Vaccine Administration

Pink Book Web-on-Demand Series

August 3, 2022

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Learning Objectives

- Describe the Advisory Committee on Immunization Practices General Best Practice Guidelines on Immunization.
- 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.
- Implement disease detection and prevention health care services (e.g., smoking cessation, weight reduction, diabetes screening, blood pressure screening, immunization services) to prevent health problems and maintain health.

Continuing Education Information

- **CE credit, go to**: https://tceols.cdc.gov/
- **Search course number: WD4564-080322**
- **CE credit expires: July 1, 2024**
- **CE instructions are available on the Pink Book Web-on-Demand Series web page**
- **Questions and additional help with the online CE system, e-mail** CE@cdc.gov

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Overview

Vaccine Administration

- **Vaccine administration involves a series of actions, including:**
  - Assessing patient vaccination status and determining needed vaccines
  - Screening for contraindications and precautions
  - Educating patients
  - Preparing and administering vaccines
  - Documenting the vaccines administered

Pinkbook: Vaccine Administration | CDC

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Staff Training

- All health care professionals should receive comprehensive, competency-based training before administering vaccines.
- Policies should be in place to validate health care professional's knowledge of, and skills in, vaccine administration.

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Vaccine Preparation

Vaccine Preparation Best Practices

- **Perform hand hygiene before preparing vaccines.**
- **Follow strict aseptic medication preparation practices.**
- **Use a designated, clean medication area.**
- **Prepare medications for one patient at a time.**
  - Use a new needle and syringe for each injection.

Injection Safety | CDC

Choose the Correct Vaccine

- **Vaccines are available in different presentations, including:**
  - Single-dose vials (SDV)
  - Manufacturer-filled syringes (MFS)
  - Multidose vials (MDV)
  - Oral applicators
  - Nasal sprayer

- **ALWAYS check the label and the expiration date and/or the beyond-use date/time BEFORE preparing vaccine.**

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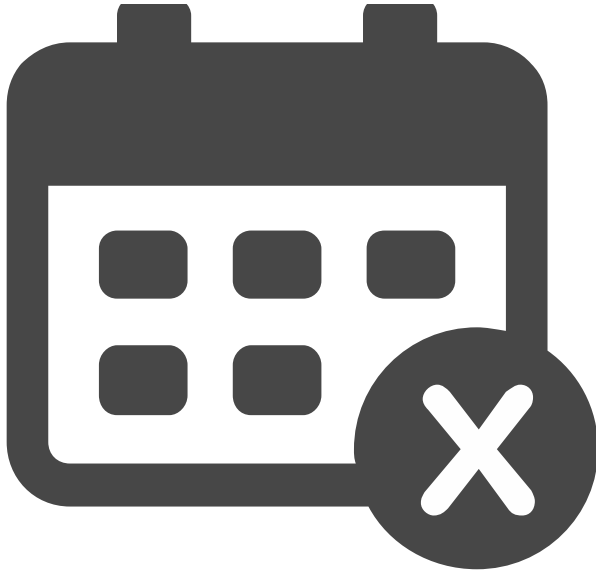
Expiration Date

- All products have an expiration date
- The expiration date is the final day that the vaccine can be administered
- Determined by the manufacturer
- Guarantee of full potency and safety



Expiration Dates - Questions and Answers | FDA

Vaccines Storage and Handling Toolkit | CDC

Where to Find the Expiration Date

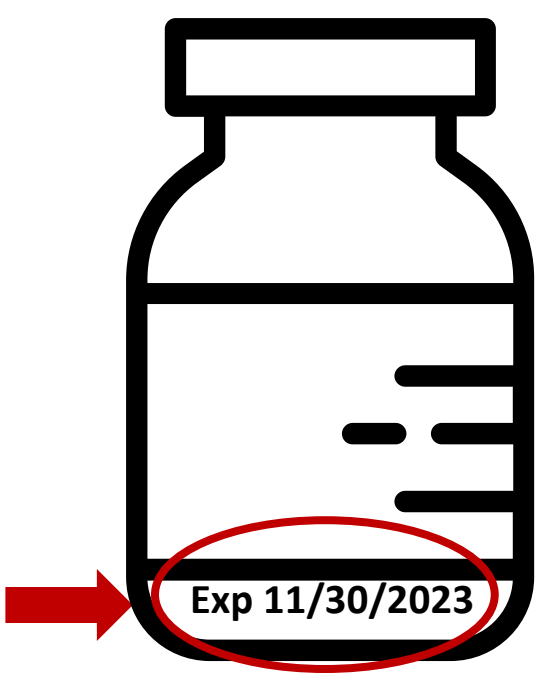
Month, day, and year of expiration

Month and year of expiration

QR Code, website, or phone number

Month and year of manufacture

Where to Find the Expiration Date



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[Vaccines Storage and Handling Toolkit | CDC]

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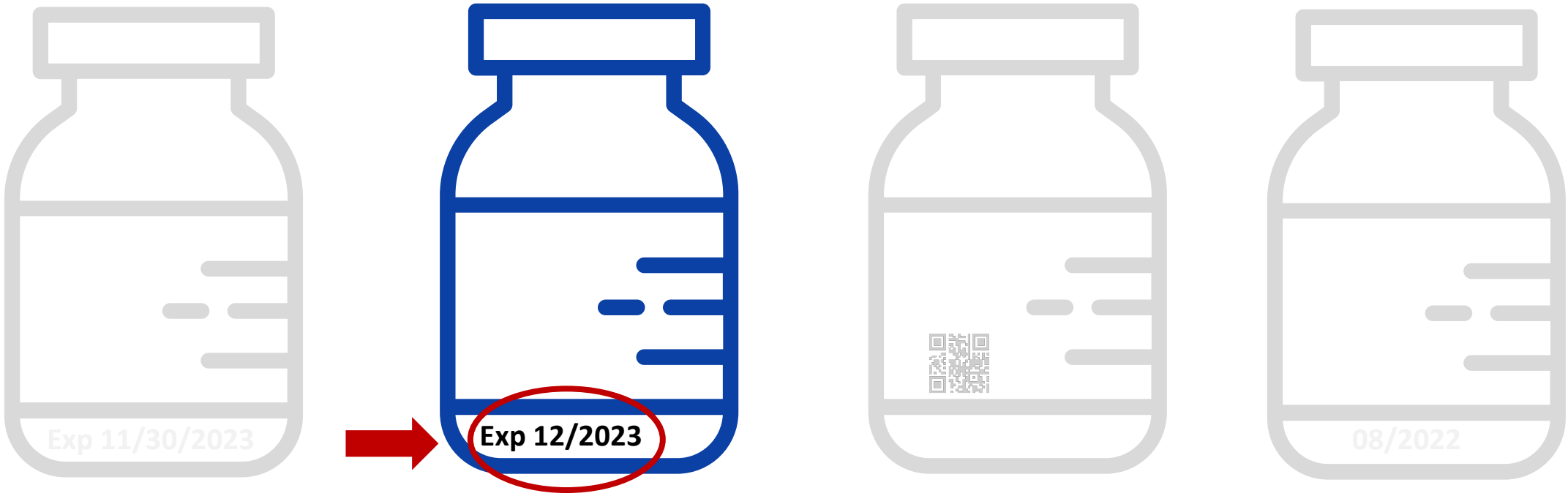

