EPIC® Immunization 2024 Update
Immunizing Adolescents

Updated January 2024

EPIC® is presented by:

Georgia Chapter - American Academy of Pediatrics

Ga. Dept. of Public Health/Immunization Program

In Cooperation with:

Georgia Academy of Family Physicians

Georgia Chapter - American College of Physicians

Georgia OB/Gyn Society

Faculty Disclosure Information

- In accordance with ACCME* and ANCC-COA* Standards, all faculty members are required to disclose to the program audience any real or apparent conflict of interest to the content of their presentation.
- This presentation will include the most current ACIP recommendations for frequently used vaccines but is not a comprehensive review of all available vaccines.
- Some ACIP recommendations for the use of vaccines have not currently been approved by the FDA.
- Detailed information regarding all ACIP Recommendations is available at www.cdc.gov/vaccines/acip/recs/index.html

***Accreditation Council for Continuing Medical Education**

***American Nurses Credentialing Center Commission on Accreditation**

Objectives

At the end of this presentation, you will be able to:

- Name four vaccines recommended for adolescents
- Explain the importance of preventing these diseases in adolescents
- Discuss strategies practitioners can use to increase immunization rates in adolescents
- Examine parental hesitation regarding HPV vaccine for young adolescents
- List at least 2 reliable sources for immunization information

Advisory Committee on Immunization Practices (ACIP)

15 voting members with expertise in one or more of the following:

- Vaccinology
- Immunology
- Infectious diseases
- Pediatrics
- Internal Medicine
- Preventive medicine
- Public health
- Consumer perspectives and/or social and community aspects of immunization programs

ACIP develops recommendations and schedules for the use of licensed vaccines

Primary sources for information cited

ACIP Vaccine Recommendations and Guidelines:

https://www.cdc.gov/vaccines/hcp/acip-recs/

Epidemiology and Prevention of Vaccine-Preventable Diseases, The Pink, Book, 14th Edition, 2021: https://www.cdc.gov/vaccines/pubs/pinkbook/index.html

CDC Immunization Schedules: https://www.cdc.gov/vaccines/schedules/

Vaccines Work!

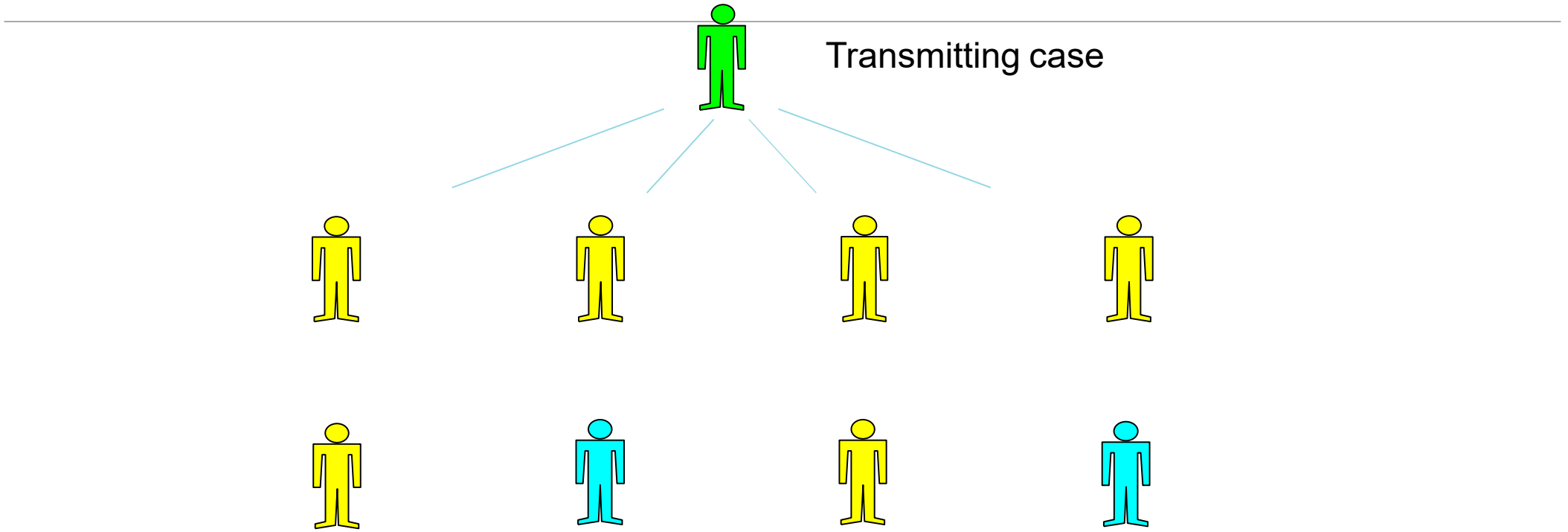
CDC statistics demonstrate dramatic declines in vaccine-preventable diseases when compared with the pre-vaccine era

DISEASE	PRE-VACCINE ERA ESTIMATED ANNUAL MORBIDITY[1]	MOST RECENT REPORTS OR ESTIMATES OF U.S. CASES	PERCENT DECREASE
Diphtheria	21,053	2[2]	>99%
H. influenzae (invasive, <5 years of age)	20,000	14[2,3]	>99%
Hepatitis A	117,333	(est) 24,900[4]	79%
Hepatitis B (acute)	66,232	(est) 21,600[4]	67%
Measles	530,217	1,287[2]	>99%
Meningococcal disease (all serotypes)	2,886[5]	329[2]	89%
Mumps	162,344	3,509[2]	98%
Pertussis	200,752	15,662[2]	92%
Pneumococcal disease (invasive, <5 years of age)	16,069	1,700[7]	93%
Polio (paralytic)	16,316	0[2]	100%
Rotavirus (hospitalizations, <3 years of age)	62,500[8]	30,625[9]	51%
Rubella	47,745	4[2]	>99%
Congenital Rubella Syndrome	152	0[2]	100%
Smallpox	29,005	0[2]	100%
Tetanus	580	19[2]	96%
Varicella	4,085,120	102,128[10]	>98%

https://www.immunize.org/catg.d/p4037.pdf

Community Immunity

Formerly known as “Herd Immunity”*

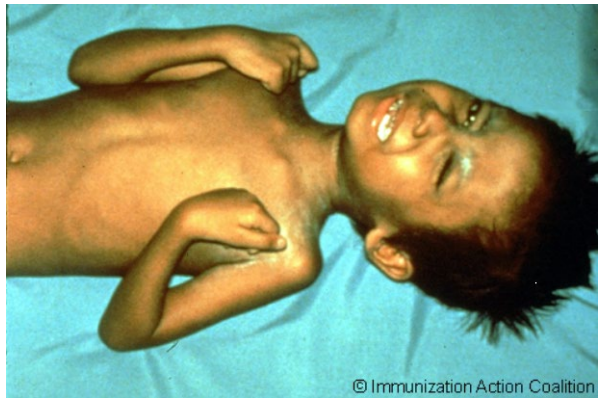


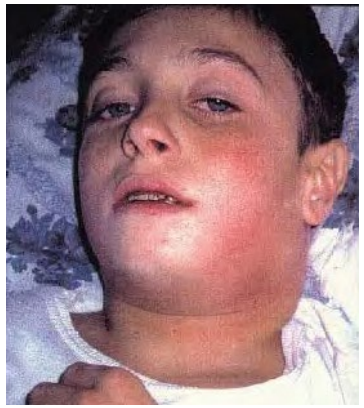
*Presentation from Immunize Georgia, September 9, 2016 by Walt A. Orenstein, MD, Professor of Medicine Global, Health, Epidemiology and Pediatrics Emory Department of Medicine, Associate Director, Emory Vaccine Center Director, Vaccine Policy and Development, Emory University, Atlanta, GA

Vaccines Recommended During Adolescence

- Tetanus-diphtheria-acellular pertussis vaccine (Tdap)
- Influenza (flu) vaccine---every year
- Meningococcal Vaccines: MCV4 and MenB
- Human papillomavirus vaccine (HPV)
- COVID-19

Other vaccines not received during childhood may be administered during adolescence depending on age, risk factors.





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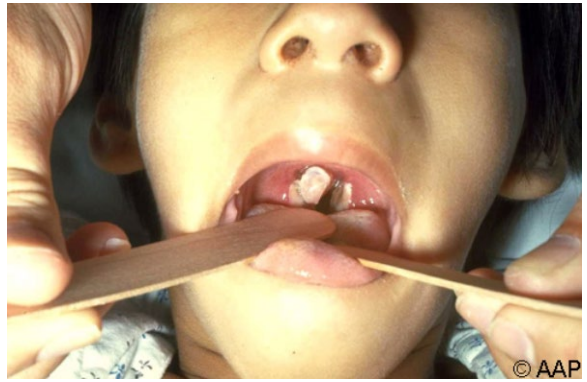
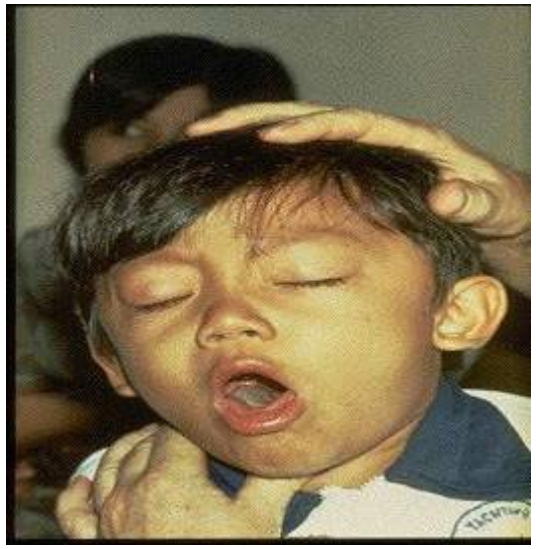
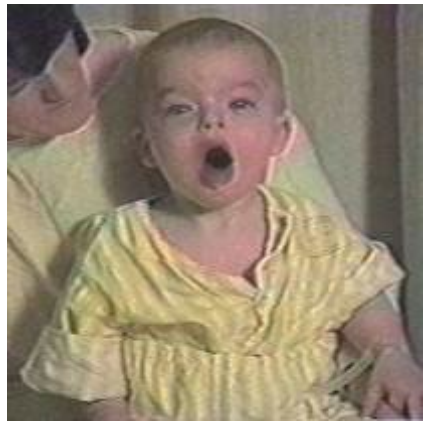


Tetanus

Diphtheria





Pertussis

Pertussis in Adolescents

- Prolonged cough (3 months or longer)
  - Complications (pneumonia, rib fractures)
  - Hospitalization
  - Missed school and work
  - Impact on public health system
- Vomiting after prolonged coughing
- Weight loss
- Multiple medical visits and extensive medical evaluations
- Loss of sleep
- Transmission to infants

Ohio Chapter, American Academy of Pediatrics. TIES: Teen Education Immunization Sessions

Why Do Adolescents Need Pertussis Vaccine?

Pertussis is endemic in the United States

Reported cases in U.S. and in Georgia:

- 2014: 32,118 – 407 in Georgia
- 2015: 20,762 -- 244 in Georgia
- 2016: 15, 737 – 170 in Georgia
- 2017: 15,808 -- 163 in Georgia
- 2018: 15,609 – 134 in Georgia
- 2019: 15,662 -- 28 in Georgia
- 2022: 2,388 – 41 in Georgia (2022 provisional pertussis report)

https://www.cdc.gov/pertussis/surv-reporting.html
https://www.cdc.gov/mmwr/volumes/65/wr/mm6552md.htm?s_cid=mm6552md_w
Summary of Notifiable Infectious Diseases

Why Do Adolescents Need Pertussis Vaccine?

- Protection provided by the DTaP vaccine series wanes, so adolescents need Tdap as a booster
- Increasing Tdap immunization rates among adolescents helps to reduce pertussis among adolescents *and* infants too young to be fully immunized

https://www.cdc.gov/pertussis/surv-reporting.html
https://www.cdc.gov/mmwr/volumes/65/wr/mm6552md.htm?s_cid=mm6552md_w
Summary of Notifiable Infectious Diseases

Diphtheria, Tetanus and Pertussis Vaccines for Adolescents, and Adults

ACIP Recommendations

Tdap---can now be used any time Td is indicated

- Children and adolescents starting at 11 or 12 yrs. old
- Unvaccinated or partially vaccinated persons 7-18 yrs. old
  - See Catch-up Schedule
  - Children 7-9 yrs. old who receive Tdap as part of the catch-up series <u>should</u> be given Tdap again at 11-12 yrs.

- Routine decennial booster
- Tetanus prophylaxis for wound management
- Any adult who has not received a Tdap dose
- <u>No minimum interval between doses of Td and Tdap</u>

https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html#note-tdap

Tdap during Pregnancy

ACIP recommends:

- One dose of Tdap during each pregnancy, regardless of a prior history of receiving Tdap.
- Optimal timing:
  - Between 27-36 weeks gestation
  - Vaccinating earlier in the 27–36-week window will maximize passive antibody transfer to infant
    - This has been shown to be 80%-91% effective
  - If Tdap is not given during pregnancy, then administer immediately postpartum

Why vaccinate? Importance of protecting the unborn child and newborn infants

MMWR, January 24, 2020/ Vol.69/No. 3 and https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm?s_cid=rr6702a1_w and https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html

Influenza and Adolescents

- Flu spreads when infected people cough or sneeze. Flu can cause mild to severe illness, and in some cases, it can cause death.
- Most preteens and teens who get sick with the flu recover within a couple of weeks
  - Some will get complications like sinus infections, or pneumonia
- Preteens and teens who have chronic health problems like diabetes (type 1 and 2) or asthma, are at a greater risk for complications from the flu
  - Even healthy adolescents can get very sick from the flu.

U.S. Department of Health and Human Services Centers for Disease Control and Prevention: Flu Vaccines for Preteens and Teens

Influenza Vaccine Coverage 2022-2023 Season

Influenza vaccine coverage among children and adolescents 6 months-17 yrs.:

6 mos. - 4 years	65.6%
5 -12 years	59.3%
13-17 years	49.0%
6 mos – 17 yrs	57.4% (51.6% in Georgia)

Overall Coverage in U.S. (all persons 6 months and older) **49.3%**

Rates have traditionally decreased with increasing age

FDA Recommended Influenza Antigens for 2023-2024 Season in the U.S.

The 2023-2024 season U.S. flu vaccines contain an updated influenza A(H1N1)pdm09 component:

- A/Victoria/4897/2022 (H1N1)pdm09-like virus for egg-based vaccines and
- A/Wisconsin/67/2022 (H1N1)pdm09-like virus for cell-based or recombinant vaccines.

ACIP recommends annual influenza vaccine for all persons 6 months of age and older who do not have contraindications.

