EPIC® Immunization 2024 Update Children & Adolescents (Brief Version)

Updated March 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 Credentialing Center Commission on Accreditation

**American Nurses

Objectives

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

- **Recall** the role vaccines have played in preventing diseases
- **Discuss** the importance of vaccines for children, adolescents and adults
- **Summarize** the most recent CDC recommendations for storage and handling of vaccines
- **List** at least 2 reliable sources for immunization information

Diphtheria

Tetanus

Pertussis

Diphtheria, Tetanus and Pertussis Vaccines for Children

ACIP Recommendations

DTaP vaccine

- Recommended for children ages 6 weeks through 6 years
- Administered as a 3-dose primary series at ages 2, 4, and 6 months
- Booster doses at 15-18 months and 4-6 years
- NOT recommended for children 7 years and older

ADMINISTER THE RIGHT VACCINE!

PRODUCT	COMPONENT(S)	USE FOR AGES	USE FOR DTaP DOSES	ROUTE
Daptacel (SP)	DTaP	6 wks. thru 6 yrs.	Doses 1 thru 5	IM
Infanrix (GSK)	DTaP	6 wks. thru 6 yrs.	Doses 1 thru 5	IM
Pediarix (GSK)	DTaP-HepB-IPV	6 wks. thru 6 yrs.	Doses 1 thru 3	IM
Pentacel (SP)	DTaP-IPV/Hib	6 wks. thru 4 yrs.	Doses 1 thru 4	IM
Kinrix (GSK)	DTaP-IPV	4 thru 6 yrs.	Dose 5	IM
Quadracel (SP)	DTaP-IPV	4 thru 6 yrs.	Dose 5	IM
Vaxelis (Merck & SP)	DTaP-IPV-Hib-Hep B	6 wks. thru 4 yrs.	Doses 1 thru 3	IM

Diphtheria, Tetanus and Pertussis Vaccines for Children, Adolescents, and Adults

ACIP Recommendations

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

- Children and adolescents starting at 11 or 12 yrs.
- Any adult who has not received a Tdap dose
- Routine decennial booster
- Tetanus prophylaxis for wound management
- Unvaccinated persons 7-18 yrs.
  - 3 doses of Td or Tdap, given at appropriate intervals—see Catch-up Schedule
  - Children 7-9 yrs. who receive Tdap as part of the catch-up series <u>should</u> be given Tdap again at ages 11-12 years
- <u>No minimum interval between doses of Td and Tdap</u>

New: One Td vaccine brand (production discontinued) – February 2024

At the February 2024 ACIP meeting, it was noted that:

- Production of one tetanus and diphtheria (Td) vaccine, TdVax™, has been discontinued.
- Sanofi is taking steps to augment their available U.S. supply of Tenivac® (the other Td vaccine).

As a result, CDC anticipates that the supply of Td vaccine in the U.S. market will be constrained during 2024.

There are NO supply constraints with Tdap vaccines at this time.

CDC has developed guidance to help vaccination providers:

•**Transition to use of Tdap** vaccine in lieu of Td vaccine whenever possible **while Td vaccine supplies are constrained.**

•Tdap vaccine **is an acceptable alternative** to Td vaccine, including when a tetanus booster is indicated for wound management.

•Tdap vaccine **isn't an acceptable alternative** only when a person has a specific contraindication to pertussis-containing vaccines, which is very rare.

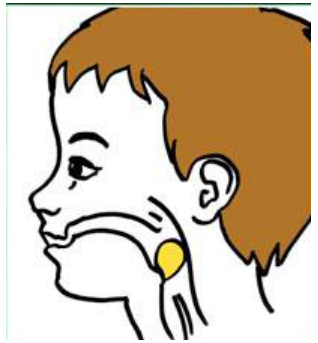
Haemophilus influenzae type b (Hib)

ACIP recommends:

3-4 doses of Hib (depending on brand)

- 3 dose series (PedVaxHIB®): 2 and 4 months, booster dose age 12-15 months
- 4-dose series (**ActHIB®, Hiberix®, Pentacel®, or Vaxelis®**): 2, 4 and 6 months, booster age 12-15 months

Note: Booster dose @ 12 - 15 mo. (Vaxelis® NOT recommended as booster)



- Children (5yrs+) with specific conditions – One dose*
- Immunocompromised adults – One dose

Polio

ACIP Recommendation:

<u>Children:</u> Four dose series of IPV at : 2, 4, 6 through 18 months and 4-6 yrs.

- Minimum interval from dose 3 to dose 4 is six months
- Final dose at 4+ yrs, regardless of the number of previous doses

<u>Adults:</u>

•For Adults at increased risk of exposure to poliovirus with:

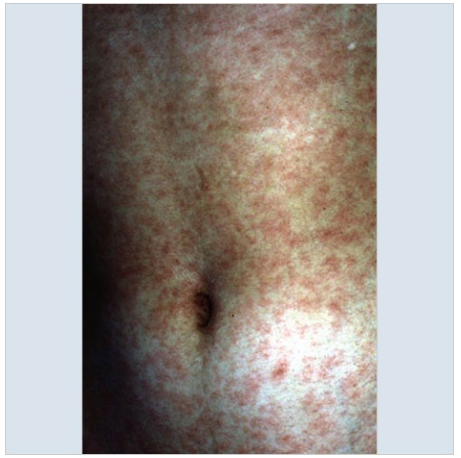
- No evidence of a complete polio vaccination series (i.e., at least 3 doses): administer remaining doses to complete a 3-dose series
- Evidence of completed polio vaccination series (i.e., at least 3 doses): may administer one lifetime IPV booster

- Travelers---A booster dose may be recommended:
  - www.cdc.gov/polio/what-is-polio/travelers.html

Source: World Health Organization

MEASLES*

- Incubation period---11 to 12 days from exposure to onset of symptoms
- Symptoms: fever, cough, coryza, conjunctivitis, maculopapular rash and Koplik spots
- Complications: otitis media, pneumonia, croup, diarrhea, encephalitis and death
- Subacute sclerosing panencephalitis (SSPE) is a progressive neurological disorder that is rare but always fatal. It usually occurs 7-10 years after measles infection.



Measles, Mumps, Rubella

Measles (M)

Source: American Academy of Pediatrics
Red Book On Line Visual Library

Mumps (M)

Source: Creative Commons

Rubella (R)

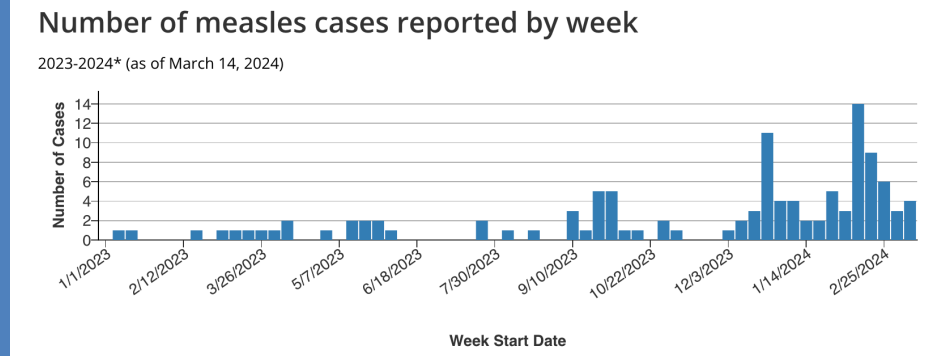
Congenital Rubella (R)

Measles cases in 2024, U.S.

As of March 14, 2024, a total of 58 measles cases were reported by 17 jurisdictions: Arizona, California, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Michigan, Minnesota, Missouri, New Jersey, New York City, Ohio, Pennsylvania, Virginia, and Washington.

Among the 58 cases reported in 2024, 54 (93%) were linked to international travel. Most cases reported in 2024 have been among children aged 12 months and older who had not received measles-mumps-rubella (MMR) vaccine. Many countries, including travel destinations such as Austria, the Philippines, Romania, and the United Kingdom, are experiencing measles outbreaks.

https://www.cdc.gov/measles/cases-outbreaks.html



Increase in Global and Domestic Measles Cases and Outbreaks: Ensure Children in the United States and Those Traveling Internationally 6 Months and Older are Current on MMR Vaccination

Print

HAN HEALTH ALERT NETWORK

This is an official CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
March 18, 2024, 12:30 PM ET
CDCHAN-00504

https://emergency.cdc.gov/han/2024/han00504.asp

MMR Vaccine -- ACIP recommendations:

Children: 2 doses of MMR:

- Dose 1 @ 12-15 months
- Dose 2 @ 4-6 yrs.