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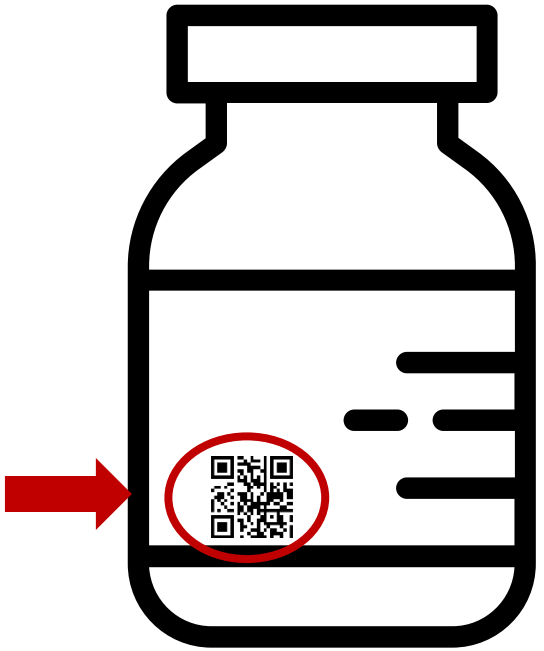

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[Vaccines Storage and Handling Toolkit | CDC]

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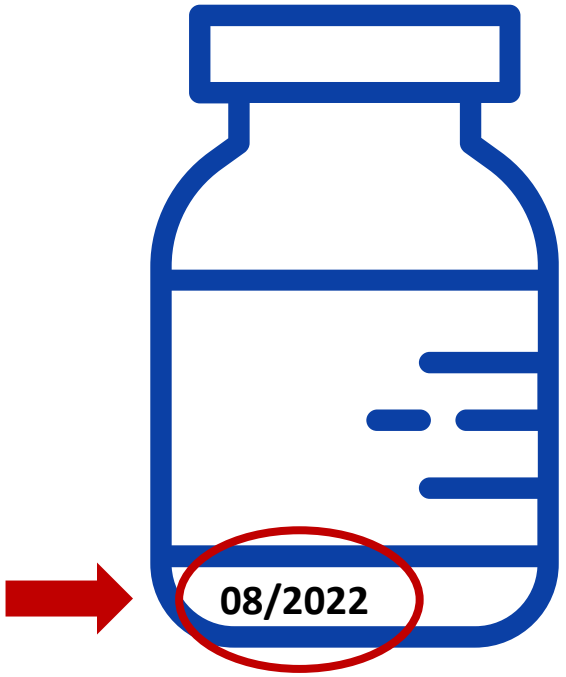


Month and year of manufacture

[Vaccines Storage and Handling Toolkit | CDC]

What Do You Think?

- **The expiration date on vial label on indicates the vaccine expires on 8/23. This vaccine should NOT be used after?**

A. August 1, 2023
B. August 31, 2023
C. August 23, 2023

What Do You Think? Answer!

- The expiration date on vial label on indicates the vaccine expires on 8/23. This vaccine should NOT be used after?
  - A. August 1, 2023
  - **B. August 31, 2023**
  - C. August 22, 2023

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

- Date/time generated when a product is transitioned between storage states or prepared for administration
- Set by the provider
- Replaces but does not extend the expiration; always use the earlier date
- Only some vaccines have a BUD

How is the BUD Calculated?

- The designated timeframe is not the same and varies from product to product.

- 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.

Vaccines Storage and Handling Toolkit | CDC)

How is the BUD Calculated?

December 2022						
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

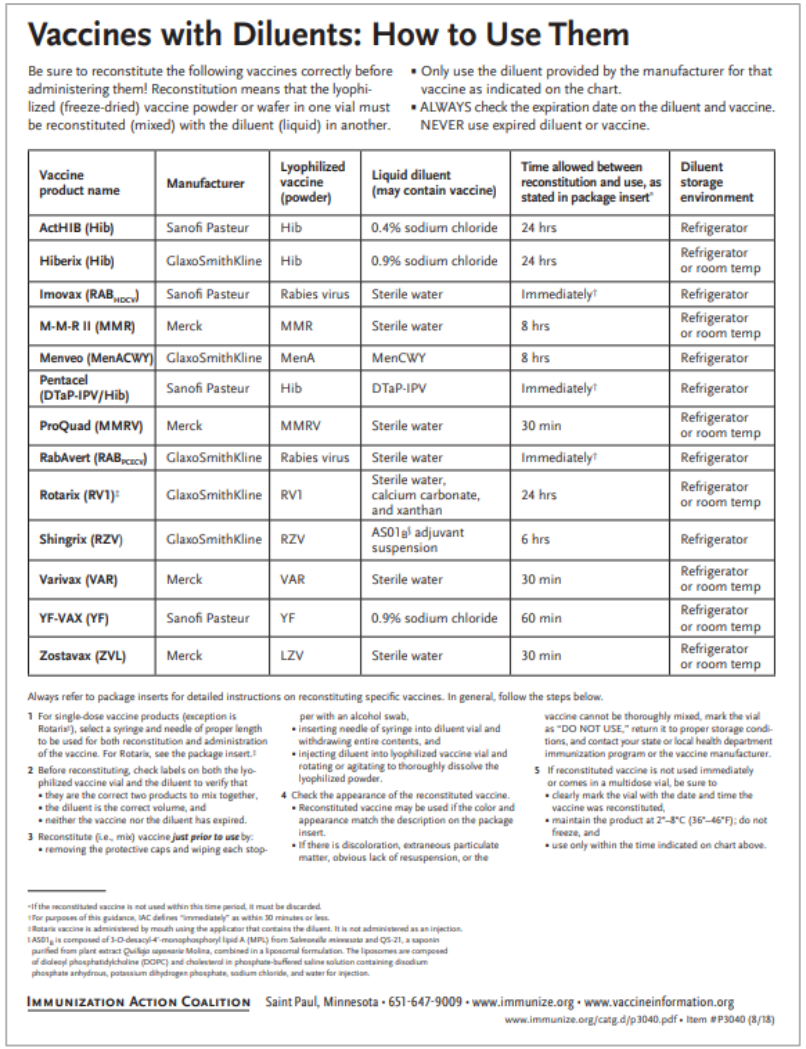
Day 0: Punctured vial

January 2023						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Day 28: From puncture

BUD and Vaccine Mixed with a Diluent

- Once mixed with diluent, vaccines have a limited period for use.
- The BUD can vary from minutes to hours.



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.

1 For single-dose vaccine products (exception is Rotarix®), select a syringe and needle of proper length to be used for both reconstitution and administration of the vaccine. For Rotarix, see the package insert.‡

2 Before reconstituting, check labels on both the lyophilized vaccine vial and the diluent to verify that
- they are the correct two products to mix together,
- the diluent is the correct volume, and
- neither the vaccine nor the diluent has expired.

3 Reconstitute (i.e., mix) vaccine ***just prior to use*** by:
- removing the protective caps and wiping each stopper with an alcohol swab,
- inserting needle of syringe into diluent vial and withdrawing entire contents, and
- injecting diluent into lyophilized vaccine vial and rotating or agitating to thoroughly dissolve the lyophilized powder.

4 Check the appearance of the reconstituted vaccine.
- Reconstituted vaccine may be used if the color and appearance match the description on the package insert.
- If there is discoloration, extraneous particulate matter, obvious lack of resuspension, or the vaccine cannot be thoroughly mixed, mark the vial as "DO NOT USE," return it to proper storage conditions, and contact your state or local health department immunization program or the vaccine manufacturer.

