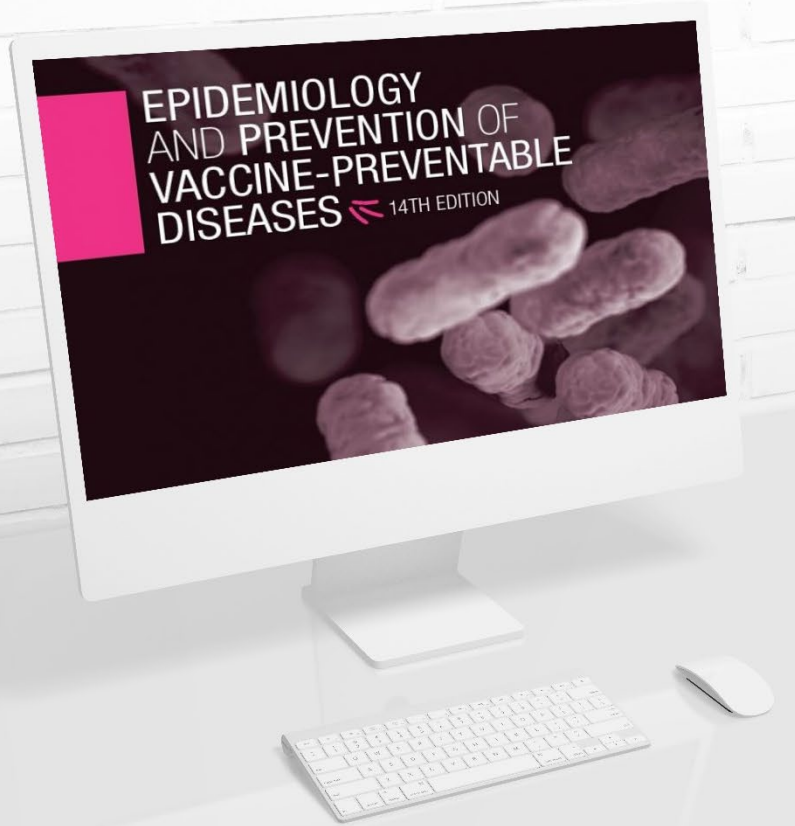
National Center for Immunization and Respiratory Diseases

Vaccine Administration

Pink Book Web-on-Demand Series

July 23, 2024



JoEllen Wolicki, BSN, RN
Nurse Educator
Immunization Services Division

Learning Objectives

- Describe the fundamental principles of the immune response.
- Describe immunization best practices.
- Describe an emerging immunization issue.
- For each vaccine-preventable disease, identify those for whom routine immunization is recommended.
- For each vaccine-preventable disease, describe characteristics of the vaccine used to prevent the disease.
- Locate current immunization resources to increase knowledge of team's role in program implementation for improved team performance.

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https://www.train.org/cdctrain/welcome

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Disclosure Statements

The findings and conclusions in this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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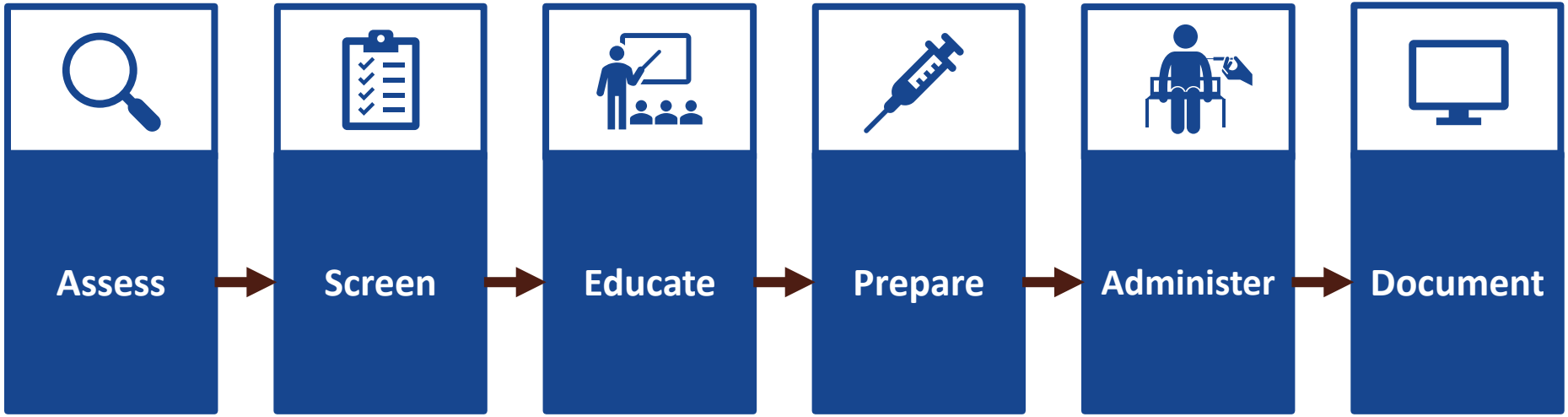
Overview

Vaccine Administration



Before Administering Vaccines

- **Review the immunization history and determine needed vaccines.**
- **Use recommended schedule based on the current age of the patient.**

Immunization Schedules | CDC
COVID-19 Vaccine Interim COVID-19 Immunization Schedule for 6 Months of Age and Older (cdc.gov)

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2024

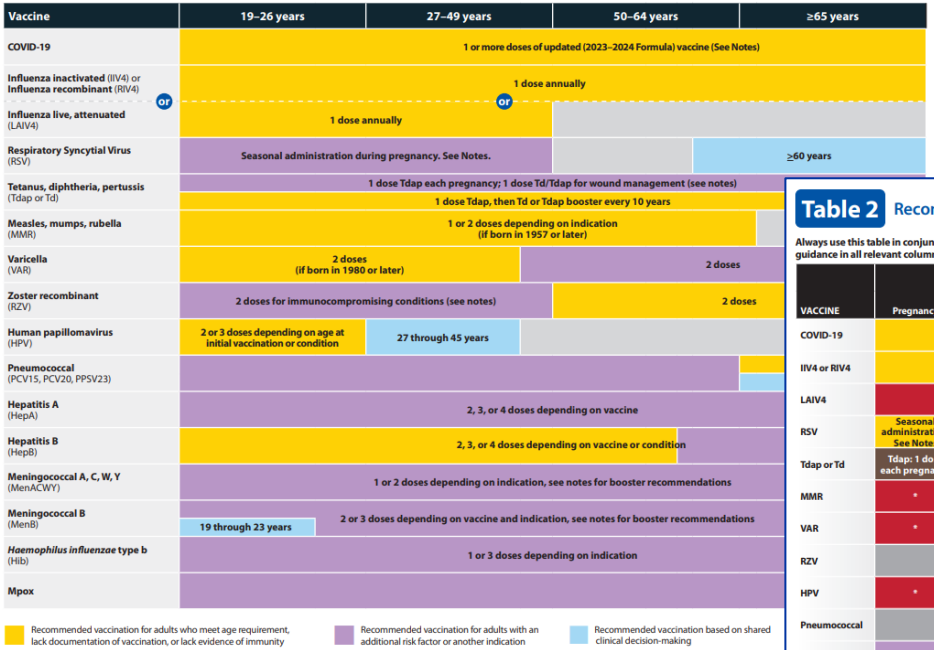


Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2024

Always use this table in conjunction with Table 1 and the Notes that follow. Medical conditions or indications are often not mutually exclusive. If multiple medical conditions or indications are present, refer to guidance in all relevant columns. See Notes for medical conditions or indications not listed.

VACCINE	Pregnancy	Immunocompromised (excluding HIV infection)	HIV infection CD4 percentage and count: <15% or <200mm³	HIV infection CD4 percentage and count: ≥15% and ≥200mm³	Men who have sex with men	Asplenia, complement deficiency	Heart or lung disease	Kidney failure, End-stage renal disease or on dialysis	Chronic liver disease; alcoholism[a]	Diabetes	Healthcare Personnel[b]
COVID-19		See Notes									
IIV4 or RIV4	1 dose annually										
LAIV4					1 dose annually if age 19–49 years		1 dose annually if age 19–49 years				
RSV	Seasonal administration. See Notes	See Notes				See Notes					
Tdap or Td	Tdap: 1 dose each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	*										
VAR	*			See Notes							
RZV		See Notes									
HPV	*	3 dose series if indicated									
Pneumococcal											
HepA											
Hep B	See Notes									Age ≥ 60 years	
MenACWY											
MenB											
Hib		HSCT: 3 doses[c]				Asplenia: 1 dose					
Mpox	See Notes				See Notes						See Notes

Recommended for all adults who lack documentation of vaccination, **OR** lack evidence of immunity

Not recommended for all adults, but recommended for some adults based on either age **OR** increased risk for or severe outcomes from disease

Recommended based on shared clinical decision-making

Recommended for all adults, and additional doses may be necessary based on medical condition or other indications. See Notes.

Precaution: Might be indicated if benefit of protection outweighs risk of adverse reaction

Contraindicated or not recommended
*Vaccinate after pregnancy, if indicated

No Guidance/ Not Applicable

a. Precaution for LAIV4 does not apply to alcoholism.

b. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations.

c. Hematopoietic stem cell transplant.

[Immunization Schedules | CDC]

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2024

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

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Children age 4 months through 6 years					
Hepatitis B	Birth	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose** minimum age for the final dose is 24 weeks		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days.	**4 weeks**	**4 weeks** maximum age for final dose is 8 months, 0 days		
Diphtheria, tetanus, and acellular pertussis	6 weeks	**4 weeks**	**4 weeks**	**6 months**	**6 months** A fifth dose is not necessary if the fourth dose was administered at age 4 years or older ***and*** at least 6 months after dose 3
Haemophilus influenzae type b	6 weeks	**No further doses needed** if first dose was administered at age 15 months or older. **4 weeks** if first dose was administered before the 1st birthday. **8 weeks (as final dose)** if first dose was administered at age 12 through 14 months.	**No further doses needed** if previous dose was administered at age 15 months or older **4 weeks** if current age is younger than 12 months ***and*** first dose was administered at younger than age 7 months ***and*** at least 1 previous dose was PRP-T (ActHib®, Pentacel®, Hiberix®), Vaxelis® or unknown **8 weeks *and* age 12 through 59 months (as final dose)** if current age is younger than 12 months ***and*** first dose was administered at age 7 through 11 months; **OR** if current age is 12 through 59 months ***and*** first dose was administered before the 1st birthday ***and*** second dose was administered at younger than 15 months; **OR** if both doses were PedvaxHIB® and were administered before the 1st birthday	**8 weeks (as final dose)** This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	**No further doses needed** for healthy children if first dose was administered at age 24 months or older **4 weeks** if first dose was administered before the 1st birthday **8 weeks (as final dose for healthy children)** if first dose was administered at the 1st birthday or after	**No further doses needed** for healthy children if previous dose was administered at age 24 months or older **4 weeks** if current age is younger than 12 months ***and*** previous dose was administered at <7 months old **8 weeks (as final dose for healthy children)** if previous dose was administered between 7–11 months (wait until at least 12 months old); **OR** if current age is 12 months or older ***and*** at least 1 dose was administered before age 12 months	**8 weeks (as final dose)** This dose is only necessary for children age 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months.	
Inactivated poliovirus	6 weeks	**4 weeks**	**4 weeks** if current age is <4 years **6 months (as final dose)** if current age is 4 years or older	**6 months (minimum age 4 years for final dose)**	
Measles, mumps, rubella	12 months	**4 weeks**			
Varicella	12 months	**3 months**			
Hepatitis A	12 months	**6 months**			
Meningococcal ACWY	2 months MenACWY-CRM 2 years MenACWY-TT	**8 weeks**	See Notes	See Notes	
Children and adolescents age 7 through 18 years					
Meningococcal ACWY	Not applicable (N/A)	**8 weeks**			
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis	7 years	**4 weeks**	**4 weeks** if first dose of DTaP/DT was administered before the 1st birthday **6 months (as final dose)** if first dose of DTaP/DT or Tdap/Td was administered at or after the 1st birthday	**6 months** if first dose of DTaP/DT was administered before the 1st birthday	
Human papillomavirus	9 years	**Routine dosing intervals are recommended.**			
Hepatitis A	N/A	**6 months**			
Hepatitis B	N/A	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose**		
Inactivated poliovirus	N/A	**4 weeks**	**6 months** A fourth dose is not necessary if the third dose was administered at age 4 years or older ***and*** at least 6 months after the previous dose.	A fourth dose of IPV is indicated if all previous doses were administered at <4 years **OR** if the third dose was administered <6 months after the second dose.	
Measles, mumps, rubella	N/A	**4 weeks**			
Varicella	N/A	**3 months** if younger than age 13 years. **4 weeks** if age 13 years or older			
Dengue	9 years	**6 months**	6 months		

Catch-Up Guidance for Children 7 through 9 Years of Age

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

The table below provides guidance for children whose vaccinations have been delayed. Start with the child's age and information on previous doses (previous doses must be documented and must meet minimum age requirements and minimum intervals between doses). Use this table in conjunction with table 2 of the Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, found at www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html.