SOURCE: MMWR CDC

Influenza Vaccine Products for the 2023–2024 Influenza Season

Manufacturer	Trade Name (vaccine abbreviation)[1]	How Supplied	Mercury Content (mcg Hg/0.5mL)	Age Range	CVX Code	Vaccine Product Billing Code[2] CPT
AstraZeneca	FluMist (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	149	90672
GSK	Fluarix (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older[3]	150	90686
	FluLaval (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older[3]	150	90686
Sanofi	Flublok (RIV4)	0.5 mL (single-dose syringe)	0	18 years & older	185	90682
	Fluzone (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older[3]	150	90686
		0.5 mL (single-dose vial)	0	6 months & older[3]	150	90686
		5.0 mL multi-dose vial (0.25 mL dose)	25	6 through 35 months[3]	158	90687
		5.0 mL multi-dose vial (0.5 mL dose)	25	6 months & older	158	90688
	Fluzone High-Dose (IIV4-HD)	0.7 mL (single-dose syringe)	0	65 years & older	197	90662
Seqirus	Afluria (IIV4)	5.0 mL multi-dose vial (0.25 mL dose)	24.5	6 through 35 months[3]	158	90687
		5.0 mL multi-dose vial (0.5 mL dose)	24.5	3 years & older	158	90688
		0.5 mL (single-dose syringe)	0	3 years & older[3]	150	90686
	Fluad (aIIV4)	0.5 mL (single-dose syringe)	0	65 years & older	205	90694
	Flucelvax (ccIIV4)	0.5 mL (single-dose syringe)	0	6 months & older[3]	171	90674
		5.0 mL multi-dose vial (0.5 mL dose)	25	6 months & older[3]	186	90756

NOTES

1. IIV4 = egg-based quadrivalent inactivated influenza vaccine (injectable); where necessary to refer to cell culture-based vaccine, the prefix "cc" is used (e.g., ccIIV4); RIV4 = quadrivalent recombinant hemagglutinin influenza vaccine (injectable); aIIV4 = adjuvanted quadrivalent inactivated influenza vaccine.
2. An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require providing additional information on their claim forms.
3. Dosing for infants and children age 6 through 35 months:
   - Afluria 0.25 mL
   - Fluarix 0.5 mL
   - Flucelvax 0.5 mL
   - FluLaval 0.5 mL
   - Fluzone 0.25 mL or 0.5 mL
4. Afluria is approved by the Food and Drug Administration for intramuscular administration with the PharmaJet Stratis Needle-Free Injection System for persons age 18 through 64 years.

Immunize.org

FOR PROFESSIONALS www.immunize.org / FOR THE PUBLIC www.vaccineinformation.org

www.immunize.org/catg.d/p4072.pdf
Item #P4072 (8/5/2023)

Live, Attenuated Influenza Vaccine (LAIV4)*

FluMist® MedImmune (Nasal Spray)

- **Licensed for healthy persons 2 through 49 years of age**

Contraindications to LAIV include:

- Children 2-4 yrs. with asthma diagnosis
- Persons receiving aspirin-containing medications*
- Persons who are immunocompromised or have a CSF leak, cochlear implant, or asplenia
- Close contacts and caregivers of severely immunosuppressed persons
- Persons who have received influenza antiviral medications within the previous days*
- Persons with a severe allergic reaction to any component of the vaccine or to a previous dose of any influenza vaccine (exception for allergy to egg)
- Pregnancy

SOURCE: MMWR CDC

History of egg allergy and egg-based Influenza vaccines (updated 2023-24 season)

- ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine.

- Any influenza vaccine (egg based or nonegg based) appropriate for the recipient's age and health status can be used.

- New recommendations for those with egg allergies (reaction involving symptoms other than urticaria)**

History of egg allergy and egg-based Influenza vaccines (2)

Egg allergy alone necessitates no additional safety measures for influenza vaccination

All vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available

https://www.cdc.gov/mmwr/volumes/72/rr/rr7202a1.htm

Co-administration

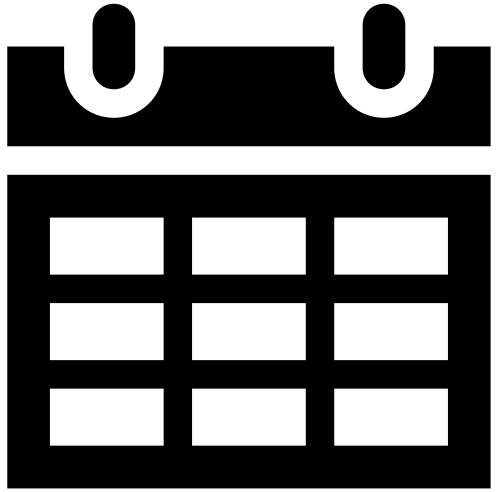
- Inactivated influenza vaccines (IIV4s) and RIV4 may be administered simultaneously or sequentially with other inactivated vaccines or live vaccines
  - Injectable vaccines that are given concomitantly should be administered at separate anatomic sites
- LAIV4 can be administered simultaneously with other live or inactivated vaccines
  - If two live vaccines are not given simultaneously, then at least 4 weeks should pass between vaccines
- Guidance concerning administration of COVID-19 vaccines with other vaccines indicates that these vaccines may be given with other vaccines, including influenza vaccines.
- Providers should be aware of the potential for increased reactogenicity with coadministration and should consult the CDC guidance as more information becomes available (more likely with the adjuvanted or high dose IIV4s - recommended in persons 65+ yrs.)

https://www.cdc.gov/mmwr/volumes/72/rr/rr7202a1.htm

Timing of Influenza Vaccination

- Influenza vaccines may be available in July or August, but vaccination is recommended during September or October

- Vaccination should continue as long as influenza viruses are circulating and unexpired vaccine is available



Timing of Influenza Vaccination (2)

Vaccination in July or August may be considered for:

- Children who require 2 doses
- Children who show up for Well child exams in the late summer and may not return later in the year
- Pregnant persons in the third trimester

Timing of Influenza Vaccination (Updated June 2023) - 2

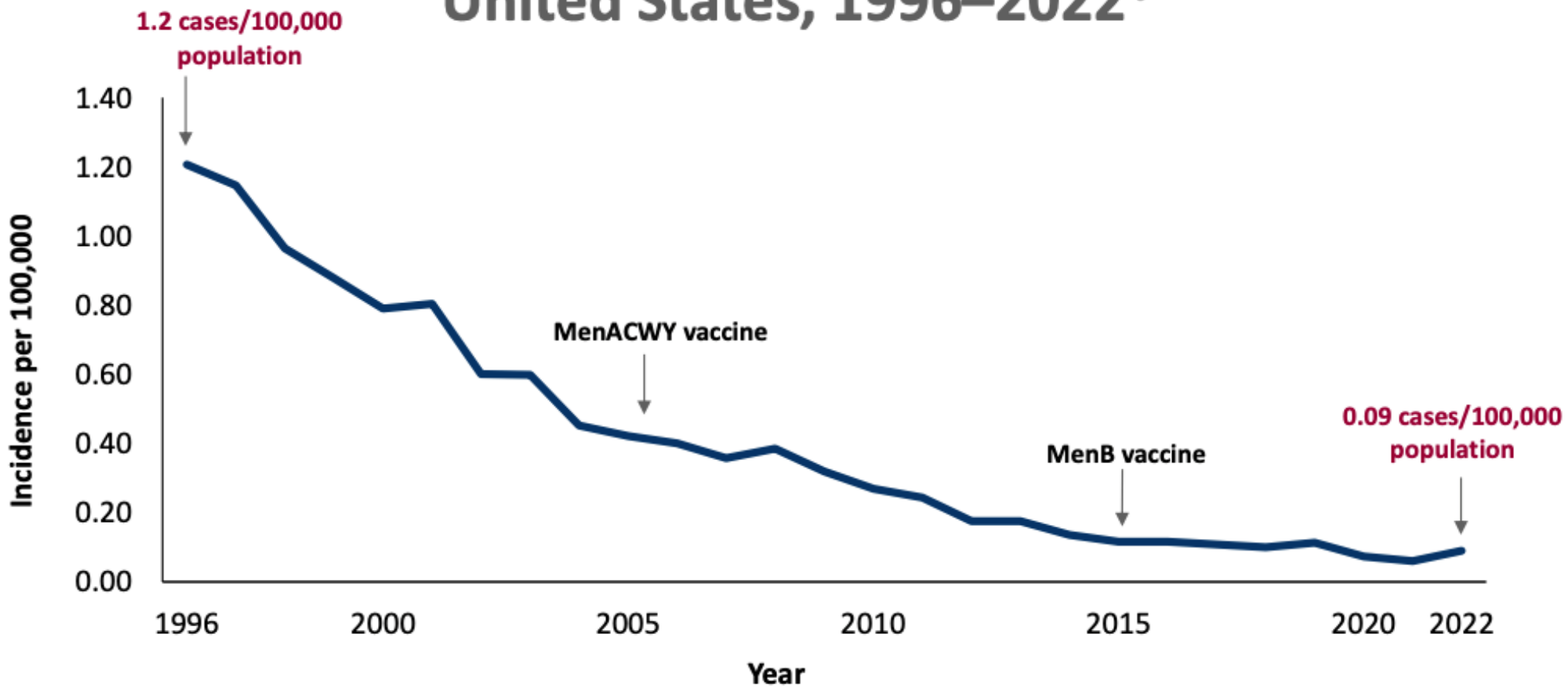
- Children ages 6 months through 8 years old who need two doses:
  - Get first dose as soon as vaccine becomes available
  - Get second dose at least four weeks after
- Vaccination in July/August can be considered for children who may not return later in the year
- CDC continues to recommend vaccination as long as flu viruses pose a threat
- CDC has recommended annual vaccination for everyone 6 months and older since 2010

Meningococcal Disease (caused by N. meningitidis)

Usually presents as meningitis, bacteremia or both

- Transmitted through direct contact with respiratory tract secretions from patients and asymptomatic carriers
- Nasopharyngeal carriage rate is highest in adolescents and young adults in the U.S.
- Incidence of meningococcal disease declined during 2020– 2021, but increased in 2022
- Recent outbreaks in the US (people experiencing homelessness, men who have sex with men)
- New strains emerging in the US – Predominantly affecting racial and ethnic minority groups
- More complete 2021 and 2022 data are needed
- More years of data needed to understand post-COVID-19 epidemiology

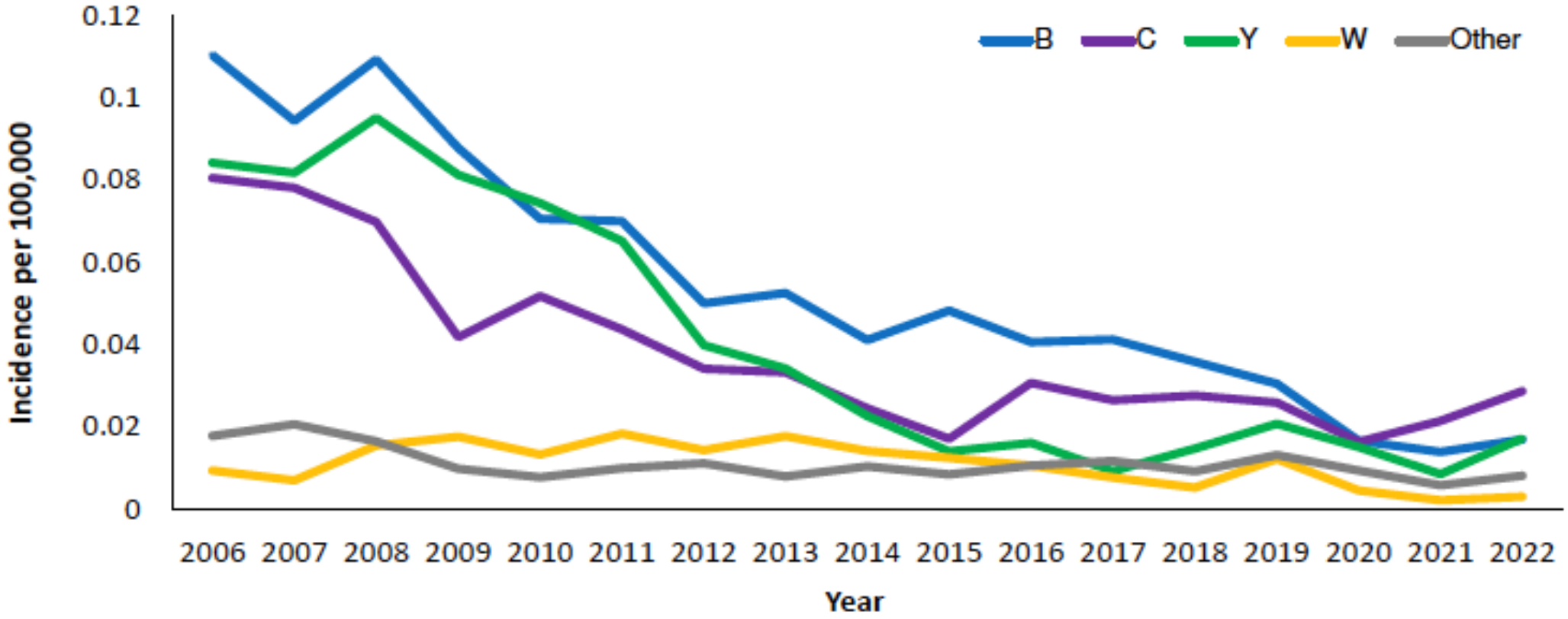
Meningococcal Disease Incidence – United States, 1996–2022*



Abbreviations: MenACWY vaccine = quadrivalent conjugate meningococcal vaccine against serogroups A, C, W, Y; MenB vaccine = serogroup B meningococcal vaccine 7

Source: 1996–2022 NNDSS Data. *2021–2022 NNDSS data are preliminary.