5 If reconstituted vaccine is not used immediately or comes in a multidose vial, be sure to
- clearly mark the vial with the date and time the vaccine was reconstituted,
- maintain the product at 2°–8°C (36°–46°F); do not freeze, and
- use only within the time indicated on chart above.

*If the reconstituted vaccine is not used within this time period, it must be discarded.
†For purposes of this guidance, IAC defines "immediately" as within 30 minutes or less.
‡Rotarix vaccine is administered by mouth using the applicator that contains the diluent. It is not administered as an injection.
§$AS01_B$ is composed of 3-O-desacyl-4′-monophosphoryl lipid A (MPL) from *Salmonella minnesota* and QS-21, a saponin purified from plant extract *Quillaja saponaria* Molina, combined in a liposomal formulation. The liposomes are composed of dioleoyl phosphatidylcholine (DOPC) and cholesterol in phosphate-buffered saline solution containing disodium phosphate anhydrous, potassium dihydrogen phosphate, sodium chloride, and water for injection.

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org
www.immunize.org/catg.d/p3040.pdf • Item #P3040 (8/18)

[Vaccines with Diluents: How to Use Them (immunize.org)]

BUD and Vaccine in a Multidose Vial

- Some multidose vials (MDV) have a specified time frame they should be used after the vial is first punctured.
- The BUD can vary from hours to days.
- Some MDV have a specific maximum number of doses that can be withdrawn or punctures to the vial stopper.

!

Never use vaccine after the beyond-use date/time!

. Vaccines Storage and Handling Toolkit | CDC

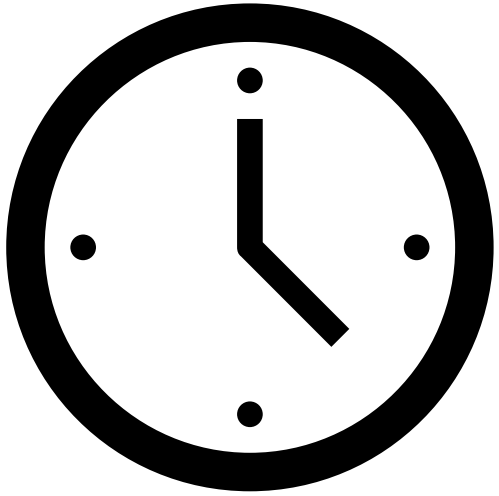
What Do You Think?

- **Choose the best response:**
- **You are preparing a vaccine for administration and in the process, you learn:**
  - Expiration date = 8/2024
  - 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



Graphic created by Shashwathy from Noun Project

What Do You Think? Answer!

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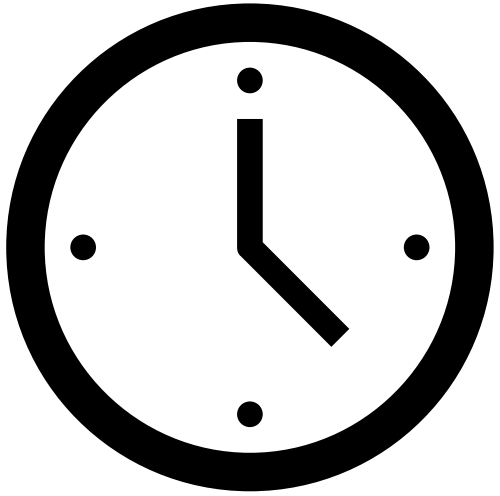

Additional Considerations for Multidose Vials

- Withdraw the indicated number of doses from the vial.
- Discard vial when there is not enough vaccine to obtain a complete dose.
- Do NOT combine residual vaccine from multiple vials to obtain a dose.

Pinkbook: Vaccine Administration | CDC

Pre-drawing Vaccines

- **Generally not recommended, but if you must**
  - Prepare at site or event in clean area
  - Separate administration stations if multiple vaccines are being offered
  - Monitor patient flow
  - Additional guidance for reconstituted vaccines

- **Best practice: Use manufacturer-filled syringes for large vaccination clinics.**

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

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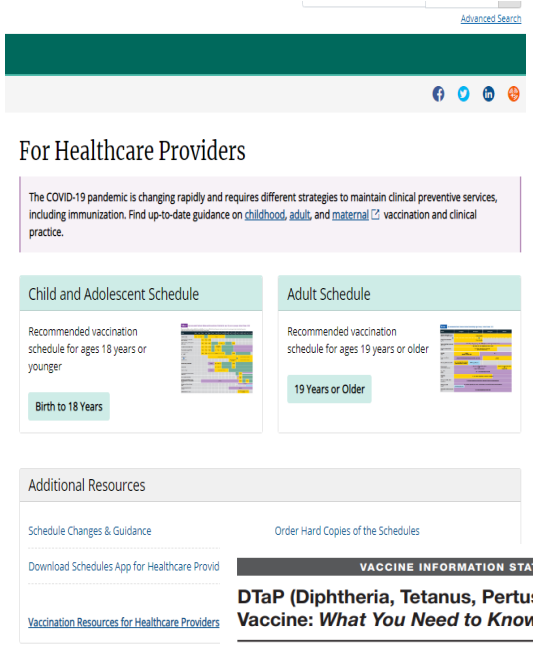
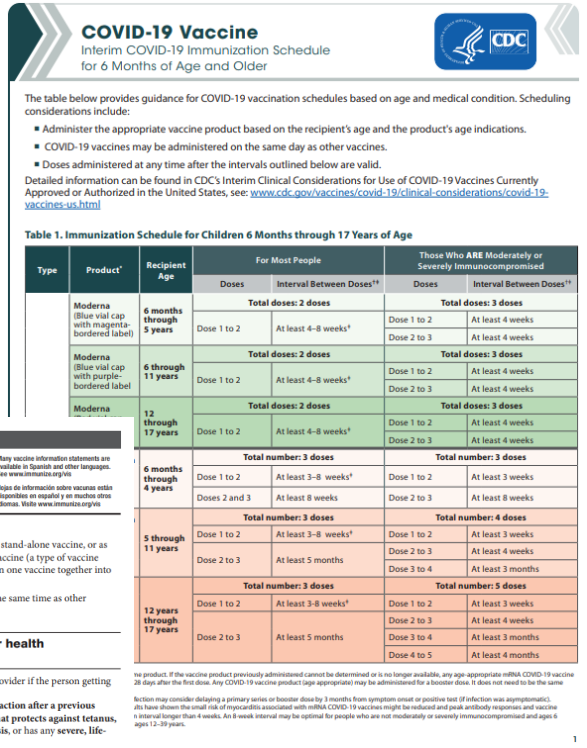
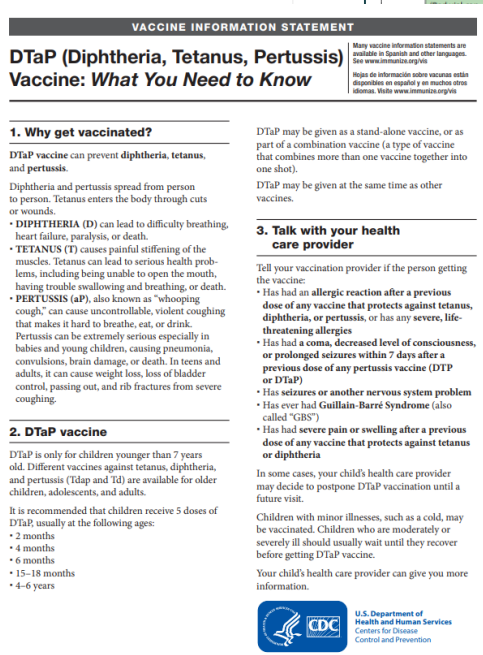
Vaccine Administration

