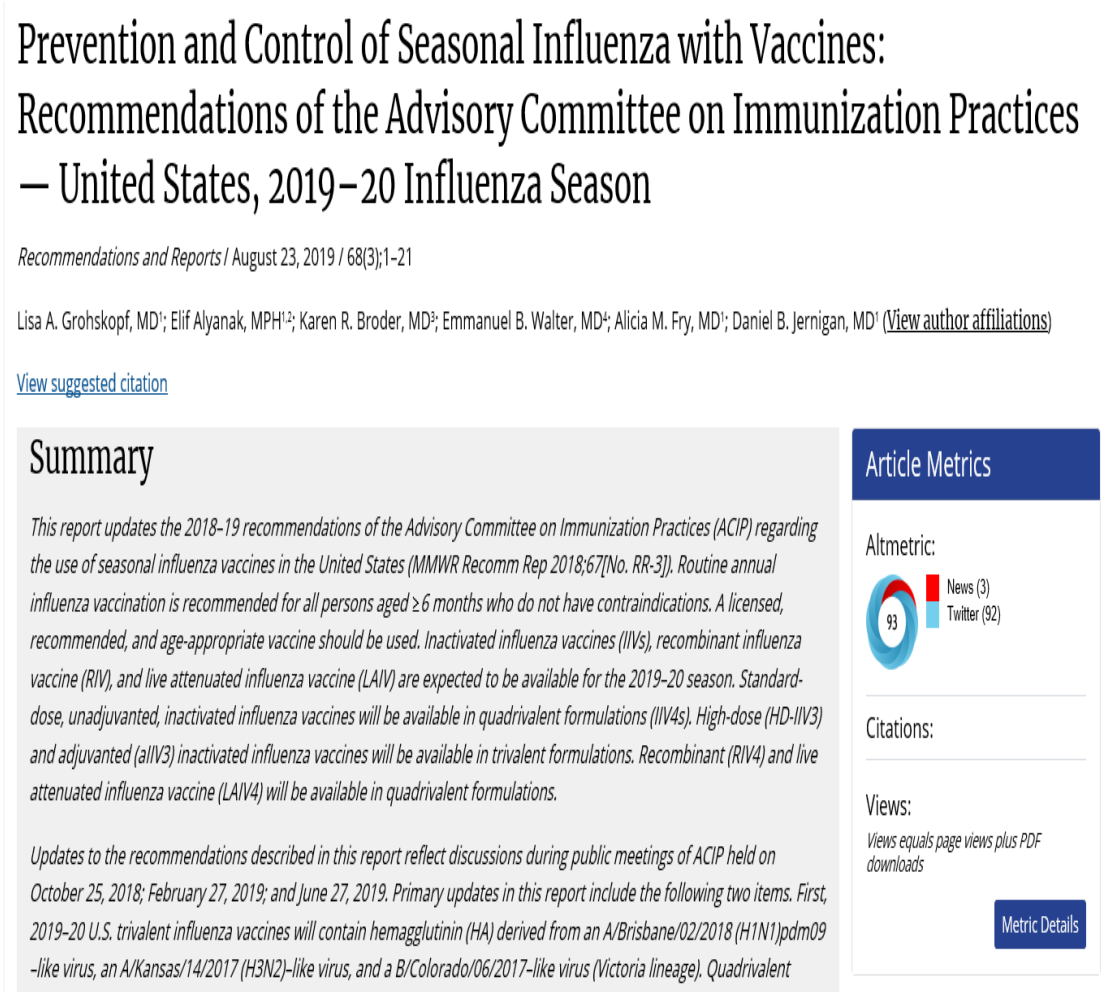
† Adjusted for study site, age group, sex, race/ethnicity, self-rated general health, number of days from illness onset to enrollment, and month of illness (4-week intervals) using logistic regression.

§ Statistically significant at $p<0.05$.

MMWR 2019;68(6):135–139 www.cdc.gov/mmwr/volumes/68/wr/mm6806a2.htm?s_cid=mm6806a2_w Accessed 10/28/2019

2019–20 Influenza Season

- **ACIP recommendations were published August 23**
- **Many products will be available–IIV3, IIV4, and LAIV**
  - Indications vary by product, including age, formulation, and type



Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019–20 Influenza Season

Recommendations and Reports / August 23, 2019 / 68(3);1–21

Lisa A. Grohskopf, MD[1]; Elif Alyanak, MPH[1,2]; Karen R. Broder, MD[3]; Emmanuel B. Walter, MD[4]; Alicia M. Fry, MD[1]; Daniel B. Jernigan, MD[1] (View author affiliations)

View suggested citation

Summary

This report updates the 2018–19 recommendations of the Advisory Committee on Immunization Practices (ACIP) regarding the use of seasonal influenza vaccines in the United States (MMWR Recomm Rep 2018;67[No. RR-3]). Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications. A licensed, recommended, and age-appropriate vaccine should be used. Inactivated influenza vaccines (IIVs), recombinant influenza vaccine (RIV), and live attenuated influenza vaccine (LAIV) are expected to be available for the 2019–20 season. Standard-dose, unadjuvanted, inactivated influenza vaccines will be available in quadrivalent formulations (IIV4s). High-dose (HD-IIV3) and adjuvanted (aIIV3) inactivated influenza vaccines will be available in trivalent formulations. Recombinant (RIV4) and live attenuated influenza vaccine (LAIV4) will be available in quadrivalent formulations.

Updates to the recommendations described in this report reflect discussions during public meetings of ACIP held on October 25, 2018; February 27, 2019; and June 27, 2019. Primary updates in this report include the following two items. First, 2019–20 U.S. trivalent influenza vaccines will contain hemagglutinin (HA) derived from an A/Brisbane/02/2018 (H1N1)pdm09–like virus, an A/Kansas/14/2017 (H3N2)–like virus, and a B/Colorado/06/2017–like virus (Victoria lineage). Quadrivalent

Article Metrics

Altmetric:

93

News (3)

Twitter (92)

Citations:

Views:

Views equals page views plus PDF downloads

Metric Details

MMWR 2019;68(3):1–21

Pediatric Flu Vaccine Products and Dosages (Amounts)

Age	Product	Dosage (Amount)
6 through 35 months	Afluria	0.25 mL
	Fluzone	0.25 mL or 0.5 mL
	Fluarix	0.5 mL
	FluLaval	0.5 mL
3 years and older*	All products	0.5 mL

Labeling changes:

Afluria: May be given to children 6 months and older (was 5 years and older)

Fluzone: 0.5 mL dosage may be given to children as young as 6 months of age

*Product eligibility may vary based on the FDA approved age indications

MMWR 2019;68(3):1–21

2019–20 ACIP Recommendations: Influenza

Not New!