Adults:

- Unvaccinated adults: At least 1 dose MMR
- Students entering college/university: 2 doses MMR
- Healthcare personnel: 2 doses MMR for measles and mumps and 1 dose MMR for rubella
- Traveler recommendations*

MMR Vaccine

- Antibodies develop in approx. 95% of children vaccinated at age 12 months and in over 99% of children who receive 2 doses
- Immunity long-term and probably lifelong in most persons

Persons can be considered immune to measles if:

- born before 1957
- have serologic evidence of measles immunity (equivocal test results should be considered negative)
- laboratory confirmation of disease
- documentation of adequate vaccination for measles

Healthcare providers and health departments should not accept verbal reports of vaccination without written documentation as presumptive evidence of immunity.

Measles Containing Vaccines

- MMR-II

- PRIORIX (GSK). ACIP Recommended June 2022
  - Contains equivalent vaccine virus strains as MMR II (Merck)
  - PRIORIX and M-M-R II are fully interchangeable.
  - Doses in a series should come from same manufacturer
    - Vaccination should not be deferred if first dose is unknown
  - PRIORIX is safe and immunogenic when administered as a second dose after M-M-R II
- MMRV

Varicella*
(Chickenpox)

ACIP recommends 2 doses of Varicella Vaccine

- Dose 1 @ 12 months through 15 months of age
- Dose 2 @ 4 through 6 years of age
- Those 13 years of age or older without evidence of immunity should receive 2 doses separated by 4 to 8 weeks.

ACIP Recommendations for use of MMRV (ProQuad)*

Licensed for ages 12 months through 12 years

Dose 1 at ages 12 through 47 months

- Either separate MMR and varicella vaccines or MMRV vaccine may be used.
- CDC recommends separate doses of MMR and varicella at early age
  - Slightly increased risk of febrile seizures with combination vaccine

Dose 1 or 2 given at ages 48 months and older

- MMRV vaccine is preferred over separate injections of MMR and varicella vaccines

***MMWR, May 7, 2010, Vol 59, #RR03**
And https://www.cdc.gov/vaccines/pubs/pinkbook/varicella.html

Pneumococcal Conjugate Vaccine (PCV15, PCV20)

ACIP Recommendations

Children

- All children PCV15 or PCV20: 4-dose series at 2, 4, 6 months and 12-15 months

- Recommendations for older children with underlying medical conditions: https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html#note-pneumo

Pneumococcal Polysaccharide Vaccine (PPSV23)

ACIP Recommendations:

- For children and adolescents 2-18 years and
- Adults 19 years and older

See Summary of recommendations of PPSV23 and timing at:

https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html

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

• Egg-based influenza vaccines	Cell culture–based inactivated (ccIIV4) and recombinant (RIV4) influenza vaccines
• influenza A/Victoria/4897/2022 (H1N1)pdm09-like virus • an influenza A/Darwin/9/2021 (H3N2)-like virus • an influenza B/Austria/1359417/2021 (Victoria lineage)-like virus • an influenza B/Phuket/3073/2013 (Yamagata lineage)-like virus	• influenza A/Wisconsin/67/2022 (H1N1)pdm09-like virus • an influenza A/Darwin/6/2021 (H3N2)-like virus • an influenza B/Austria/1359417/2021 (Victoria lineage)-like virus • an influenza B/Phuket/3073/2013 (Yamagata lineage)-like virus

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

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

Influenza Vaccines for 2023-2024 Season

TABLE 1. Influenza vaccines — United States, 2023–24 influenza season*

Trade name (manufacturer)	Presentation	µg HA (IIV4s and RIV4) or virus count (LAIV4) for each vaccine virus			Mercury (from thimerosal, if present)	
IIV4 (standard-dose, egg-based vaccines†)						
Afluria Quadrivalent (Seqirus)	0.5-mL PFS§					
	5.0-mL MDV§					
Fluarix Quadrivalent (GlaxoSmithKline)	0.5-mL PFS					
FluLaval Quadrivalent (GlaxoSmithKline)	0.5-mL PFS					
Fluzone Quadrivalent (Sanofi Pasteur)	0.5-mL PFS††	≥6 mos††	15 µg/0.5 mL	IM¶	—	
	0.5-mL SDV††	≥6 mos††	15 µg/0.5 mL	IM¶	—	
	5.0-mL MDV††	≥6 mos††	7.5 µg/0.25 mL 15 µg/0.5 mL	IM¶	25	
ccIIV4 (standard-dose, cell culture–base						
Flucelvax Quadrivalent (Seqirus)	0.5-mL PF					
	5.0-mL M					
HD-IIV4 (high-dose, egg-based vaccine†						
Fluzone High-Dose Quadrivalent (Sanofi Pasteur)	0.7-mL PF					
aIIV4 (standard-dose, egg-based vaccin						
Fluad Quadrivalent (Seqirus)	0.5-mL PF					
RIV4 (recombinant HA vaccine)						
Flublok Quadrivalent (Sanofi Pasteur)	0.5-mL PFS	≥18 yrs	45 µg/0.5 mL	IM¶	—	
LAIV4 (egg-based vaccine†)						
FluMist Quadrivalent (AstraZeneca)	0.2-mL prefilled single-use intranasal sprayer	2 through 49 yrs	$10^{6.5–7.5}$ fluorescent focus units/0.2 mL	NAS	—	

Abbreviations: ACIP = Advisory Committee on Immunization Practices; HA = hemagglutinin; IIV4 = inactivated influenza vaccine, quadrivalent; IM = intramuscular; LAIV4 = live attenuated influenza vaccine, quadrivalent; MDV = multidose vial; PFS = prefilled syringe; RIV4 = recombinant influenza vaccine, quadrivalent; SDV = single-dose vial.

* Manufacturer package inserts and updated CDC and ACIP guidance should be consulted for additional information concerning, but not limited to, indications, contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at https://www.fda.gov/vaccines-blood-biologics/vaccines/vaccines-licensed-use-united-states . Availability and characteristics of specific products and presentations might change or differ from what is described in this table and in the text of this report.

† Although a history of severe allergic reaction (e.g., anaphylaxis) to egg is a labeled contraindication to the use of egg-based IIV4s and LAIV4, ACIP recommends that all persons aged ≥6 months with egg allergy should receive influenza vaccine and that any influenza vaccine (egg based or nonegg based) that is otherwise appropriate for the recipient's age and health status can be used (see Persons with a History of Egg Allergy).

§ The approved dose volume for Afluria Quadrivalent is 0.25 mL for children aged 6 through 35 months and 0.5 mL for persons aged ≥3 years. However, 0.25-mL prefilled syringes are no longer available. For children aged 6 through 35 months, a 0.25-mL dose must be obtained from a multidose vial.

¶ IM-administered influenza vaccines should be administered by needle and syringe only, with the exception of the MDV presentation of Afluria Quadrivalent, which may alternatively be given by the PharmaJet Stratis jet injector for persons aged 18 through 64 years only. For older children and adults, the recommended site for IM influenza vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh. Additional specific guidance regarding site selection and needle length for IM administration is available in the General Best Practice Guidelines for Immunization available at https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html.