Before Administering Vaccines

- **Review the immunization history and determine needed vaccines:**
  - Use recommended schedule based on the age of the patient.
- **Discuss vaccine benefits and risks and vaccine-preventable disease risks using Vaccine Information Statements and other reliable resources.**



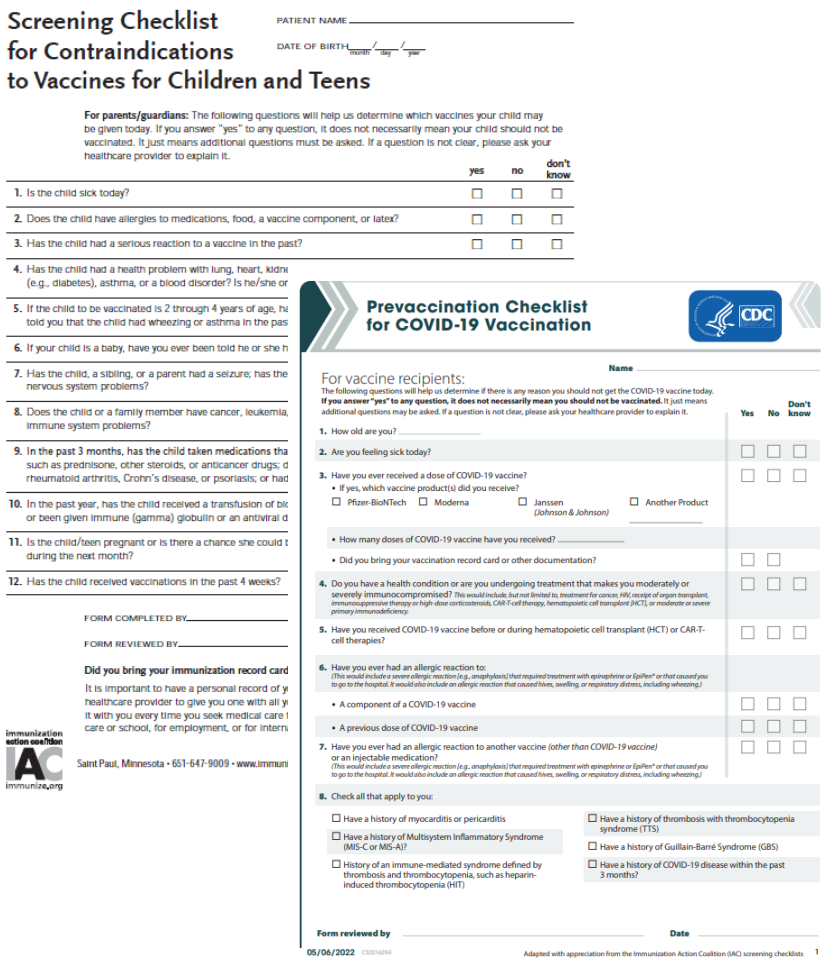




[Birth-18 Years Immunization Schedule | CDC]
[COVID-19 Vaccine Interim COVID-19 Immunization Schedule for 6 Months of Age and Older (cdc.gov)]
[Vaccine Information Statements (VISs) | CDC]

Screening for Contraindications and Precautions

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



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 medications, food, a vaccine component, or latex?	☐	☐	☐
3. Has the child had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Has the child had a health problem with lung, heart, kidn (e.g., diabetes), asthma, or a blood disorder? Is he/she or			
5. If the child to be vaccinated is 2 through 4 years of age, ha told you that the child had wheezing or asthma in the pas			
6. If your child is a baby, have you ever been told he or she h			
7. Has the child, a sibling, or a parent had a seizure; has the nervous system problems?			
8. Does the child or a family member have cancer, leukemia, immune system problems?			
9. In the past 3 months, has the child taken medications tha such as prednisone, other steroids, or anticancer drugs; d rheumatoid arthritis, Crohn's disease, or psoriasis; or had			
10. In the past year, has the child received a transfusion of blo or been given immune (gamma) globulin or an antiviral d			
11. Is the child/teen pregnant or is there a chance she could t during the next month?			
12. Has the child received vaccinations in the past 4 weeks?			

FORM COMPLETED BY

FORM REVIEWED BY

Did you bring your immunization record card

It is important to have a personal record of y healthcare provider to give you one with all y it with you every time you seek medical care t care or school, for employment, or for intern

Saint Paul, Minnesota • 651-647-9009 • www.immuni

immunize.org

Prevaccination Checklist for COVID-19 Vaccination

CDC

Name

For vaccine recipients:

The following questions will help us determine if there is any reason you should not get the COVID-19 vaccine today. **If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated.** It just means additional questions may be asked. If a question is not clear, please ask your healthcare provider to explain it.

	Yes	No	Don't know
1. How old are you?			
2. Are you feeling sick today?	☐	☐	☐
3. Have you ever received a dose of COVID-19 vaccine?	☐	☐	☐
• If yes, which vaccine product(s) did you receive? ☐ Pfizer-BioNTech ☐ Moderna ☐ Janssen (Johnson & Johnson) ☐ Another Product			
• How many doses of COVID-19 vaccine have you received?			
• Did you bring your vaccination record card or other documentation?	☐	☐	
4. Do you have a health condition or are you undergoing treatment that makes you moderately or severely immunocompromised? *This would include, but not limited to, treatment for cancer, HIV, receipt of organ transplant, immunosuppressive therapy or high-dose corticosteroids, CAR-T cell therapy, hematopoietic cell transplant (HCT), or moderate or severe primary immunodeficiency.*	☐	☐	☐
5. Have you received COVID-19 vaccine before or during hematopoietic cell transplant (HCT) or CAR-T-cell therapies?	☐	☐	☐
6. Have you ever had an allergic reaction to: *(This would include a severe allergic reaction (e.g., anaphylaxis) that required treatment with epinephrine or EpiPen® or that caused you to go to the hospital. It would also include an allergic reaction that caused hives, swelling, or respiratory distress, including wheezing.)*			
• A component of a COVID-19 vaccine	☐	☐	☐
• A previous dose of COVID-19 vaccine	☐	☐	☐
7. Have you ever had an allergic reaction to another vaccine *(other than COVID-19 vaccine)* or an injectable medication? *(This would include a severe allergic reaction (e.g., anaphylaxis) that required treatment with epinephrine or EpiPen® or that caused you to go to the hospital. It would also include an allergic reaction that caused hives, swelling, or respiratory distress, including wheezing.)*	☐	☐	☐

8. Check all that apply to you:

- ☐ Have a history of myocarditis or pericarditis
- ☐ Have a history of Multisystem Inflammatory Syndrome (MIS-C or MIS-A)?
- ☐ History of an immune-mediated syndrome defined by thrombosis and thrombocytopenia, such as heparin-induced thrombocytopenia (HIT)
- ☐ Have a history of thrombosis with thrombocytopenia syndrome (TTS)
- ☐ Have a history of Guillain-Barré Syndrome (GBS)
- ☐ Have a history of COVID-19 disease within the past 3 months?