- **Annual influenza vaccination is recommended for persons 6 months of age and older without contraindications or precautions**
- **Vaccination providers may choose to administer any licensed, age-appropriate influenza vaccine product, including LAIV, IIV, RIV, or ccIIV**
  - ACIP/CDC expresses no preference for any one type of influenza vaccine product if more than one is appropriate and available

MMWR 2019;68(3):1–21

2019–20 Influenza Vaccination Schedule for Children

- **Children 6 months through 8 years* of age with:**
  - No previous doses of influenza vaccine
  - 1 documented dose before July 1, 2019
  - Unknown history

Dose 1 **Dose 2**

Completed series**
No additional doses
are needed this flu season

***2 doses are recommended even if the child turns 9 years of age before receiving dose 2**
****Both doses do not have to be the same type of influenza vaccine or product**

MMWR 2019;68(3):1–21

2019–20 Influenza Vaccination Schedule for Children

- Children 6 months through 8 years of age who have had 2 doses before July 1, 2019*
- Children 9 years of age and older, regardless of immunization history

1 dose

No additional doses
are needed this flu season

*Note: Both doses do not have to be administered during the same season or consecutive seasons
Both doses do not have to be the same type of influenza vaccine or product

MMWR 2019;68(3):1–21

Vaccine Administration Errors and Influenza Vaccine

- **Most commonly reported vaccine administration error to Vaccine Adverse Event Reporting System**
  - Currently the most common error reported: High-dose vaccine given to persons younger than 65 years of age
- **Potential contributing factors:**
  - Many products with different indications
  - Temporary staff
  - Poorly organized storage units

CDC Clinical Resources for Health Care Personnel: Influenza

- **Education for health care personnel with free CE**
  - *You Call the Shots*–Influenza www.cdc.gov/vaccines/ed/youcalltheshots.html
  - PB webinar series: Influenza www.cdc.gov/vaccines/ed/webinar-epv/index.html
- **Clinical job aids**
  - Influenza vaccine product labels for storage units www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels-flu.pdf
  - Fact sheet for health care providers of pregnant women www.cdc.gov/flu/professionals/vaccination/vaccination-possible-safety-signal.html
  - Tools to Assist Satellite, Temporary, and Off-Site Vaccination Clinics www.izsummitpartners.org/naiis-workgroups/influenza-workgroup/off-site-clinic-resources/

Vaccine Conversations Communication Research

Vaccine Conversations

- **Answering questions can be challenging**
  - Staff not always prepared for questions
  - Inconsistent messages from staff
  - Real-life time constraints
  - Frustrating! Correcting misconceptions does not always result in vaccination
- **National survey among pediatricians shows:**
  - 46% agreed that their job was less satisfying because of the need to discuss vaccines with vaccine-hesitant parents
  - 60% reported spending more than 10 minutes discussing vaccines in visits with vaccine-hesitant parents

2007 National Survey of Children's Health. Factors associated with human papillomavirus vaccine-series initiation and health care provider recommendation in U.S. adolescent females. *Vaccine* 2012;30(20):3112–3118

Kempe A, et al. Physician Response to Parental Requests to Spread Out the Recommended Vaccine Schedule. *Pediatrics* 2015;135(4)

Communicating About Vaccines

- **Much research on knowledge, attitudes, and beliefs about vaccines**
- **Little is known on communication techniques that change behavior**
  - Research in this area is complicated
- **We've been focused on the "what" more than the "how"**

Conventional Wisdom

- Improve knowledge and they will make the right decision
- This educational approach assumes human decision-making is rational–but this is often not true
- Behavioral economics: **human behavior is influenced** by deep-seated **cognitive biases and heuristic** resistant to rational influence

O'Leary, S. Strategies for Talking to Vaccine-Hesitant Parents. NFID Clinical Vaccinology Course, March 2017

What Do We Know?
What You Say Matters

- **Providers** are a patient's **most trusted source** of information on vaccines
- Research shows a patient who receives a **strong recommendation** from HCP is 4–5 times more likely to be vaccinated

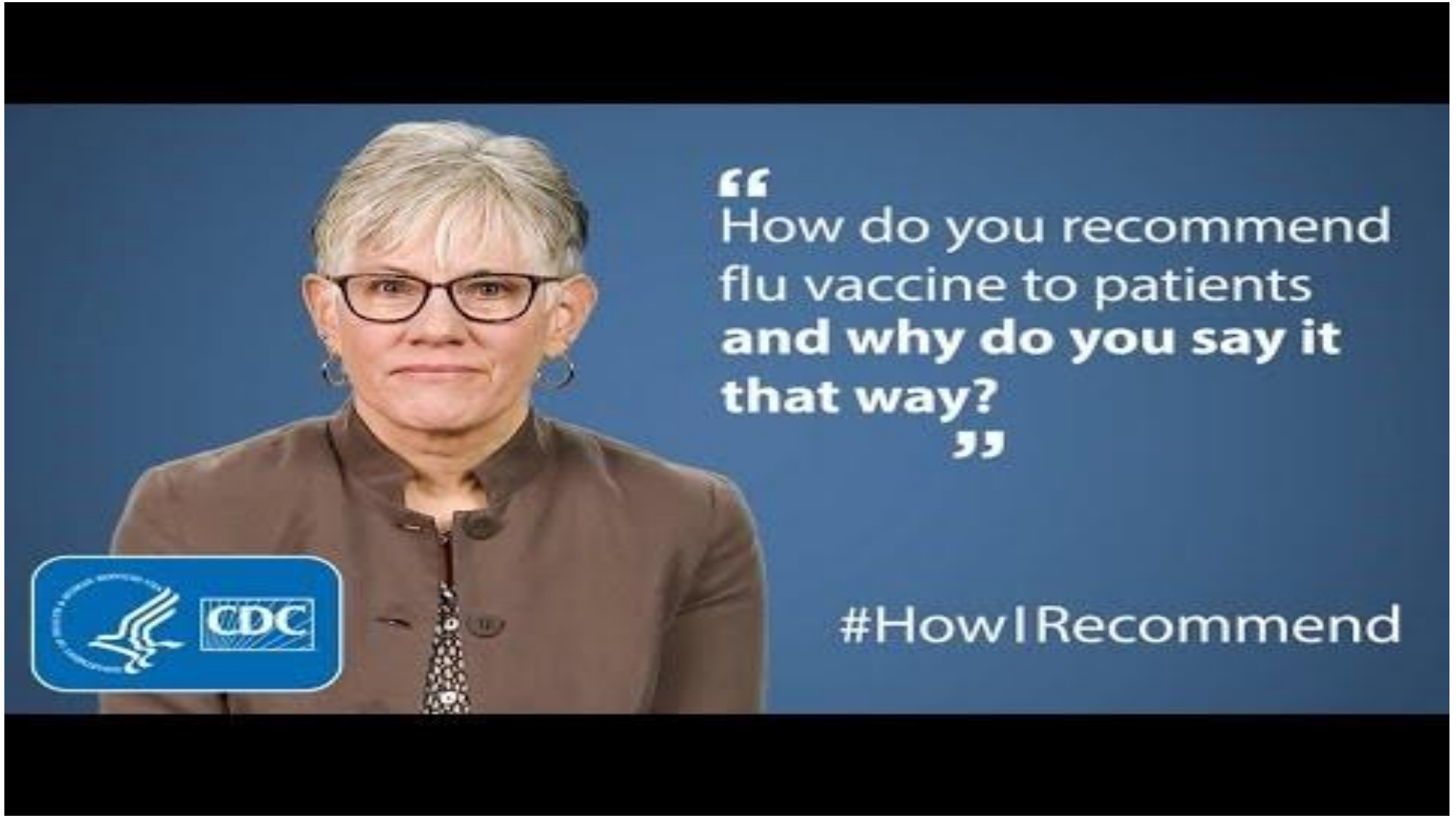
- "Bundle" all needed vaccines into the same recommendation

2007 National Survey of Children's Health. Factors associated with human papillomavirus vaccine-series initiation and health care provider recommendation in U.S. adolescent females. *Vaccine* 2012;30(20):3112–3118

Creating a Pro-Immunization Culture

- **Empower all staff to take every opportunity to recommend influenza vaccination**
  - Don’t forget front desk/support staff
- **Consistent messages from ALL staff are critical**
  - Share talking points to keep everyone on the same page
- **Make clinical resources and information readily available for staff and patients**

#How I Recommend Vaccine Video Series



Childhood #HowIRecommend Vaccination Video Series https://www.cdc.gov/vaccines/howirecommend/childhood-vacc-videos.html. Accessed 10/16/2019

How You Say It Matters

- **The best predictor of vaccination was how the provider started the conversation**
  - For both vaccine-hesitant and nonhesitant patients

Opel DJ, Smith R, et al. The Influence of Provider Communication Behaviors on Parental Vaccine Acceptance and Visit Experience. *American Journal of Public Health*, Oct 2015

Participatory Versus Presumptive Approach

- **Presumptive presupposes that parents would get the child vaccinated**
  - Example: “We have some vaccines due today.”