** Not applicable.

†† Fluzone Quadrivalent is approved for children aged 6 through 35 months at either 0.25 mL or 0.5 mL per dose; however, 0.25-mL prefilled syringes are no longer

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

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)

Scan for PDF

Live, Attenuated Influenza Vaccine (LAIV4)*

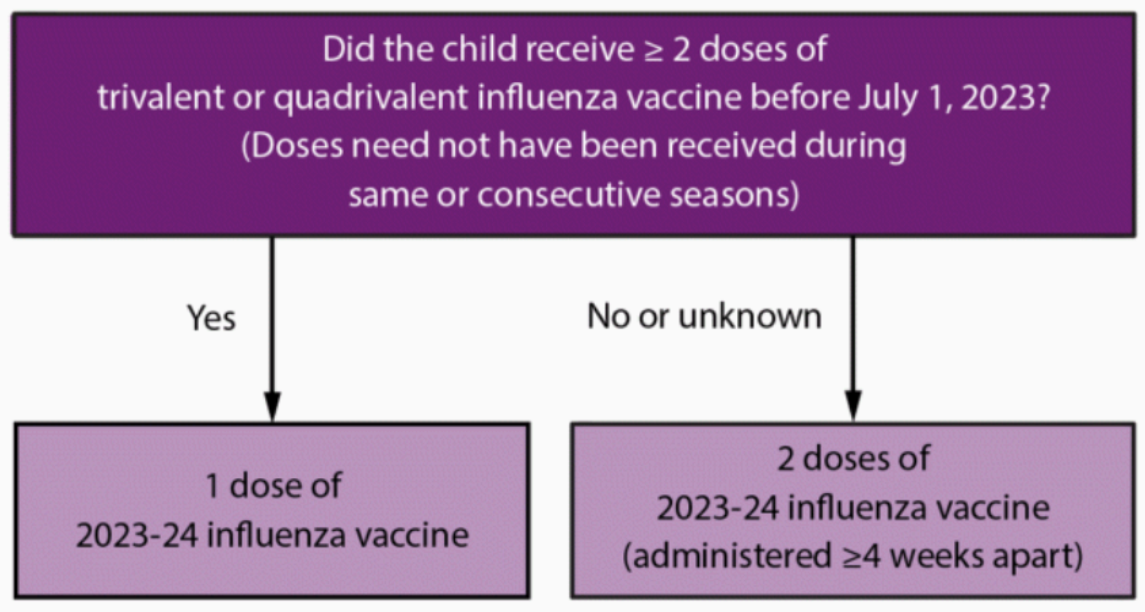
FluMist® MedImmune (Nasal Spray)

Contraindications to LAIV include:

- Children 2-4 yrs. diagnosed with asthma
- Persons receiving aspirin-containing medications – potential risk for Reye syndrome
- Persons who are Immunocompromised, have a CSF leak or cochlear implant, or asplenia
- Close contacts and caregivers of severely immunosuppressed persons
- Persons who have received influenza antiviral medications within the previous days (dependent on antiviral)
- Persons with a cranial CSF leak; people with cochlear implants
- 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

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

FIGURE. Influenza vaccine dosing algorithm for children aged 6 months through 8 years* — Advisory Committee on Immunization Practices, United States, 2023–24 influenza season



* Children aged 6 months through 8 years who require 2 doses of influenza vaccine should receive their first dose as soon as possible (including during July and August, if vaccine is available) to allow the second dose (which must be administered ≥4 weeks later) to be received, ideally, by the end of October. For children aged 8 years who require 2 doses of vaccine, both doses should be administered even if the child turns age 9 years between receipt of dose 1 and dose 2.

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

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)**

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

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

Egg allergy alone necessitates no additional safety measures for influenza vaccination

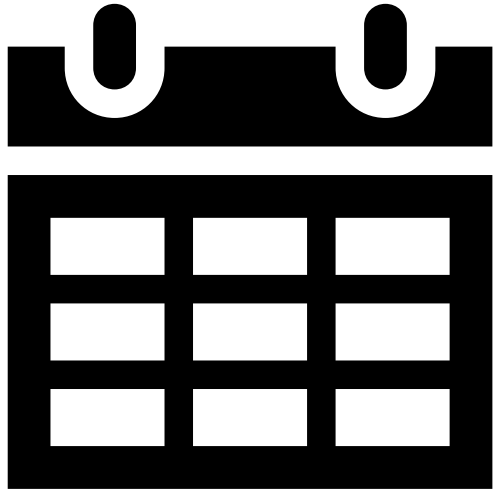
All vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available

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

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

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

Flu Vaccines Protect.

https://www.cdc.gov/flu/spotlights/2023-2024/vaccines-reduce-medical-visits.htm

FDA Recommended Influenza Antigens for 2023-2024 Season in the U.S. and plans for the 2024-2025 season

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.

For the 2024-25 season – going back to trivalent vaccines.

B/Yamagata flu viruses have not circulated in the population since March 2020, so protection from trivalent and quadrivalent flu vaccines is expected to be similar. All flu vaccines for the 2024-2025 season are anticipated to be trivalent in the United States.

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

SOURCE: MMWR CDC

Hepatitis A Vaccine for Children and Adolescents

ACIP recommends 2 doses of Hepatitis A vaccine for:

- All children 12-23 months (Separate the 2 doses by a minimum of 6 months)
- Any child or adolescent 2-18 yrs., not previously vaccinated
- **All persons >1 year of age at increased risk for HAV infection or at increased risk for severe disease from HAV infection including persons experiencing homelessness, persons with chronic liver disease, persons living with HIV**
- **1 dose of Hep A Vaccine for Infants 6-11 mos. traveling outside the U.S. when protection against HAV is recommended. Revaccinate with 2 doses, separated by at least 6 months, between age 12-23 months.**

Hepatitis B

Hepatitis B is an infectious liver disease caused by the hepatitis virus (HBV) that can lead to cirrhosis, liver cancer, and premature death.

Transmission:

- Percutaneous or mucosal exposure to infected blood or body fluids (e.g. skin puncture, sexual contact, contaminated surfaces)
- Vertical transmission from a HBsAg-positive mother to her newborn at birth
- Infected infants have 90% risk of developing chronic infection if not given HepB vaccine and HBIG at birth

ACIP vaccine recommendations: children and adolescents

- Administer to all newborns within 24 hours of birth, using single antigen vaccine; Dose 2 at 1-2 mos. and Dose 3 at 6-18 mos.
- All children and adolescents less than 19 years of age who did not complete the series as an infant

Hepatitis B-Exposed Infants and Children

Postexposure Prophylaxis (PEP) for infants born to mothers who are HBsAg-positive,

- Administer hepatitis B immune globulin (HBIG) AND hepatitis B vaccine within 12 hours of birth

For infants born to mothers whose HBsAg status is unknown, administer the Hep B vaccine within 12 hours of birth.

- And administer HBIG within 12 hours of birth for infants who weigh less than 2000 grams,
- HBIG can be administered up to 7 days after birth for infants weighing at least 2000 grams if the mother's hepatitis B surface antigen (HBsAg) lab result is unavailable at delivery and mother is determined to be HBsAg-positive during that time period

For further details on dosing, please visit: https://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html, Epidemiology and Prevention of Vaccine-Preventable Diseases, Hepatitis B chapter

Post-vaccination serologic testing (PVST)

ACIP Recommendations re: PVST

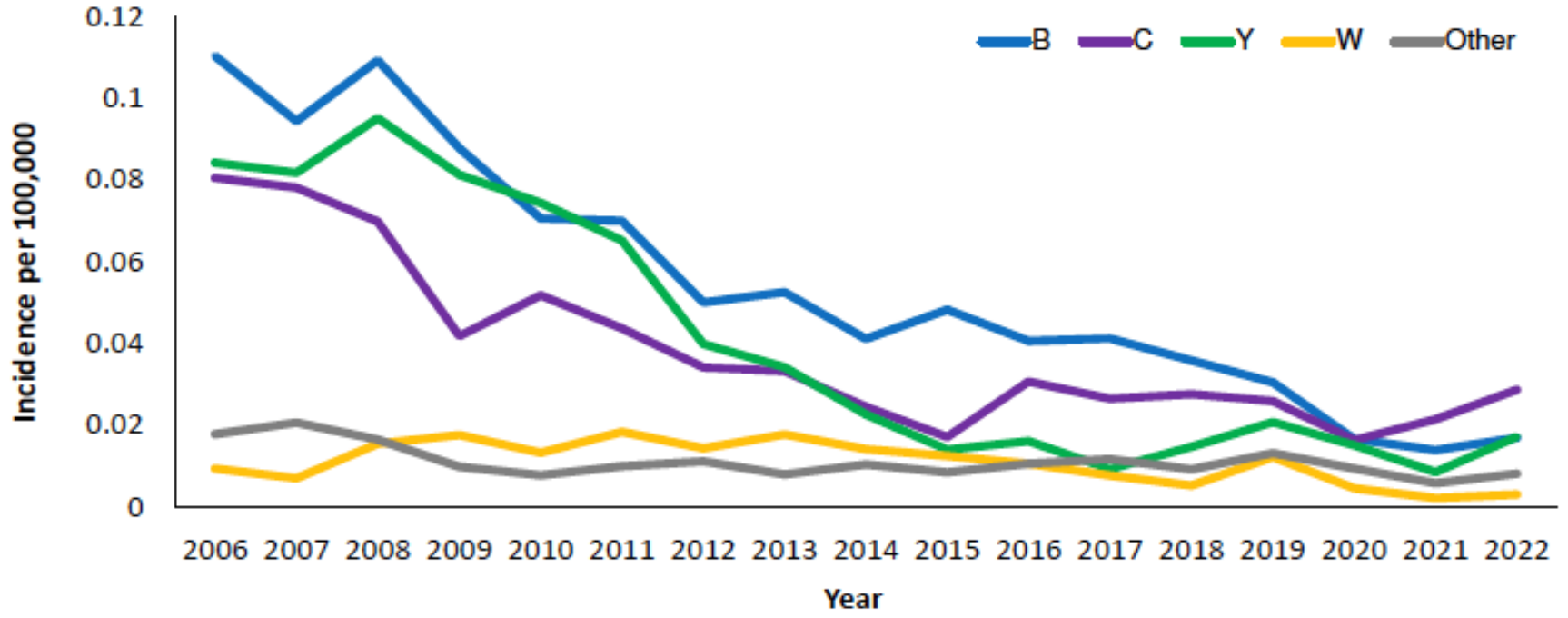
- PVST recommended for infants born to HBsAg-positive and HBsAg-unknown mothers
- Testing is recommended 1 to 2 months after completion of the final dose of the HepB vaccine series, at 9-12 months old
- PVST must include hepatitis B surface antigen (HBsAg) **AND** hepatitis B surface antibody (anti-HBs) tests

*Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. MMWR Recommendations and Reports 2018;67(No. RR-1):1–31.

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

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

8

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

Three types of Meningococcal Vaccine

Quadrivalent vaccine: Men A,C,WY

Men B Vaccines

Pentavalent Vaccine: MenABCWY

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

Meningococcal Vaccines for High Risk Persons 6 weeks – 55 years*

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 **2 months through 55 years****:

- Human immunodeficiency virus (HIV)***
- Persistent complement component deficiency, complement inhibitor
- 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 high-risk regions

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

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 people 16-23 yrs. old

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)

The 2 vaccine products are not interchangeable.

MenB-FHbp (Trumenba®)

- **2 dose schedule** – administered at 0, 6 months
  - For healthy adolescents who are not at increased risk
- **3 dose schedule** – administered at 0, 1-2, 6 months
  - For persons at increased risk and 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 meningococcal disease and for use during serogroup B outbreaks

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

Penbraya™ : licensed October 2023

ACIP Voted 10/23 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.

Meningococcal Vaccine
Booster Recommendations*

For persons at continued risk

- Meningococcal vaccine for persons who remain at increased risk
- 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.**

Rotavirus Vaccines
RotaTeq® (Merck) and Rotarix® (GSK)*

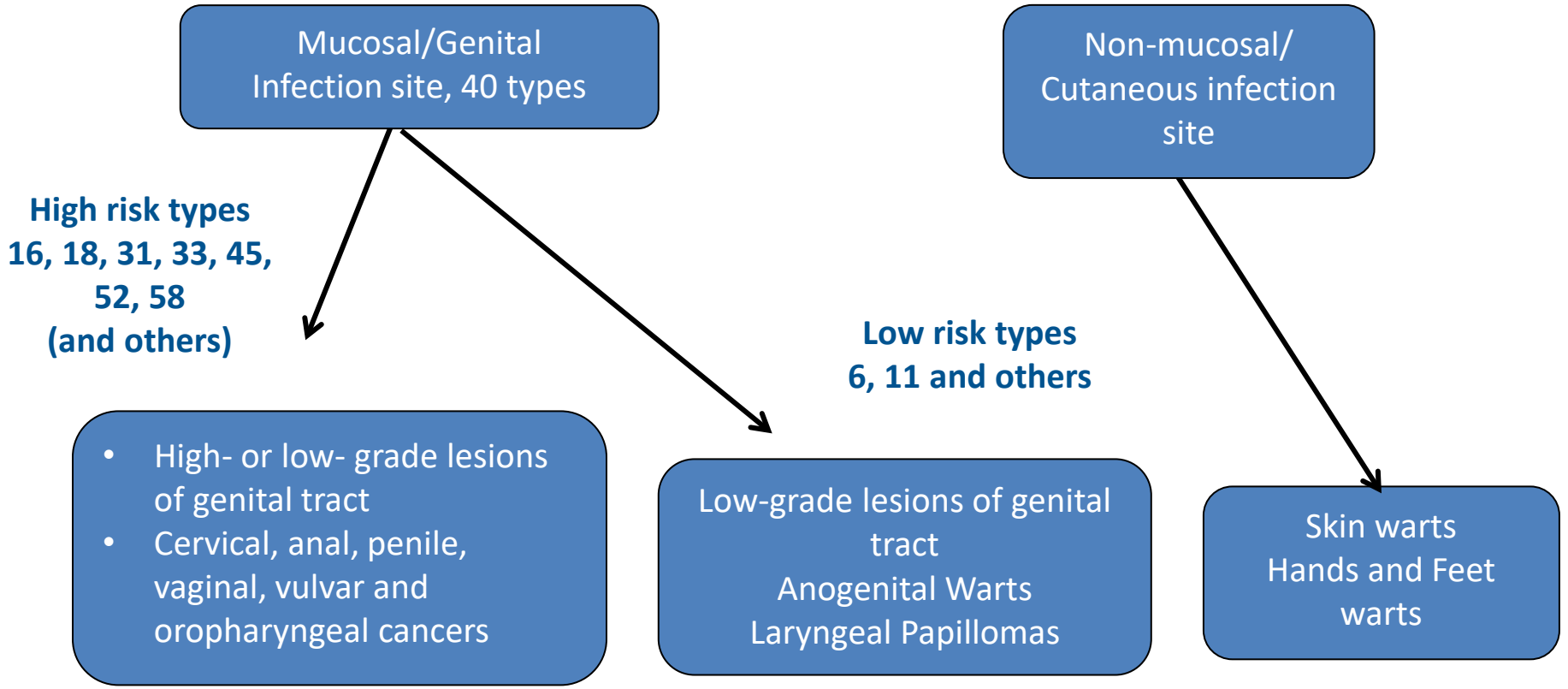
RV 5, RotaTeq®: 3 doses; ages 2, 4, 6 months
RV 1,Rotarix®: 2 doses; ages 2 and 4 months

ACIP recommendation:

- 2-3 doses depending on brand
- Administer either vaccine as directed below:
  - Minimum age for first dose: 6 weeks
  - Maximum age for first dose: 14 weeks 6 days. Do not start the series on or after age 15 weeks, 0 days
  - Minimum interval between doses: 4 weeks
  - Maximum age for any dose: 8 months, 0 days
- If any dose is Rotateq®, 3 doses are required
- Use RotaTeq® if allergy to latex

Types of Human Papilloma Virus (HPV)*

(More Than 200 Types Identified)



***Epidemiology and Prevention of Vaccine Preventable Diseases 14th Edition, 2021**
***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 age 26 who are not adequately vaccinated

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

- Use the 3-dose schedule for persons 15-45 years of age
- Based on shared clinical decision making, the series may be given to persons ages 27-45.

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:
HPV vaccine initiated after the 15th birthday or in persons with certain immunocompromising conditions should be vaccinated with the 3 dose schedule:
0, 1-2, 6 months

Dose 2 should be given at least 1-2 months after first dose (1 month min..); Dose 3 should be given at least 6 months after the first dose
(min. of 3 months between dose 2 and 3)

*MMWR, December 16, 2016, Vol 65, No. 49

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.**

Respiratory Syncytial Virus (RSV)

- mild, cold-like symptoms.
  - upper respiratory tract infection which can include rhinorrhea, pharyngitis, cough, headache, fatigue, and fever.
- Most people recover in a week or two, but RSV can be serious, especially for infants and older adults.
- Disease usually lasts <five days

- Most common cause of bronchiolitis and pneumonia in children <1 yr. old in the U.S.
- Leading cause of hospitalization in infants in the U.S.

https://www.cdc.gov/rsv/clinical/

RSV Transmission

RSV can spread when

- An infected person coughs or sneezes and droplets enter your eyes, nose, or mouth
- You have direct contact with the virus, like kissing the face of a child with RSV
- You touch a surface that has the virus on it touch your face before washing your hands

People infected with RSV are usually contagious for 3-8 days and may become contagious a day or two before they start showing signs of illness.

  - Some infants, and people with weakened immune systems can continue to spread the virus for as long as 4 weeks.