Trends in Meningococcal Disease Incidence by Serogroup – United States, 2006–2022*



Source: NNDSS data with additional serogroup data from Active Bacterial Core surveillance (ABCs) and state health departments
*2021 and 2022 data are preliminary

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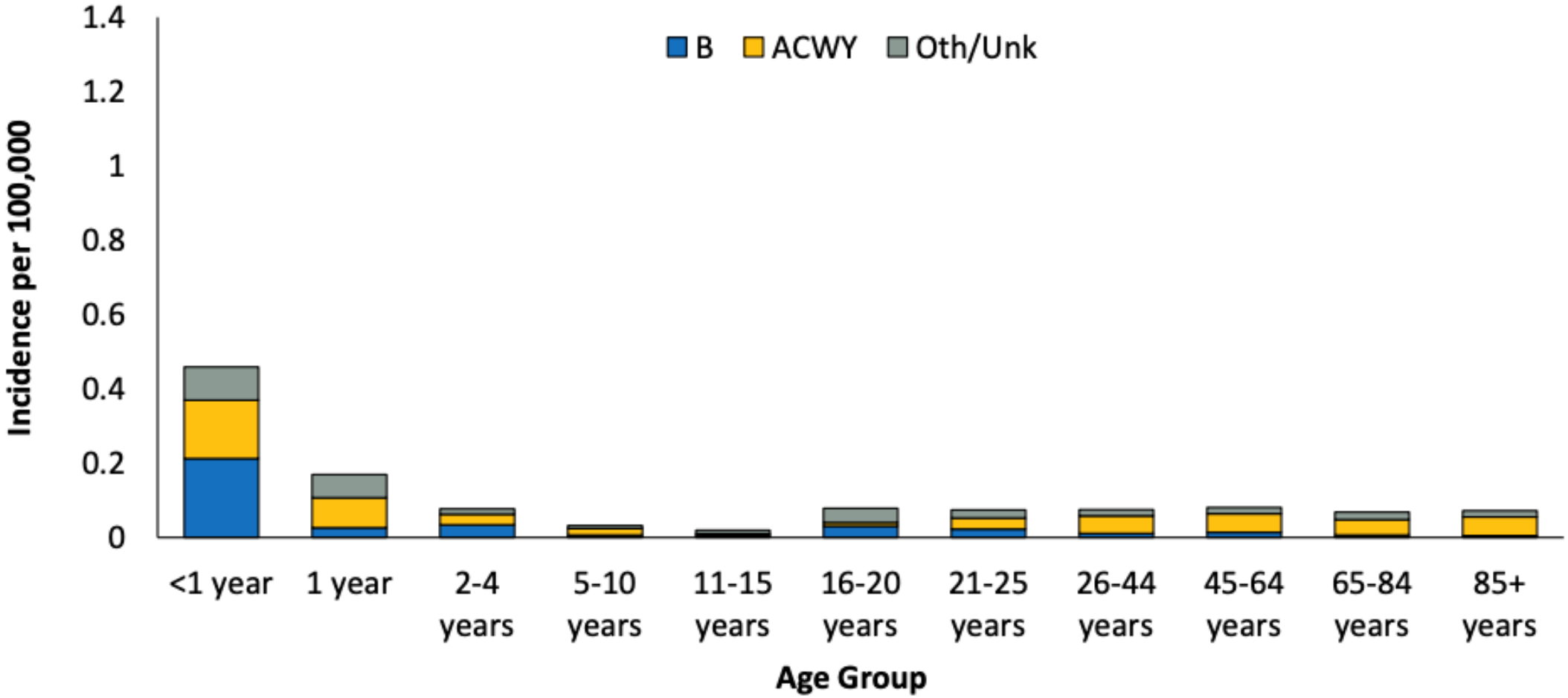
Average Annual Meningococcal Disease Incidence by Age-Group and Serogroup—United States, 2020–2022*



Source: NNDSS data with additional serogroup data from ABCs and state health departments
*2021 and 2022 data are preliminary

Signs and Symptoms of Meningococcal Disease

Symptoms of meningitis

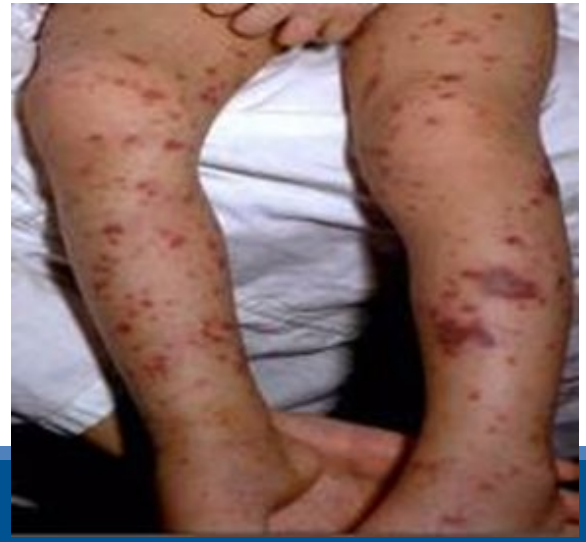
- Sudden onset of fever
- Headache
- Stiff neck
- Photophobia
- Nausea and vomiting

Symptoms of meningococcemia

- All of the above are possible
- Cold hand and feet
- Pruritic rash

Risk Factors

- Persistent complement component deficiencies
- Asplenia
- HIV infection
- Exposure during an outbreak; Travel/residence in a country where disease is endemic/epidemic
- Household crowding, smoking,
- Unvaccinated college freshmen in dorms (particularly serogroup B)
- Military recruits



https://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm; MMWR, Sept 2020, Vol 69, RR 9

Vulnerability of Adolescents and Young Adults to Meningococcal Disease

Spread through respiratory and throat secretions

- Coughing, sneezing
- Kissing
- Sharing eating utensils, water bottles, etc.

Crowded settings facilitate transmission

- College dormitory
- Crowded household
- Military barracks
- Nightclubs, bars

Quadrivalent Meningococcal Conjugate Vaccine (MCV4) (Men A,C,W, Y)

Menactra™ licensed for 9 mos. through 55 years

Menveo® licensed for ages 2 mos. through 55 years

MenQuadfi® licensed for ages ≥ 2 yrs. of age

ACIP recommends for adolescents:

- Dose 1---age 11-12 years preferred
- Booster dose---age 16 years
- If 1st dose is received ≥16 years of age, a 2nd dose is not needed, unless they become at increased risk for meningococcal disease

- **First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits**

- **Effective July 1, 2021, for the 2021-2022 school year, a meningococcal conjugate (MCV4/MenACWY) booster was required for all high school students entering the 11th grade and who are 16 years old or older.**

Why Boost at 16 Years of Age?

Studies indicate that protective levels of circulating antibody decline 3-5 yrs. after a single MCV4 dose

Vaccine effectiveness case−control study suggests that many adolescents are not protected 5 yrs. after vaccination

According to ACIP, a single dose of meningococcal conjugate vaccine administered at age 11-12 yrs. is unlikely to protect most adolescents through the period of increased risk (16-21 yrs.)

Meningococcal Vaccines for High-Risk Persons 6 weeks-55 yrs.

Menactra™ licensed for 9 mos. through 55 years
Menveo® licensed for ages 2 mos. through 55 years
MenQuadfi® licensed for ages ≥ 2 yrs. of age

Recommended for persons **6 weeks through 55 years****:

- Human immunodeficiency virus (HIV)***
- Complement component deficiency
- Functional or anatomic asplenia (sickle cell disease)
- Microbiologists exposed to isolates of *N. meningitidis*
- Part of a community outbreak due to vaccine serogroups
- Persons traveling internationally to regions with endemic meningococcal disease

For persons in any of these categories, consult the current ACIP Immunization Schedules for specific dosages and guidelines

*https://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Meningococcal Conjugate Vaccine (MCV4) and MenB Vaccine Schedules For Adolescents with Certain Medical Conditions*

Updated recommendations published in 2020 per ACIP regarding booster doses.

See: https://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm
Tables 4 – 10.

Serogroup B Meningococcal Vaccine

Bexsero® licensed for ages 10 through 25 years (2 dose)

Trumenba® licensed for ages 10 through 25 years (2 or 3 dose)

ACIP recommends serogroup B meningococcal vaccine for:

- Persons with persistent complement component deficiencies
- Persons with anatomic or functional asplenia
- Persons receiving complement inhibitor
- Microbiologists routinely exposed to isolates of *Neisseria meningitidis*
- Persons considered at greater risk because of a serogroup B meningococcal disease outbreak**

Based on shared clinical decision making:

A Men B vaccine series **may** be administered to adolescents and young adults 16 through 23 years of age to provide short-term protection against most strains of Men B. Preferred age is 16-18 years.

Serogroup B Meningococcal - Vaccine Administration

Bexsero® licensed for ages 10 through 25 years (2 dose)
Trumenba® licensed for ages 10 through 25 years (2 dose or 3 dose)

MenB-FHbp (Trumenba®)

2 dose schedule – administered at 0, 6 months

- Given to healthy adolescents who are not at increased risk for meningococcal disease

3 dose schedule – administered at 0, 1-2, 6 months

- Given to persons at increased risk
- For use during serogroup B outbreaks

MenB-4C (Bexsero®)

2 dose schedule – 0, 1-2 months

- Given to healthy adolescents who are not at increased risk for meningococcal disease
- Given to persons at increased risk
- For use during serogroup B outbreaks

<u>The 2 vaccine products are not interchangeable.</u>

Pentavalent Meningococcal Conjugate Vaccine (MCV4) (Men A,B,C,W, Y)

Penbraya™ : licensed October 2023

ACIP Voted 11/23 Penbraya Vaccine may be used as an **Option for Patients Aged 10 Years or Older**

ACIP recommends:

-If a patient is receiving MenACWY and MenB vaccines at the same visit, MenABCWY may be given instead.

-If a patient receives MenABCWY vaccine, which includes Trumenba®, then administer:

Trumenba® for additional MenB dose(s) when MenACWY isn't indicated

Any MenACWY vaccine when MenB isn't indicated

The minimum interval between MenABCWY doses is 6 months.

People with prolonged increased risk for serogroup A, C, W, or Y **and** B meningococcal disease need regular boosters. However, the recommended interval between doses varies by age and vaccine type. MenABCWY vaccine can be used only when both MenACWY and MenB vaccines are indicated at the same visit. Otherwise, MenACWY and MenB vaccines should be given separately as appropriate

MMWR has not yet been published.
https://www.cdc.gov/vaccines/vpd/mening/hcp/recommendations.html for details.

Meningitis B Vaccine

Since licensed and designated a permissive recommendation for healthy adolescents and adults, some colleges and universities have added this vaccine to their list of optional vaccines. Families may inquire about this vaccine.

KEY POINTS

- It is not a replacement for the meningococcal conjugate vaccine.
- Insurance coverage has improved since the permissive designation and most plans that cover vaccines will cover this one.

Meningococcal Vaccine Booster Recommendations*

For persons at continued risk

- Meningococcal quadrivalent vaccine
- Persons ≥10 years of age who previously received a MenB vaccine series

See *MMWR: Tables 2-11 https://www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm#B1_down for further details.

Test Your Knowledge!

Simon received MPSV4 at 5 years of age for international travel and a dose of MCV4 at age 11.

Does he need a booster dose of MCV4 vaccine at age 16?

Test Your Knowledge!

Simon received MPSV4 at 5 years of age for international travel and a dose of MCV4 at age 11.

Does he need a booster dose of MCV4 vaccine at age 16?*

Yes. Any meningococcal vaccination given prior to the tenth birthday (either with MCV4 or MPSV4) does NOT count toward routinely recommended doses.

***Immunization Action Coalition, Ask the Experts - Reviewed September 2013**

Test Your Knowledge!

Which individuals who are not in risk groups are recommended to be vaccinated against meningococcal serogroup B disease?

Recommendation?

Test Your Knowledge!

Which individuals who are not in risk groups are recommended to be vaccinated against meningococcal serogroup B disease?

Recommendation?*

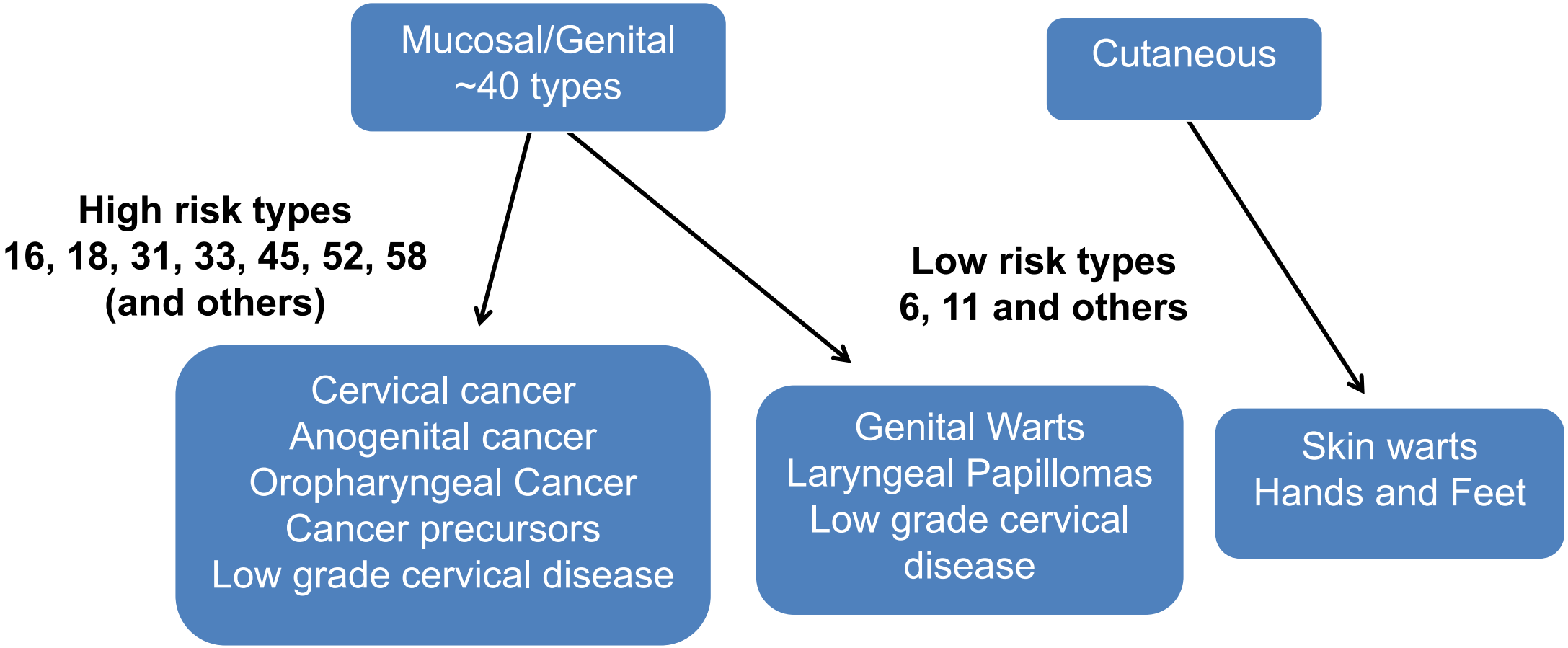
ACIP recommends that a MenB vaccine series (Bexero, MenB-4C, GSK; Trumenba, MenB-FHbp, Pfizer) may be administered to people 16-23 yrs. (16-18 yrs preferred).