IF current age is	AND # of previous doses of DTaP, DT, Td, or Tdap is	AND	AND	AND	THEN	Next dose due
7 through 9 years[1,2]	Unknown or 0	→	→	→	Give Dose 1 (Tdap) today	Give Dose 2 (Td or Tdap) at least 4 weeks after Dose 1
	1	Dose 1 was given **before** 12 months of age	→	→	Give Dose 2 (Tdap) today	Give Dose 3 (Td or Tdap) at least 4 weeks after Dose 2
		Dose 1 was given at 12 months of age or older	It has been at least 4 weeks since Dose 1	Dose 1 was Tdap	Give Dose 2 (Td or Tdap) today	Give Dose 3 (Td or Tdap) at least 6 calendar months after Dose 2
				Dose 1 was **not** Tdap	Give Dose 2 (Tdap) today	
			It has **not** been at least 4 weeks since Dose 1	Dose 1 was Tdap	No dose today	Give Dose 2 (Td or Tdap) at least 4 weeks after Dose 1
				Dose 1 was **not** Tdap		Give Dose 2 (Tdap) at least 4 weeks after Dose 1
	2	Dose 1 was given **before** 12 months of age	It has been at least 4 weeks since Dose 2	Dose 2 was Tdap[3]	Give Dose 3 (Td or Tdap) today	Give Dose 4 (Td or Tdap) at least 6 calendar months after Dose 3
				No dose was Tdap	Give Dose 3 (Tdap) today	
			It has **not** been at least 4 weeks since Dose 2	Dose 2 was Tdap	No dose today	Give Dose 3 (Td or Tdap) at least 4 weeks after Dose 2
				No dose was Tdap		Give Dose 3 (Tdap) at least 4 weeks after Dose 2
		Dose 1 was given at 12 months of age or older	It has been at least 6 calendar months since Dose 2	Any dose was Tdap[1]	Give Dose 3 (Td or Tdap) today	Give Tdap at 11–12 years of age[1,3]
				No dose was Tdap	Give Dose 3 (Tdap) today	
			It has **not** been at least 6 calendar months since Dose 2	Any dose was Tdap[1]	No dose today	Give Dose 3 (Td or Tdap) at least 6 calendar months after Dose 2[1]
				No dose was Tdap		Give Dose 3 (Tdap) at least 6 calendar months after Dose 2

[1] For persons 7–9 years of age who receive a dose of Tdap, the routine adolescent Tdap dose should be administered at age 11–12 years.

[2] DTaP inadvertently given to an undervaccinated child at age 7–9 years should be counted as Tdap dose of the catch-up series.

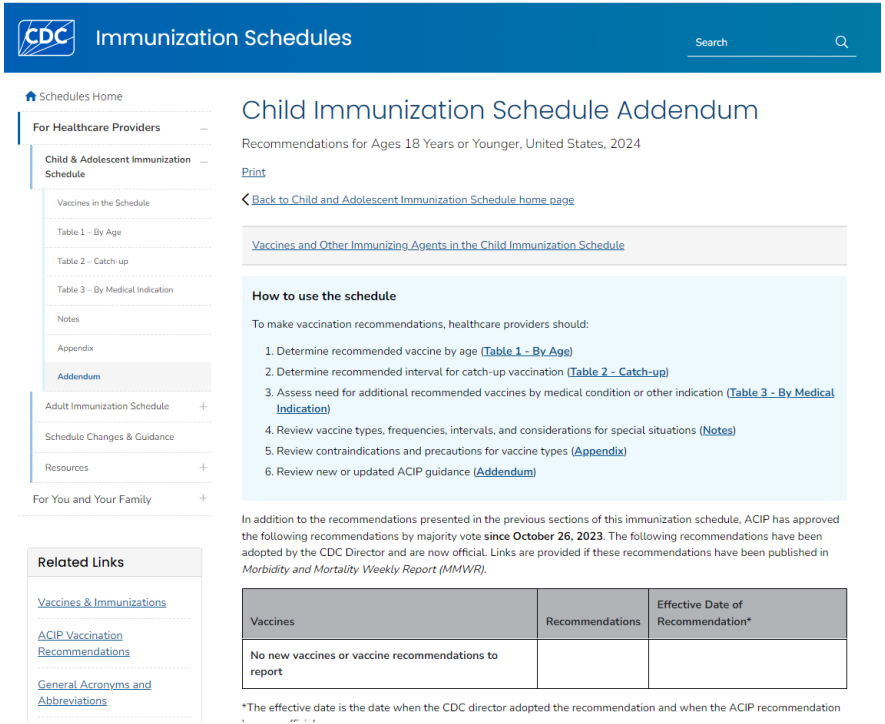
[3] Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

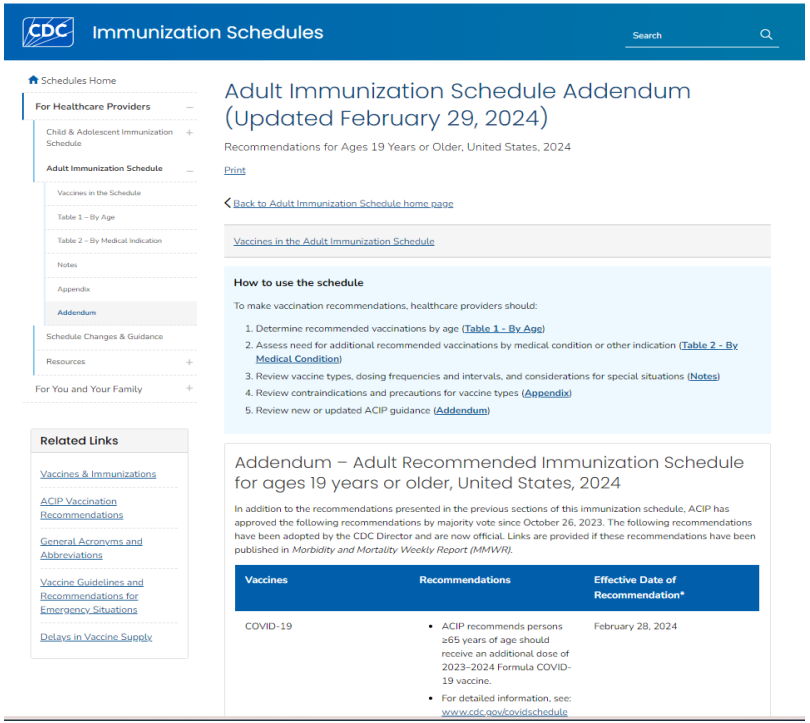
Reference: Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger—United States, 2024. www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf

Birth-18 Years Immunization Schedule – Healthcare Providers | CDC

Immunization Schedule Changes | CDC

Locating Schedule Changes and Updated Guidance





Immunization Schedule Changes | CDC

Recommended Child and Adolescent Immunization Schedule
for ages 18 years or younger

UNITED STATES
2024

Vaccines and Other Immunizing Agents in the Child and Adolescent Immunization Schedule*

Monoclonal antibody	Abbreviation(s)	Trade name(s)
Respiratory syncytial virus monoclonal antibody (Nirsevimab)	**RSV-mAb**	Beyfortus™
Vaccine	**Abbreviation(s)**	**Trade name(s)**
COVID-19	**1vCOV-mRNA**	Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine Spikevax®/Moderna COVID-19 Vaccine
	1vCOV-aPS	Novavax COVID-19 Vaccine
Dengue vaccine	**DEN4CYD**	Dengvaxia®
Diphtheria, tetanus, and acellular pertussis vaccine	**DTaP**	Daptacel® Infanrix®
Haemophilus influenzae type b vaccine	**Hib (PRP-T)**	ActHIB® Hiberix® PedvaxHIB®
	Hib (PRP-OMP)	
Hepatitis A vaccine	**HepA**	Havrix® Vaqta®
Hepatitis B vaccine	**HepB**	Engerix-B® Recombivax HB®
Human papillomavirus vaccine	**HPV**	Gardasil 9®
Influenza vaccine (inactivated)	**IIV4**	Multiple
Influenza vaccine (live, attenuated)	**LAIV4**	FluMist® Quadrivalent
Measles, mumps, and rubella vaccine	**MMR**	M-M-R II® Priorix®
Meningococcal serogroups A, C, W, Y vaccine	**MenACWY-CRM**	Menveo®
	MenACWY-TT	MenQuadfi®
Meningococcal serogroup B vaccine	**MenB-4C**	Bexsero®
	MenB-FHbp	Trumenba®
Meningococcal serogroup A, B, C, W, Y vaccine	**MenACWY-TT/ MenB-FHbp**	Penbraya™
Mpox vaccine	**Mpox**	Jynneos®
Pneumococcal conjugate vaccine	**PCV15** **PCV20**	Vaxneuvance™ Prevnar 20®
Pneumococcal polysaccharide vaccine	**PPSV23**	Pneumovax 23®
Poliovirus vaccine (inactivated)	**IPV**	Ipol®
Respiratory syncytial virus vaccine	**RSV**	Abrysvo™
Rotavirus vaccine	**RV1** **RV5**	Rotarix® RotaTeq®
Tetanus, diphtheria, and acellular pertussis vaccine	**Tdap**	Adacel® Boostrix®
Tetanus and diphtheria vaccine	**Td**	Tenivac® Tdvax™
Varicella vaccine	**VAR**	Varivax®
Combination vaccines *(use combination vaccines instead of separate injections when appropriate)*		
DTaP, hepatitis B, and inactivated poliovirus vaccine	**DTaP-HepB-IPV**	Pediarix®
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	**DTaP-IPV/Hib**	Pentacel®
DTaP and inactivated poliovirus vaccine	**DTaP-IPV**	Kinrix® Quadracel®
DTaP, inactivated poliovirus, *Haemophilus influenzae* type b, and hepatitis B vaccine	**DTaP-IPV-Hib-HepB**	Vaxelis®
Measles, mumps, rubella, and varicella vaccine	**MMRV**	ProQuad®

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

11/16/2023

How to use the child and adolescent immunization schedule

1. Determine recommended vaccine by age **(Table 1)**
2. Determine recommended interval for catch-up vaccination **(Table 2)**
3. Assess need for additional recommended vaccines by medical condition or other indication **(Table 3)**
4. Review vaccine types, frequencies, intervals, and considerations for special situations **(Notes)**
5. Review contraindications and precautions for vaccine types **(Appendix)**
6. Review new or updated ACIP guidance **(Addendum)**

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), and National Association of Pediatric Nurse Practitioners (www.napnap.org).

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html

Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual

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

Scan QR code for access to online schedule

CS310020-D

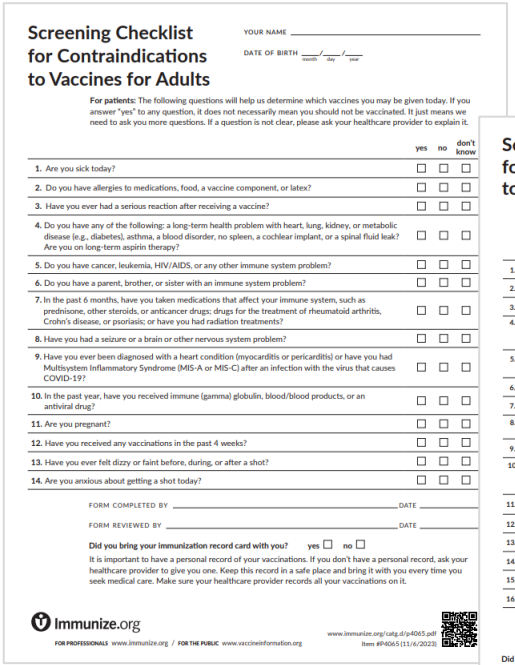
Scan the QR Code for updates

Screening for Contraindications and Precautions

- **Screen for contraindications and precautions every time a vaccine is given.**
- **Provide after-care instructions.**

Screening Checklists about Vaccine Contraindications and Precautions (immunize.org)

Screening for Contraindications and Precautions



Screening Checklist for Contraindications to Vaccines for Adults

YOUR NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

For patients: The following questions will help us determine which vaccines you may be given today. If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated. It just means we need to ask you more questions. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Are you sick today?	☐	☐	☐
2. Do you have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Have you ever had a serious reaction after receiving a vaccine?	☐	☐	☐
4. Do you have any of the following: a long-term health problem with heart, lung, kidney, or metabolic disease (e.g., diabetes), asthma, a blood disorder, no spleen, a cochlear implant, or a spinal fluid leak? Are you on long-term aspirin therapy?	☐	☐	☐
5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
6. Do you have a parent, brother, or sister with an immune system problem?	☐	☐	☐
7. In the past 6 months, have you taken medications that affect your immune system, such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments?	☐	☐	☐
8. Have you had a seizure or a brain or other nervous system problem?	☐	☐	☐
9. Have you ever been diagnosed with a heart condition (myocarditis or pericarditis) or have you had Multisystem Inflammatory Syndrome (MIS-A or MIS-C) after an infection with the virus that causes COVID-19?	☐	☐	☐
10. In the past year, have you received immune (gamma) globulin, blood/blood products, or an antiviral drug?	☐	☐	☐
11. Are you pregnant?	☐	☐	☐
12. Have you received any vaccinations in the past 4 weeks?	☐	☐	☐
13. Have you ever felt dizzy or faint before, during, or after a shot?	☐	☐	☐
14. Are you anxious about getting a shot today?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? yes ☐ no ☐

It is important to have a personal record of your vaccinations. If you don't have a personal record, ask your healthcare provider to give you one. Keep this record in a safe place and bring it with you every time you seek medical care. Make sure your healthcare provider records all your vaccinations on it.

Immunize.org

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

www.immunize.org/catg.d/p4065.pdf
Item #P4065 (11/6/2023)

Screening Checklist for Contraindications to Vaccines for Children and Teens

PATIENT NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

For parents/guardians: The following questions will help us determine which vaccines your child may be given today. If you answer "yes" to any question, it does not necessarily mean your child should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Is the child sick today?	☐	☐	☐
2. Does the child have allergies to medicine, food, a vaccine component, or latex?	☐	☐	☐
3. Has the child had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Does the child have a long-term health problem with heart, lung (including asthma), kidney, liver, nervous system, or metabolic disease (e.g., diabetes), a blood disorder, no spleen, a cochlear implant, or a spinal fluid leak? Are they taking regular aspirin or salicylate medication?	☐	☐	☐
5. For children age 2 through 4 years: Has a healthcare provider told you that the child had wheezing or asthma in the past 12 months?	☐	☐	☐
6. For babies: Have you ever been told the child had intussusception?	☐	☐	☐
7. Has the child, a sibling, or a parent had a seizure; has the child had a brain or other nervous system problem?	☐	☐	☐
8. Has the child ever been diagnosed with a heart condition (myocarditis or pericarditis) or have they had Multisystem Inflammatory Syndrome (MIS-C) after an infection with the virus that causes COVID-19?	☐	☐	☐
9. Does the child have an immune-system problem such as cancer, leukemia, HIV/AIDS?	☐	☐	☐
10. In the past 6 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs to treat rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
11. Does the child's parent or sibling have an immune system problem?	☐	☐	☐
12. In the past year, has the child received immune (gamma) globulin, blood/blood products, or an antiviral drug?	☐	☐	☐
13. Is the child/teen pregnant?	☐	☐	☐
14. Has the child received vaccinations in the past 4 weeks?	☐	☐	☐
15. Has the child ever felt dizzy or faint before, during, or after a shot?	☐	☐	☐
16. Is the child anxious about getting a shot today?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? yes ☐ no ☐

It is important to have a personal record of your child's vaccinations. If you don't have one, ask the child's healthcare provider to give you one with all your child's vaccinations on it. Keep it in a safe place and bring it with you every time you seek medical care for your child. Your child will need this document to enter day care or school, for employment, or for international travel.