Respiratory Syncytial Virus (RSV) Prevention in Infants CDC recommendations

- Infants aged <8 months born during or entering their first Respiratory Syncytial Virus (RSV) season (typically Fall through Spring) are recommended to receive one single dose of nirsevimab (50 mg for infants <5 kg and 100 mg for infants ≥5 kg), if their mother did not receive an RSV vaccine, it is unknown if their mother received an RSV vaccine, or the mother received a vaccine but the infant was born < 14 days after vaccination.
- Children aged 8–19 months who are at increased risk of severe RSV disease and entering their second RSV season are recommended to receive one dose of nirsevimab (single 200 mg dose).

https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm

https://www.cdc.gov/vaccines/vpd/rsv/hcp/child.html

Recommendations for use of Nirsevimab

- Nirsevimab can be considered in rare circumstances even though the mother received an RSV vaccine when, per the clinical judgment of the healthcare provider, the potential incremental benefit of administration is warranted:
  - Pregnant people who may not mount an adequate immune response to vaccination (e.g., people with immunocompromising conditions) or have conditions associated with reduced transplacental antibody transfer (e.g., people living with HIV infection)
  - Infants who have had cardiopulmonary bypass leading to loss of RSV antibodies
  - Infants with substantially increased risk for severe RSV disease (e.g., hemodynamically significant congenital heart disease, intensive care admission, and requiring oxygen at discharge)

https://www.cdc.gov/vaccines/vpd/rsv/hcp/child.html and https://www.cdc.gov/rsv/clinical/index.html

New RSV Prophylaxis for Infants and Young Children

Nirsevimab (Beyfortus) is a long-term monoclonal antibody product **(It is not a vaccine)**

May be co-administered with other recommended vaccines; has resulted in a similar rate of adverse events compared with administration of vaccines alone

Nirsevimab is not expected to interfere with the immune response to vaccine products

https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm

Nirsevimab use in Young Children

Timing:

- Can be administered in most of the U.S. from October – end of March
  - For Infants born shortly before or during RSV season – should receive within 1 week of birth
- Can occur during birth hospitalization or in outpatient setting
- Optimal timing for nirsevimab administration - shortly before the RSV season begins

Dosing:

- A single dose of nirsevimab is recommended for an RSV season
- Infants with prolonged birth hospitalizations should receive nirsevimab shortly before or promptly after hospital discharge

https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm

Nirsevimab (Precautions and Contraindications)

- Recommendations for children with increased risk for bleeding*
- Contraindicated in persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a product component.
- Report adverse reactions of Nirsevimab administered alone to MedWatch online (https://www.fda.gov/medwatch), by fax, by mail, or by contacting FDA at 1-800-FDA-1088.
- Report adverse reactions of Nirsevimab co-administered with a vaccine to the Vaccine Adverse Event Reporting System (VAERS)
  - specify that the patient received nirsevimab on the VAERS form

https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm

RSV Vaccine Pregnant People

On August 21, 2023, FDA approved the first vaccine for use in pregnant individuals to prevent lower respiratory tract disease (LRTD) and severe LRTD caused by respiratory syncytial virus (RSV) in infants from birth through 6 months of age.

- Abrysvo (Pfizer) is approved for use at 32 through 36 weeks gestational age of pregnancy.
- Abrysvo (Pfizer) is administered as a single dose injection into the muscle.

Refer to: https://www.cdc.gov/rsv/clinical/index.html for formal ACIP recommendations.

Minimizing immunization errors

Vaccine providers who carry the monoclonal antibody nirsevimab (for use in infants and young children), and the adult vaccines:

- GSK RSV vaccine (Arexvy, for use in adults aged ≥60 years) or
- Pfizer RSV vaccine (Abrysvo, for use in adults aged ≥60 years and pregnant people at 32-36 weeks' gestation)

should be especially diligent in following vaccine administration safety procedures to prevent errors.

<u>To minimize risk of errors:</u>

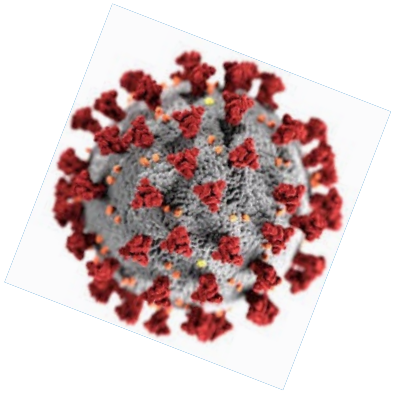
- Store GSK or Pfizer RSV vaccines and the RSV monoclonal antibody product (nirsevimab) in their original packaging on different shelves and clearly label the shelves.
- Educate staff about the differences in indication , including age for use, preparation, and dosage.
- Confirm with the patient or caregiver the product(s) they are expecting to receive.

Frequently Asked Questions- Nirsevimab

CDC: https://www.cdc.gov/vaccines/vpd/rsv/hcp/child.html

AND https://www.cdc.gov/vaccines/vpd/rsv/hcp/child-faqs.html

AAP: https://www.aap.org/en/patient-care/respiratory-syncytial-virus-rsv-prevention/nirsevimab-frequently-asked-questions/?_ga=2.47295983.930835342.1699556459-982398732.1689165195

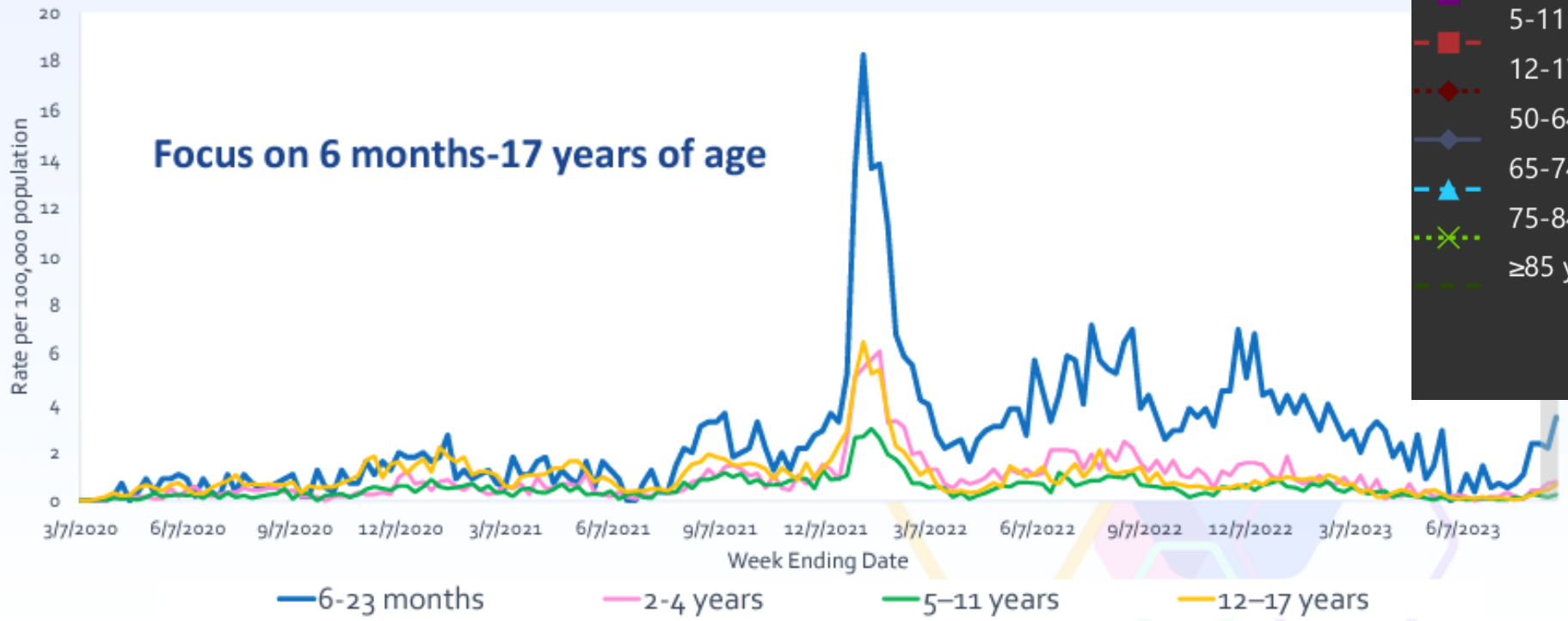


SARS-CoV-2 virus (COVID-19 disease and vaccines)