Form reviewed by

Date

05/06/2022

Adapted with appreciation from the Immunization Action Coalition (IAC) screening checklists

[Prevaccination Checklist for COVID-19 Vaccines Information for Healthcare Professionals (cdc.gov)]

[Prevaccination Guidance for COVID-19 Vaccines Information for Healthcare Professionals-June 24, 2022 (cdc.gov)]

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

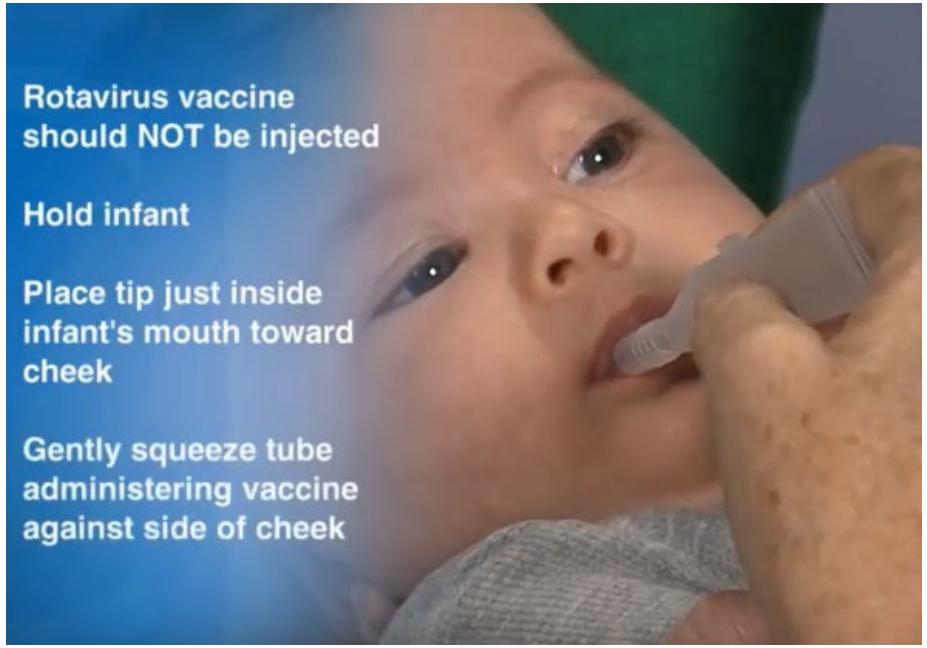
Infection Control

- **Gloves are not required when administering vaccines unless the HCP is likely to come into contact with potentially infectious body fluids or has open lesions on hands:**
  - If gloves are worn, they should be changed between patients.
  - Perform hand hygiene between patients even if wearing gloves.
- **Equipment disposal:**
  - Puncture-proof biohazard container
  - Empty or expired vaccine vials are medical waste.

Hand Hygiene in Healthcare Settings | CDC

Route and Site

- **Oral (PO):**
  - Administer liquid inside cheek slowly down one side (between cheek and gum) toward the back of infant’s mouth.

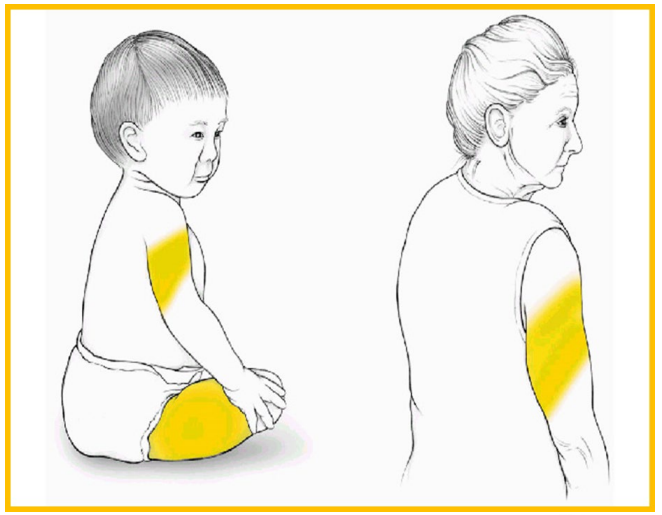


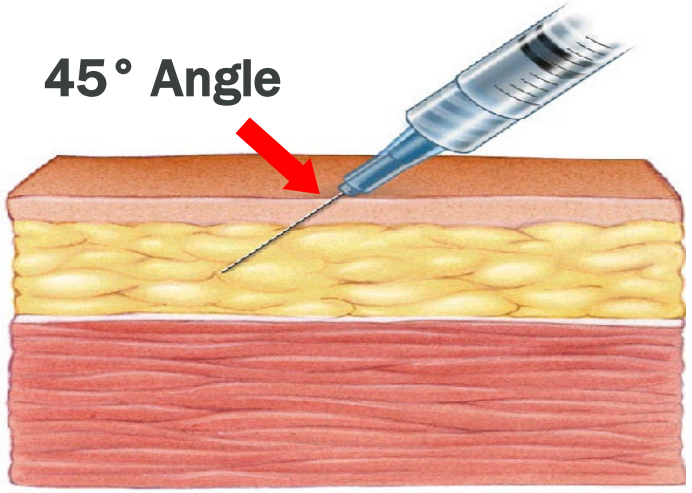
- **Intranasal (NAS):**
  - LAIV4 is the only vaccine administered by the intranasal route.

Pinkbook: Vaccine Administration | CDC
Vaccine Administration Resource Library | CDC

Subcutaneous Injection Route

- **Site:**
  - Thigh for infants younger than 12 months of age
  - Upper outer triceps of arm for children older than 12 months and adults (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.



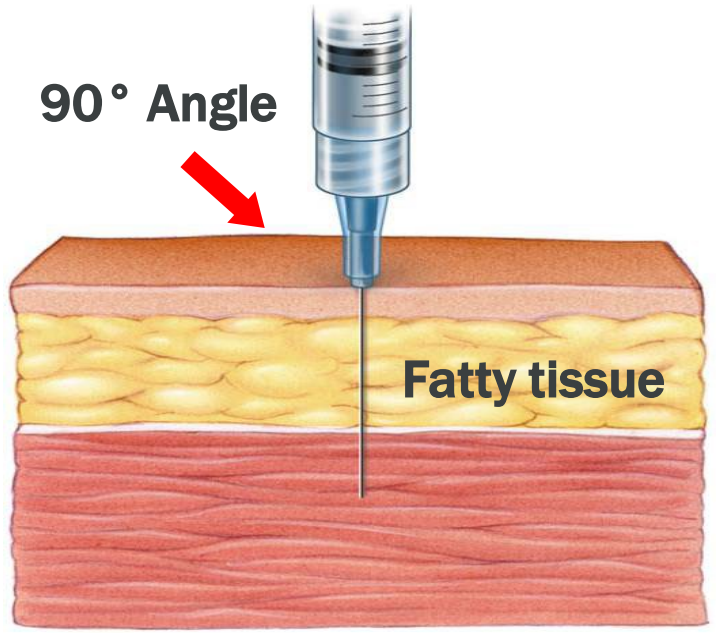


Pinkbook: Vaccine Administration | CDC

Vaccine Administration: Needle Gauge and Length (cdc.gov

Intramuscular Injection Route

- 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.