- opportunity to discuss the value of MenB vaccination with patients and make a shared decision

*Immunization Action Coalition – Ask the Experts, #1283, January 2017

Types of Human Papillomavirus (HPV)*

(More Than 200 Types Identified)



*Epidemiology and Prevention of Vaccine Preventable Diseases 13th Edition, 2015
*Red Book – AAP 2018 Report of the Committee on Infectious Diseases
* MMWR, August 29, 2014, RR Vol. 63, No. 5

HPV Vaccine

Gardasil 9® (9vHPV) HPV types 6, 11, 16, 18, 31, 33, 45, 52, 58

ACIP recommends HPV vaccine starting at age 11 or 12 years for:

- All males and females through 26 yrs.
- Catch-up vaccination for persons through 26 yrs. who are not adequately vaccinated

Gardasil 9 is now also licensed for all persons 9-45 yrs. of age**

- Use the 3-dose schedule for persons 15-45 years of age
- The series may be given to persons ages 27-45

HPV Vaccine: Special Situations*

Vaccine can still be given, even if:

- History of genital warts
- History of abnormal Pap test result
- Patient is immunocompromised
- Female patient is breastfeeding

ACIP Recommendations and Schedule

2 Dose Schedule:

HPV vaccine initiated between 9-14 years can be given in two doses: 0, 6-12 months
(If the 2nd dose is administered at least 5 months after 1st dose, it can be counted).

3 Dose Schedule:

For persons over age 15 or for persons with certain immunocompromising conditions – 0, 1-2, 6 months

Dose 2 should be given at least 1 to 2 months after first dose (4 weeks minimum);
Dose 3 should be given 6 months after the first dose
(minimum of 12 weeks between dose 2 and 3)

Reasons to Immunize Against HPV at age 11-12 Years

- Higher antibody level attained when given to pre-teens rather than to older adolescents or women
- At this age, more likely to be administered before onset of sexual activity
- HPV can be transmitted by other skin-to-skin contact, not just sexual intercourse
- There is no link between vaccine and riskier sexual behavior
- Even those who abstain from sex until marriage can be infected by their marital partner
- Individuals need to complete the series for full protection
- This is an anti-cancer vaccine, and…….

Over 90% of HPV cancers are preventable through HPV vaccination.

Bottom line: NOT receiving a healthcare provider's recommendation for HPV vaccine was one of the main reasons parents reported for not vaccinating their adolescent children.**

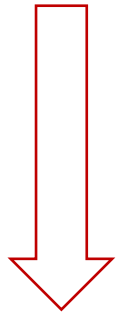
Evidence of Reduction in HPV Prevalence*

National Health and Nutrition Examination Survey (NHANES) Data

Prevalence of HPV 6,11,16,18 in U.S. girls aged 14-19

2003-2006: **11.5%**

HPV Vaccine
Licensed in 2006



2011-2014: **3.3%**

*** Markowitz et al J Infectious Dis. 2013: 208: 385, Ohio Chapter, American Academy of Pediatrics. TIES: Teen Education Immunization Sessions** *Markowitz, L. MD. Division of Viral Diseases. ACIP, June, 23,2016. * https:// www.ncbi.nim.nih.gov/pubmed/28931217

In Summary - HPV

- Each year, more than 46,000 people in the US are diagnosed with HPV-related cancers. The HPV vaccine prevents 90% of cancers caused by HPV in both boys and girls.
- HPV is a common virus—and it can be spread through skin-to-skin contact.
- Pre-teens require 2 doses of HPV vaccine, while older teens (15 years and older) require 3 doses
- Vaccinate before exposure to the virus — earlier is better.
- The HPV vaccine has an excellent safety profile -- no serious effects have been linked to it.

https://www.aap.org/en/patient-care/immunizations/human-papillomavirus-vaccines/

https://www.cdc.gov/hpv/parents/vaccine/six-reasons.html

Test Your Knowledge!

Dakota is an 18-year-old girl who will be starting her first year of college in August. At 18 yrs. old, she had her first dose of HPV vaccine on April 5 and her second dose on May 8. She will not be coming home again until late November.

Should you give her the third dose of HPV vaccine before she leaves home in mid August?

Test Your Knowledge!

Dakota is an 18-year-old girl who will be starting her first year of college in August. She had her first dose of HPV vaccine on April 5 and her second dose on May 8. She will not be coming home again until late November.

Should you give her the third dose of HPV vaccine before she leaves home in mid August?*

No! The minimum interval between the 2nd and 3rd doses of vaccine is 12 weeks. The minimum interval between the 1st and 3rd doses is 24 weeks.

***Immunization Action Coalition, Ask the Experts, April 2012**

Test Your Knowledge!

If dose #1 of HPV vaccine was given before the 15th birthday and it has been more than a year since that dose was given, would the series be complete with just one additional dose?

recommendation?

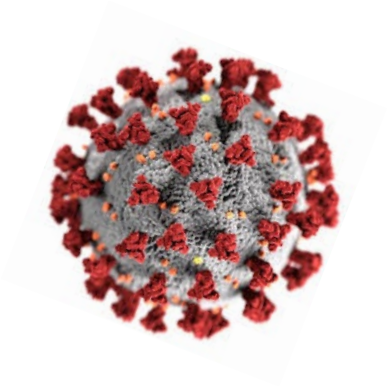
Test Your Knowledge!

If dose #1 of HPV vaccine was given before the 15th birthday and it has been more than a year since that dose was given, would the series be complete with just one additional dose?

Recommendation?*

Yes. Adolescents and adults who started the HPV vaccine series prior to the 15th birthday and who are not immunocompromised are considered adequately vaccinated with just one additional dose of HPV vaccine.

*Immunization Action Coalition – Ask the Experts, #1283, January 2017



SARS-CoV-2 virus (COVID-19 disease)*

SARS-CoV-2, the virus that causes COVID-19 disease affects the respiratory system primarily, but other organ systems may also be impacted

Transmission is through droplet and respiratory spread but may also include indirect contact with contaminated objects

Access current data on COVID-19 cases and deaths in Georgia** and nationally***

Georgia data Georgia data (2)

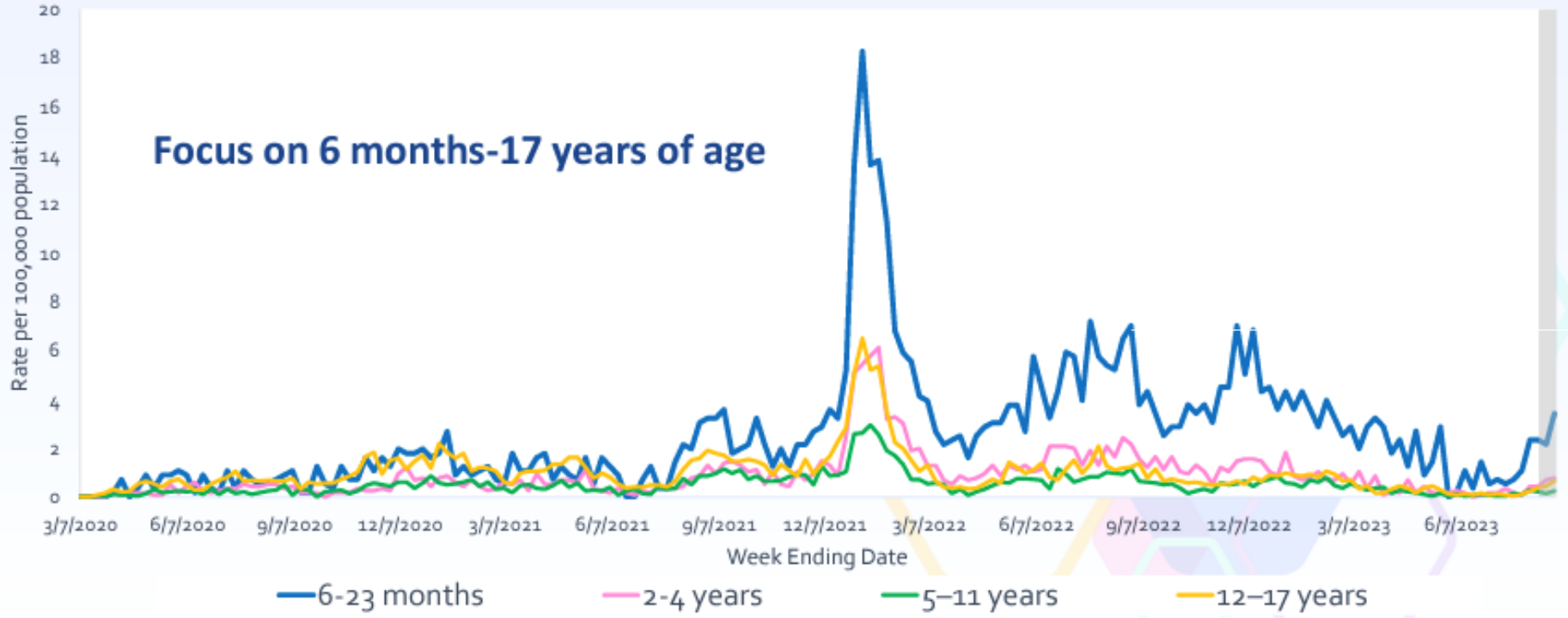
Similar to adults there is a wide range in prevalence of post-COVID conditions among children

- Symptoms lasting 4 weeks or longer following SARS-CoV-2 infection are common among children and adolescents.
- The most common symptoms include:
  - Headache or respiratory symptoms (~7%)
  - Sleep disorders (~8%)
  - Fatigue (9%)
  - Mood disorders (~16%)

Zimmermann et al. The Challenge of Studying Long COVID: An Updated Review : The Pediatric Infectious Disease Journal (lww.com)
Lopez-Leon et al. Long-COVID in Children and Adolescents: A Systematic Review and Meta-analyses | medRxiv

Hospitalizations among Children and Adolescents

Weekly COVID-19-Associated Hospitalization Rates among Infants, Children and Adolescents Ages 6 months – ≤17 Years — COVID-NET, March 2020–August 26, 2023



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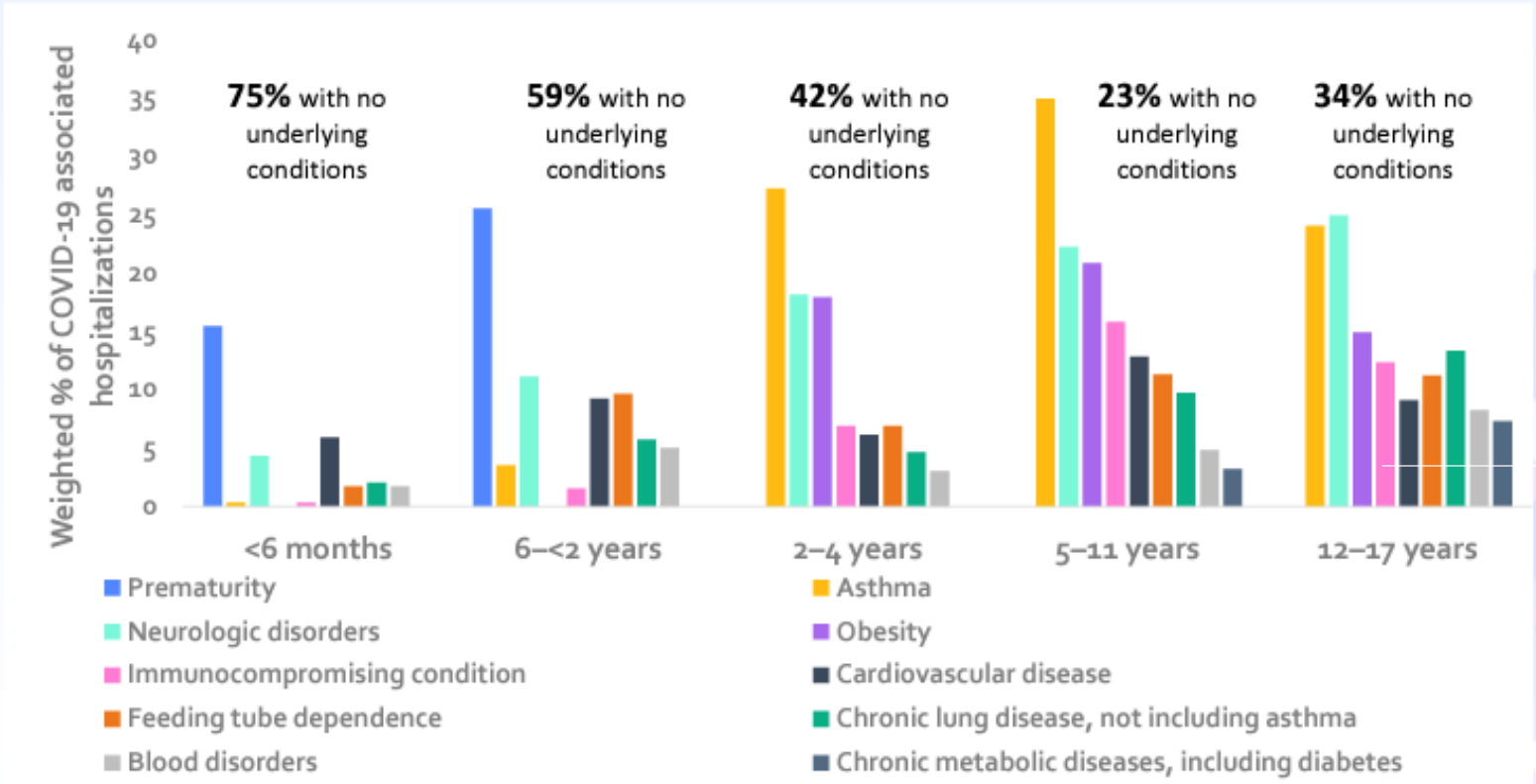
Gray boxes indicate potential reporting delays. Interpretation of trends should be excluded from these weeks.