Immunize.org

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

www.immunize.org/catg.d/p4060.pdf
Item #P4060 (12/15/2023)
Scan for PDF

[Screening Checklists about Vaccine Contraindications and Precautions (immunize.org)]

You are patients' and parents' **most trusted** source of information on vaccines.

About Vaccine Conversations

Current research shows that

- People don’t know much about vaccine-preventable diseases.
- People want to hear consistent information from sources they consider credible.
- People cited the internet as a frequent source of vaccine information.

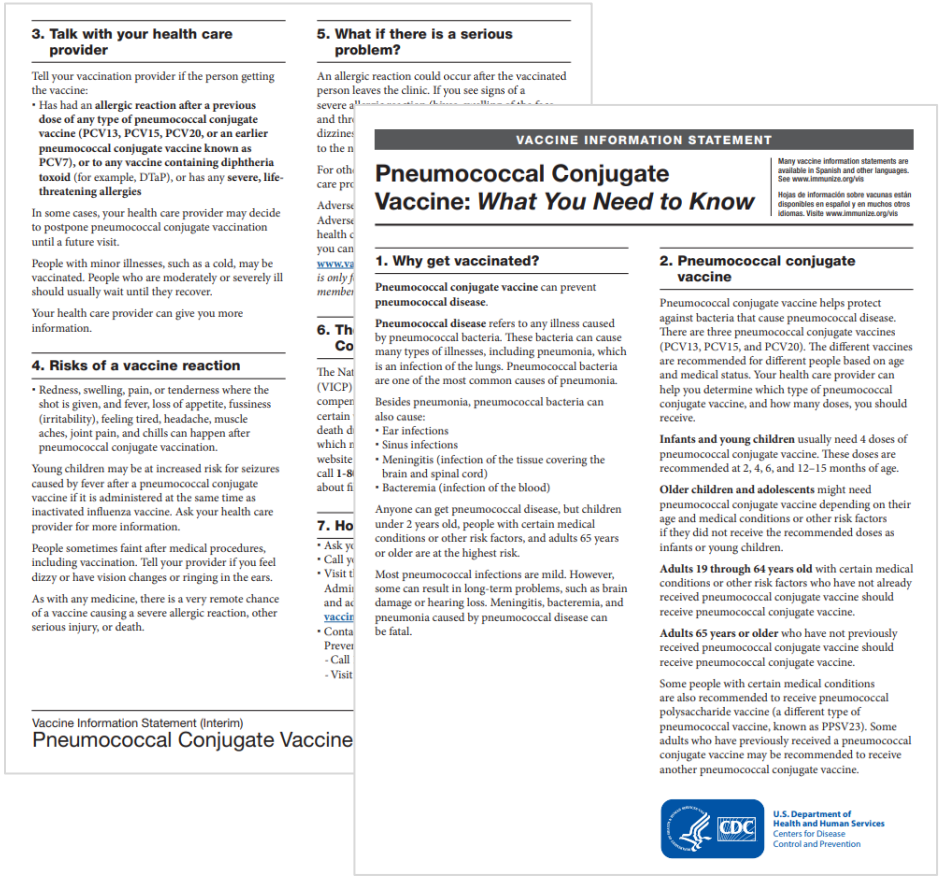
Your Opportunity!

- **Provide information to keep vaccine conversations going.**
- **Connect parents, patients, and caregivers with reliable information.**

About the Vaccine Conversations with Parents Campaign | CDC
Vaccination Resources for Educating Adult Patients | CDC

Educating Patients and Parents

- **Use Vaccine Information Statements (VIS) and other reliable resources to discuss:**
  - Benefits and risks of vaccination
  - Risks of vaccine-preventable disease risks



3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:

- Has had an **allergic reaction after a previous dose of any type of pneumococcal conjugate vaccine (PCV13, PCV15, PCV20, or an earlier pneumococcal conjugate vaccine known as PCV7), or to any vaccine containing diphtheria toxoid** (for example, DTaP), or has any **severe, life-threatening allergies**

In some cases, your health care provider may decide to postpone pneumococcal conjugate vaccination until a future visit.

People with minor illnesses, such as a cold, may be vaccinated. People who are moderately or severely ill should usually wait until they recover.

Your health care provider can give you more information.

4. Risks of a vaccine reaction

- Redness, swelling, pain, or tenderness where the shot is given, and fever, loss of appetite, fussiness (irritability), feeling tired, headache, muscle aches, joint pain, and chills can happen after pneumococcal conjugate vaccination.

Young children may be at increased risk for seizures caused by fever after a pneumococcal conjugate vaccine if it is administered at the same time as inactivated influenza vaccine. Ask your health care provider for more information.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

5. What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a

Vaccine Information Statement (Interim)
Pneumococcal Conjugate Vaccine

VACCINE INFORMATION STATEMENT

Pneumococcal Conjugate Vaccine: *What You Need to Know*

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

Pneumococcal conjugate vaccine can prevent **pneumococcal disease**.

Pneumococcal disease refers to any illness caused by pneumococcal bacteria. These bacteria can cause many types of illnesses, including pneumonia, which is an infection of the lungs. Pneumococcal bacteria are one of the most common causes of pneumonia.

Besides pneumonia, pneumococcal bacteria can also cause:

- Ear infections
- Sinus infections
- Meningitis (infection of the tissue covering the brain and spinal cord)
- Bacteremia (infection of the blood)

Anyone can get pneumococcal disease, but children under 2 years old, people with certain medical conditions or other risk factors, and adults 65 years or older are at the highest risk.

Most pneumococcal infections are mild. However, some can result in long-term problems, such as brain damage or hearing loss. Meningitis, bacteremia, and pneumonia caused by pneumococcal disease can be fatal.

2. Pneumococcal conjugate vaccine

Pneumococcal conjugate vaccine helps protect against bacteria that cause pneumococcal disease. There are three pneumococcal conjugate vaccines (PCV13, PCV15, and PCV20). The different vaccines are recommended for different people based on age and medical status. Your health care provider can help you determine which type of pneumococcal conjugate vaccine, and how many doses, you should receive.

Infants and young children usually need 4 doses of pneumococcal conjugate vaccine. These doses are recommended at 2, 4, 6, and 12–15 months of age.

Older children and adolescents might need pneumococcal conjugate vaccine depending on their age and medical conditions or other risk factors if they did not receive the recommended doses as infants or young children.

Adults 19 through 64 years old with certain medical conditions or other risk factors who have not already received pneumococcal conjugate vaccine should receive pneumococcal conjugate vaccine.

Adults 65 years or older who have not previously received pneumococcal conjugate vaccine should receive pneumococcal conjugate vaccine.

Some people with certain medical conditions are also recommended to receive pneumococcal polysaccharide vaccine (a different type of pneumococcal vaccine, known as PPSV23). Some adults who have previously received a pneumococcal conjugate vaccine may be recommended to receive another pneumococcal conjugate vaccine.

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

Vaccine Information Statement | Current VISs | CDC

Ways To Give a Vaccine Information Statement (VIS)

- **Paper copies**
- **Permanent, laminated office copies**
- **Viewed on a computer monitor or other video display**
- **Read on their phone or other digital device**
- **VIS may be given during a prior visit, or told how to access it through the internet, so they can read it in advance. These patients must still be offered a copy to read during the immunization visit, as a reminder.**

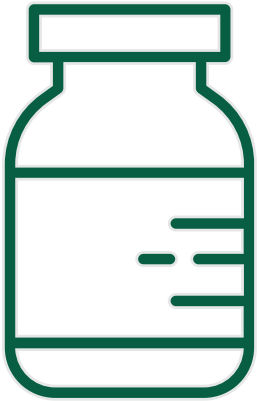
Vaccine Information Statement: Facts About VISs | CDC
Vaccine Information Statements | Immunize.org

2

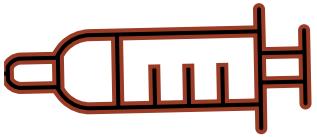
Vaccine Preparation

Vaccine Presentations

Single-Dose Vial
(SDV)



Multidose Vial
(MDV)



Manufacturer-Filled
Syringe (MFS)

Vaccine Presentations: Single-Dose Vials

Single-Dose Vial (SDV)

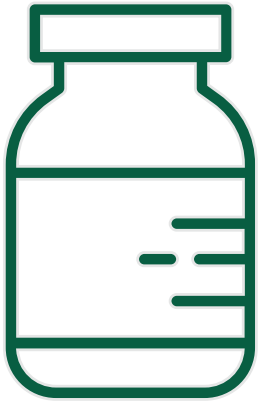
Multidose Vial (MDV)

Manufacturer-Filled Syringe (MFS)

Preventing Unsafe Injection Practices | Injection Safety | CDC

Vaccine Presentations: Multidose Vials

Single-Dose Vial (SDV)



Multidose Vial (MDV)

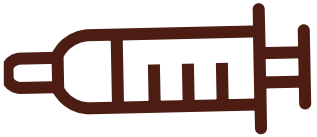
Manufacturer-Filled Syringe (MFS)

Preventing Unsafe Injection Practices | Injection Safety | CDC

Vaccine Presentations: Manufacturer-Filled Syringes

Single-Dose Vial (SDV)

Multidose Vial (MDV)



Manufacturer-Filled Syringe (MFS)

Preventing Unsafe Injection Practices | Injection Safety | CDC

Vaccine Preparation Best Practices (1)

- **Use a designated, clean medication area.**
- **If possible, declare the preparation area a "Quiet Zone" or "No Interruptions Area."**

Injection Safety | CDC

Vaccine Preparation Best Practices (2)

- **Perform hand hygiene before preparing vaccines.**
- **Follow strict aseptic medication preparation practices.**
  - Use a new needle and syringe for each injection.

Preventing Unsafe Injection Practices | Injection Safety | CDC
About Hand Hygiene for Patients in Healthcare Settings | Clean Hands | CDC

Vaccine Preparation Best Practices (3)

- **Administer only vaccines you have prepared.**
- **Prepare vaccines:**
  - Just before you are ready to administer them.
  - For one patient at a time.
- **If drawing up multiple vaccines, syringes should be labelled to identify which vaccine each syringe contains.**

Preventing Unsafe Injection Practices | Injection Safety | CDC
Vaccines Storage and Handling Toolkit | CDC

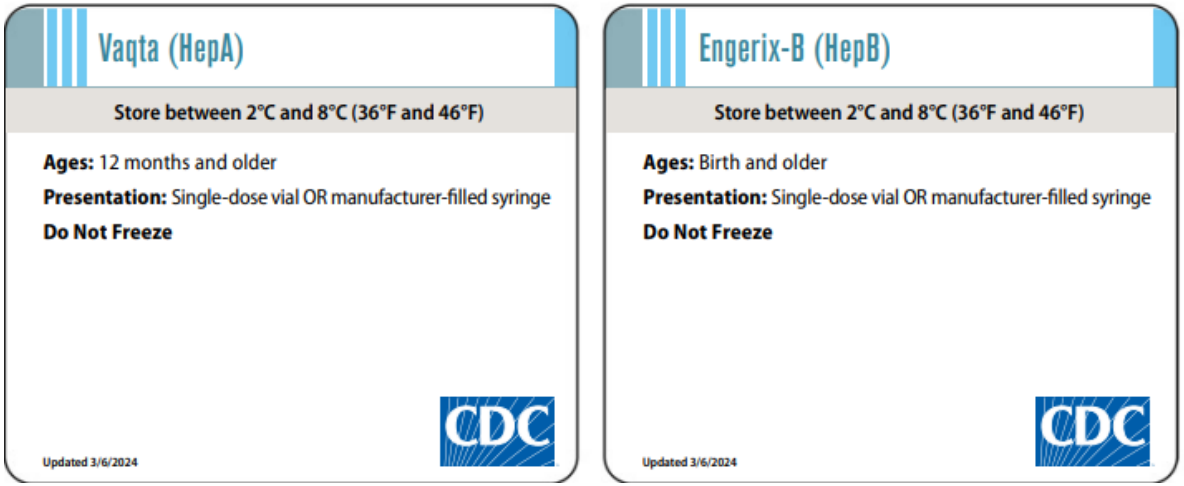
Before Preparing Vaccine, ALWAYS Check:

1. Label or
Package Insert

Pinkbook: Vaccine Administration | CDC

Choosing the Correct Vaccine

- **Vaccine with different manufacturers and presentations can have different indications.**
- **Vaccine abbreviations can be confusing.**



Pinkbook: Vaccine Administration | CDC

Vaccine Labels: Storage and Beyond-Use Date Tracking (cdc.gov)

Before Preparing Vaccine, ALWAYS Check:

1. Label or Package Insert

2. Expiration Date

Pinkbook: Vaccine Administration | CDC

Expiration Date

- **All products have an expiration date.**
- **Provides confidence that the vaccine will meet the applicable standards of strength, quality, and purity throughout its shelf-life.**
- **The expiration date is:**
  - Determined by the manufacturer
  - The final day that the vaccine can be administered

Expiration Dates - Questions and Answers | FDA
Vaccines Storage and Handling Toolkit | CDC

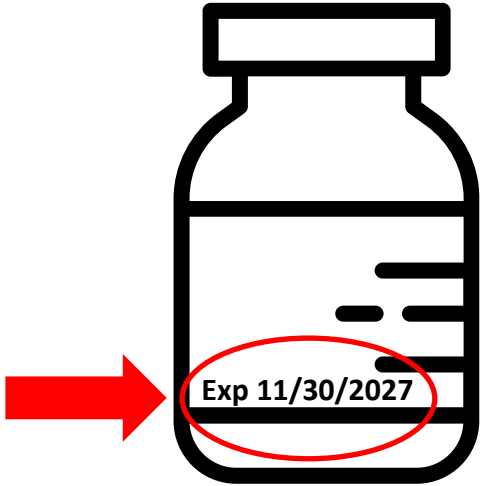
Where to Find the Expiration Date

Month, day, and year of expiration

Month and year of expiration

QR Code, website, or phone number

Where to Find the Expiration Date



Month, day, and year of expiration

Month and year of expiration

QR Code, website, or phone number

Vaccines Storage and Handling Toolkit | CDC

Where to Find the Expiration Date

Month, day, and year of expiration

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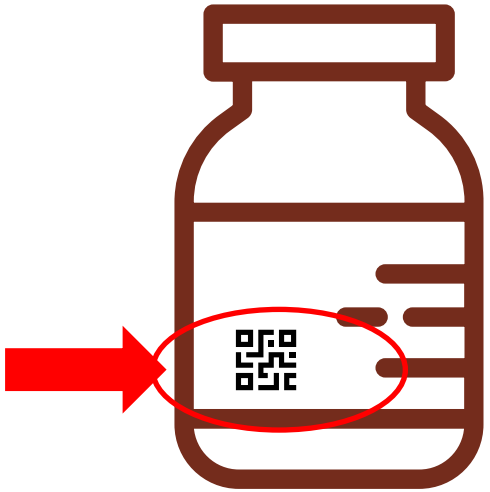


QR Code, website, or phone number

Knowledge Check

The expiration date on the vial label indicates the vaccine expires on 8/27.