- **Participatory provides more decision-making latitude**
  - Example: “Have you thought about what shots you’d like today?”

Participatory Versus Presumptive

- A larger proportion **resisted vaccine recommendations** when providers **used a participatory** rather than presumptive approach
- This is true for both vaccine-hesitant and non-hesitant parents

Opel DJ, et al. The Architecture of Provider-Parent Vaccine Discussion at Health Supervision Visits. *Pediatrics* 2013;132–1037

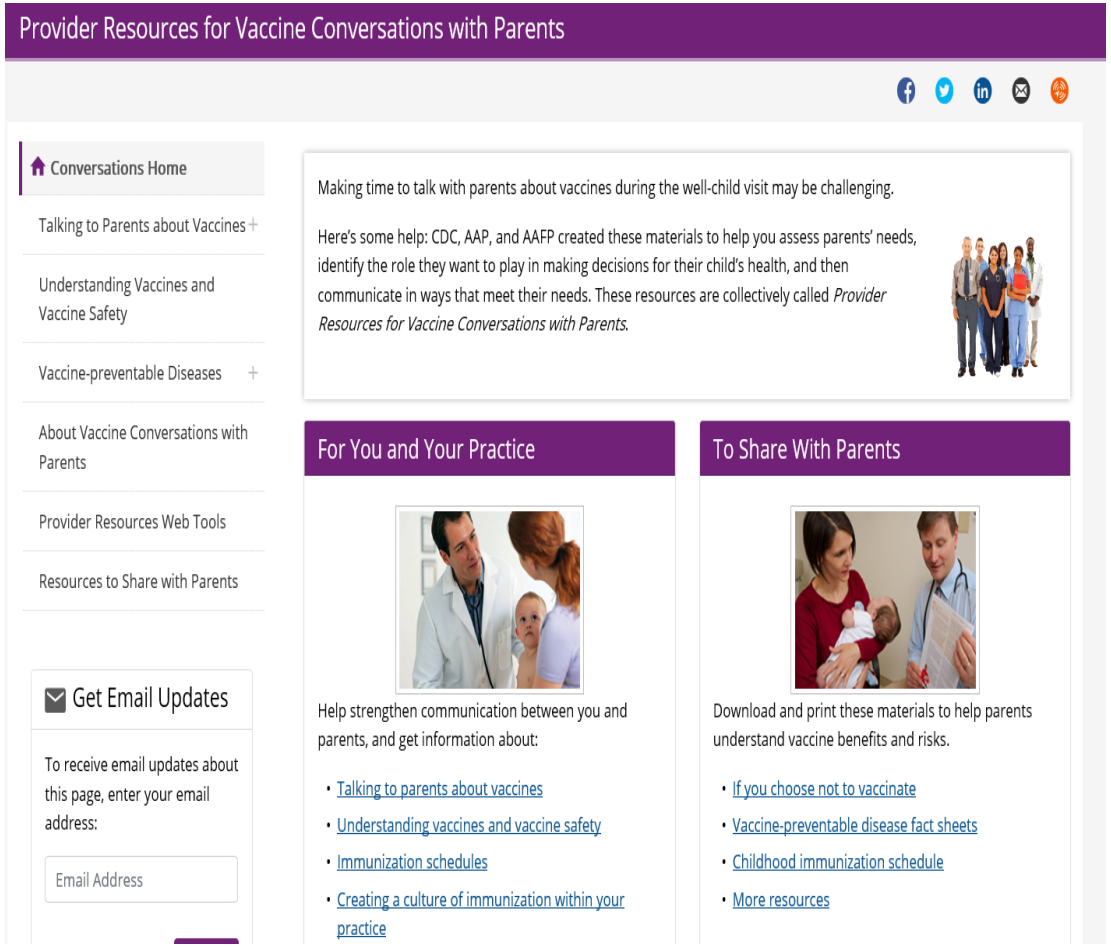
Why Presumptive Style Might Be Better

- Most patients perceive decisions about vaccination to be complicated
- When we make decisions we perceive to be complicated, we tend to have a status quo bias (also called a “default bias”), meaning we go with what is expected or normal
- Using a presumptive approach, patients are made to feel that vaccination is what most people do, and it is the socially acceptable “norm”

O’Leary, S. Strategies for Talking to Vaccine-Hesitant Parents. NFID Clinical Vaccinology Course, March 2017

Vaccine Conversation Resources for Staff and Parents

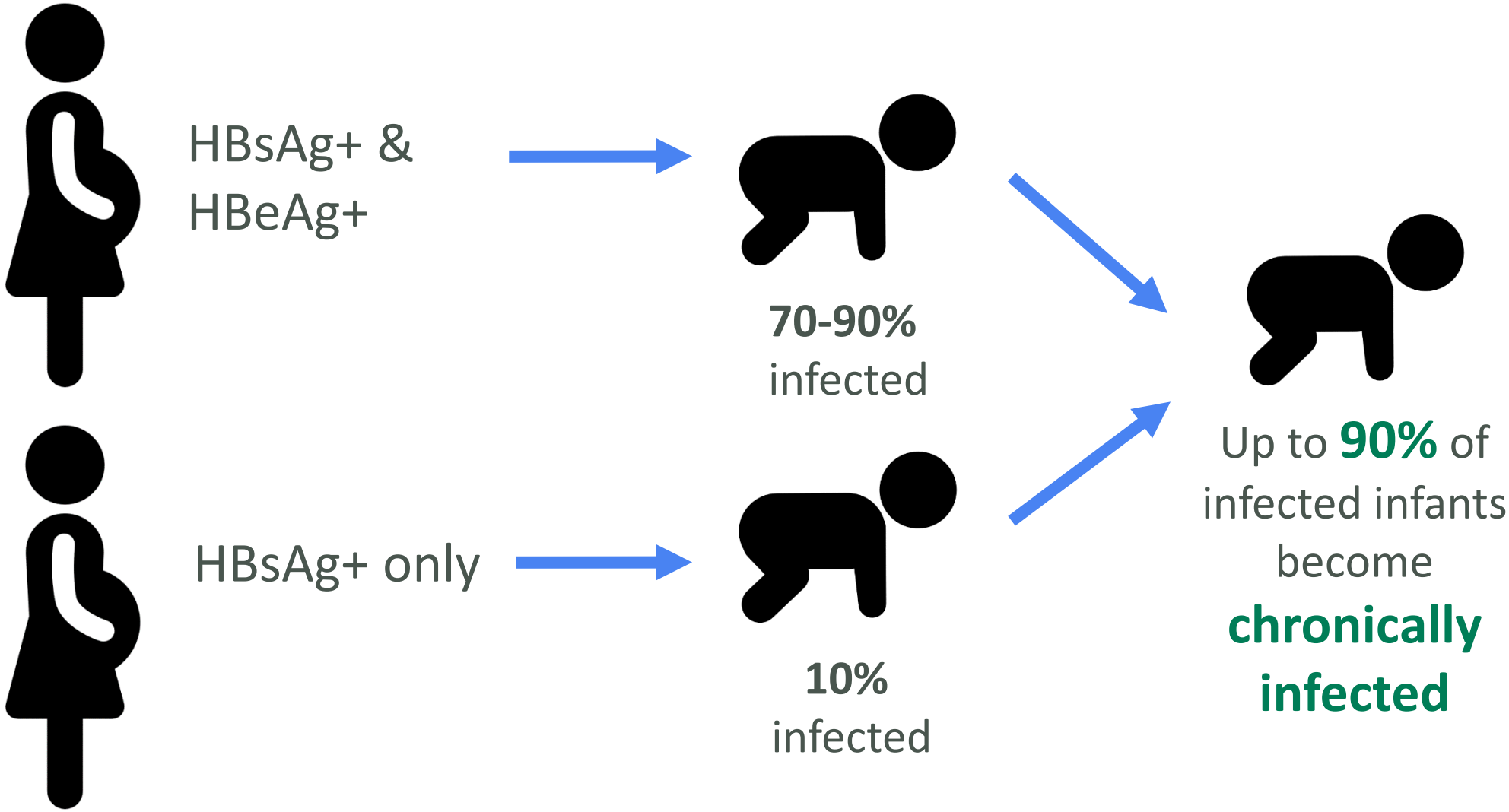
- **CDC resources for health care personnel and parents including:**
  - Videos
  - Printable materials
  - Educational programs and materials (CE available)