Hospitalizations among Children and Adolescents (2)

Percent of COVID-19-Associated Hospitalizations with Underlying Medical Conditions among Children and Adolescents Ages 5–17 Years by Age Group — COVID-NET, January–June 2023

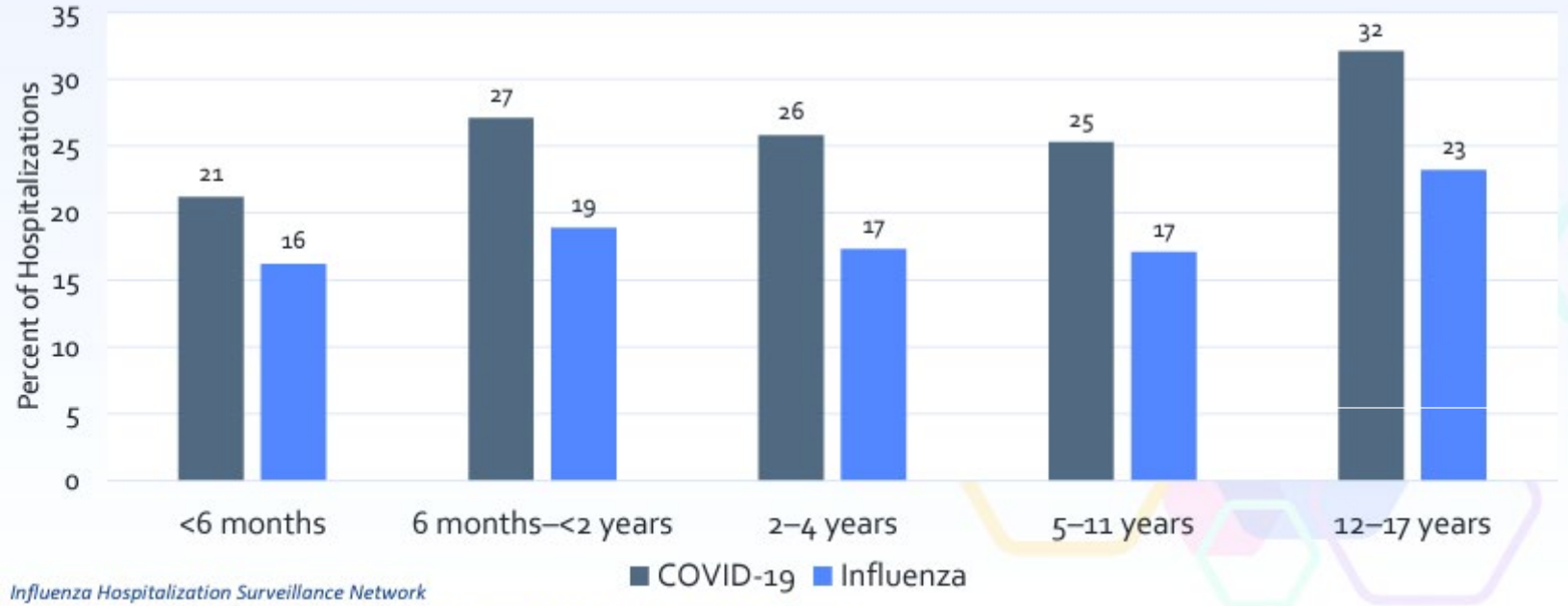


- **54%** of hospitalized infants, children, and adolescents ages ≤17 years have **no underlying medical conditions**.
- Hospitalizations children and adolescents **ages ≥5 years** are **more likely to have underlying medical conditions** relative to children and infants ages ≤4 years.

7

Data are limited to hospitalizations where COVID-19 is a likely primary reason for admission. Figure displays underlying medical conditions present in ≥5% in ≥1 age group.

Percent of COVID-19- and Influenza-Associated Hospitalizations with ICU Admission among Infants, Children, and Adolescents by Age Group — COVID-NET and FluSurv-NET*, October 2022–April 2023

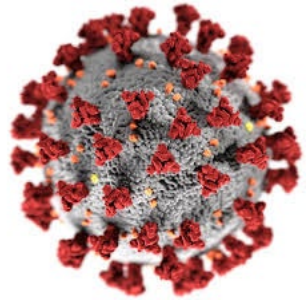


• *Influenza Hospitalization Surveillance Network*

Limited to COVID-NET hospitalizations with COVID-19-related illness as likely reason for admission

9

MIS-C in children and adolescents



- Multisystem inflammatory syndrome in children (MIS-C) is a rare but serious condition that can occur in children and adolescents who develop COVID-19 disease
- Inflammation of body parts including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs; Cause unknown
- Most patients recover with medical care
- 9300+ MIS-C cases and 76+ deaths reported in the U.S. as of Feb 2023. 50% of patients were 5 - 13 yrs. old, with a median age of 9 years. Cases have occurred in those from <1 year old to 20 years old.

CDC: MIS-C

Myocarditis and pericarditis

- A rare risk for myocarditis and pericarditis after mRNA COVID-19 vaccines (i.e., Moderna or Pfizer-BioNTech) and Novavax COVID-19 Vaccine.
  - Mostly in adolescent and young adult males within the first week after receiving the 2nd dose
- These people generally should not receive a subsequent dose of any COVID-19 vaccine

Myocarditis and pericarditis (2)

- People receiving these vaccines should be made aware of the rare risks and benefits of the COVID-19 vaccine*

- Counseling should include the need to seek care if symptoms of myocarditis or pericarditis, *such as chest pain, shortness of breath, or tachycardia develop after vaccination, particularly in the week after vaccination.*
  - In younger children, symptoms may include non-specific symptoms (irritability, vomiting, poor feeding, tachypnea, or lethargy)

Considerations for extending intervals for mRNA COVID-19 vaccine primary series (Pfizer and Moderna)

An 8-week interval between the 1st and 2nd doses of certain COVID-19 vaccines may reduce the risk of myocarditis and pericarditis

People with a history of myocarditis or pericarditis unrelated to COVID-19 vaccination may receive any COVID-19 vaccine after illness has resolved*

People with a history of other heart disease may receive any currently FDA-approved or FDA-authorized COVID-19 vaccine.

Test Your Knowledge!

Emily is 12 years old and comes to your office for a physical exam. Her immunizations were up-to-date when she started kindergarten.

What vaccines do you recommend for her?

Test Your Knowledge!

Emily is 12 years old and comes to your office for a physical exam. Her immunizations were up-to-date when she started kindergarten.

What vaccines do you recommend for her?

Tdap, Meningococcal Conjugate, HPV

Influenza vaccine (in the fall), COVID-19 vaccine

***Current Child and Adolescent Immunization Schedule**

Critical Elements for Immunization Services

Updated Vaccine Storage and Handling Recommendations*

- Use stand-alone refrigerator and stand-alone freezer units. If combined, use only refrigerator part
- Do not store any vaccine in a dormitory-style or bar-style combined refrigerator/freezer unit
- Use a bio-safe glycol-encased probe or a similar temperature buffered probe
- Probes should be calibrated every 1-2 yrs. or according to manufacturers' guidelines
- Use digital data loggers
- Do not store ANYTHING ELSE in refrigerator
- Review vaccine expiration dates and rotate vaccine stock weekly

*Vaccine Storage and Handling Toolkit, January, 2020

Maintaining Appropriate Vaccine Storage & Handling*

- Assign a primary and alternate vaccine coordinator
- Store all vaccines as recommended by manufacturer and IN ORIGINAL PACKAGING, WITH THE LID CLOSED
- Monitor and record temperatures of refrigerator and freezer twice daily
- Correct ranges: refrigerator 36° F to 46° F; freezer -58° F to +5° F
- Maintain temperature log records for 3 years
- Take immediate action for all out-of-range temps
- Implement a vaccine emergency system
- If necessary to transport vaccine, do NOT use dry ice – See Vaccine Storage and Handling Toolkit, Section 6 for Transport System Recommendations
- For COVID-19 vaccine, see specific guidelines

https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/index.html

*Vaccine Storage and Handling Toolkit, January 2020

Improper Immunization Administration Practices with Any Vaccine*

DO NOT re-use needles or syringes, due to the possibility of:

- Transmission of blood-borne viruses (HCV, HBV, HIV)
- Referral of providers to licensing boards for disciplinary action
- Malpractice suits filed by patients

Never use partial doses from 2 or more vials to obtain a dose of vaccine.**

Per OSHA and the CDC, you MAY use the same needle to withdraw a diluent, inject this into a lyophilized vaccine vial, and then administer to a patient, providing the needle or syringe has not otherwise been contaminated.**

***CDC, NCEZID, DHQP. Injection Safety Information for Providers: www.cdc.gov/injectionsafety/providers.html**
****http://www.immunize.org/askexperts/administering-vaccines.asp**
****Vaccine Storage and Handling Toolkit, January, 2020**

Vaccine Administration Best practices – Route, Dose, Site, Needle Size

Administering Vaccines: Dose, Route, Site, and Needle Size

Vaccine	Dose	Route
COVID-19	Pfizer-BioNTech •age 5 to <12 yrs: 0.2 mL pediatric formulation ("orange cap") •age ≥12 yrs: 0.3 mL adult/adolescent formulation for primary and booster doses	IM
	Moderna; ≥18 yrs: 0.5 mL primary series*; 0.25 mL booster Janssen: ≥18 yrs: 0.5 mL for primary & booster doses	
Diphtheria, Tetanus, Pertussis (DTaP, DT, Tdap, Td)	0.5 mL	IM
***Haemophilus influenzae* type b** (Hib)	0.5 mL	IM
Hepatitis A (HepA)	≤18 yrs: 0.5 mL	IM
	≥19 yrs: 1.0 mL	
Hepatitis B (HepB) *Persons 11–15 yrs may be given Recombivax HB (Merck) 1.0 mL adult formulation on a 2-dose schedule.*	Engerix-B; Recombivax HB ≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL	IM
	Heplisav-B ≥18 yrs: 0.5 mL	
Human papillomavirus (HPV)	0.5 mL	IM
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL in each nostril)	Intra-nasal spray
Influenza, inactivated (IIV); for ages 6–35 months	Afluria: 0.25 mL	IM
	Fluzone: 0.25 or 0.5 mL	
	Fluarix, Flucelvax, FluLaval: 0.5 mL	
Influenza, inactivated (IIV), ≥3 yrs; **recombinant** (RIV), ≥18 yrs; **high-dose** (HD-IIV) ≥65 yrs	0.5 mL	IM
	FluZone HD: 0.7 mL	

Injection Site and Needle Size

Subcutaneous (Subcut) injection
Use a 23–25 gauge needle. Choose the injection site that is appropriate to the person's age and body mass.

AGE	NEEDLE LENGTH	INJECTION SITE
Infants (1–12 mos)	5/8"	Fatty tissue over anterolateral thigh muscle
Children 12 mos or older, adolescents, and adults	5/8"	Fatty tissue over anterolateral thigh muscle or fatty tissue over triceps

Intramuscular (IM) injection
Use a 22–25 gauge needle. Choose the injection site and needle length that is appropriate to the person's age and body mass.

AGE	NEEDLE LENGTH	INJECTION SITE
Newborns (1st 28 days)	5/8"[1]	Anterolateral thigh muscle
Infants (1–12 mos)	1"	Anterolateral thigh muscle
Toddlers (1–2 years)	1–1¼"	Anterolateral thigh muscle[2]
	5/8–1"[1]	Deltoid muscle of arm
Children (3–10 years)	5/8–1"[1]	Deltoid muscle of arm[2]
	1–1¼"	Anterolateral thigh muscle
Adolescents and teens (11–18 years)	5/8–1"[1]	Deltoid muscle of arm[2]
	1–1½"	Anterolateral thigh muscle
Adults 19 years or older		
Female or male <130 lbs	5/8–1"[1]	Deltoid muscle of arm
Female or male 130–152 lbs	1"	Deltoid muscle of arm
Female 153–200 lbs Male 153–260 lbs	1–1½"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	1½"	Deltoid muscle of arm
Female or male, any weight	1½"	Anterolateral thigh muscle

Measles, Mumps, Rubella (MMR)	0.5 mL	Subcut
Meningococcal serogroups A, C, W, Y (MenACWY)	0.5 mL	IM
Meningococcal serogroup B (MenB)	0.5 mL	IM
Pneumococcal conjugate (PCV)	0.5 mL	IM
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or Subcut
Polio, inactivated (IPV)	0.5 mL	IM or Subcut
Rotavirus (RV)	Rotarix: 1.0 mL Rotateq: 2.0 mL	Oral
Varicella (VAR)	0.5 mL	Subcut
Zoster (Zos)	Shingrix: 0.5† mL	IM
Combination Vaccines		
DTaP-HepB-IPV (Pediarix) DTaP-IPV/Hib (Pentacel) DTaP-IPV (Kinrix; Quadracel) DTaP-IPV-Hib-HepB (Vaxelis)	0.5 mL	IM
MMRV (ProQuad)	≤12 yrs: 0.5 mL	Subcut
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL	IM

* If immunocompromised, Moderna 0.5 mL for 3-dose primary series, then 0.25 mL for booster dose.

† The Shingrix vial might contain more than 0.5 mL. Do not administer more than 0.5 mL.

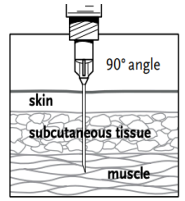
[1] A 5/8" needle may be used in newborns, preterm infants, and patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90-degree angle to the skin.

[2] Preferred site

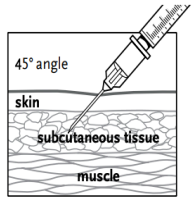
NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

Intranasal (NAS) administration of Flumist (LAIV) vaccine

Intramuscular (IM) injection



Subcutaneous (Subcut) injection



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www.immunize.org/catg.d/p3085.pdf . Item #P3085 (11/21)

https://www.immunize.org/catg.d/p3085.pdf

How to administer IM and SC vaccine injections

How to Administer Intramuscular and Subcutaneous Vaccine Injections

Administration by the Intramuscular (IM) Route

Administer these vaccines via IM route

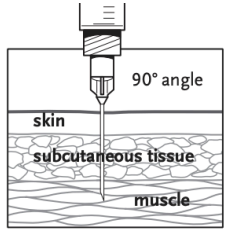
- Diphtheria-tetanus-pertussis (DTaP, Tdap)
- Diphtheria-tetanus (DT, Td)
- *Haemophilus influenzae* type b (Hib)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- Human papillomavirus (HPV)
- Inactivated influenza (IIV)
- Meningococcal serogroups A,C,W, Y (MenACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV13)
- Zoster, recombinant (RZV)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

PATIENT AGE	INJECTION SITE	NEEDLE SIZE
Newborn (0–28 days)	Anterolateral thigh muscle	5/8"* (22–25 gauge)
Infant (1–12 mos)	Anterolateral thigh muscle	1" (22–25 gauge)
Toddler (1–2 years)	Anterolateral thigh muscle	1–1¼" (22–25 gauge)
	Alternate site: Deltoid muscle of arm if muscle mass is adequate	5/8*–1" (22–25 gauge)
Children (3–10 years)	Deltoid muscle (upper arm)	5/8*–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1¼" (22–25 gauge)
Children and adults (11 years and older)	Deltoid muscle (upper arm)	5/8†–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1½" (22–25 gauge)

* A 5/8" needle usually is adequate for neonates (first 28 days of life), preterm infants, and children ages 1 through 18 years if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.

† A 5/8" needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin; a 1" needle is sufficient in patients weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 153–200 lbs (70–90 kg) and men weighing 153–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (118 kg).



Needle insertion

Use a needle long enough to reach deep into the muscle.