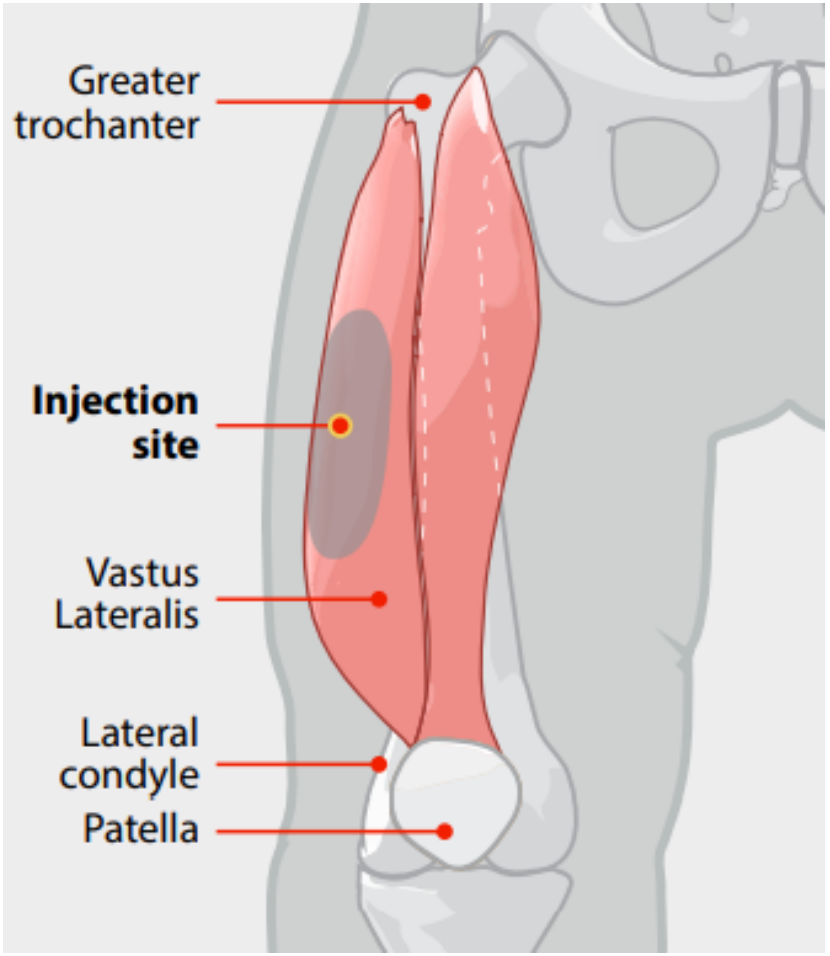
Aspiration is NOT required

Pinkbook: Vaccine Administration | CDC

Vaccine Administration: Needle Gauge and Length (cdc.gov)

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

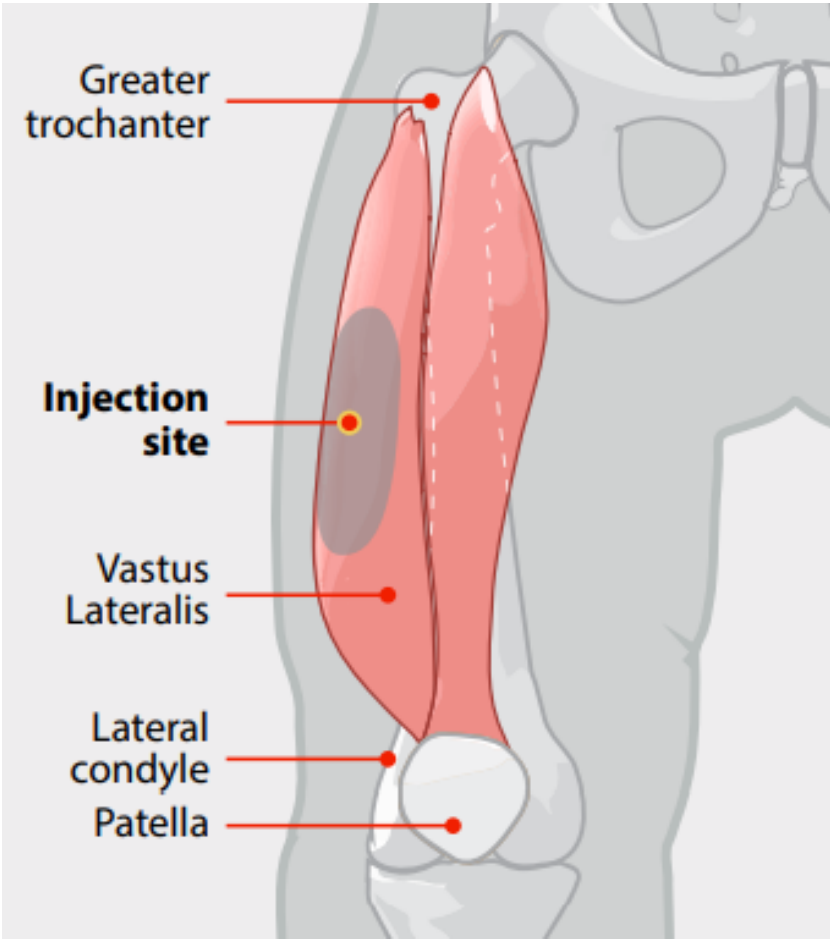


You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Infants 11 months of age and younger (cdc.gov)

Vaccine Administration: Needle Gauge and Length (cdc.gov

Intramuscular Injection (IM) Route: 1–2 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 adequate only for the deltoid muscle and only if the skin is stretched flat between thumb and forefinger)

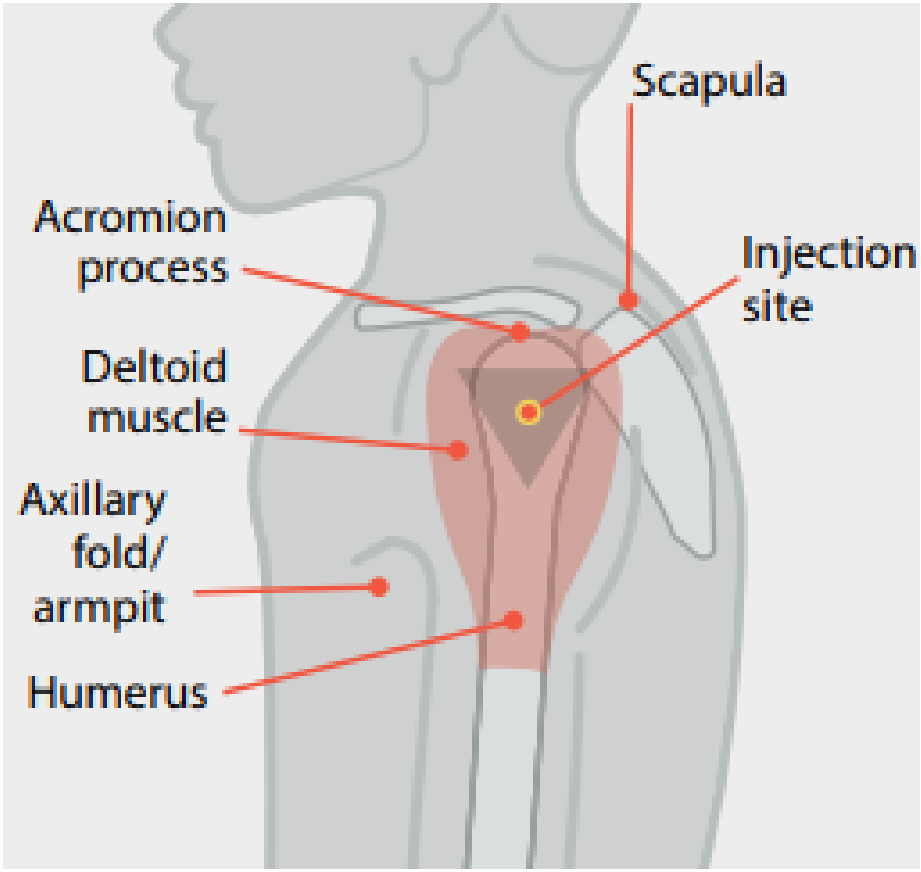


You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Children 1 through 2 years of age (cdc.gov)