This vaccine should NOT be used after:

A. August 1, 2027
B. August 31, 2027
C. August 23, 2027

Answer

The expiration date on the vial label indicates the vaccine expires on 8/27.

This vaccine should NOT be used after:

A. August 1, 2027

B. August 31, 2027 ←

C. August 23, 2027

Before Preparing Vaccine, ALWAYS Check:

Label or Package Insert

Expiration Date

Beyond-Use Date (BUD)

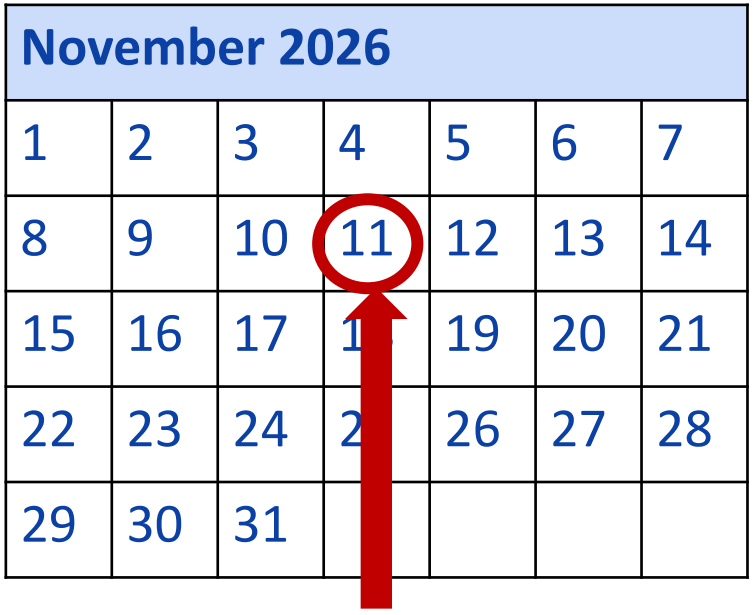
Pinkbook: Vaccine Administration | CDC

What is a Beyond-Use Date/Time (BUD)?

- **The last date or time that a vaccine can be safely used after it has been moved between storage temperatures or prepared for patient use.**
- **Only some vaccines have a BUD.**
- **A BUD may apply when a product is:**
  - Moved between different storage temperatures
  - Prepared for administration.
    - Examples: A vaccine is reconstituted, or a multidose vial is first punctured.

How Is the BUD Calculated?

Day 0: Punctured vial



Day 28: From puncture

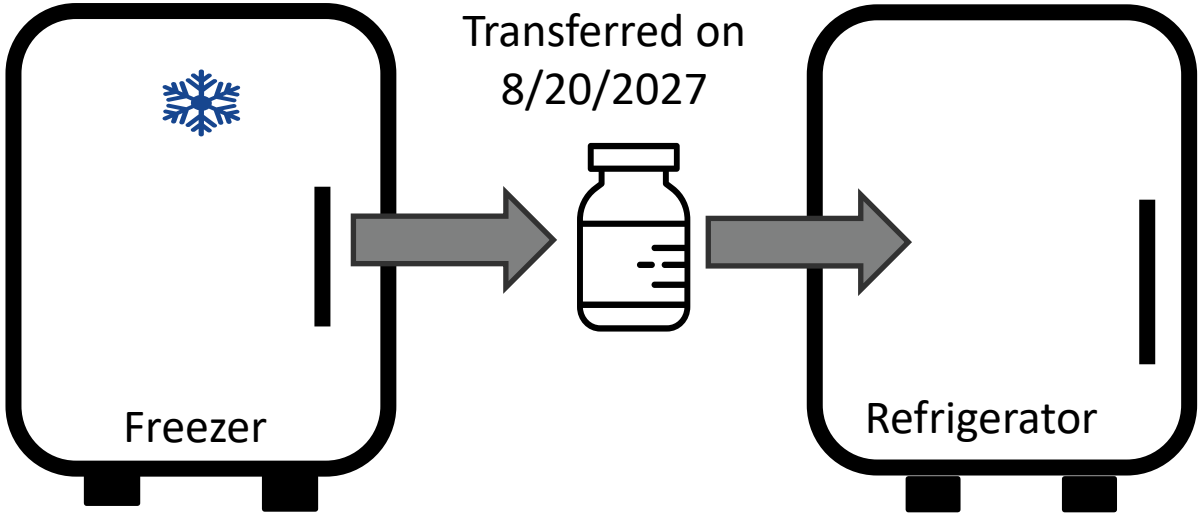
BUD Information

- **The designated timeframe is not the same and varies from product to product.**
- **Date or time is calculated by the provider using the manufacturer's guidance.**
- **Specific information regarding the BUD and how it is calculated can be found in the vaccine's package insert or Emergency Use Authorization (EUA) Fact Sheet.**

- **Replaces but does not extend the expiration date; always use the earlier date.**

Vaccines Storage and Handling Toolkit | CDC)

BUD Versus Expiration Date

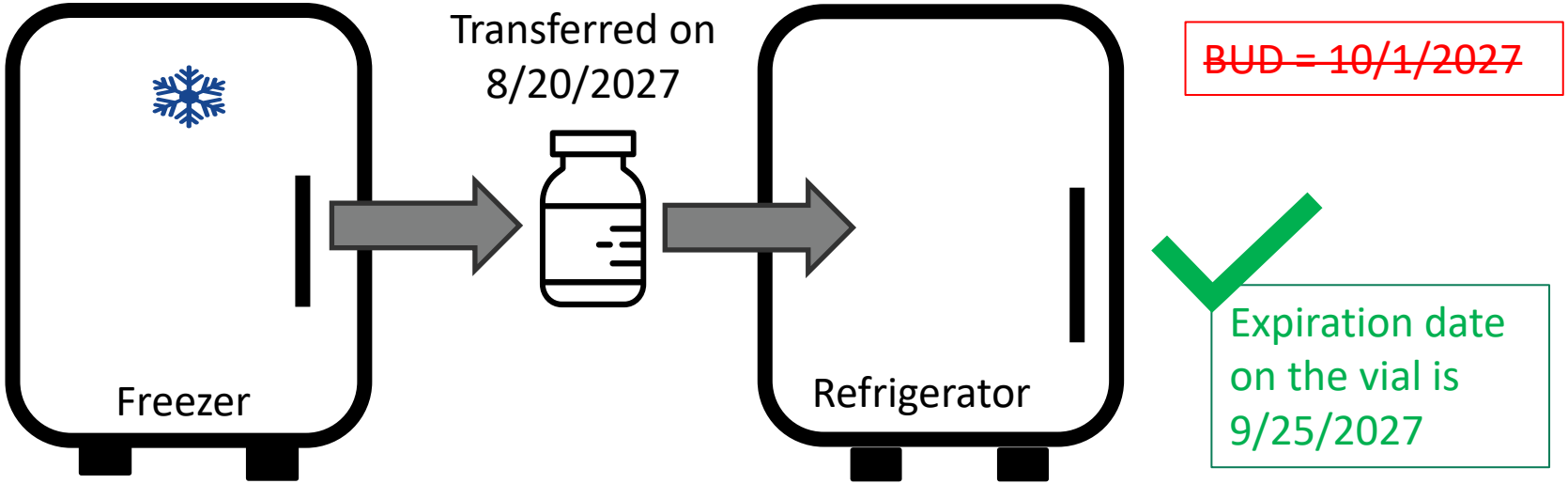


BUD = 10/1/2027

Expiration date on the vial is 9/25/2027

Package insert indicates the vaccine may be stored for up to 6 weeks in the refrigerator

BUD Versus Expiration Date



~~BUD = 10/1/2027~~

Expiration date on the vial is 9/25/2027

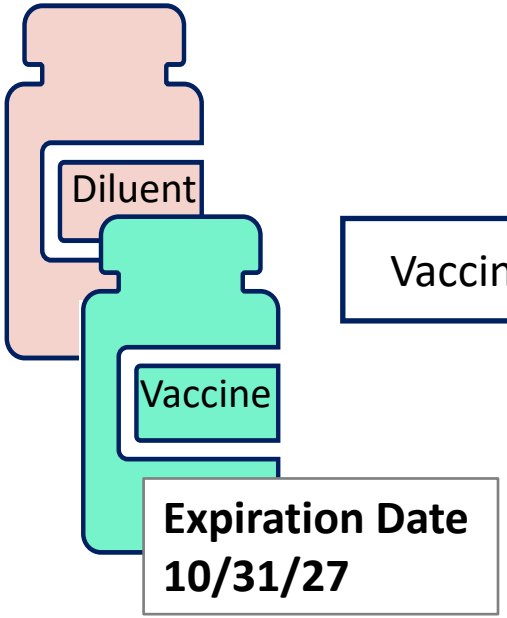
Package insert indicates the vaccine maybe stored for up to 6 weeks in the refrigerator

Reconstituted Vaccines and BUDs

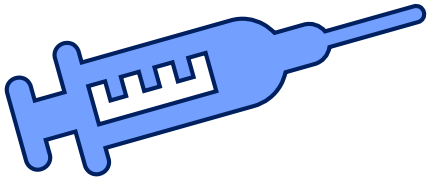
- **Once mixed with diluent, vaccines can be used for a limited time.**
- **BUDs can vary from minutes to hours.**
- **Always check the package insert to determine the beyond-use time.**

Vaccines Storage and Handling Toolkit | CDC)

Reconstituted Vaccines: BUD Versus Expiration Date



Vaccine and Diluent Mixed



BUD Guidance: Use within 12 hours after mixing, which is 7 PM today

BUD and Vaccine in a Multidose Vial

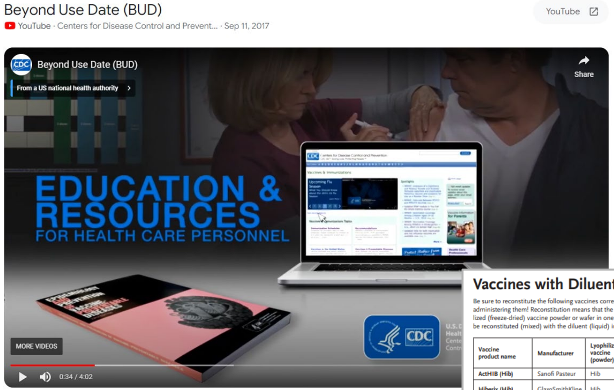
- **Some multidose vials have a specified time frame within which they should be used after the vial is first punctured.**
- **BUDs can vary from hours to days.**

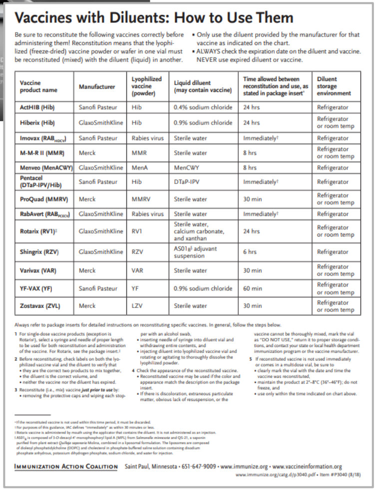
Don’t administer vaccine after the BUD!

Vaccines Storage and Handling Toolkit | CDC

Expiration Date and BUD Resources

- What is a Vaccine Beyond-Use Date or Time? (youtube.com)
- The Difference Between a Vaccine Expiration Date and Beyond-Use Date or Time (youtube.com)
- Beyond Use Date (BUD) (youtube.com)
- Vaccines with Diluents: How to Use Them (immunize.org)





Vaccines with Diluents: How to Use Them

Be sure to reconstitute the following vaccines correctly before administering them! Reconstitution means that the lyophilized (freeze-dried) vaccine powder or wafer in one vial must be reconstituted (mixed) with the diluent (liquid) in another.