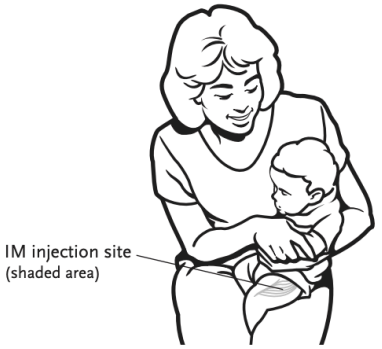
Insert needle at a 90° angle to the skin with a quick thrust.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.¶)

Multiple injections given in the same extremity should be separated by a minimum of 1", if possible.

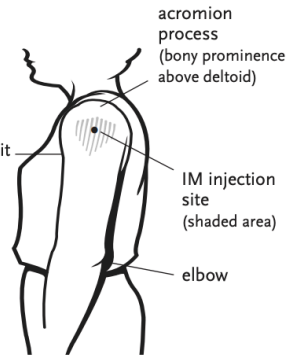
¶ CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf

Intramuscular (IM) injection site for infants and toddlers



Insert needle at a 90° angle into the anterolateral thigh muscle.

Intramuscular (IM) injection site for children and adults



Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process. See the diagram. To avoid causing an injury, do not inject too high (near the acromion process) or too low.

CONTINUED ON THE NEXT PAGE ▶

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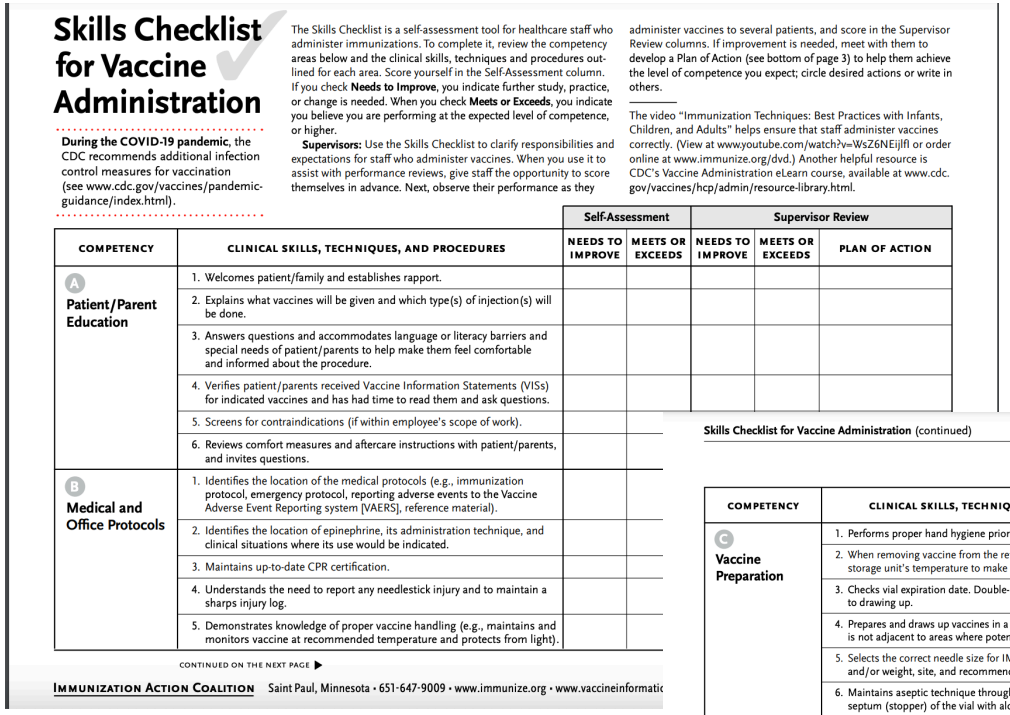
www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/18)

https://www.immunize.org/catg.d/p2020.pdf

Training Tools: Skills Checklist for Vaccine Administration



Skills Checklist for Vaccine Administration

During the COVID-19 pandemic, the CDC recommends additional infection control measures for vaccination (see www.cdc.gov/vaccines/pandemic-guidance/index.html).

The Skills Checklist is a self-assessment tool for healthcare staff who administer immunizations. To complete it, review the competency areas below and the clinical skills, techniques and procedures outlined for each area. Score yourself in the Self-Assessment column. If you check **Needs to Improve**, you indicate further study, practice, or change is needed. When you check **Meets or Exceeds**, you indicate you believe you are performing at the expected level of competence, or higher.

Supervisors: Use the Skills Checklist to clarify responsibilities and expectations for staff who administer vaccines. When you use it to assist with performance reviews, give staff the opportunity to score themselves in advance. Next, observe their performance as they administer vaccines to several patients, and score in the Supervisor Review columns. If improvement is needed, meet with them to develop a Plan of Action (see bottom of page 3) to help them achieve the level of competence you expect; circle desired actions or write in others.

The video "Immunization Techniques: Best Practices with Infants, Children, and Adults" helps ensure that staff administer vaccines correctly. (View at www.youtube.com/watch?v=WsZ6NEijlfI or order online at www.immunize.org/dvd.) Another helpful resource is CDC's Vaccine Administration eLearn course, available at www.cdc.gov/vaccines/hcp/admin/resource-library.html.

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment: NEEDS TO IMPROVE	Self-Assessment: MEETS OR EXCEEDS	Supervisor Review: NEEDS TO IMPROVE	Supervisor Review: MEETS OR EXCEEDS	Supervisor Review: PLAN OF ACTION
A Patient/Parent Education	1. Welcomes patient/family and establishes rapport.					
	2. Explains what vaccines will be given and which type(s) of injection(s) will be done.					
	3. Answers questions and accommodates language or literacy barriers and special needs of patient/parents to help make them feel comfortable and informed about the procedure.					
	4. Verifies patient/parents received Vaccine Information Statements (VISs) for indicated vaccines and has had time to read them and ask questions.					
	5. Screens for contraindications (if within employee's scope of work).					
	6. Reviews comfort measures and aftercare instructions with patient/parents, and invites questions.					
B Medical and Office Protocols	1. Identifies the location of the medical protocols (e.g., immunization protocol, emergency protocol, reporting adverse events to the Vaccine Adverse Event Reporting system [VAERS], reference material).					
	2. Identifies the location of epinephrine, its administration technique, and clinical situations where its use would be indicated.					
	3. Maintains up-to-date CPR certification.					
	4. Understands the need to report any needlestick injury and to maintain a sharps injury log.					
	5. Demonstrates knowledge of proper vaccine handling (e.g., maintains and monitors vaccine at recommended temperature and protects from light).					

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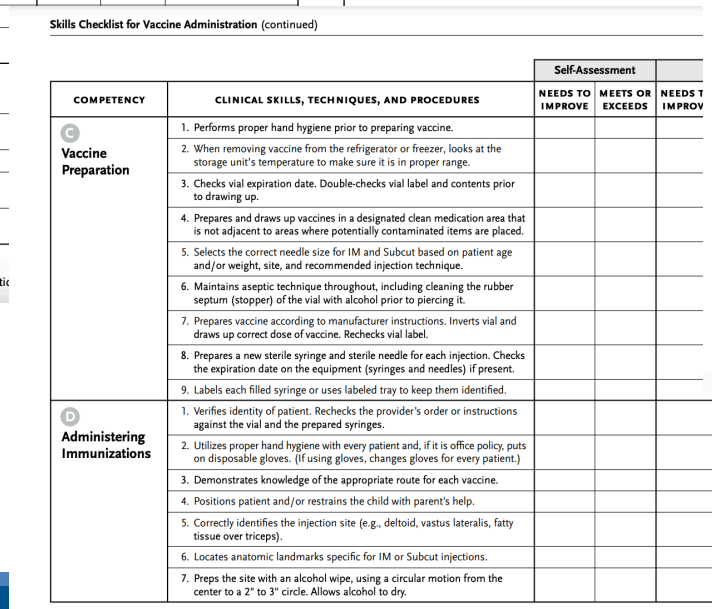

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment: NEEDS TO IMPROVE	Self-Assessment: MEETS OR EXCEEDS	Self-Assessment: NEEDS T IMPROV
C Vaccine Preparation	1. Performs proper hand hygiene prior to preparing vaccine.			
	2. When removing vaccine from the refrigerator or freezer, looks at the storage unit's temperature to make sure it is in proper range.			
	3. Checks vial expiration date. Double-checks vial label and contents prior to drawing up.			
	4. Prepares and draws up vaccines in a designated clean medication area that is not adjacent to areas where potentially contaminated items are placed.			
	5. Selects the correct needle size for IM and Subcut based on patient age and/or weight, site, and recommended injection technique.			
	6. Maintains aseptic technique throughout, including cleaning the rubber septum (stopper) of the vial with alcohol prior to piercing it.			
	7. Prepares vaccine according to manufacturer instructions. Inverts vial and draws up correct dose of vaccine. Rechecks vial label.			
	8. Prepares a new sterile syringe and sterile needle for each injection. Checks the expiration date on the equipment (syringes and needles) if present.			
	9. Labels each filled syringe or uses labeled tray to keep them identified.			
D Administering Immunizations	1. Verifies identity of patient. Rechecks the provider's order or instructions against the vial and the prepared syringes.			
	2. Utilizes proper hand hygiene with every patient and, if it is office policy, puts on disposable gloves. (If using gloves, changes gloves for every patient.)			
	3. Demonstrates knowledge of the appropriate route for each vaccine.			
	4. Positions patient and/or restrains the child with parent's help.			
	5. Correctly identifies the injection site (e.g., deltoid, vastus lateralis, fatty tissue over triceps).			
	6. Locates anatomic landmarks specific for IM or Subcut injections.			
	7. Preps the site with an alcohol wipe, using a circular motion from the center to a 2" to 3" circle. Allows alcohol to dry.			

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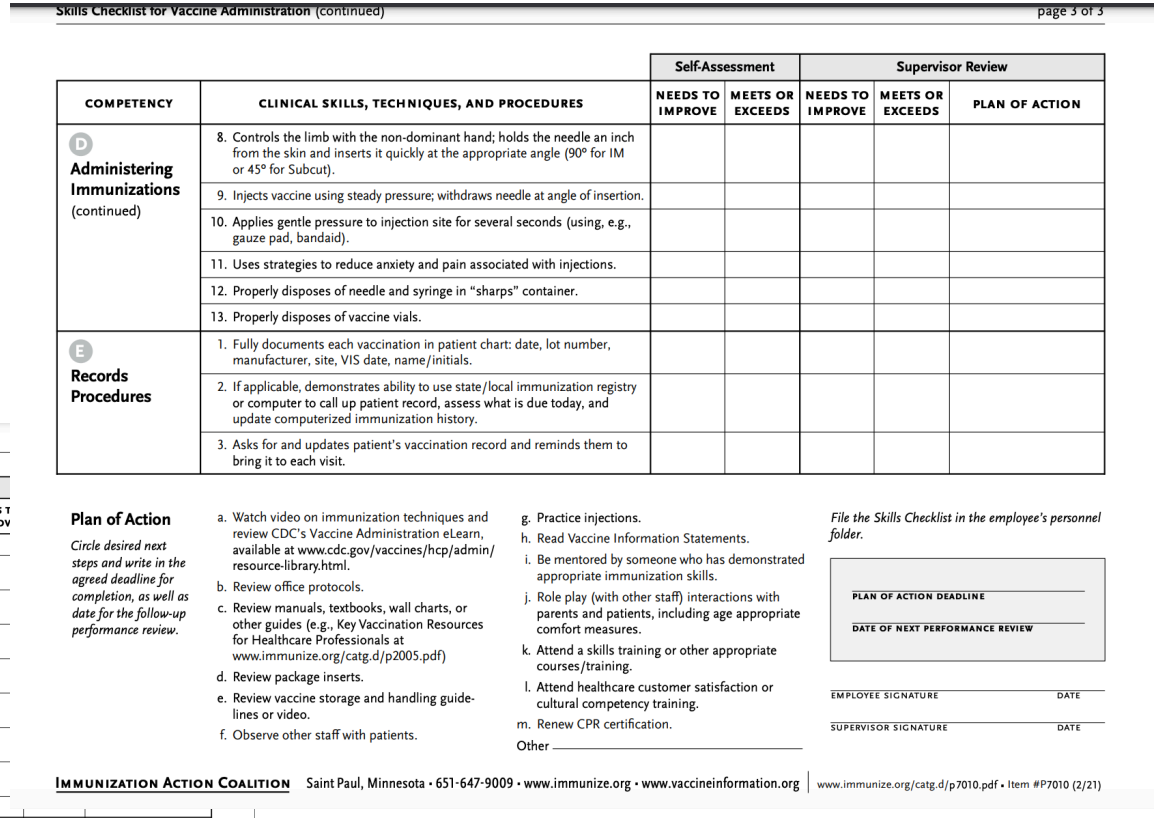


COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment: NEEDS TO IMPROVE	Self-Assessment: MEETS OR EXCEEDS	Supervisor Review: NEEDS TO IMPROVE	Supervisor Review: MEETS OR EXCEEDS	Supervisor Review: PLAN OF ACTION
D Administering Immunizations (continued)	8. Controls the limb with the non-dominant hand; holds the needle an inch from the skin and inserts it quickly at the appropriate angle (90° for IM or 45° for Subcut).					
	9. Injects vaccine using steady pressure; withdraws needle at angle of insertion.					
	10. Applies gentle pressure to injection site for several seconds (using, e.g., gauze pad, bandaid).					
	11. Uses strategies to reduce anxiety and pain associated with injections.					
	12. Properly disposes of needle and syringe in "sharps" container.					
	13. Properly disposes of vaccine vials.					
E Records Procedures	1. Fully documents each vaccination in patient chart: date, lot number, manufacturer, site, VIS date, name/initials.					
	2. If applicable, demonstrates ability to use state/local immunization registry or computer to call up patient record, assess what is due today, and update computerized immunization history.					
	3. Asks for and updates patient's vaccination record and reminds them to bring it to each visit.					

Plan of Action

Circle desired next steps and write in the agreed deadline for completion, as well as date for the follow-up performance review.

a. Watch video on immunization techniques and review CDC's Vaccine Administration eLearn, available at www.cdc.gov/vaccines/hcp/admin/resource-library.html.
b. Review office protocols.
c. Review manuals, textbooks, wall charts, or other guides (e.g., Key Vaccination Resources for Healthcare Professionals at www.immunize.org/catg.d/p2005.pdf)
d. Review package inserts.
e. Review vaccine storage and handling guidelines or video.
f. Observe other staff with patients.
g. Practice injections.
h. Read Vaccine Information Statements.
i. Be mentored by someone who has demonstrated appropriate immunization skills.
j. Role play (with other staff) interactions with parents and patients, including age appropriate comfort measures.
k. Attend a skills training or other appropriate courses/training.
l. Attend healthcare customer satisfaction or cultural competency training.
m. Renew CPR certification.