Provider Resources for Vaccine Conversations with Parents www.cdc.gov/vaccines/hcp/conversations/index.html Accessed 10/10/2019.

Hepatitis B Vaccine–Importance of the Birth Dose

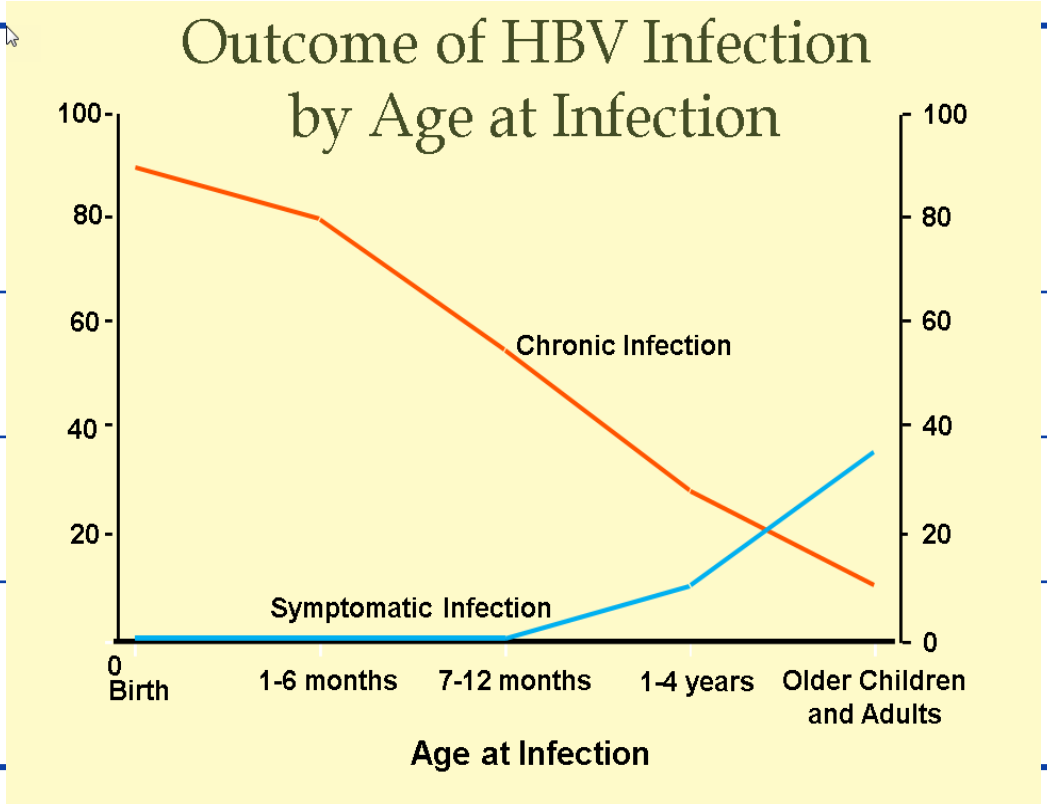
Hepatitis B Perinatal Transmission*



*in the absence of post exposure prophylaxis

Outcome of HBV Infection by Age

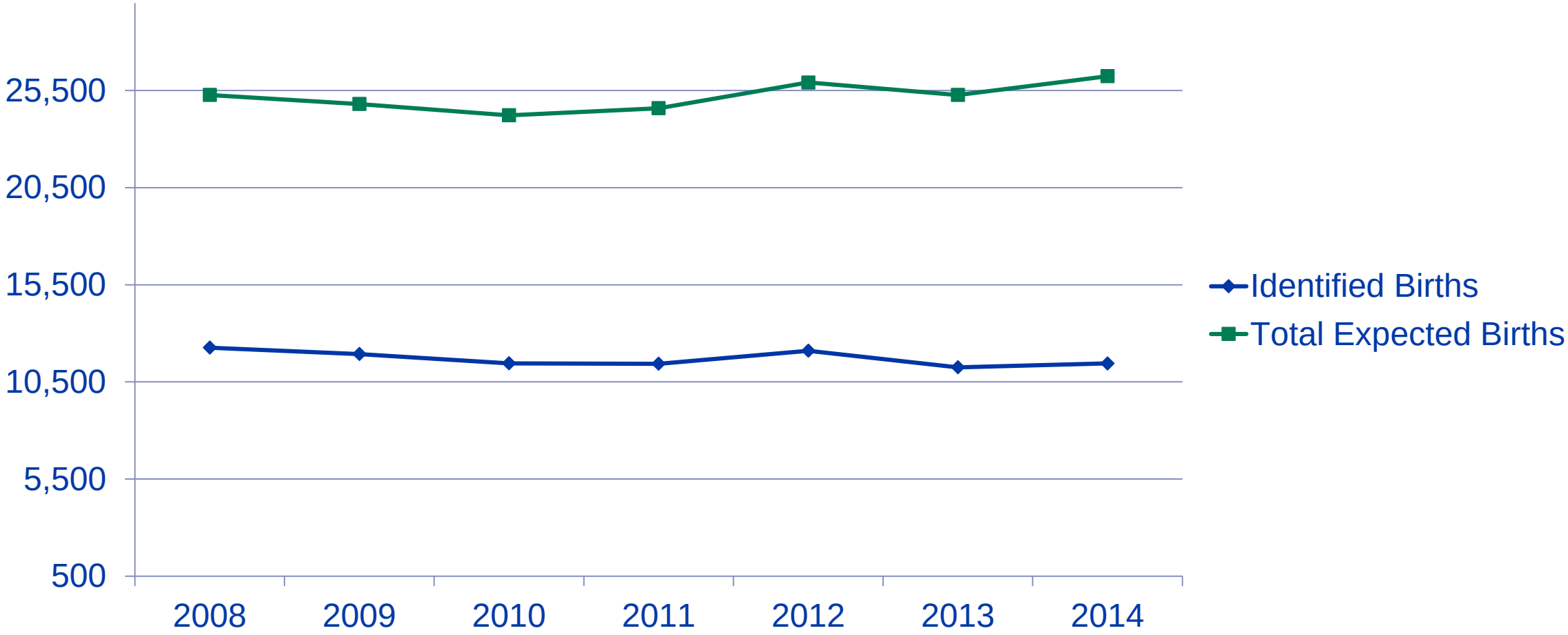
Age at infection	Chronic HBV
< 1 year	90%
1 – 5 years	30 - 50%
>5 years	5 – 10%



Acute HBV infection progresses to chronic infection in approximately 40% of hemodialysis patients and 20% with immune deficiencies; Pink Book 13th edition.