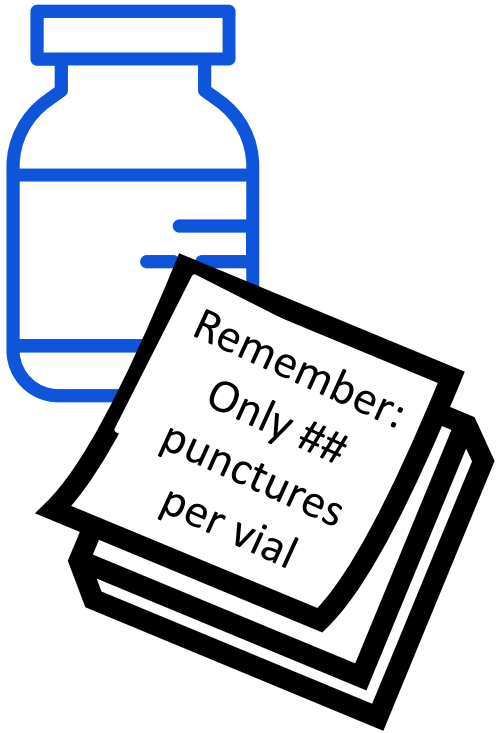
- Only use the diluent provided by the manufacturer for that vaccine as indicated on the chart.
- ALWAYS check the expiration date on the diluent and vaccine. NEVER use expired diluent or vaccine.

Vaccine product name	Manufacturer	Lyophilized vaccine (powder)	Liquid diluent (may contain vaccine)	Time allowed between reconstitution and use, as stated in package insert*	Diluent storage environment
ActHIB (Hib)	Sanofi Pasteur	Hib	0.4% sodium chloride	24 hrs	Refrigerator
Hiberix (Hib)	GlaxoSmithKline	Hib	0.9% sodium chloride	24 hrs	Refrigerator or room temp
Imovax (RAB_{HDCV})	Sanofi Pasteur	Rabies virus	Sterile water	Immediately†	Refrigerator
M-M-R II (MMR)	Merck	MMR	Sterile water	8 hrs	Refrigerator or room temp
Menveo (MenACWY)	GlaxoSmithKline	MenA	MenCWY	8 hrs	Refrigerator
Pentacel (DTaP-IPV/Hib)	Sanofi Pasteur	Hib	DTaP-IPV	Immediately†	Refrigerator
ProQuad (MMRV)	Merck	MMRV	Sterile water	30 min	Refrigerator or room temp
RabAvert (RAB_{PCECV})	GlaxoSmithKline	Rabies virus	Sterile water	Immediately†	Refrigerator
Rotarix (RV1)‡	GlaxoSmithKline	RV1	Sterile water, calcium carbonate, and xanthan	24 hrs	Refrigerator or room temp
Shingrix (RZV)	GlaxoSmithKline	RZV	$AS01_B$§ adjuvant suspension	6 hrs	Refrigerator
Varivax (VAR)	Merck	VAR	Sterile water	30 min	Refrigerator or room temp
YF-VAX (YF)	Sanofi Pasteur	YF	0.9% sodium chloride	60 min	Refrigerator or room temp
Zostavax (ZVL)	Merck	LZV	Sterile water	30 min	Refrigerator or room temp

Always refer to package inserts for detailed instructions on reconstituting specific vaccines. In general, follow the steps below.

Additional Considerations for Multidose Vials

- **Some manufacturers have a maximum number of**
  - Doses that can be withdrawn
  - Punctures to the vial stopper
- **Discard vial and any remaining vaccine when the indicated number of punctures/doses has been met.**



Pinkbook: Vaccine Administration | CDC

Additional Preparation Considerations

- **Before preparing, inspect vaccine vials for any irregularities, such as particulate matter, damage, or contamination.**
- **Mix vaccines with a swirling motion until a uniform suspension is obtained.**
  - Unless instructed by the manufacturer, vaccine should not be shaken.
- **Vaccines with diluents: Follow the manufacturers' guidelines, using only the diluent provided by the manufacturer.**

Knowledge Check

Choose the best response.

You are preparing a vaccine for administration and in the process, you learn:

- Expiration date = 8/2027
- BUD is 6 hours after the vial is first punctured, which was 9:00 am today.

It’s 5:00 pm. Can you administer this vaccine?

A. Yes

B. No

Answer

Choose the best response:

You are preparing a vaccine for administration and in the process, you learn:

- Expiration date = 8/2027
- BUD is 6 hours after the vial is first punctured, which was 9:00 am today.

It’s 5:00 pm. Can you administer this vaccine?

A. Yes

B. No ⟵

Pre-Drawing Vaccines in Syringes

- **Pre-drawing vaccines is not recommended because of:**
  - Uncertainty of vaccine stability in syringes
  - Risk of contamination
  - Increased potential for vaccine administration errors
  - Vaccine wastage
- **Best practice: Use manufacturer-filled syringes whenever possible.**

Vaccines Storage and Handling Toolkit | CDC
Pinkbook: Vaccine Administration | CDC

Pre-Drawing Vaccines Considerations (1)

- **But *if* pre-drawing vaccine(s) is necessary, the cold chain should be maintained at all times.**
  - Review the manufacturer's storage and handling guidance.
  - Determine if the vaccines should be used within a specified-time frame (BUD).
  - Ensure staff are aware of storage and handling guidance.

Vaccines Storage and Handling Toolkit | CDC
Pinkbook: Vaccine Administration | CDC

Pre-Drawing Vaccines Considerations (2)

- Prepare at the site or event in clean, designated area.
- If administering more than one vaccine have separate preparation and administration areas.
- Monitor patient flow.

Vaccines Storage and Handling Toolkit | CDC
Pinkbook: Vaccine Administration | CDC

Labeling Pre-Drawn Syringes

- **Label each pre-drawn syringe:**
  - Vaccine name and dosage
  - Beyond-use date or time (if applicable)
  - Lot number
  - Preparer’s initials
  - Any additional pertinent information, such as age range

2

Vaccine Administration

Infection Control

- **Gloves are not required when administering vaccines, unless the health care provider is likely to come into contact with potentially infectious body fluids or has open lesions on hands.**
- **If you are using gloves:**
  - Perform hand hygiene before putting on new gloves.
  - Use a new set of gloves for each patient.
- **Equipment disposal:**
  - Puncture-proof biohazard container
  - Empty or expired vaccine vials are medical waste.

Hand Hygiene in Healthcare Settings | CDC, ACIP Vaccine Administration Guidelines for Immunization | CDC

Administration Routes for Routinely Recommended Vaccines

- **Vaccine administration routes:**
  - Oral, abbreviated PO
  - Intranasal, abbreviated NAS
  - Subcutaneous, abbreviated Subcut
  - Intramuscular, abbreviated IM

ACIP Vaccine Administration Guidelines for Immunization | CDC
Pinkbook: Vaccine Administration | CDC

Oral Route (PO)

- **Rotavirus vaccine is the only routinely recommended vaccine administered orally.**
- **Administration:**
  1. Place the tip of tube inside the infant's mouth, pointed towards the cheek.
  2. Slowly administer the vaccine down the inside of the cheek (between the cheek and gum), toward the back of the infant's mouth.

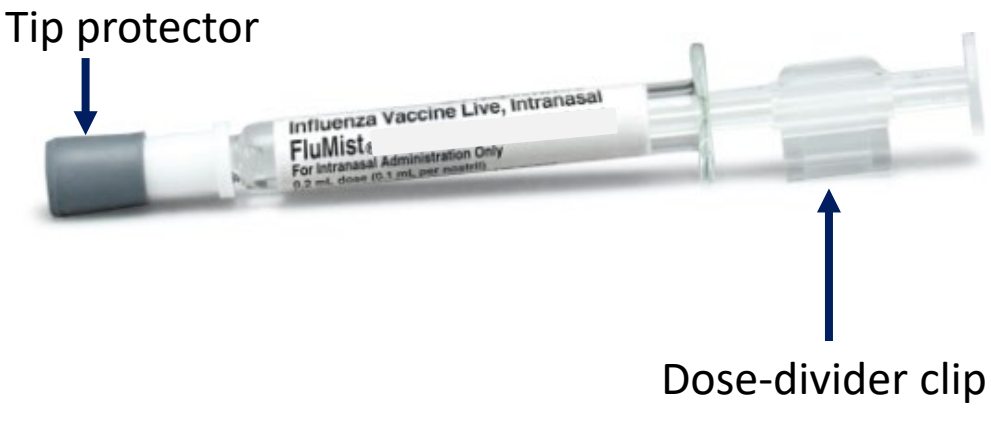
Pinkbook: Vaccine Administration | CDC

ACIP Vaccine Administration Guidelines for Immunization | CDC

Intranasal (NAS)

- **LAIV (Flumist) is the only vaccine administered by the intranasal route.**

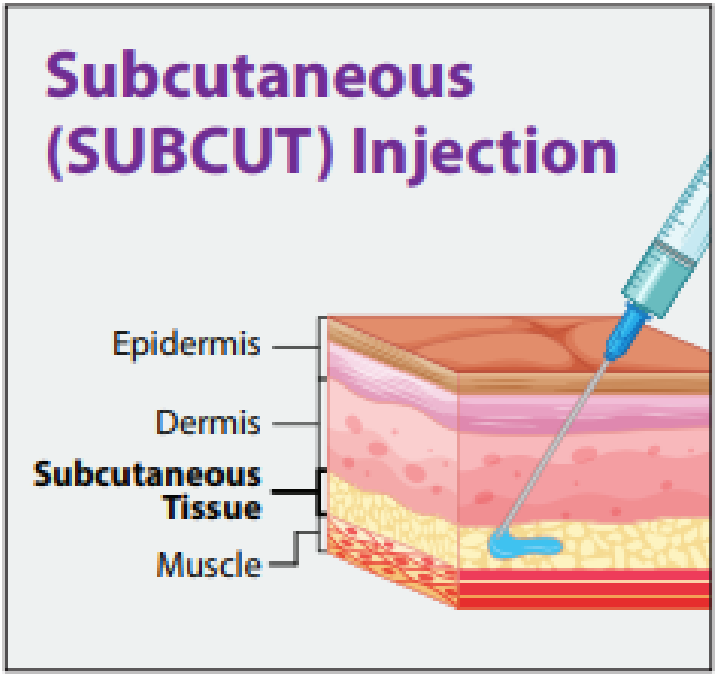
- **Administration:**
  - 0.2mL divided between both nostrils.



Pinkbook: Vaccine Administration | CDC
Live, Attenuated Influenza Vaccine (LAIV) (youtube.com)
ACIP Vaccine Administration Guidelines for Immunization | CDC

Subcutaneous Injection

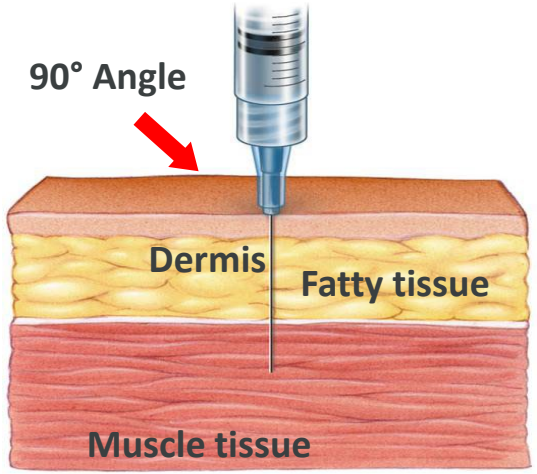
- **Site:**
  - Thigh for infants younger than 12 months
  - Upper outer triceps of arm for adults and children older than 12 months
    - Can be used for infants if necessary
- **Needle gauge and length:**
  - 23- to 25-gauge needle, 5/8-inch
- **Technique:**
  - To avoid reaching the muscle, pinch up the fatty tissue, insert the needle at a 45° angle, and inject the vaccine into the tissue.



Pinkbook: Vaccine Administration | CDC
You Call The Shots - Vaccine Administration: Subcutaneous (SUBCUT) Injection (cdc.gov)
Vaccine Administration: Needle Gauge and Length (cdc.gov)
ACIP Vaccine Administration Guidelines for Immunization | CDC

Intramuscular Injection (IM): Technique

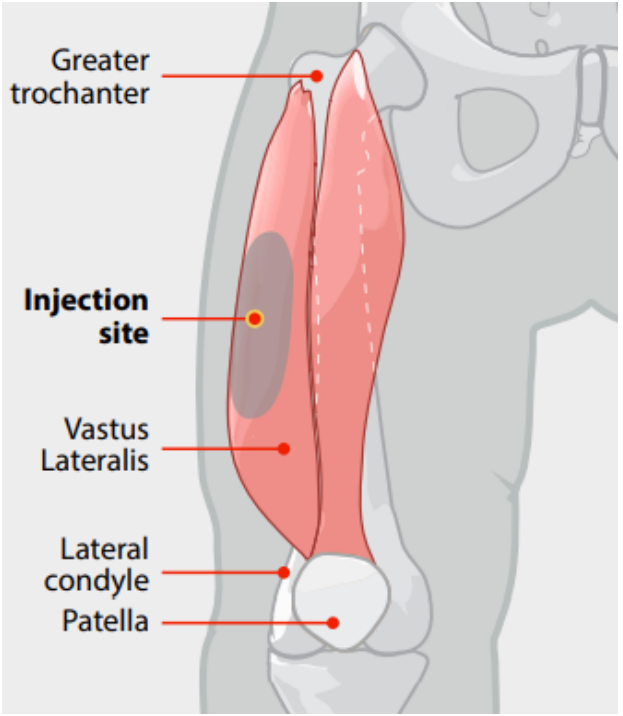
- **Spread the skin of the site taut between the thumb and forefinger, isolating the muscle.**
- **Another technique, acceptable mostly for pediatric and geriatric patients, is to grasp the tissue and “bunch up” the muscle.**
- **Insert the needle fully into the muscle at a 90° angle, and inject.**



Pinkbook: Vaccine Administration | CDC
Vaccine Administration: Needle Gauge and Length (cdc.gov)
ACIP Vaccine Administration Guidelines for Immunization | CDC