Other _____

File the Skills Checklist in the employee's personnel folder.

PLAN OF ACTION DEADLINE _____

DATE OF NEXT PERFORMANCE REVIEW _____

EMPLOYEE SIGNATURE _____ DATE _____

SUPERVISOR SIGNATURE _____ DATE _____

https://www.immunize.org/catg.d/p7010.pdf

Preparing for the potential management of anaphylaxis at vaccine sites

Should be available at all locations	If feasible, include at locations (not required)
Epinephrine (e.g., prefilled syringe, autoinjector)*	Pulse oximeter
H1 antihistamine (e.g., diphenhydramine, cetirizine)†	Oxygen
Blood pressure monitor‡	Bronchodilator (e.g., albuterol)
Timing device to assess pulse	H2 antihistamine (e.g., famotidine, cimetidine)
	Intravenous fluids
	Intubation kit
	Pocket mask with one-way valve (also known as cardiopulmonary resuscitation [CPR] mask) sized for adults and children

SOURCE: CDC

Adolescent Vaccine Safety

Fainting—or syncope—can occur after any medical procedure, including vaccination

- Adolescents should be seated or lying down during vaccination
- Providers should consider observing patients in seated/lying positions for 15 minutes after vaccination
- Risk for serious secondary injuries

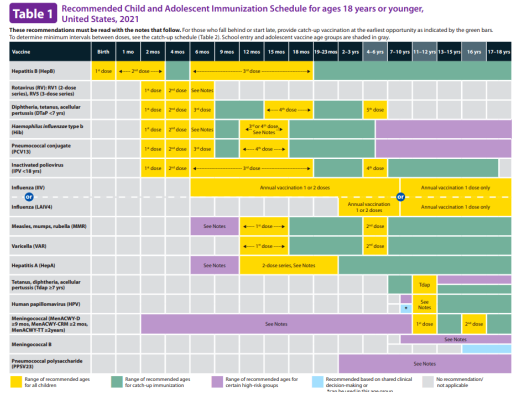
2024 Childhood and Adolescent Immunization Schedules*

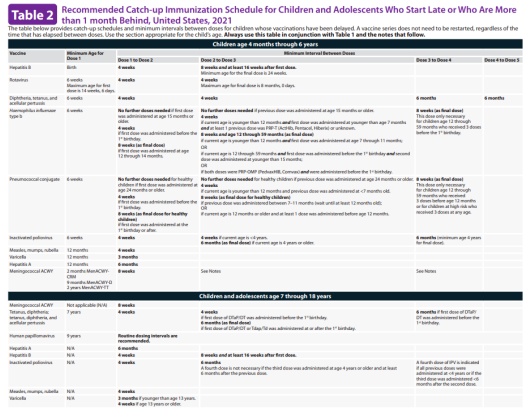
- Recommended Schedule for Children Ages 0-18 Years
- Catch-up Schedule
- Vaccines that might be indicated for children and adolescents aged 18 years or younger based on medical indications

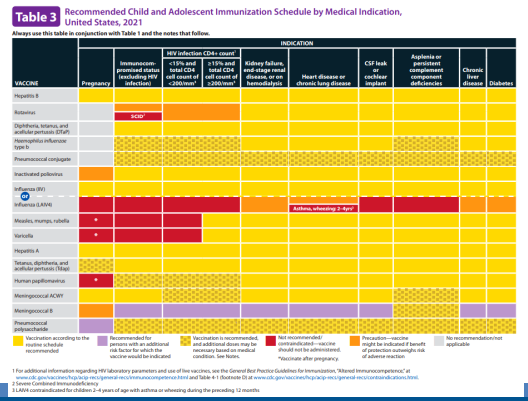
Changes

- Clarification of the charts
- Additional information in the Notes section

READ THE FOOTNOTES TO ACCESS SPECIFIC VACCINE ADMINISTRATION DETAILS!







Vaccine Schedules Varying From ACIP/AAP/AAFP Recommendations

Alternate Schedules

- Dr. Bob's Selective Vaccine Schedule
- Dr. Bob's Alternative Vaccine Schedule
- Parent-derived schedules
- Parent refusal of all vaccines

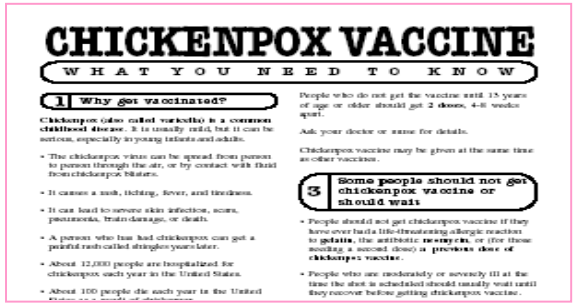
Concerns

- Alternate or delayed schedules have not been tested
- No studies to prove they are safer

If any of these Alternate Schedules are requested, the health care provider and staff must spend additional time educating the parent/caretaker about the appropriate use of vaccines.

Always Document…

- Accept only written documentation of prior immunizations
- Provide VIS prior to administration of vaccine
- After vaccine administration, document:
  - ✓ Publication date of VIS & date VIS given
  - ✓ Date, site, route, antigen(s), manufacturer, lot #
  - ✓ Person administering vaccine, practice name and address
  - ✓ Vaccine refusals with a signed “Refusal to Vaccinate Form”—see Online Resources slide for link to this form
  - ✓ GA law does not require signed consent for immunizations


CHICKENPOX VACCINE

WHAT YOU NEED TO KNOW

1 Why get vaccinated?

Chickenpox (also called varicella) is a common childhood disease. It is usually mild, but it can be serious, especially in young infants and adults.

- The chickenpox virus can be spread from person to person through the air, or by contact with fluid from chickenpox blisters.
- It causes a rash, itching, fever, and tiredness.
- It can lead to severe skin infection, scars, pneumonia, brain damage, or death.
- A person who has had chickenpox can get a painful rash called shingles years later.
- About 12,000 people are hospitalized for chickenpox each year in the United States.
- About 100 people die each year in the United

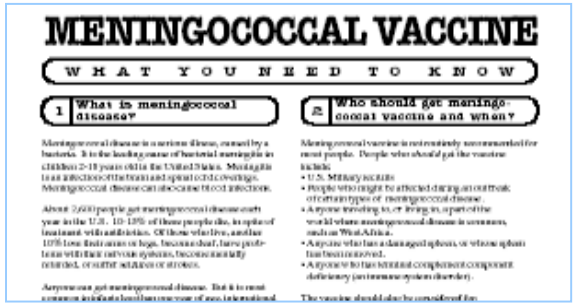
People who do not get the vaccine until 13 years of age or older should get 2 doses, 4-8 weeks apart.

Ask your doctor or nurse for details.

Chickenpox vaccine may be given at the same time as other vaccines.

3 Some people should not get chickenpox vaccine or should wait

- People should not get chickenpox vaccine if they have ever had a life-threatening allergic reaction to gelatin, the antibiotic neomycin, or (for those needing a second dose) a previous dose of chickenpox vaccine.
- People who are moderately or severely ill at the time the shot is scheduled should usually wait until they recover before getting chickenpox vaccine.


MENINGOCOCCAL VACCINE

WHAT YOU NEED TO KNOW

1 What is meningococcal disease?

2 Who should get meningococcal vaccine and when?

Meningococcal disease is a serious illness, caused by a bacteria. It is the leading cause of bacterial meningitis in children 2-18 years old in the United States. Meningitis is an infection of the brain and spinal cord coverings. Meningococcal disease can also cause blood infections.

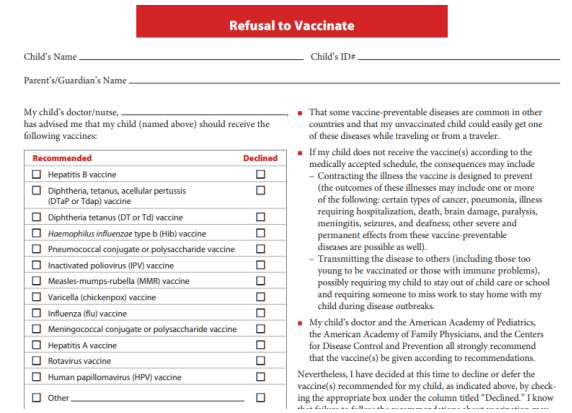
About 2,600 people get meningococcal disease each year in the U.S. 10-15% of these people die, in spite of treatment with antibiotics. Of those who live, another 10% lose their arms or legs, become deaf, have problems with their nervous system, become mentally retarded, or suffer seizures or strokes.

Anyone can get meningococcal disease. But it is most common in infants less than one year of age. Adolescents

Meningococcal vaccine is routinely recommended for most people. People who should get the vaccine include:

- U.S. Military recruits
- People who might be affected during an outbreak of certain types of meningococcal disease
- Anyone traveling to, or living in, a part of the world where meningococcal disease is common, such as West Africa.
- Anyone who has a damaged spleen, or whose spleen has been removed.
- Anyone who has terminal complement component deficiency (an immune system disorder).

The vaccine should also be considered for


Refusal to Vaccinate

Child's Name _____ Child's ID# _____

Parent's/Guardian's Name _____

My child's doctor/nurse, _____ has advised me that my child (named above) should receive the following vaccines:

Recommended	Declined
☐ Hepatitis B vaccine	☐
☐ Diphtheria, tetanus, acellular pertussis (DTaP or Tdap) vaccine	☐
☐ Diphtheria tetanus (DT or Td) vaccine	☐
☐ *Haemophilus influenzae* type b (Hib) vaccine	☐
☐ Pneumococcal conjugate or polysaccharide vaccine	☐
☐ Inactivated poliovirus (IPV) vaccine	☐
☐ Measles-mumps-rubella (MMR) vaccine	☐
☐ Varicella (chickenpox) vaccine	☐
☐ Influenza (flu) vaccine	☐
☐ Meningococcal conjugate or polysaccharide vaccine	☐
☐ Hepatitis A vaccine	☐
☐ Rotavirus vaccine	☐
☐ Human papillomavirus (HPV) vaccine	☐
☐ Other _____	☐

- That some vaccine-preventable diseases are common in other countries and that my unvaccinated child could easily get one of these diseases while traveling or from a traveler.
- If my child does not receive the vaccine(s) according to the medically accepted schedule, the consequences may include
  - Contracting the illness the vaccine is designed to prevent (the outcomes of these illnesses may include one or more of the following: certain types of cancer, pneumonia, illness requiring hospitalization, death, brain damage, paralysis, meningitis, seizures, and deafness; other severe and permanent effects from these vaccine-preventable diseases are possible as well).
  - Transmitting the disease to others (including those too young to be vaccinated or those with immune problems), possibly requiring my child to stay out of child care or school and requiring someone to miss work to stay home with my child during disease outbreaks.
- My child's doctor and the American Academy of Pediatrics, the American Academy of Family Physicians, and the Centers for Disease Control and Prevention all strongly recommend that the vaccine(s) be given according to recommendations.

Nevertheless, I have decided at this time to decline or defer the vaccine(s) recommended for my child, as indicated above, by checking the appropriate box under the column titled "Declined." I know

A ‘Birth to Death’ Immunization Registry

- Providers administering vaccines in GA must provide information to GRITS
- GRITS personnel can work with your EHR/EMR vendor to create an interface between your system and GRITS
- Use GRITS to generate reminders on medical records and/or notify patients when vaccines are needed
- Assess your immunization rates using GRITS to improve patient care, HEDIS scores, and identify problem areas

Monitoring Vaccine Safety

VAERS—Vaccine Adverse Event Reporting System

- Option 1 – Report Online to VAERS (Preferred)
  - Must be completed and submitted in one sitting
- Option 2 – Report using a Writable PDF Form

If you need further assistance with reporting to VAERS, please email info@VAERS.org or call 1-800-822-7967.

FDA and Vaccine Data Link Safety Project

VERP: VACCINE ERROR REPORTING PROGRAM

- ✓ Online reporting at http://verp.ismp.org/
- ✓ Report even if no adverse events associated with incident
- ✓ Will help identify sources of errors to help develop prevention strategies

Exemptions From School/Day Care Requirements

Medical Exemption O.C.G.A. §20-2-771(d)

- Used when a physical disability or medical condition contraindicates a particular vaccine
- Requires an annual review
- The medical exemption is documented in GRITS

Religious Exemption O.C.G.A. §20-2-771(e)

- Parent or guardian must be directed to http://dph.georgia.gov/immunization-section to obtain an Affidavit of Religious Objection to Immunization form.
  - Must be signed and notarized and provided to the school.
  - Must be kept on file at school/facility in lieu of an immunization certificate.
  - Affidavit does not expire.

Georgia does NOT have a philosophical exemption.

Invalid Contraindications to Vaccine*

- Mild illness or injury
- Antibiotic therapy
- Disease exposure or convalescence
- Pregnancy or immunosuppression in household
- Family history of an adverse event to a vaccine
- Breastfeeding
- Prematurity
- Allergies to products not in vaccine
- Need for TB skin testing
- Need for multiple vaccines

*General Recommendations on Immunization - MMWR January 28, 2011, Vol 60 # RR02)

Strategies to Avoid Missed Opportunities

- Provider Prompts
  - Automatic pop-up alerts through your EHR system
  - Can sometimes be pre-installed and customized
- Family-friendly office hours
- Immunization Champion in your practice
  - Manage vaccine supply and schedule periodic updates
- Include all recommended vaccines at each visit
- Schedule periodic team meetings with all personnel to:
  - Improve patient flow & quality of care
  - Discuss problems within the framework of the practice

*https://www.aap.org/en-us/advocacy-and-policy/aap--health-initiatives/immunizations/Practice-Management/Pages/office- strategies.aspx

Provider Strategies to Improve Vaccination Rates*

Strengthening vaccination recommendations

- Increased emphasis in the practice on training re: vaccine safety and efficacy for ALL employees having patient contact
- Having OB doctors begin the promotion of vaccines with expectant mothers
- Be alert to avoid missed opportunities
- Decrease acceptance of alternative schedules

Strengthening vaccine mandates

- Eliminating nonmedical exemptions
- Increased enforcement of state mandates by schools and childcare facilities

*Children's Hospital of Philadelphia, Vaccine Update for Healthcare Providers, "News & Views: Addressing Vaccine Hesitancy," March 21, 2017

Provider Strategies* (cont'd)

Attention to requirements of "informed refusal"**

- Explain basic facts/uses of proposed vaccine
- Review risks of refusing the vaccine(s)
- Discuss anticipated outcomes with and without vaccination
- Parental/patient completion of Refusal to Vaccinate form each visit

Importance of documenting informed refusal to vaccinate**

- Risk of lawsuit*
- Documented informed refusal creates a record of interaction between parents/patients and providers

*Children's Hospital of Philadelphia, Vaccine Update for Healthcare Providers, "News & Views: Addressing Vaccine Hesitancy," March 21, 2017
**AAP Publications, "Document informed refusal just as you would informed consent," James P. Scibilia, M.D. FAAP, October 30, 2018

Vaccine Risk Perception

Many parents are not familiar with vaccine-preventable diseases and perceive the risks of vaccines outweigh the benefits.