McMahon BJ J Infect Dis 1985;151:599
Edmonds WJ Proc R Soc Lond B Biol Sc 1993; 253:197
Hyams KC. Clin Infect Dis 1995;20:992

Identified Births to HBsAg-positive Women Compared to Total Expected Births to HBsAg-positive Women, 2008-2014



Unprotected Infant Dies of Fulminant Hepatitis B

Unprotected Infant Dies of Fulminant Hepatitis B

*The Immunization Action Coalition (IAC) publishes **Unprotected People Reports** about people who have suffered or died from vaccine-preventable diseases. Nancy Fasano, formerly of the Michigan Department of Community Health, submitted the following case report to IAC. Serious medical errors occurred in this case resulting in the death of a 3-month-old infant. Take measures to make certain that errors such as these do not occur in your practice or hospital. Up to 95% of perinatal infections can be prevented by post-exposure prophylaxis given within 12 hours of birth. Tragically, many babies are exposed to hepatitis B at birth but do not receive appropriate postexposure prophylaxis. Prevent tragedies like these by administering the first dose of hepatitis B vaccine to all newborns at birth, no later than hospital discharge.*

Protect EVERY newborn from hepatitis B virus infection!

Give the first dose of hepatitis B vaccine before hospital discharge.

Case Report

On December 13, 1999, a previously healthy 3-month-old infant of Southeast Asian descent was brought to a local Michigan hospital emergency department and was admitted following a 5-day history of fever, diarrhea, and jaundice.

Upon admission to the hospital, hepatitis B serology was obtained along with liver function tests and liver enzymes. Laboratory results revealed that the infant was hepatitis B surface antigen (HBsAg) positive and IgM core antibody (IgM anti-HBc) positive with elevated total bilirubin 16.6, direct bilirubin 4.7, ALT 693, and AST 203. The infant's test results were reported to the local health department on December 14, 1999. The infant's mother was tested at the same time and was found to be HBsAg positive and anti-HBc positive.

Investigation revealed that the infant's mother had tested positive for HBsAg during her pregnancy but that the test result was communicated incorrectly as "hepatitis negative" to the hospital where the baby was born.

A diagnosis of hepatic failure due to hepatitis B virus (HBV) infection was made and the infant was transferred to another hospital on December 16 for possible liver transplantation. After transfer, the infant developed seizures and her condition deteriorated rapidly. She died on December 17.

Investigation revealed that the infant's mother had tested positive for HBsAg during her pregnancy but that the test result was communicated incorrectly as "hepatitis negative" to the hospital where the baby was born. Neither the laboratory nor the prenatal care provider reported the HBsAg-positive test results to the local health department as required by state law. The infant received no hepatitis B vaccine and no hepatitis B immune globulin (HBIG) at the time of birth.

The hospital where the infant was born had suspended administration of hepatitis B vaccine to all newborns during the summer of 1999 due to the concern about the presence of thimerosal used as a preservative in hepatitis B vaccine. The first dose of hepatitis B vaccine wasn't administered to this infant until two months of age. **This tragedy could have been averted.**

▶ A DISCUSSION FOLLOWS ON THE NEXT PAGE

Unprotected Infant Dies of Fulminant Hepatitis B www.immunize.org/protect-newborns/guide/chapter2/case-report-infant-death.pdf Accessed 10/28/2019

Steps to Prevent Perinatal Transmission of HBV

- **Maternal screening**
  - Test all women for Hepatitis B surface antigen (HBsAg) with each pregnancy American Association for the Study of Liver Diseases (AASLD) suggests antiviral therapy to reduce perinatal HBV transmission when maternal HBV DNA is >200,000 IU/mL

- **Infant vaccination**

  All infants born to HBsAg-positive women need to:

  - Receive hepatitis B vaccine (with passive immunoprophylaxis [HBIG]) within 12 hours of birth
  - Complete the hepatitis B vaccine series

- **Post Vaccination Serologic Testing (PVST)**

MMWR 2018,(1):12;67:1-31.

Pediatric Hepatitis B-Containing Vaccine Products*

Vaccine product	Age indications
Single-component vaccines	
Engerix-B	
Pediatric formulation	Birth–19 years
Recombivax HB	
Pediatric formulation	Birth–19 years
Combination vaccines	
Pediarix–DTaP, IPV and HepB vaccines	6 weeks–6 years

*ACIP does not state a preference for vaccine product versus another if the patient is eligible for more than 1 product

Vaccine Supply: Pediatric RecombivaxHB

- Merck is not currently distributing hepatitis B vaccine, pediatric and adult formulations, **through 2020**
- GSK address the gap for pediatric hepatitis B vaccine using a combination of single-component hepatitis B vaccine and DTaP-HepB-IPV (Pediarix)
- GSK has sufficient supplies of adult hepatitis B vaccine to address these anticipated gaps
  - Preferences for a specific presentation (i.e., vial versus syringe) may not be consistently be met

CDC Current Vaccine Shortages and Delays www.cdc.gov/vaccines/hcp/clinical-resources/shortages.html

HepB Schedule: Routine Infant

Dose[+]	Routine Age
Dose 1	Birth[§]
Dose 2	1- 2 months
Dose 3[+]	6-18 months*

§The birth dose of single-component Hepatitis B vaccine should be administered within 24 hours of birth for medically stable infants weighing ≥2,000 grams born to hepatitis B surface antigen (HBsAg)-negative mothers.
*Infants whose mothers are HBsAg+ or whose HBsAg status is unknown should receive the third dose at 6 months of age
+An additional dose at 4 months is acceptable if the clinician prefers to use a combination vaccine that contains hepatitis B vaccine

MMWR 2018; 67(1):1–31 www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm#B2_down Accessed 10/28/2019

Vaccine Administration Considerations

- **Route: IM Injection**
  - Administer HepB vaccine and HBIG (if both are needed) in different limbs

Administration Errors	Count the Dose or Revaccinate?
Adult formulation administered to a child	Count the dose, if it meets minimum age and interval
Pediatric formulation administered to an adult	Dose does not count and should be repeated ASAP
HepA instead of HepB vaccine	Administer HepB vaccine ASAP

Birth Dose Considerations: Babies Weighing Less Than 2000 grams

HBsAg **NEGATIVE** mother

Administer HepB vaccine at hospital discharge or at 1 month of age

HBsAg **POSITIVE** mother

Administer HepB vaccine and HBIG* within 12 hours of birth

HBsAg **UNKNOWN** mother

Administer HepB vaccine within 12 hours of birth. Give HBIG, if the mother's HBsAg status cannot be determined within 12 hours of birth*

*Administer HepB vaccine and HBIG in separate limbs

Give the Birth Dose!