Intramuscular Injection (IM) Route: 11 Months and Younger

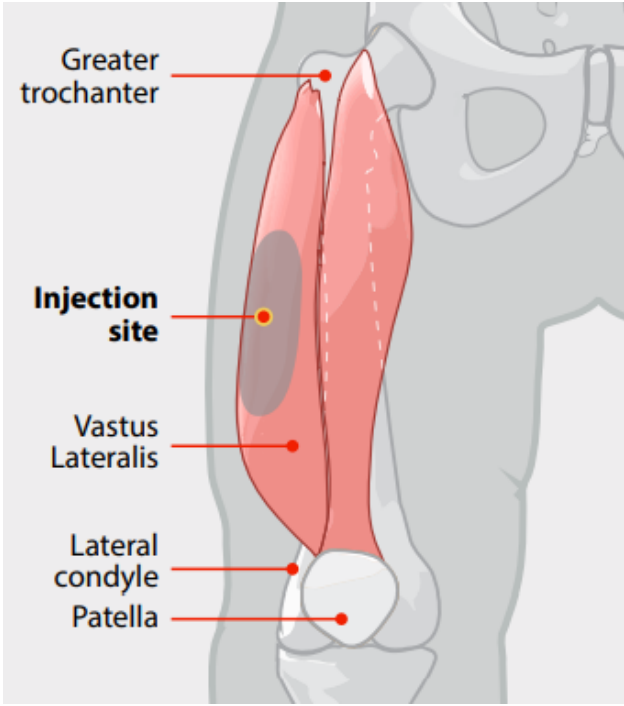
- **Site:**
  - Vastus lateralis muscle (anterolateral thigh)
- **Needle gauge and length:**
  - 22- to 25-gauge
  - Neonates and preterm infants: 5/8 inch (adequate only if the skin is stretched flat between thumb and forefinger)
  - 1 month and older: 1 inch



Pinkbook: Vaccine Administration | CDC
You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Infants 11 months of age and younger (cdc.gov)
Vaccine Administration: Needle Gauge and Length (cdc.gov
ACIP Vaccine Administration Guidelines for Immunization | CDC

Intramuscular Injection (IM): 1 through 2 Years

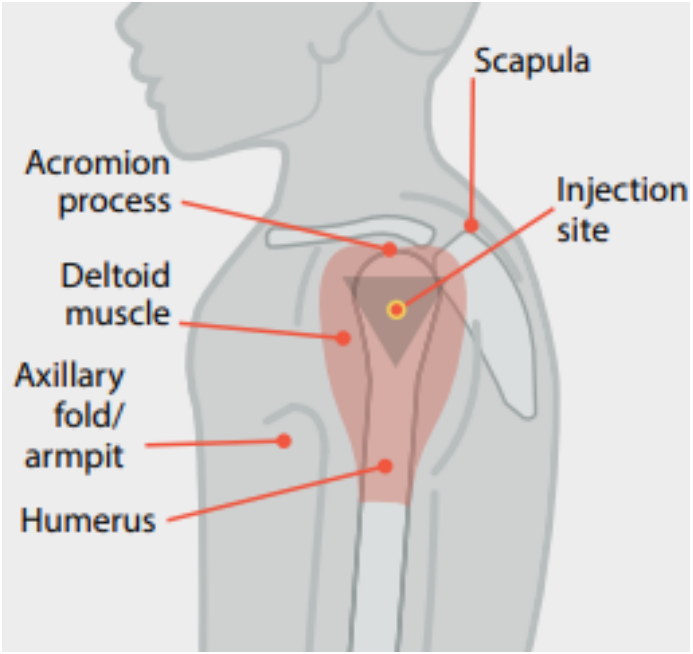
- **Site:**
  - Vastus lateralis muscle (anterolateral thigh) is preferred.
  - Deltoid muscle (upper arm) may be used if the muscle mass is adequate.
- **Needle gauge and length:**
  - 22- to 25-gauge
  - 5/8- to 1-inch
    - 5/8-inch needle may be used **if** using the deltoid muscle and the skin is stretched flat between thumb and forefinger.



Pinkbook: Vaccine Administration | CDC
You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Children 1 through 2 years of age (cdc.gov)
Vaccine Administration: Needle Gauge and Length (cdc.gov
ACIP Vaccine Administration Guidelines for Immunization | CDC

Intramuscular Injection (IM): 3 Through 18 Years

- **Site:**
  - Deltoid muscle (upper arm)
  - Vastus lateralis muscle (anterolateral thigh) may be used.
- **Needle gauge and length:**
  - 22- to 25-gauge
  - 5/8- to 1-inch
- **Most young children in this age range require a 1-inch needle:**
  - 5/8-inch needle may be used ***if*** using the deltoid muscle and the skin is stretched flat between thumb and forefinger.
- **Older children, adolescents require 1-inch needle.**



Pinkbook: Vaccine Administration | CDC

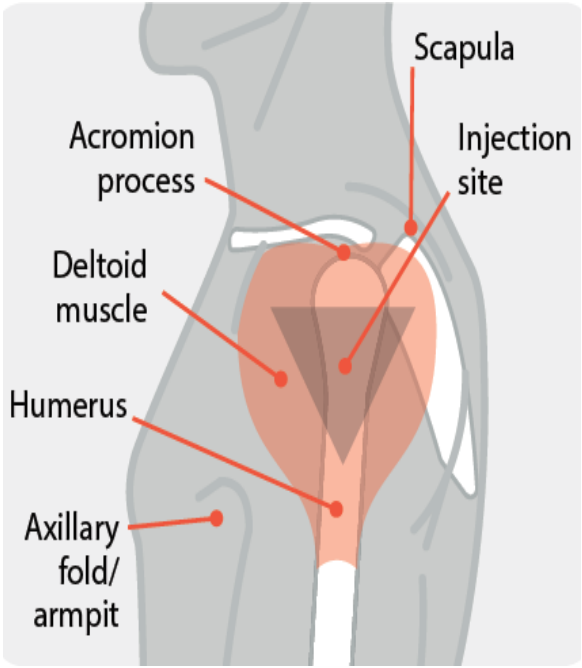
You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Children 3 through 6 years of age (cdc.gov)

Vaccine Administration: Intramuscular (IM) injections: Adults 19 years of age and older (cdc.gov)

ACIP Vaccine Administration Guidelines for Immunization | CDC

Intramuscular (IM) Route: Adults 19 Years and Older

- **Site:**
  - Deltoid muscle (upper arm) is preferred.
  - Vastus lateralis muscle (anterolateral thigh) may be used.
- **Needle gauge: 23- to 25-gauge**
- **Needle length varies with patient gender and weight.**



Pinkbook: Vaccine Administration | CDC
Vaccine Administration: Intramuscular (IM) injections: Adults 19 years of age and older (cdc.gov)
Vaccine Administration: Needle Gauge and Length (cdc.gov)
ACIP Vaccine Administration Guidelines for Immunization | CDC

IM Needle Length and Gauge: Adults 19 Years of Age and Older

Site: Deltoid muscle in the arm			
Patient Weight	Patient Gender	Needle Length	Needle Gauge
130 lbs (60 kg) or less	Men and women	1 inch (25 mm)	22–25-gauge
150–152 lbs (60–70 kg)	Men and women	1 inch (25 mm)	
152-260 lbs (70–118 kg)	Men	1-1.5 inches (25-38 mm)	
152-200 lbs (70–90 kg)	Women		
260 lbs (118 kg) or more	Men	1.5 inches (38 mm)	
200 lbs (90 kg) or more	Women		

Vaccine Administration: Needle Gauge and Length (cdc.gov)
ACIP Vaccine Administration Guidelines for Immunization | CDC

Observation After Vaccination: Routinely Recommended Vaccines

- **Fainting can occur after vaccination.**
  - Most common among adolescents and young adults.
- **Providers should take appropriate measures to prevent injuries.**
- **Patients should be:**
  - Seated or lying down during vaccination.
  - Observed (seated or lying down) for 15 minutes after vaccination.

15 minutes

ACIP Adverse Reactions Guidelines for Immunization | CDC

Pinkbook: Vaccine Administration | CDC

COVID-19 Vaccination and Observation Period

CDC recommends:

- **30 minutes for people with a history of:**
  - Non-severe, immediate (onset within 4 hours) allergic reaction after previous dose of one COVID-19 vaccine type, if receiving the same vaccine type
  - Diagnosed non-severe allergy to a component of the COVID-19 vaccine, if receiving the same vaccine type
- **15 minutes for all other people**

Clinical Guidance for COVID-19 Vaccination | CDC

3

Documenting Vaccine Administration

After Vaccination: Documentation

- **Document in the patient's medical record:**
  - Date of administration
  - Vaccine manufacturer
  - Vaccine lot number
  - Name and title of person who administered vaccine
  - Vaccine information statement (VIS)
    - Date printed on the VIS
    - Date VIS given to patient, parent, or guardian
  - Address of clinic or facility where permanent record will reside
- **Best practice documentation:**
  - Route
  - Dosage (volume)
  - Site

Pinkbook: Vaccine Administration | CDC

Documenting Lot Numbers

- **Providers may record the lot number from the vial (Unit of Use) or package (Unit of Sale), depending on the established clinical workflow.**
- **When documenting vaccines with a diluent, record the lot number from the lyophilized vaccine.**
  - If needed, manufacturers can derive the lot numbers of antigen-containing diluent from the lot number of the associated lyophilized vaccine.

Updated Guidance for Documenting Vaccine NDCs and Lot numbers in IIS and EHRs, June 2017 (cdc.gov)

Other Documentation

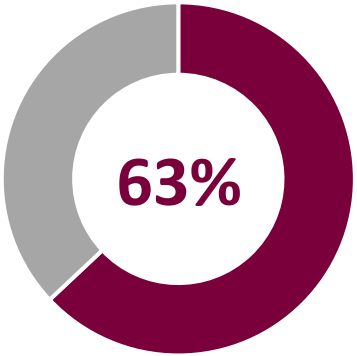
- **Update a patient's permanent medical record to reflect any:**
  - Serologic test results related to vaccine-preventable diseases (examples: rubella screening, antibody to hepatitis B surface antigen)
  - Adverse events after vaccination
  - Refusals of vaccines offered
- **Provide the patient or parent with a personal vaccination record that includes the vaccination(s) and date administered.**

4

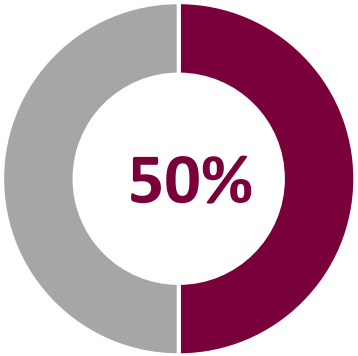
Additional Clinical Considerations

Needle Anxiety and Procedure Pain Management Matters

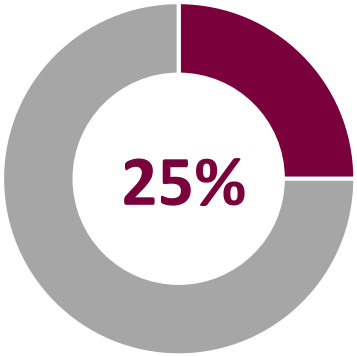
Percentage of patients with needle anxiety by age group



Younger Children



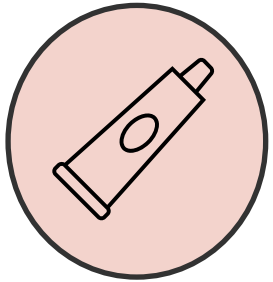
Adolescents

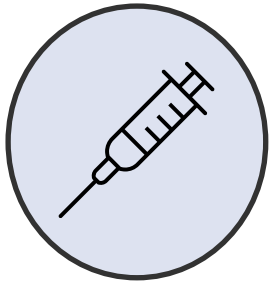


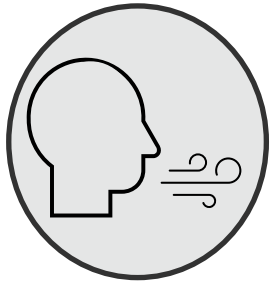
Adults

Meg Foundation (megfoundationforpain.org)

Pain Management During Vaccine Administration

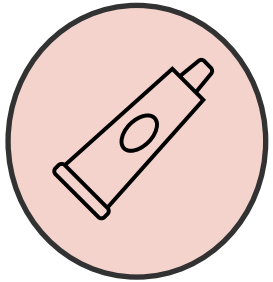






[Pinkbook: Vaccine Administration | CDC]
[Meg Foundation (megfoundationforpain.org)]

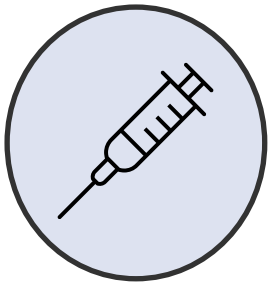
Pain Management During Vaccine Administration



Topical anesthetics

[Pinkbook: Vaccine Administration | CDC]
[Meg Foundation (megfoundationforpain.org)]

Pain Management During Vaccine Administration



Injection technique

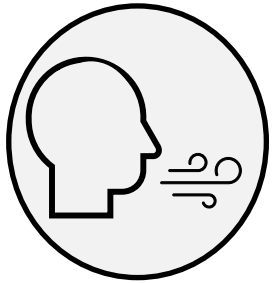
Pinkbook: Vaccine Administration | CDC
Meg Foundation (megfoundationforpain.org)

Pain Management During Vaccine Administration

Distraction

[Pinkbook: Vaccine Administration | CDC]
[Meg Foundation (megfoundationforpain.org)]

Pain Management During Vaccine Administration



Breathing technique

[Pinkbook: Vaccine Administration | CDC]
[Meg Foundation (megfoundationforpain.org)]