Insert slides from Full COVID-19 set or Brief Set as applicable
Also include FAQs on COVID at the end

Hospitalizations among Children and Adolescents

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



For **2023-24** season:
MMWR Week **8**

Week End Date **2/24/2024**

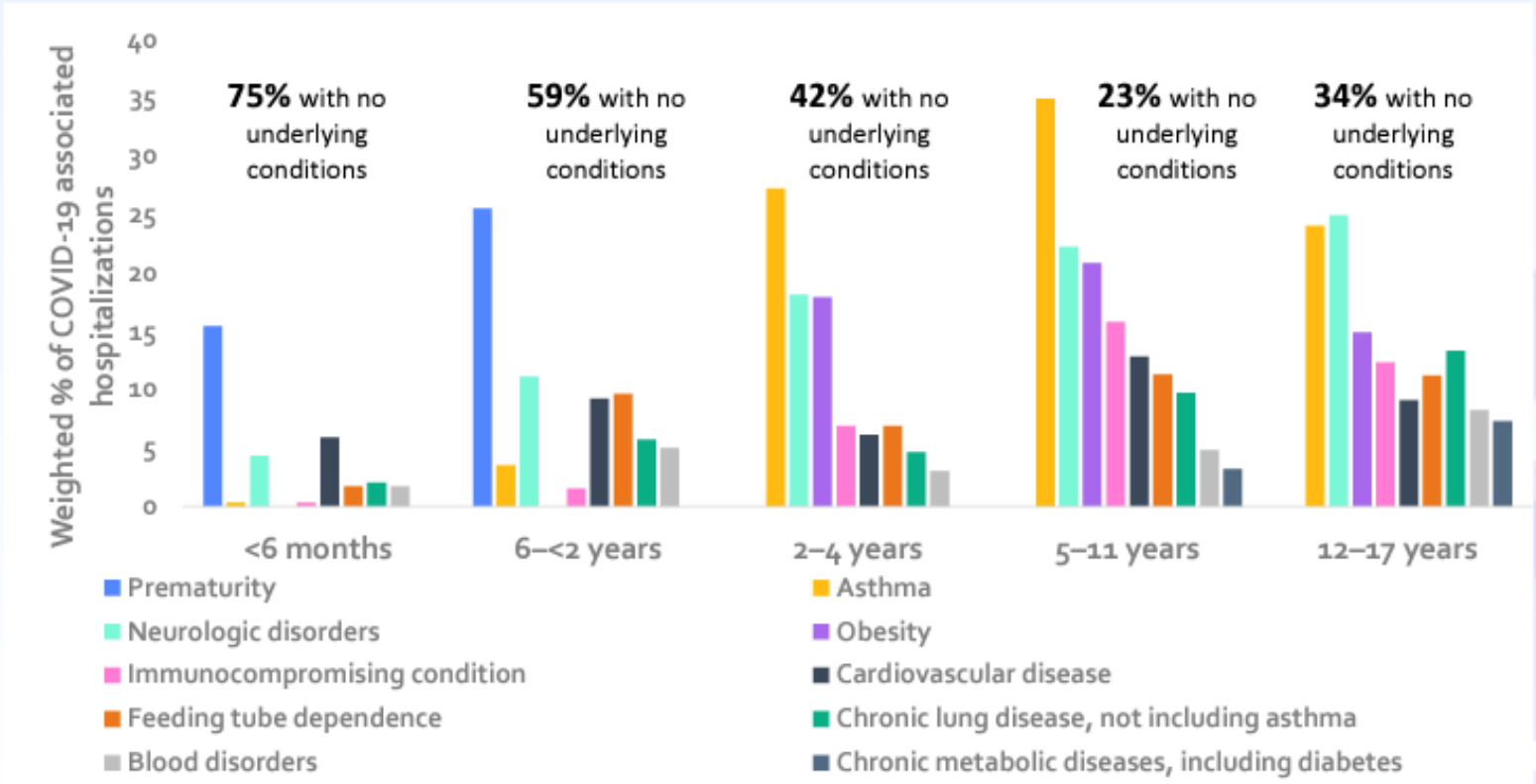
0-4 years	2.7
5-11 years	0.4
12-17 years	0.6
50-64 years	3.6
65-74 years	8.3
75-84 years	20.9
≥85 years	40.7

6

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

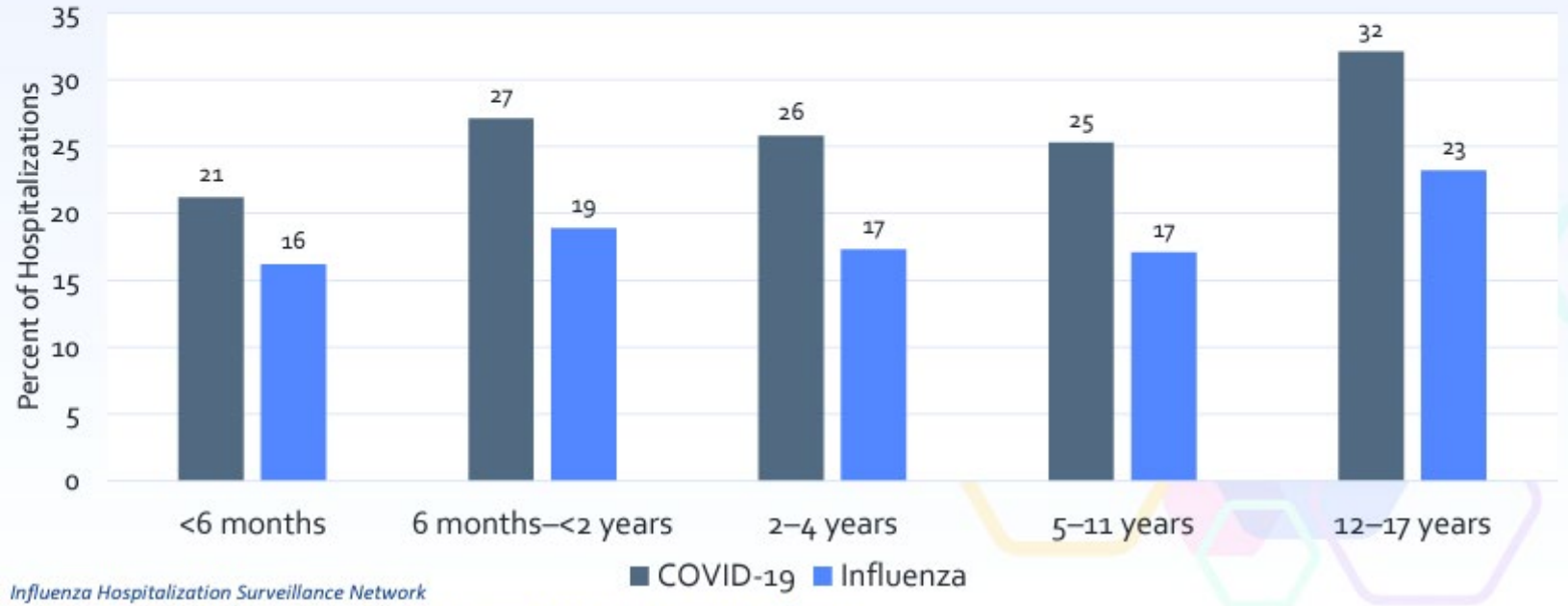


- **54%** of hospitalized infants, children, and adolescents ages ≤17 years have **no underlying medical conditions**.
- Hospitalizations children and adolescents **ages ≥5 years** are **more likely to have underlying medical conditions** relative to children and infants ages ≤4 years.