It prevents mother-to-infant transmission

Prevents 70%–95% of transmission to infants born to HBsAg-positive women

It prevents household transmission

Protects infants from infected family members and other caregivers

It provides protection if medical errors occur

Provides a safety net to prevent perinatal transmission when medical errors occur

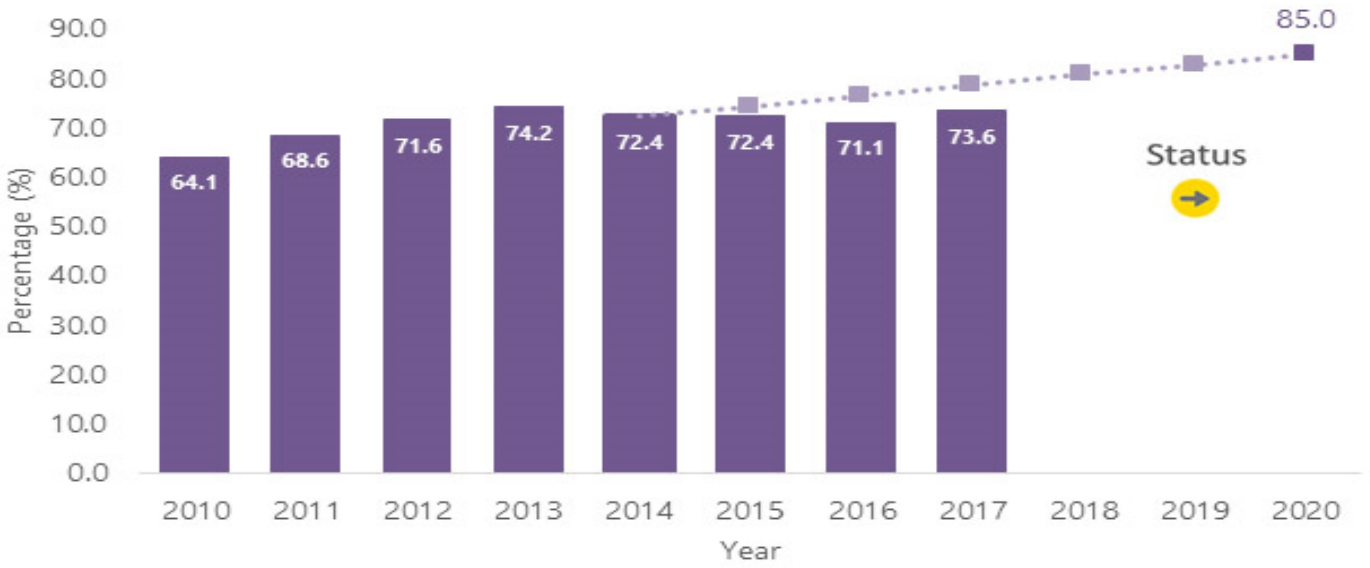
MMWR 2018;12;67(1):1-31
Willis, B.C., et al., 2010. 125(4): p. 704-11.

Types of Medical Errors Reported

- Ordering the wrong hepatitis B screening test
- Misinterpreting or mis-transcribing the hepatitis B test results
- Failing to communicate the HBsAg test results
- Not administering hepatitis B vaccine to infants born to mothers with unknown HBsAg status
- Not giving prophylaxis to an infant when mother's HBsAg positive status was documented

National Progress Report 2020 Goal: Increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth to 85.0%

Percentage of children aged 19–35 months* who received hepatitis B vaccine within 3 days of birth†



Source: CDC, National Immunization Survey-Child (1–2)

*For 2010, children born 1/2007–5/2009; for 2011, children born 1/2008–5/2010; for 2012, children born 1/2009–5/2011; for 2013, children born 1/2010–5/2012; for 2014, children born 1/2011–5/2013; for 2015, children born 1/2012–5/2014; for 2016, children born 1/2013–5/2015; and for 2017, children born 1/2014-5/2016.

†One dose of hepatitis B vaccination administered from birth through age 3 days.

HepB Vaccine at Birth

- **If hepB birth dose is delayed, babies exposed at birth may be at risk of HBV infection**
- **WITHOUT HepB vaccine and HBIG at birth**
  - 90% will be at risk for chronic infection
  - 25% of those infected will have chronic liver disease
- **WITH HepB vaccine in a 3 or 4 dose series started at birth**
  - 70% - 95% will be protected from getting HBV infection

- **MI's hepB birth dose coverage levels (BDCL) within 3 days of life**
  - 2016 = 82%
  - 2017 = 82%
  - 2018 = 82%

What We Can Do To Improve HepB BDCLs

- **Monthly staff meetings**
  - To discuss the importance of hepB vaccine starting at birth
  - How to talk to families about hepB vaccine
- **Face-to-face discussion with parents who decline hepB vaccine**
- **Encourage case-by-case discussion with physician if needed**
- **Vaccine is safe and effective and is the best protection**
- **All babies need hepB vaccine, starting at birth**

www.Michigan.gov/hepatitisb

Information for Parents: Hepatitis B and the Vaccine (Shot) to Prevent It

INFORMATION FOR PARENTS

| DISEASES and the VACCINES THAT PREVENT THEM |

Hepatitis B and the Vaccine (Shot) to Prevent It

Last updated April 2017

The best way to protect against hepatitis B is by getting the hepatitis B vaccine. Doctors recommend that all children get the vaccine.

Why should my child get the hepatitis B shot?

The hepatitis B shot:

- Protects your child against hepatitis B, a potentially serious disease.
- Protects other people from the disease because children with hepatitis B usually don't have symptoms, but they may pass the disease to others without anyone knowing they were infected.
- Prevents your child from developing liver disease and cancer from hepatitis B.
- Keeps your child from missing school or childcare (and keeps you from missing work to care for your sick child).

Is the hepatitis B shot safe?

The hepatitis B vaccine is very safe, and it is effective at preventing hepatitis B. Vaccines, like any medicine, can have side effects. But serious side effects caused by the hepatitis B vaccine are extremely rare.

What are the side effects?

Most people who get the hepatitis B vaccine will have no side effects at all. When side effects do occur, they are often very mild, such as a low fever (less than 101 degrees) or a sore arm from the shot.

What is hepatitis B?

Hepatitis B is a contagious liver disease caused by the hepatitis B virus. When a person is first infected with the virus, he or she can develop an "acute" (short-term) infection. Acute hepatitis B refers to the first 6 months after someone is infected with the hepatitis B virus. This infection can range from a very mild illness with few or no symptoms to a serious condition requiring hospitalization. Some people are able to fight the infection and clear the virus.

For others, the infection remains and is "chronic," or lifelong. Chronic hepatitis B refers to the infection when it remains active instead of getting better after 6 months. Over time, the infection can cause serious health problems, and even liver cancer.

Doctors recommend that your child get 3 doses of the hepatitis B shot for best protection. Ask your doctor when your child should get the next shot. Typically, children get one dose at each of the following ages:

- Shortly after birth
- 1 through 2 months
- 6 through 18 months

Your child may get a 4th dose depending on the brand of vaccines the doctor uses.