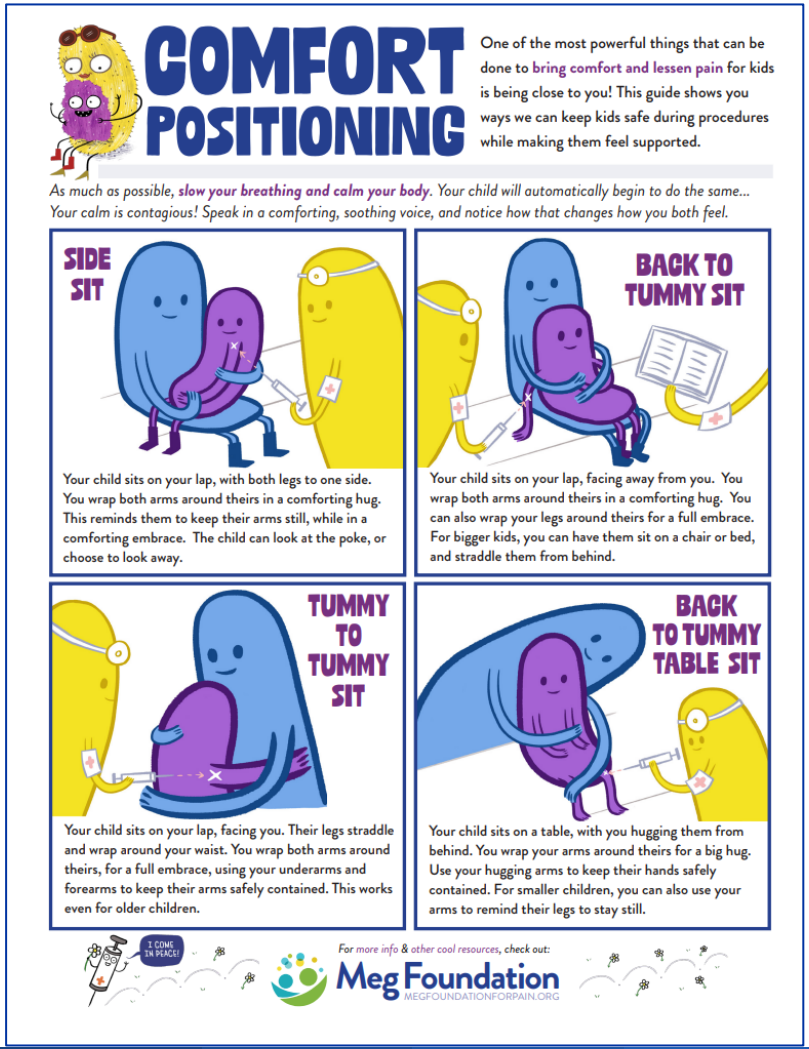
Pain Management During Vaccine Administration

Comfort positioning

[Pinkbook: Vaccine Administration | CDC]
[Meg Foundation (megfoundationforpain.org)]

Comfort Positioning

- **Encourage parent or guardian to hold young child.**
- **Allow patient to sit rather than lie down.**



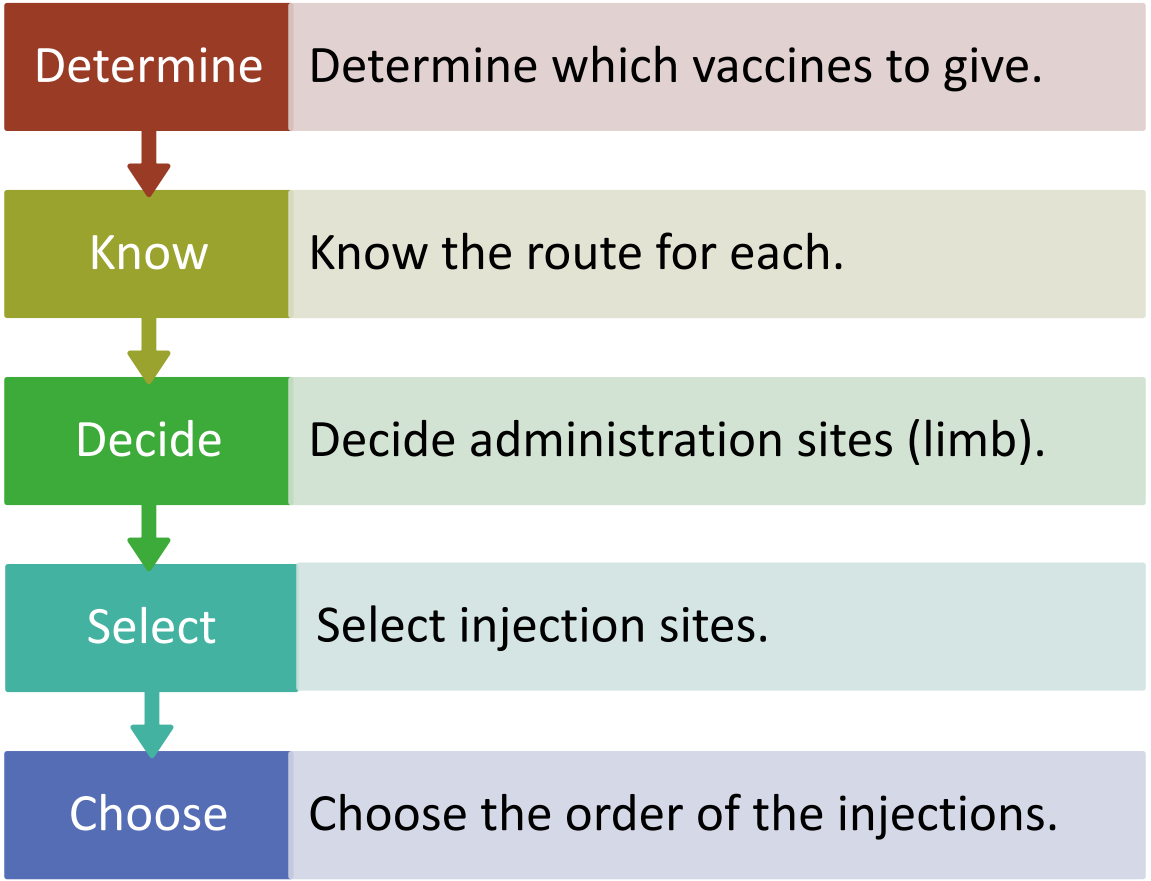
Pinkbook: Vaccine Administration | CDC
Meg Foundation (megfoundationforpain.org)

Simultaneous Vaccine Administration

- **Simultaneous administration, or co-administration, is defined as administering two or more vaccines during the same clinical visit.**
- **Simultaneous administration of most vaccines is safe, effective, and recommended.**

ACIP General Best Practice Guidelines for Immunization | CDC

Make an Injection Site Plan



Pinkbook: Vaccine Administration | CDC

Vaccine Webinars (cdc.gov)

Make an Injection Site Plan

Determine	Determine which vaccines to give.
Know	Know the route for each.
Decide	Decide the administration sites (limb).
Select	Select injection sites based potential local reaction(s).
Choose	Choose the order of the injections.

Pinkbook: Vaccine Administration | CDC

Vaccine Webinars (cdc.gov)

Make an Injection Site Plan

Determine	Determine which vaccines to give.
Know	Know the route for each.
Decide	Decide the administration sites (limb).
Select	Select injection sites.
Choose	Choose the order of the injections.

[Pinkbook: Vaccine Administration | CDC]

[Vaccine Webinars (cdc.gov)]

Make an Injection Site Plan

Determine	Determine which vaccines to give.
Know	Know the route for each.
Decide	Decide the administration sites (limb) and total injection volume.
Select	Select injection sites.
Choose	Choose the order of the injections.

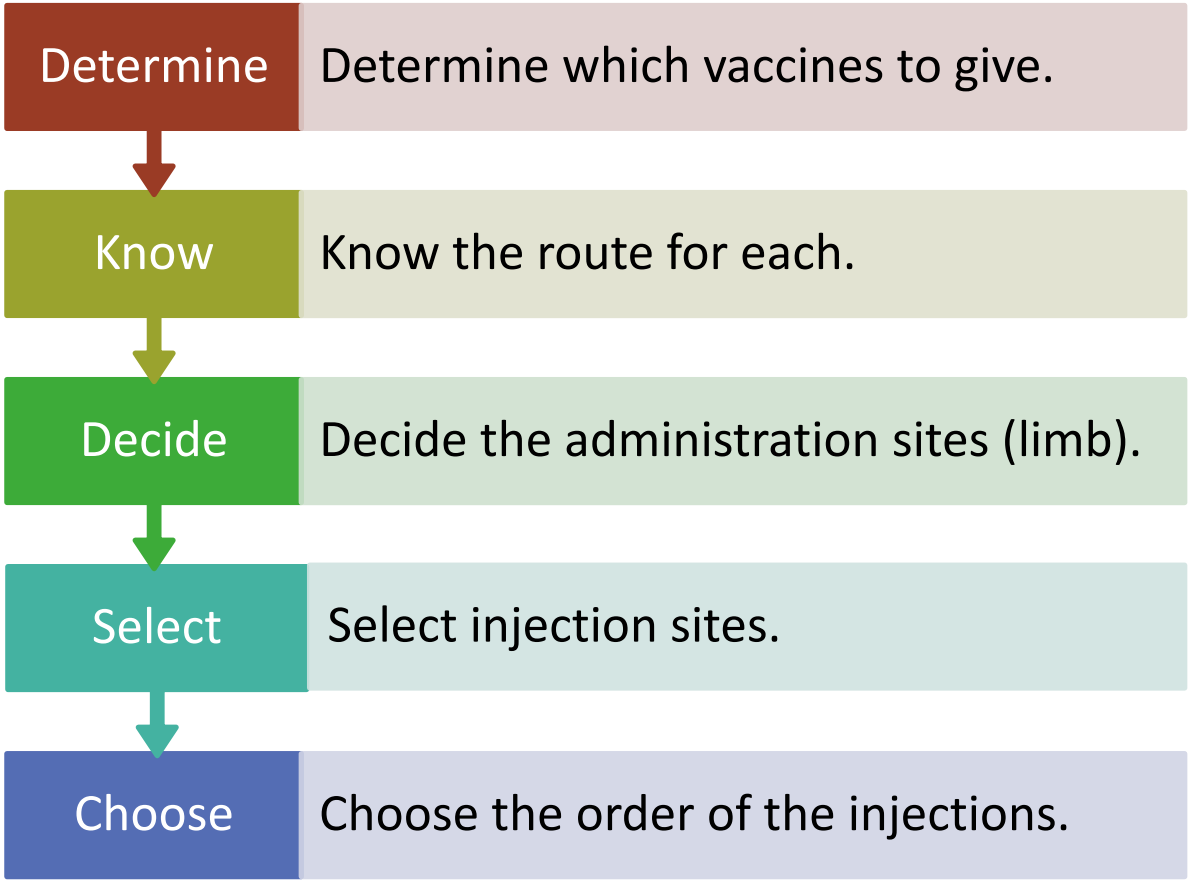
Pinkbook: Vaccine Administration | CDC

Vaccine Webinars (cdc.gov)

Decide Decide the administration sites (limb) and total injection volume.

- **There is no standardized total injection volume per limb.**
- **Suggested volumes:**
  - Deltoid:
    - Average 0.5 mL
    - Range 0.5–2 mL
  - Vastus Lateralis:
    - Average 1–4 mL
    - Range 1–5 mL
- **Infants and toddlers fall on the lower end of the range; adolescents and adults fall on the higher end of the range.**

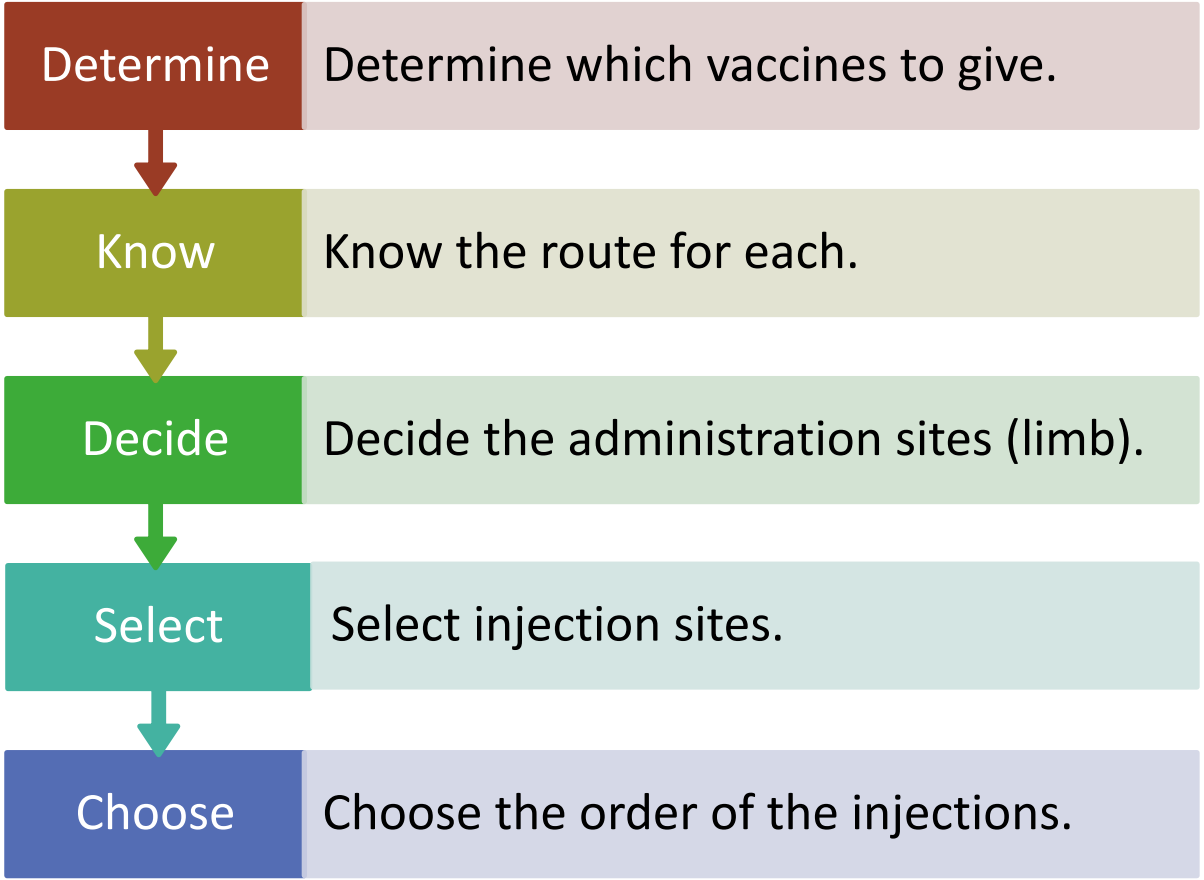
Make an Injection Site Plan



[Pinkbook: Vaccine Administration | CDC]

[Vaccine Webinars (cdc.gov)]

Make an Injection Site Plan



Pinkbook: Vaccine Administration | CDC

Vaccine Webinars (cdc.gov)

Knowledge Check

True or False?