Common Concerns:

- Immune system overload
- Children get too many shots at one visit
- Vaccines have side effects (adverse reactions)
- Immunity from the disease is better than immunity from a vaccine (i.e. chicken pox)
- Vaccines cause autism

Anti-Vaccine Movement

- Promotes idea that there is less evidence of disease today and immunizations are no longer needed
- Sends confusing & conflicting information
- Uses stories, personal statements, and books to play on the emotions of concerned parents

Encourage parents/patients to:

- Get the facts
- Consider the source
- Discuss their concerns with you

Global Vaccine Awareness League

Think Twice
Global Vaccine Institute

NATIONAL VACCINE INFORMATION CENTER

People Advocating
PAVE
Vaccine Education

Resources for Factual & Responsible Vaccine Information

Allied Vaccine Group
MEMBER

ACP-ASIM online
American College of Physicians
American Society of Internal Medicine

American Academy of Family Physicians

vaccine safety net

www.vaccinesafetynet.org

National Foundation for Infectious Diseases

WHO OMS

NNii

immunization action coalition
IAC
immunize.org

Georgia public health

Gavi
The Vaccine Alliance

CDC
SAFER • HEALTHIER • PEOPLE™

Hepatitis B Immunization Status for Previously Vaccinated HCP - Post-vaccination Testing

Testing 1 to 2 months after final dose of vaccine series > Adequate (immune)

Positive antibody (anti-HBs) **= ≥10 mIU/ml (immune)**

- Yes → Document positive antibody status

NO → Complete second vaccine series—retest 4-8 wks after completion second series

- Yes → Document positive antibody status

NO

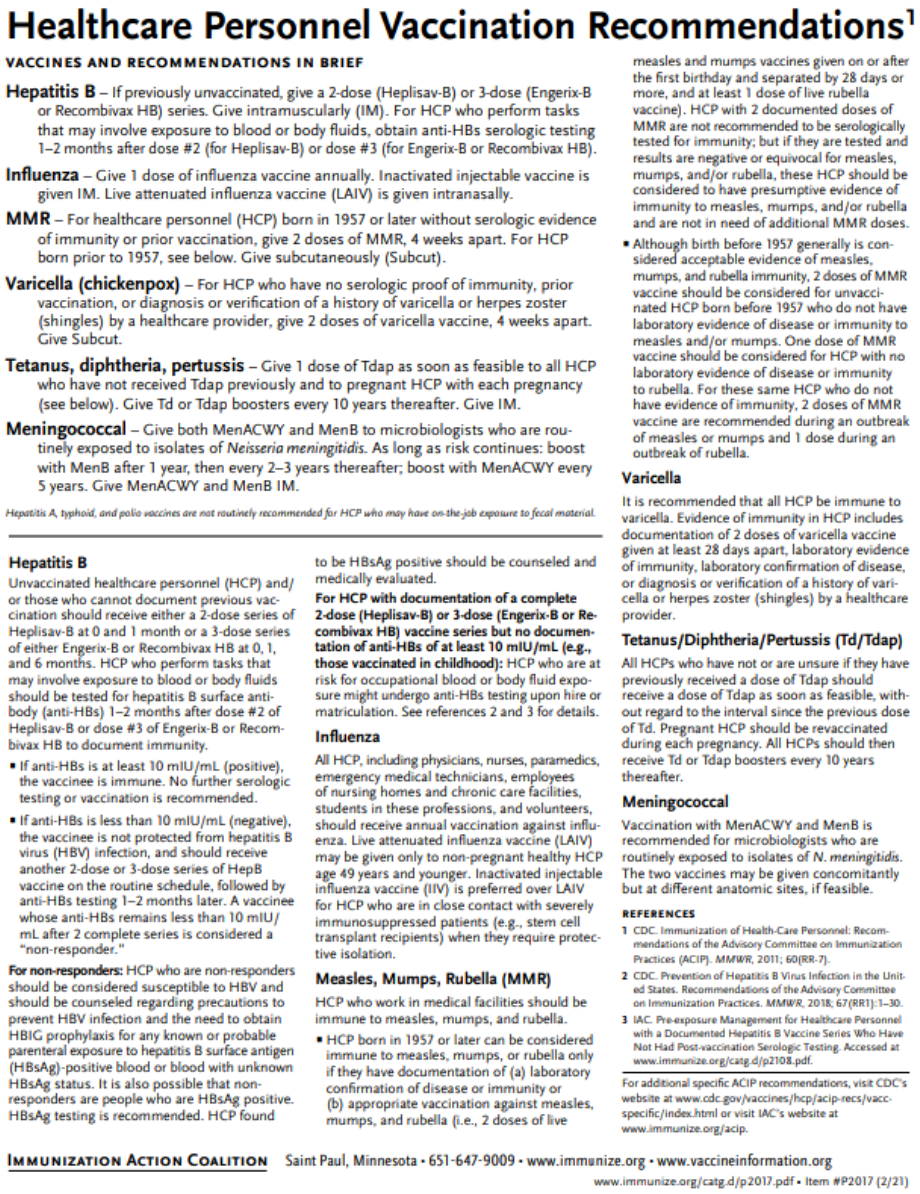
- Document as "non-responder"
- Test for HBsAg and anti-HBc (core antigen) to determine infection status

https://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html

Recommended Healthcare Personnel Vaccinations

- Hepatitis B (exposure risk) check immunity
- Influenza (annual)
- Measles, Mumps, Rubella (MMR)
- Varicella (Chickenpox)
- Tetanus, Diphtheria, Pertussis (Tdap)
- Meningococcal (recommended for microbiologists who are routinely exposed to isolates of N. meningitidis).
- COVID-19 vaccine

Are <u>YOU</u> up to date?



Healthcare Personnel Vaccination Recommendations[1]

VACCINES AND RECOMMENDATIONS IN BRIEF

Hepatitis B – If previously unvaccinated, give a 2-dose (Heplisav-B) or 3-dose (Engerix-B or Recombivax HB) series. Give intramuscularly (IM). For HCP who perform tasks that may involve exposure to blood or body fluids, obtain anti-HBs serologic testing 1–2 months after dose #2 (for Heplisav-B) or dose #3 (for Engerix-B or Recombivax HB).

Influenza – Give 1 dose of influenza vaccine annually. Inactivated injectable vaccine is given IM. Live attenuated influenza vaccine (LAIV) is given intranasally.

MMR – For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below. Give subcutaneously (Subcut).

Varicella (chickenpox) – For HCP who have no serologic proof of immunity, prior vaccination, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider, give 2 doses of varicella vaccine, 4 weeks apart. Give Subcut.

Tetanus, diphtheria, pertussis – Give 1 dose of Tdap as soon as feasible to all HCP who have not received Tdap previously and to pregnant HCP with each pregnancy (see below). Give Td or Tdap boosters every 10 years thereafter. Give IM.

Meningococcal – Give both MenACWY and MenB to microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*. As long as risk continues: boost with MenB after 1 year, then every 2–3 years thereafter; boost with MenACWY every 5 years. Give MenACWY and MenB IM.

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

Hepatitis B

Unvaccinated healthcare personnel (HCP) and/or those who cannot document previous vaccination should receive either a 2-dose series of Heplisav-B at 0 and 1 month or a 3-dose series of either Engerix-B or Recombivax HB at 0, 1, and 6 months. HCP who perform tasks that may involve exposure to blood or body fluids should be tested for hepatitis B surface antibody (anti-HBs) 1–2 months after dose #2 of Heplisav-B or dose #3 of Engerix-B or Recombivax HB to document immunity.

- If anti-HBs is at least 10 mIU/mL (positive), the vaccinee is immune. No further serologic testing or vaccination is recommended.
- If anti-HBs is less than 10 mIU/mL (negative), the vaccinee is not protected from hepatitis B virus (HBV) infection, and should receive another 2-dose or 3-dose series of HepB vaccine on the routine schedule, followed by anti-HBs testing 1–2 months later. A vaccinee whose anti-HBs remains less than 10 mIU/mL after 2 complete series is considered a "non-responder."

For non-responders: HCP who are non-responders should be considered susceptible to HBV and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to hepatitis B surface antigen (HBsAg)-positive blood or blood with unknown HBsAg status. It is also possible that non-responders are people who are HBsAg positive. HBsAg testing is recommended. HCP found to be HBsAg positive should be counseled and medically evaluated.

For HCP with documentation of a complete 2-dose (Heplisav-B) or 3-dose (Engerix-B or Recombivax HB) vaccine series but no documentation of anti-HBs of at least 10 mIU/mL (e.g., those vaccinated in childhood): HCP who are at risk for occupational blood or body fluid exposure might undergo anti-HBs testing upon hire or matriculation. See references 2 and 3 for details.

Influenza

All HCP, including physicians, nurses, paramedics, emergency medical technicians, employees of nursing homes and chronic care facilities, students in these professions, and volunteers, should receive annual vaccination against influenza. Live attenuated influenza vaccine (LAIV) may be given only to non-pregnant healthy HCP age 49 years and younger. Inactivated injectable influenza vaccine (IIV) is preferred over LAIV for HCP who are in close contact with severely immunosuppressed patients (e.g., stem cell transplant recipients) when they require protective isolation.

Measles, Mumps, Rubella (MMR)

HCP who work in medical facilities should be immune to measles, mumps, and rubella.

- HCP born in 1957 or later can be considered immune to measles, mumps, or rubella only if they have documentation of (a) laboratory confirmation of disease or immunity or (b) appropriate vaccination against measles, mumps, and rubella (i.e., 2 doses of live measles and mumps vaccines given on or after the first birthday and separated by 28 days or more, and at least 1 dose of live rubella vaccine). HCP with 2 documented doses of MMR are not recommended to be serologically tested for immunity; but if they are tested and results are negative or equivocal for measles, mumps, and/or rubella, these HCP should be considered to have presumptive evidence of immunity to measles, mumps, and/or rubella and are not in need of additional MMR doses.
- Although birth before 1957 generally is considered acceptable evidence of measles, mumps, and rubella immunity, 2 doses of MMR vaccine should be considered for unvaccinated HCP born before 1957 who do not have laboratory evidence of disease or immunity to measles and/or mumps. One dose of MMR vaccine should be considered for HCP with no laboratory evidence of disease or immunity to rubella. For these same HCP who do not have evidence of immunity, 2 doses of MMR vaccine are recommended during an outbreak of measles or mumps and 1 dose during an outbreak of rubella.

Varicella

It is recommended that all HCP be immune to varicella. Evidence of immunity in HCP includes documentation of 2 doses of varicella vaccine given at least 28 days apart, laboratory evidence of immunity, laboratory confirmation of disease, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider.

Tetanus/Diphtheria/Pertussis (Td/Tdap)

All HCPs who have not or are unsure if they have previously received a dose of Tdap should receive a dose of Tdap as soon as feasible, without regard to the interval since the previous dose of Td. Pregnant HCP should be revaccinated during each pregnancy. All HCPs should then receive Td or Tdap boosters every 10 years thereafter.

Meningococcal

Vaccination with MenACWY and MenB is recommended for microbiologists who are routinely exposed to isolates of *N. meningitidis*. The two vaccines may be given concomitantly but at different anatomic sites, if feasible.

REFERENCES

1 CDC. Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*, 2011; 60(RR-7).

2 CDC. Prevention of Hepatitis B Virus Infection in the United States. Recommendations of the Advisory Committee on Immunization Practices. *MMWR*, 2018; 67(RR1):1–30.

3 IAC. Pre-exposure Management for Healthcare Personnel with a Documented Hepatitis B Vaccine Series Who Have Not Had Post-vaccination Serologic Testing. Accessed at www.immunize.org/catg.d/p2108.pdf.

For additional specific ACIP recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/index.html or visit IAC's website at www.immunize.org/acip.

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p2017.pdf • Item #P2017 (2/21)

Stay Current!

Sign up for listserv sites which provide timely information pertinent to your practice www.immunize.org/resources/emailnews.asp

- AAP Newsletter
- CDC immunization websites (32 in all)
- CHOP Parents Pack Newsletter
- Immunize.org Express, Needle Tips and Vaccinate Adults
- Websites specific to particular vaccines

YOU ARE ALL PART OF THE TEAM THAT CAN

MAKE SURE YOUR PATIENTS RECEIVE THE

IMMUNIZATIONS THEY NEED!

Test Your Knowledge!

Your office has a large supply of vaccine and space in the refrigerator is always an issue. Since the vaccines can not be stored in the vegetable drawers, the “vaccine manager” removed the bins and is storing some of the vaccines in the space occupied by the drawers.

Is this storage space appropriate?

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Is this storage space appropriate?

No! The area is commonly closer to the motor of the refrigerator and temperature may be less stable.

*Immunization Action Coalition – Item #P3036 8/18

Online Resources*

Current Childhood and Adult Immunization Schedules –
www.cdc.gov/vaccines/schedules/index.html

Parent's Guide to Childhood Immunizations –
www.cdc.gov/vaccines/parents/tools/parents-guide/index.html

Order Information for Free CDC Immunization Materials for Providers and Patients –
wwwn.cdc.gov/pubs/CDCInfoOnDemand.aspx

Vaccine Labels to Organize a Storage Unit –
www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels.pdf

Vaccine Information Statements (VISs) – www.cdc.gov/vaccines/hcp/vis/current-vis.html

Refusal to Vaccinate Form – https://www.aap.org/en-us/documents/immunization_refusaltovaccinate.pdf

Standing Orders (Explanation and Templates) – www.immunize.org/standing-orders/

Ask the Experts – www.immunize.org/askexperts/

General Best Practice Guidelines for Immunization – https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

Questions?

Contacts for more immunization information and resources!

National Center for Immunization and Respiratory Diseases, CDC

E-mail ► **NIPInfo@cdc.gov**
Hotline 800.CDC.INFO
Website **http://www.cdc.gov/vaccines**

Georgia Immunization Program

E-mail **DPH-Immunization@dph.ga.gov**
Hotline 404-657-3158
Website **http://dph.georgia.gov/immunization-section**

Immunization Action Coalition

E-mail **admin@immunize.org**
Phone 651.647.9009
Website **www.immunize.org**