CDC accessed 4/8/2018 https://www.cdc.gov/vaccines/parents/diseases/child/hepB-basics-color.pdf

ACIP Immunization Recommendations: Human Papillomavirus Vaccine

ACIP Immunization Recommendations: HPV Persons 9 Through 26 Years of Age

- **Routinely recommended at age 11 or 12 years**
  - Vaccination can be started at age 9 years
- **Catch up all unvaccinated and incompletely vaccinated persons in this age group regardless of gender**
- **Immunization schedules and intervals have not changed; administer a 2- or 3-dose series depending at age of first dose and health status**

MMWR 2019;68(3):1–21

ACIP Immunization Recommendations: Tdap Vaccine

ACIP Recommendations: Tdap

- **Routinely recommended at 11–12 years of age**
- **Catch-up persons 13 years of age and older who were NOT *previously vaccinated* and those with an unknown immunization history**
  - Any documented dose at/after 11 years of age = previously vaccinated

MMWR 67(2):1–44

Use of Tdap Among Children 7 through 10 Years of Age*

- **Administer a dose of Tdap at age 11–12 years old to children who received a dose of Tdap at 7 through 10 years of age:**
  - As part of the catch-up schedule
  - For wound care
  - Inadvertently in error

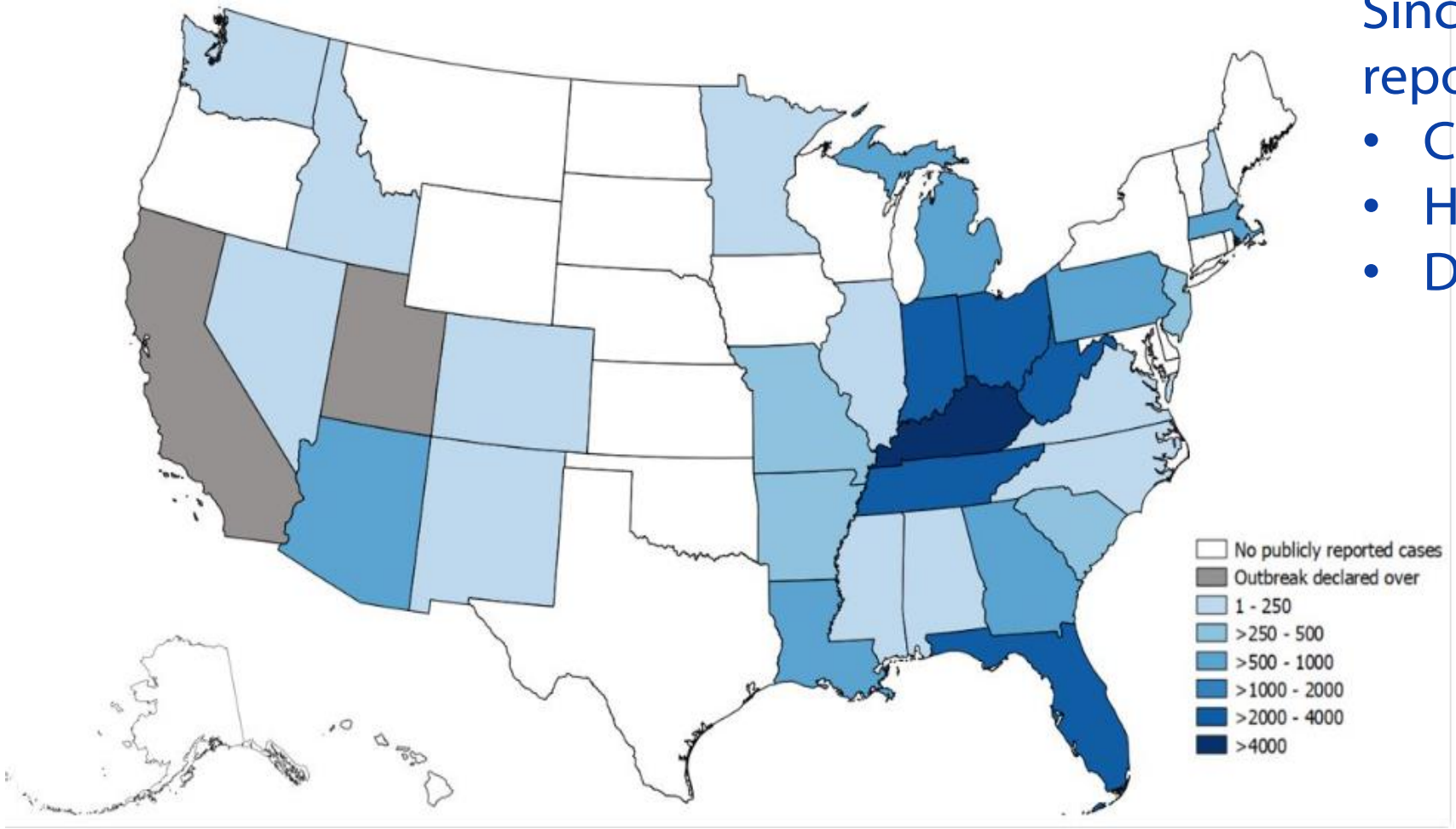
- **October ACIP vote**

*Off-label recommendation.

MMWR 2011; 60 (1):13-5

ACIP Immunization Recommendations: Hepatitis A Vaccine

State-Reported Hepatitis A Outbreak Cases as of October 11, 2019



Since 2016, 30 states have reported:

- Cases: 27,064
- Hospitalizations: 16,311
- Deaths: 275

Widespread person-to-person outbreaks of hepatitis A across the United States https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm. Accessed 10/16/2019.

Hepatitis A Immunization Recommendations for Children

- **Routinely recommended for children 12 through 23 months of age**
  - 2-dose schedule (0, 6 months)

- **Vaccination should be integrated into the routine vaccination schedule**

Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger, United States, 2019. Accessed on 3/26/2019

ACIP Meeting June 2019
Hepatitis A Vote

- ACIP recommends that all children and adolescents aged 2 through 18 years who have not previously received hepatitis A vaccine be vaccinated routinely at any age (i.e., children and adolescents are recommended for catch-up vaccination)

- ACIP recommends all persons with HIV aged 1 year of age and older be routinely vaccinated with hepatitis A vaccine

DRAFT

These recommendations have been adopted by the CDC Director and will become official once published in *MMWR.*
Advisory Committee on Immunization Practices (ACIP) www.cdc.gov/vaccines/acip/index.html. Accessed 8/25/2019.

International Travel and Infants: 6 Through 11 Months of Age

- **International travel recommendations* for children 6 through 11 months of age:**
  - Hepatitis A: IG (previous)
  - Measles, mumps, rubella: MMR vaccine

- **Problematic if both are indicated as IG and live, attenuated vaccines cannot be administered simultaneously**