Using pain management strategies during vaccination improves the quality of care and outcomes, increases patient and staff satisfaction.

A. **True**

B. **False**

Answer

True or False?

Using pain management strategies during vaccination improves the quality of care and outcomes, increases patient and staff satisfaction.

A. True ⟵

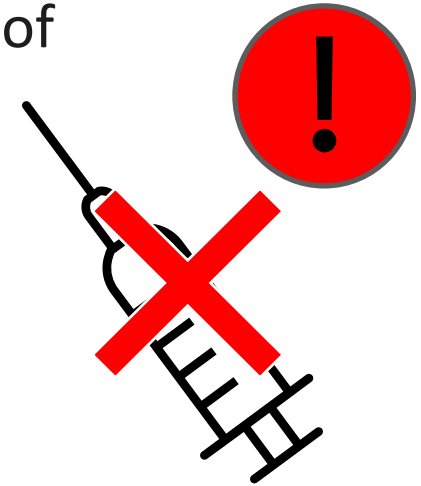
B. False

5

Administration Errors

What Is a Vaccine Administration Error?

"Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer."



Pinkbook: Vaccine Administration | CDC

Vaccine Administration Errors

- **Common vaccine administration errors include:**
  - Expired vaccine or diluent administered
  - Vaccine past the BUD administered
  - Improperly stored vaccine administered
  - Wrong dosage administered
    (example: pediatric formulation of hepatitis B vaccine administered to an adult)
  - Doses administered too early (before the minimum age or interval)
  - Wrong vaccine administered (example: Tdap instead of DTaP)
  - Vaccine administered to a patient with a contraindication

Pinkbook: Vaccine Administration | CDC

Potential Causes

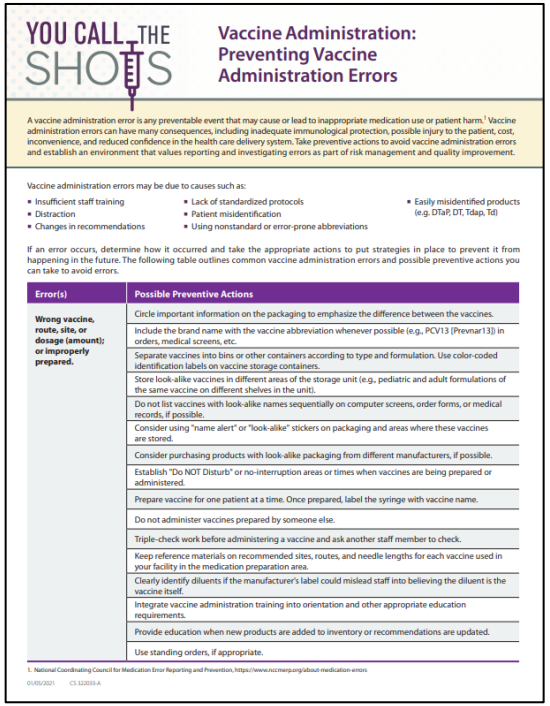
- **Medication errors are thought to be a mistake caused by an individual.**
  - “Blame-seeking” does not address the root cause.
- **Vaccine administration errors can have multiple causes, including:**
  - Insufficient staff training
  - Distraction
  - Lack of standardized protocols
  - Look-alike or sound-alike products
  - Patient misidentification

Pinkbook: Vaccine Administration | CDC

Vaccine Administration: Preventing Vaccine Administration Errors (cdc.gov

Strategies to Prevent Administration Errors

- **Create a culture that values the reporting and investigation of errors.**
- **Investigate and determine the root cause.**
- **Ensure staff are knowledgeable about best practices for storing, handling, preparing, and administering vaccines.**



YOU CALL THE SHOTS

Vaccine Administration: Preventing Vaccine Administration Errors

A vaccine administration error is any preventable event that may cause or lead to inappropriate medication use or patient harm.[1] Vaccine administration errors can have many consequences, including inadequate immunological protection, possible injury to the patient, cost, inconvenience, and reduced confidence in the health care delivery system. Take preventive actions to avoid vaccine administration errors and establish an environment that values reporting and investigating errors as part of risk management and quality improvement.

Vaccine administration errors may be due to causes such as:

- Insufficient staff training
- Distraction
- Changes in recommendations
- Lack of standardized protocols
- Patient misidentification
- Using nonstandard or error-prone abbreviations
- Easily misidentified products (e.g. DTaP, DT, Tdap, Td)

If an error occurs, determine how it occurred and take the appropriate actions to put strategies in place to prevent it from happening in the future. The following table outlines common vaccine administration errors and possible preventive actions you can take to avoid errors.

Error(s)	Possible Preventive Actions
Wrong vaccine, route, site, or dosage (amount); or improperly prepared.	Circle important information on the packaging to emphasize the difference between the vaccines.
	Include the brand name with the vaccine abbreviation whenever possible (e.g., PCV13 [Prevnar13]) in orders, medical screens, etc.
	Separate vaccines into bins or other containers according to type and formulation. Use color-coded identification labels on vaccine storage containers.
	Store look-alike vaccines in different areas of the storage unit (e.g., pediatric and adult formulations of the same vaccine on different shelves in the unit).
	Do not list vaccines with look-alike names sequentially on computer screens, order forms, or medical records, if possible.
	Consider using "name alert" or "look-alike" stickers on packaging and areas where these vaccines are stored.
	Consider purchasing products with look-alike packaging from different manufacturers, if possible.
	Establish "Do NOT Disturb" or no-interruption areas or times when vaccines are being prepared or administered.
	Prepare vaccine for one patient at a time. Once prepared, label the syringe with vaccine name.
	Do not administer vaccines prepared by someone else.
	Triple-check work before administering a vaccine and ask another staff member to check.
	Keep reference materials on recommended sites, routes, and needle lengths for each vaccine used in your facility in the medication preparation area.
	Clearly identify diluents if the manufacturer's label could mislead staff into believing the diluent is the vaccine itself.
	Integrate vaccine administration training into orientation and other appropriate education requirements.
	Provide education when new products are added to inventory or recommendations are updated.
	Use standing orders, if appropriate.

1. National Coordinating Council for Medication Error Reporting and Prevention, https://www.nccmerp.org/about-medication-errors

01/05/2021 CS 322033-A

[Vaccine Administration: Preventing Vaccine Administration Errors (cdc.gov)]

[Vaccine Administration Resource Library | CDC]

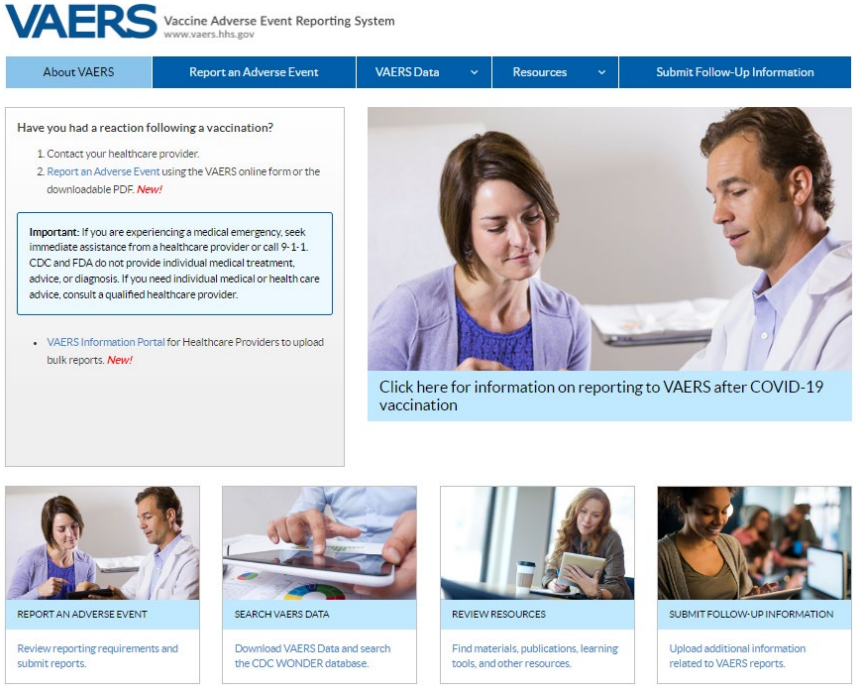
What if a Vaccination Error Occurs?

- **Inform the patient/parent of the error.**
- **Determine the patient's status.**
- **Explain any needed next steps.**
- **Know how to correct the error:**
  - Contact your local health department, vaccine manufacturer, or CDC for guidance.
- **Record the vaccine–as it was given–on the medical administration record.**

Pinkbook: Vaccine Administration | CDC

Reporting Vaccination Errors to VAERS

- **Providers are encouraged to report all vaccination errors, with or without adverse health events, if they believe the error may pose a safety risk.**



Vaccine Adverse Event Reporting System (VAERS) (hhs.gov)

6

Clinical Resources

Staff Training

Staff Training

- Complete training:
  - During employee orientation
  - Annually
  - When recommendations change
  - When new vaccines are added

You Call the Shots: Vaccines Web-based Training Course | CDC

Skills Checklist for Vaccine Administration (continued) page 3 of 3

AREA	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	SELF ASSESSMENT		SUPERVISOR REVIEW		PLAN OF ACTION
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	
Administering Vaccinations (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.					
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 the electronic 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 manuals, textbooks, wall charts, or other guides (e.g., Key Vaccination Resources for Healthcare Professionals at www.immunize.org/catg.d/p2005.pdf)
c. Review package inserts.
d. Review vaccine storage and handling guide-
lines or video.
e. Observe other staff with patients.
f. Practice injections.
g. Read Vaccine Information Statements.
h. Be mer
approp
i. Role pl
parents
comfor
vaccina
vaccine
experie
j. Attend
course
k. Attend
cultura
l. Renew
Other ___

Immunize.org

Skills Checklist for Vaccine Administration (continued) page 2 of 3

AREA	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	SELF ASSESSMENT		SUPERVISOR REVIEW		PLAN OF ACTION
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	
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 expiration date and beyond-use date, if applicable, for both vaccine and diluent if needed. 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 based on route, site, injection technique, patient age. Weight and gender are considered when administering IM injections to adults.					
	6. Maintains aseptic technique throughout, including cleaning the rubber septum (stopper) of the vial with sterile alcohol prior to piercing it.					
	7. Prepares vaccine according to manufacturer instructions. If directed by manufacturer's instructions, writes beyond use date on vial label. 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.					
Administering Vaccinations	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 safely and age appropriately.					
	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.					

Immunize.org

Skills Checklist for Vaccine Administration

This "Skills Checklist" is an assessment tool for healthcare staff who administer immunizations. To complete it, staff should review the competency areas below and the clinical skills, techniques and procedures outlined for each area.

Staff: Enter a score in the **Self-Assessment** column. If "Needs to Improve" is checked, it indicates further study, practice, or change is needed. When "Meets or Exceeds" is checked, it indicates belief that performance is 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.

CDC's Web-based Training Courses
- *You Call the Shots:* updated regularly to include the latest guidelines and recommendations in vaccine practice; available at www.cdc.gov/vaccines/ed/youcalltheshots.html.
- Vaccine Administration eLearn: available at www.cdc.gov/vaccines/hcp/admin/resource-library.html

AREA	CLINICAL SKILLS, TECHNIQUES, AND PROCEDURES	SELF ASSESSMENT		SUPERVISOR REVIEW		PLAN OF ACTION
		NEEDS TO IMPROVE	MEETS OR EXCEEDS	NEEDS TO IMPROVE	MEETS OR EXCEEDS	
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) and appropriate materials for indicated vaccines and has had time to read them and ask questions.					
	5. Screens for contraindications and precautions (if within employee's scope of work).					
	6. Reviews comfort measures and aftercare instructions with patient/parents, and invites questions.					
Medical & Office Protocols	1. Identifies the location of protocols for providing immunizations, infection prevention, emergency situations, and for reporting adverse events to the Vaccine Adverse Event Reporting system (VAERS).					
	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).					

Adapted from California Department of Public Health, Immunization Branch

CONTINUED ON THE NEXT PAGE ▶

Immunize.org

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

www.immunize.org/catg.d/p7010.pdf
Item #P7010 (12/8/2023)
Scan for PDF

[Skills Checklist for Vaccine Administration (immunize.org)]

CDC Clinical Resources

- www.cdc.gov/vaccines/
  - Advisory Committee on Immunization Practices (ACIP) Vaccine Recommendations and Guidelines
  - Recommended Immunization Schedules
  - Vaccine Storage and Handling Toolkit
  - Vaccine Information Statements

Pink Book Training Materials

Continuing Education Information

- To claim continuing education (CE) for this course, please follow the steps below by **July 1, 2026.**
- Search and register for course **WD4810-072324** in **CDC TRAIN**.
- Pass the post-assessment at 80%.
- Complete the evaluation.
- Visit “Your Learning” to access your certificates and transcript.
- If you have any questions, contact **CDC TRAIN** at train@cdc.gov or CE Coordinator, Melissa Barnett, at MBarnett2@cdc.gov

Home - CDC TRAIN - an affiliate of the TRAIN Learning Network powered by the Public Health Foundation

Email Us Your Immunization Questions

nipinfo@cdc.gov

Thank You From Atlanta!

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.