Vaccine Administration: Needle Gauge and Length (cdc.gov

Intramuscular Injection (IM) Route: 3 through 18 Years

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



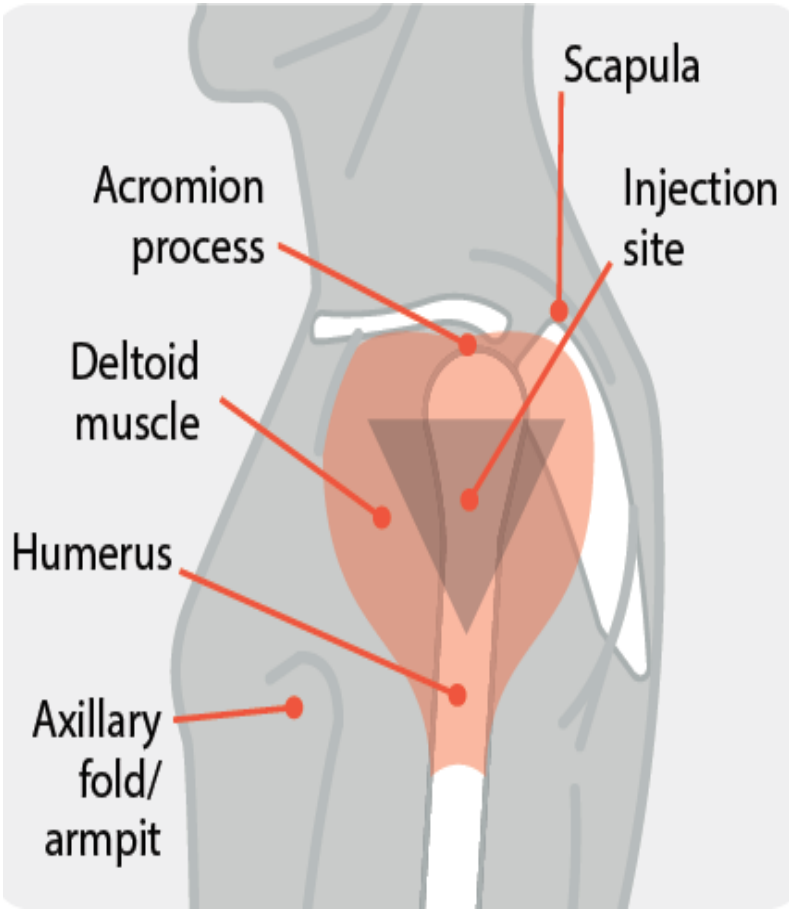
You Call The Shots - Vaccine Administration:Intramuscular (IM) Injection Children 3 through 6 years of age (cdc.gov)

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

Vaccine Administration: Needle Gauge and Length (cdc.gov

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: 22- to 25-gauge**
- **Needle length varies with patient size.**



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

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 Periods

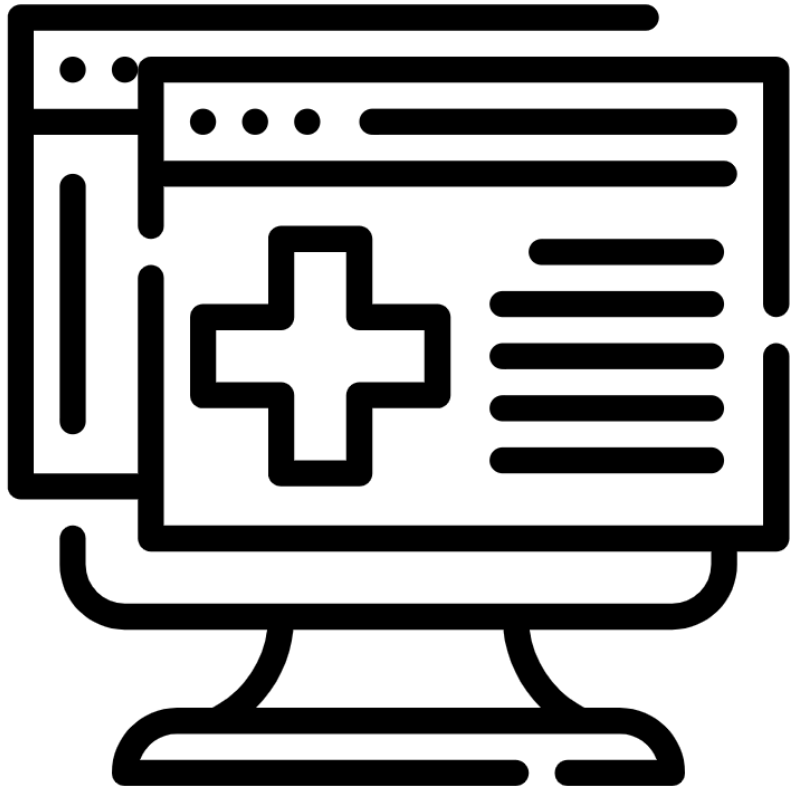
- **CDC recommends:**
  - 30 minutes for people with a:
    - Contraindication to one type of COVID-19 vaccine who are receiving another type that is a precaution
    - History of non-severe, immediate allergic reaction after a previous dose of COVID-19 vaccine.
    - History of an immediate allergic reaction of any severity to other vaccines or injectable therapies.
    - History of anaphylaxis due to any cause.
  - 15 minutes for all other people

30 minutes
or
15 minutes

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

After Vaccination: Documentation

- **Federally required documentation:**
  - Date of administration
  - Vaccine manufacturer
  - Vaccine lot number
  - Name and title of person who administered vaccine and address of clinic or facility where permanent record will reside
  - Vaccine information statement (VIS)
    - Date printed on the VIS
    - Date VIS given to patient or parent/guardian
- **Best practice documentation:**
  - Vaccine type (ACIP abbreviation)
  - Route
  - Dosage (volume)
  - Site



Pinkbook: Vaccine Administration | CDC

Created by Tippawan Soo for the Noun Project

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Additional Clinical Considerations

Multiple Vaccinations

- **All routinely recommended vaccines can be given at the same clinical visit**
  - COVID-19 vaccine can be administered at the same time as routinely recommended vaccines.
- **Separate injection sites by at least 1 inch (or more if possible).**
- **Use a separate limb for most reactive vaccines, if possible.**
- **Use combination vaccines when appropriate to reduce the number of injections.**

Pinkbook: Vaccine Administration | CDC
COVID-19 Vaccine Webinar Series | CDC

Needle Anxiety and Procedure Pain

63%
of
younger
children

50%
of
adolescents

25%
of
adults

Meg Foundation (megfoundationforpain.org)

Pain Management and Vaccine Administration

- **Use topical local anesthetics**
- **Inject vaccines:**
  - Rapidly without aspiration
  - That cause the most pain when injected last
- **Breastfeed children 2 years of age and younger during vaccine injections:**
  - Give a sweet-tasting solution if not breastfed
- **Strategies for older children and adults include:**
  - Distraction
  - Breathing techniques

Meg Foundation (megfoundationforpain.org)

Positioning and Comforting Restraint

- **Encourage parent/guardian to hold child**
- **Sitting rather than lying down (young child)**
- **Think about syncope (fainting):**
  - Have patient seated during vaccination
  - Be aware of symptoms that precede syncope
  - If patient faints, provide supportive care and protect patient from injury
  - Observe patient (seated or lying down) for at least 15 minutes after vaccination

How to Hold Your Child during Vaccinations | CDC
ACIP Adverse Reactions Guidelines for Immunization | CDC
Meg Foundation (megfoundationforpain.org)

What Do You Think?