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

Staying up to date with COVID-19 vaccines

CDC recommends the 2023–2024 updated COVID-19 vaccines: Pfizer-BioNTech, Moderna, or Novavax, to protect against serious illness from COVID-19

- Everyone aged 5 years and older should get **1 dose of an updated COVID-19 vaccine** to protect against serious illness from COVID-19
- Children aged 6 months–4 years need multiple doses of COVID-19 vaccines to be up-to-date, including at least 1 dose of updated COVID-19 vaccine
- People who are moderately or severely immunocompromised may get additional doses of updated COVID-19 vaccine
- People 65 years and older may get an additional dose as well. See https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html for more details.
- COVID-19 vaccine recommendations will be updated as needed

Critical Elements for Immunization Services

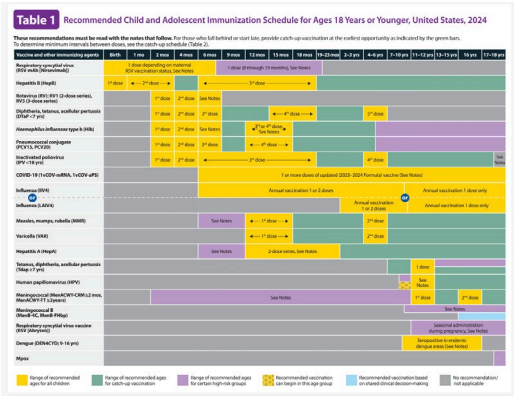
2024 Childhood and Adolescent Immunization Schedules*

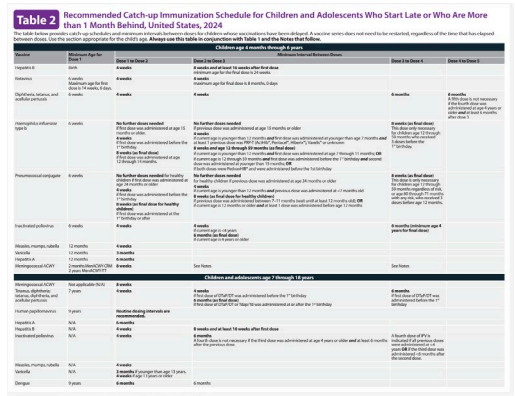
- Recommended Schedule for Children Ages 0-18 Years
- Catch-up Schedule
- Vaccines that might be indicated for children and adolescents aged 18 years or younger based on medical indications

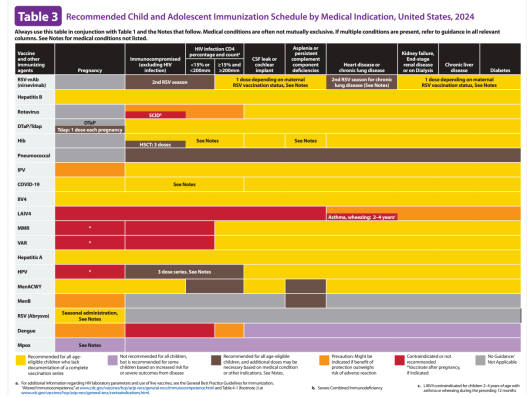
Changes

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

READ THE FOOTNOTES TO ACCESS SPECIFIC VACCINE ADMINISTRATION DETAILS!



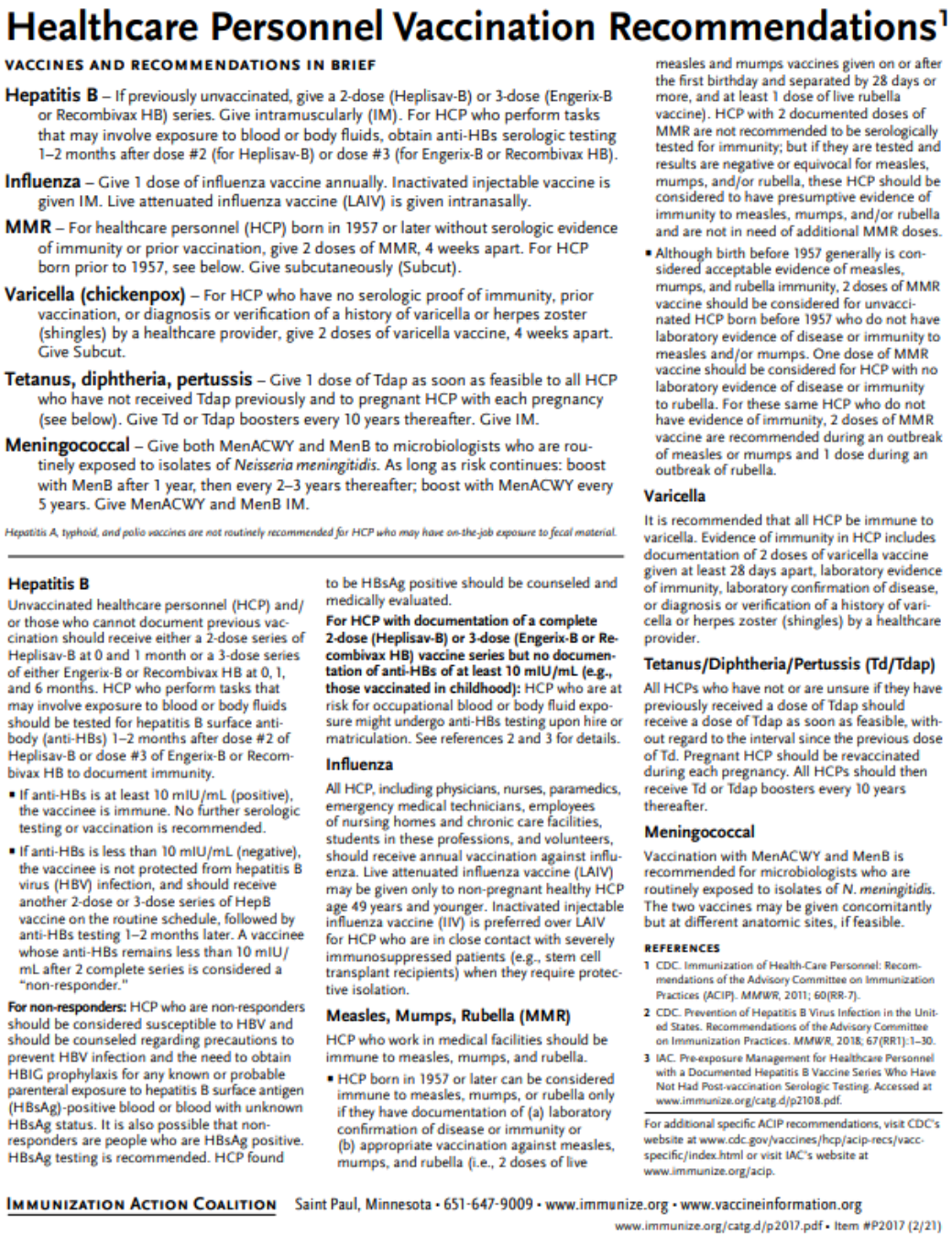




Recommended Healthcare Personnel Vaccinations

- 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 YOU 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)

Available at www.immunize.org, P#2017

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 it is necessary to transport vaccine, do NOT use dry ice. See Vaccine Storage and Handling Toolkit, Section 6 for Transport System Recommentations.
- **For COVID-19 vaccine, see specific vaccine guidelines.**

*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		

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

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

[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

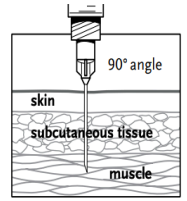
NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

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

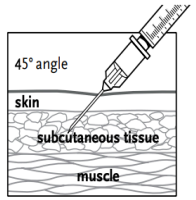
† The Shingrix vial might contain more than 0.5 mL. Do not administer more than 0.5 mL.

Intranasal (NAS) administration of Flumist (LAIV) vaccine

Intramuscular (IM) injection



Subcutaneous (Subcut) injection



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

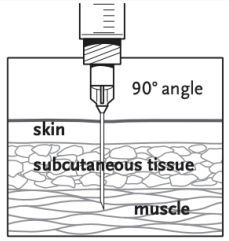
- Diphtheria-tetanus-pertussis (DTaP, Tdap)
- Diphtheria-tetanus (DT, Td)
- *Haemophilus influenzae* type b (Hib)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- Human papillomavirus (HPV)
- Inactivated influenza (IIV)
- Meningococcal serogroups A,C,W, Y (MenACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal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

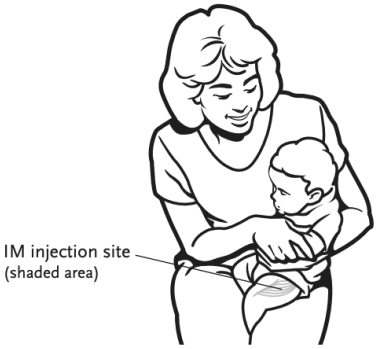
Insert needle at a 90° angle to the skin with a quick thrust.

(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.