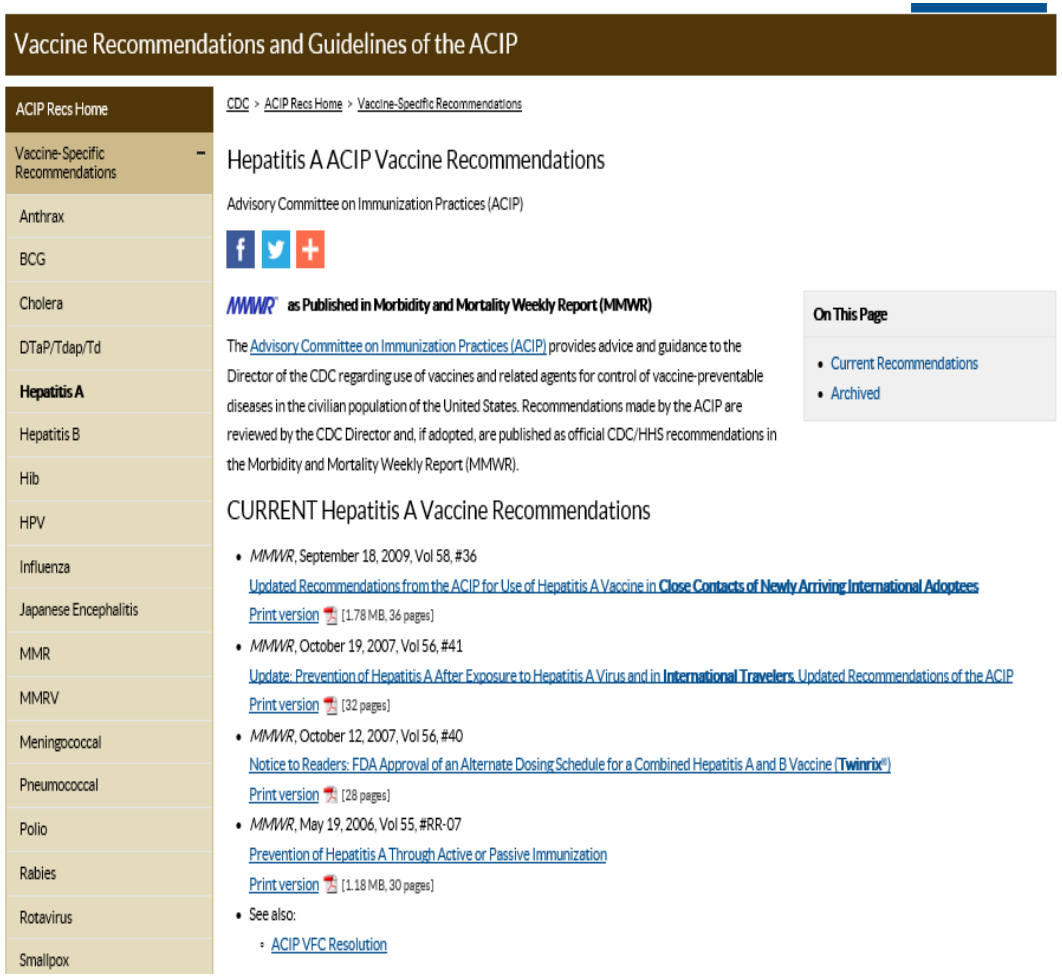
*Countries with high or intermediate hepatitis A endemicity

MMWR 2018;(No.43):1216–20

Hepatitis A Vaccine for International Travelers: Infants

- Administer **1 dose** of HepA vaccine to infants **6–11 months of age**

- **Restart** the 2-dose series at **12 months of age or older**



Vaccine Recommendations and Guidelines of the ACIP

ACIP Recs Home

Vaccine-Specific Recommendations

Anthrax
BCG
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Hepatitis A ACIP Vaccine Recommendations

Advisory Committee on Immunization Practices (ACIP)

MMWR as Published in Morbidity and Mortality Weekly Report (MMWR)

The Advisory Committee on Immunization Practices (ACIP) provides advice and guidance to the Director of the CDC regarding use of vaccines and related agents for control of vaccine-preventable diseases in the civilian population of the United States. Recommendations made by the ACIP are reviewed by the CDC Director and, if adopted, are published as official CDC/HHS recommendations in the Morbidity and Mortality Weekly Report (MMWR).

On This Page
- Current Recommendations
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CURRENT Hepatitis A Vaccine Recommendations

- *MMWR*, September 18, 2009, Vol 58, #36
  Updated Recommendations from the ACIP for Use of Hepatitis A Vaccine in **Close Contacts of Newly Arriving International Adoptees**
  Print version [1.78 MB, 36 pages]
- *MMWR*, October 19, 2007, Vol 56, #41
  Update: Prevention of Hepatitis A After Exposure to Hepatitis A Virus and in **International Travelers**. Updated Recommendations of the ACIP
  Print version [32 pages]
- *MMWR*, October 12, 2007, Vol 56, #40
  Notice to Readers: FDA Approval of an Alternate Dosing Schedule for a Combined Hepatitis A and B Vaccine (**Twinrix**®)
  Print version [28 pages]
- *MMWR*, May 19, 2006, Vol 55, #RR-07
  Prevention of Hepatitis A Through Active or Passive Immunization
  Print version [1.18 MB, 30 pages]
- See also:
  - ACIP VFC Resolution

MMWR 2018;(43):1216–20

ACIP Recommendations: Meningococcal B Vaccine

ACIP Recommendations: Meningococcal B

- **Recommended for persons 10 years of age and older* at increased, including:**
  - Persons with persistent complement component deficiencies
  - Persons with anatomic or functional asplenia**
  - Microbiologists routinely exposed to isolates of *Neisseria meningitides*
  - Persons identified as at increased risk because of an outbreak
- **Shared clinical decision-making discussion recommended for persons 16–23 years of age to see if they would benefit from vaccination***
  - Preferred age is 16–18 years

*ACIP off-label recommendation

**Including sickle cell disease

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6422a3.htm?s_cid=mm6422a3_w

Meningococcal B Vaccination Schedules

- **Vaccination schedule varies based on product and risk of disease**
  - Bexsero: 2 doses at 0, 1– 6 months
  - Trumenba:
    - 2 doses (0, 6 months) for healthy adolescents not at increase risk
    - 3 doses (0, 1–2 , 6 months) for persons at increased risk and for during serogroup B outbreaks
- **Same vaccine product should be used for all doses**
- **ACIP does not prefer one product**

ACIP Meeting June 2019 Meningococcal B Vote

DRAFT

- **For persons 10 years of age and older:**
  - With complement deficiency, complement inhibitor use, asplenia, or who are microbiologists:
    - ACIP recommends a booster dose 1 year following completion of a primary series, followed by booster doses every 2–3 years thereafter, for as long as increased risk remains
- **Determined by public health officials to be at increased risk during an outbreak:**
  - ACIP recommends a one-time booster dose if it has been 1 year or more since completion of a primary series
  - A booster dose interval of 6 months or longer may be considered by public health officials depending on the specific outbreak, vaccination strategy, and projected duration of elevated risk

These recommendations have been adopted by the CDC Director and will become official once published in *MMWR.*

Advisory Committee on Immunization Practices (ACIP) www.cdc.gov/vaccines/acip/index.html. Accessed 8/25/2019.

ACIP Recommendations: Meningococcal ACWY Vaccine

MenACWY Recommendations

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 yrs	17-18 yrs
Meningococcal (MenACWY-D ≥9 mos; MenACWY-CRM ≥2 mos)			See Notes											1st dose		2nd dose	

- Administer MenACWY at age 11 or 12 years with a booster dose at 16 years of age
- Administer 1 dose at age 13 through 15 years if not previously vaccinated
- For persons vaccinated at age 13 through 15 years, administer a one-time booster dose, preferably at or after 16 through 18 years of age
  - The minimum interval between doses is 8 weeks

MenACWY Adolescent Vaccination Recommendations

- **A booster dose is not recommended for healthy persons if the first dose is administered at or after 16 years of age**

- **A booster dose is not recommended for healthy persons after 21 years of age who are not at increased risk of exposure**
  - A booster dose is not recommended for healthy persons 22 years of age and older even if the first dose was administered at 11-15 years of age

ACIP Recommendations: Men ACWY and Increased Risk

- **Administer Men ACWY vaccine to persons aged two months and older, including:**
  - Persons with persistent complement component deficiencies
  - Persons with anatomic or functional asplenia*
  - Persons with HIV infection
  - Microbiologists routinely exposed to isolates of *Neisseria meningitidis*
  - Persons identified as at increased risk because of a serogroup ACWY meningococcal disease outbreak
  - travel to, or are residents of countries where meningococcal disease is hyperendemic or epidemic
  - are unvaccinated first-year college students aged ≤21 years living in residential housing
  - Military recruits

*Including sickle cell disease

https://www.cdc.gov/mmwr/pdf/rr/rr6202.pdf, and https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6543a3.pdf

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