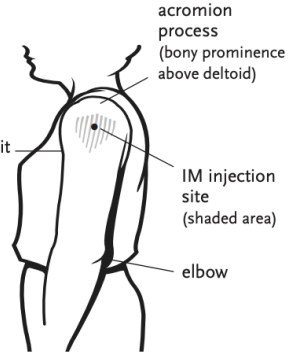
¶ CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf

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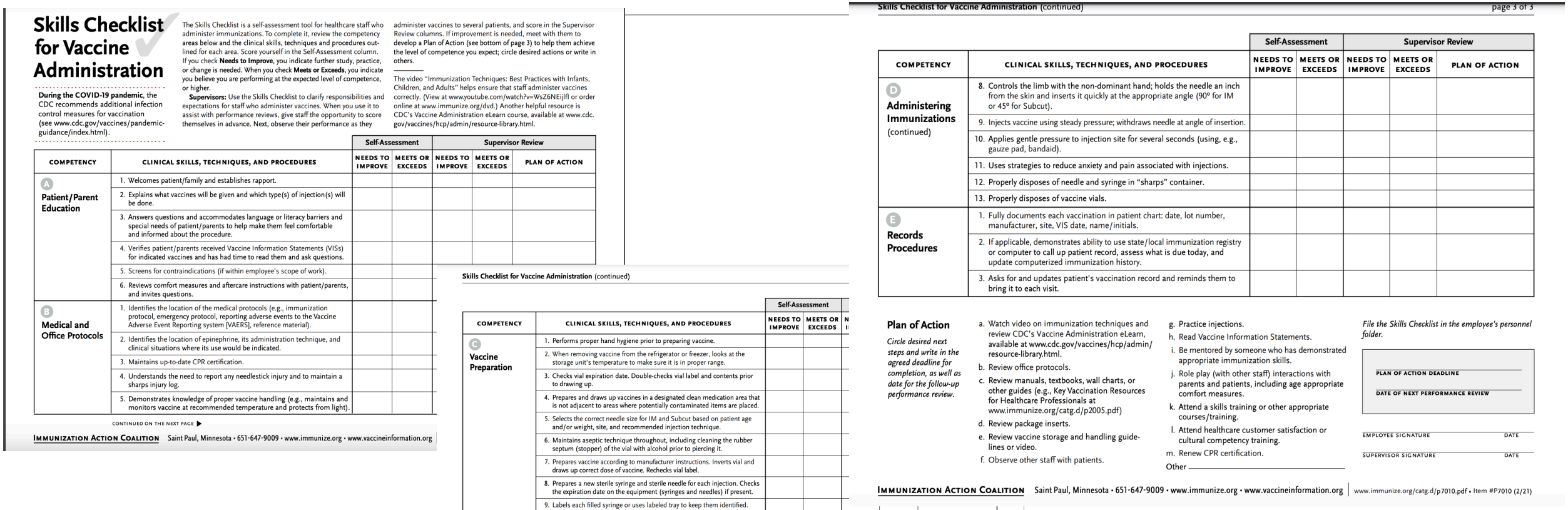
www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/18)

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		Supervisor Review		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	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).					

CONTINUED ON THE NEXT PAGE ▶

COMPETENCY	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	Self-Assessment		Supervisor Review		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	PLAN OF ACTION
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		Supervisor Review		
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	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

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

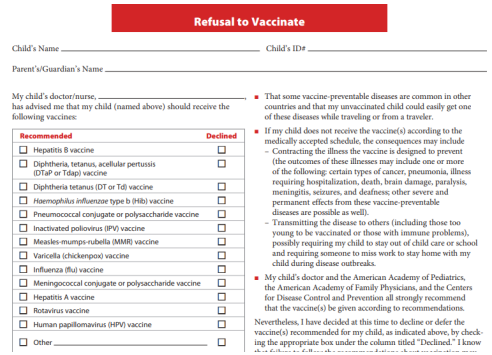
Never use partial doses from 2 or more vials to obtain a dose of vaccine.**

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

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


Refusal to Vaccinate

Child's Name _____ Child's ID# _____

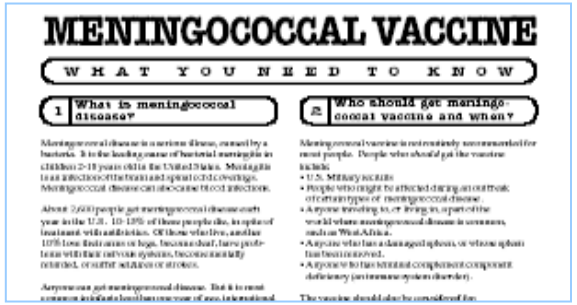
Parent's/Guardian's Name _____

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.

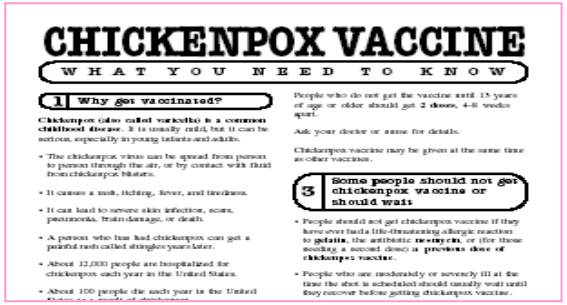
Nevertheless, I have decided at this time to decline or defer the vaccine(s) recommended for my child, as indicated above, by checking the appropriate box under the column titled "Declined." I know


MENINGOCOCCAL VACCINE

WHAT YOU NEED TO KNOW

1 What is meningococcal disease?

2 Who should get meningococcal vaccine and when?


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.

A ‘Birth to Death’ Immunization Registry

- Providers administering vaccines in Georgia must provide appropriate 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.

Exemptions From School/Day Care Requirements

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

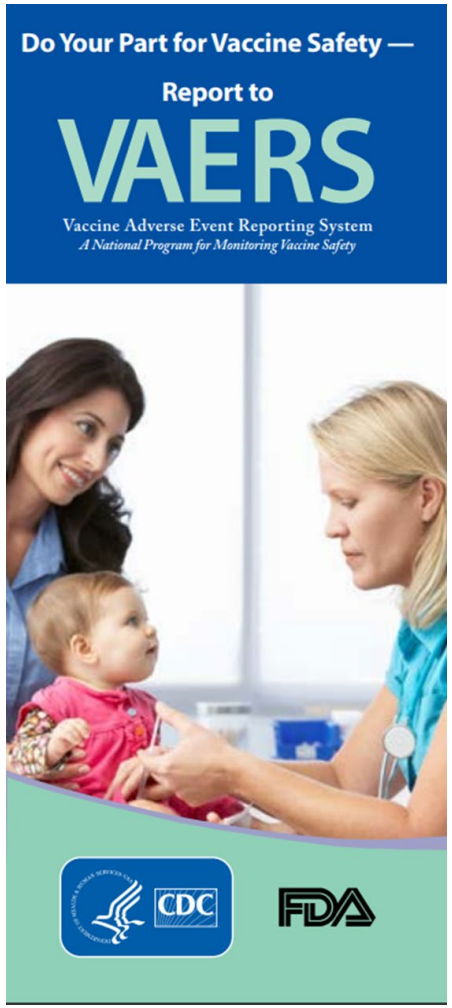
- Used when a physical disability or medical condition contraindicates a particular vaccine.
- Requires an annual review.
- The medical exemption is documented in GRITS.

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.

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 SYSTEM**
  - ✓ On line 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

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

*https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

Vaccine Risk Perception

Many parents of young children 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 (ie. chicken pox)
- Vaccines cause autism

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**

- Claims of failure to warn of consequences of failing to vaccinate have resulted in successful lawsuits
- 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 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/caretaker refusal of all vaccines

Concerns re: alternate schedules

- 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.

Anti-Vaccine Movement

- Promotes the 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 emotional side of concerned parents

Encourage parents/patients to:

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

Global Vaccine Awareness League

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

National Foundation for Infectious Diseases

WHO OMS

NNii

www.vaccinesafetynet.org

immunization action coalition
IAC
immunize.org

Georgia public health

Gavi
The Vaccine Alliance

CDC
SAFER • HEALTHIER • PEOPLE™

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
- IAC 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!

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**

Immunization Action Coalition

E-mail **admin@immunize.org**

Phone 651.647.9009

Website **www.immunize.org**

Georgia Immunization Program

E-mail **DPH-Immunization@dph.ga.gov**

Hotline 404-657-3158

Website **http://dph.georgia.gov/immunization-section**

To access PFL resources, visit: www.cdc.gov/projectfirstline/