- True or False?
- Using pain management strategies during vaccination improves the quality of care and outcomes, increases patient and staff satisfaction.

What Do You Think? Answer!

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

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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 (e.g., pediatric formulation of hepatitis B vaccine administered to an adult)
  - Doses administered too early (e.g., before the minimum age or interval)
  - Wrong vaccine (e.g., Tdap instead of DTaP)
  - Vaccine administered to a patient with a contraindication

Pinkbook: Vaccine Administration | CDC

Potential Causes

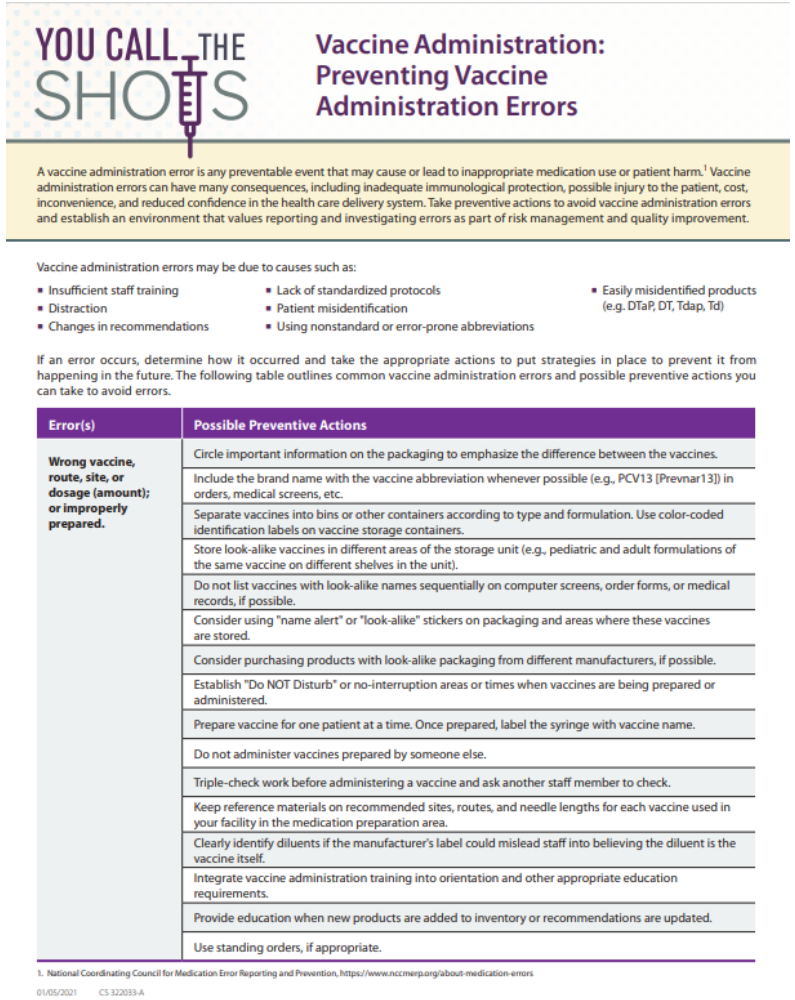
- **Vaccine administration errors may be due to multiple causes, including:**
  - Insufficient staff training
  - Distraction
  - Lack of standardized protocols
  - Look-alike or sound-alike products
  - Patient misidentification

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.**

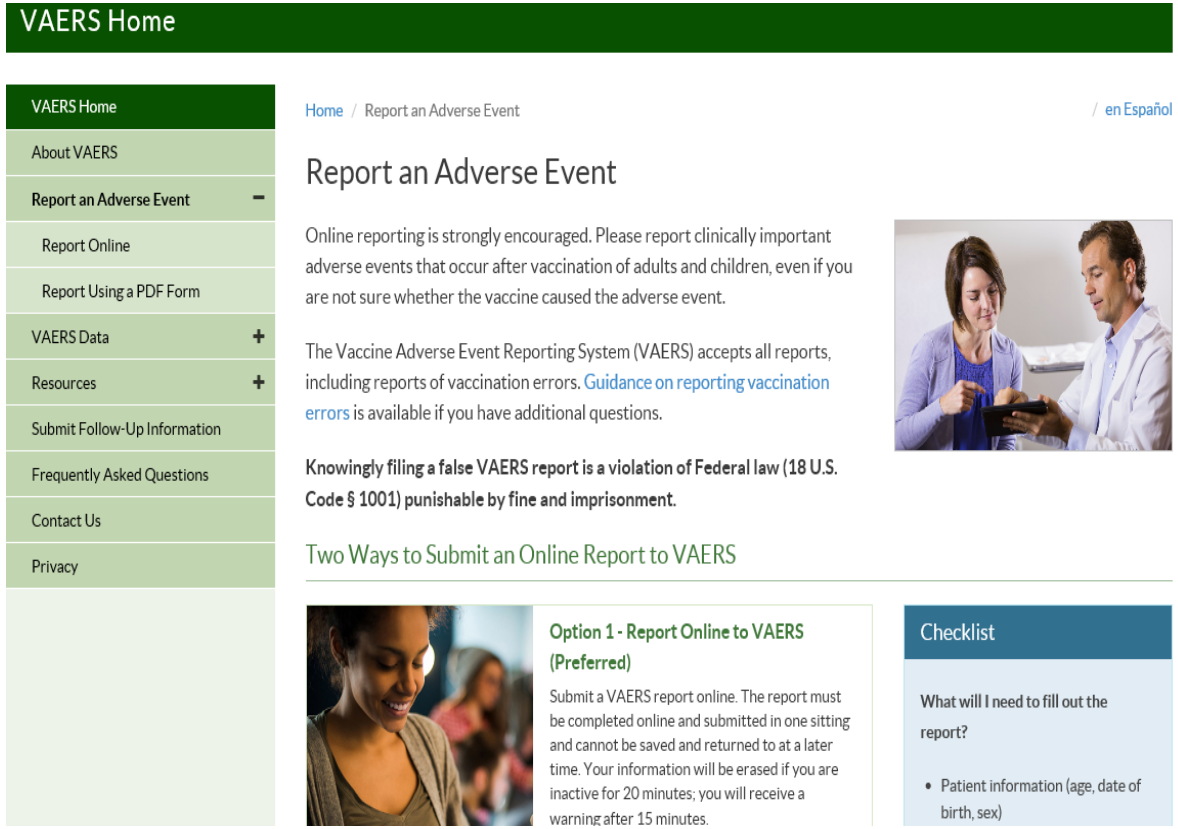
Pinkbook: Vaccine Administration | CDC

CDC INFO | 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.**

- **NOTE: Providers are REQUIRED to report all COVID-19 vaccine administration errors.**



https://vaers.hhs.gov/reportevent.html

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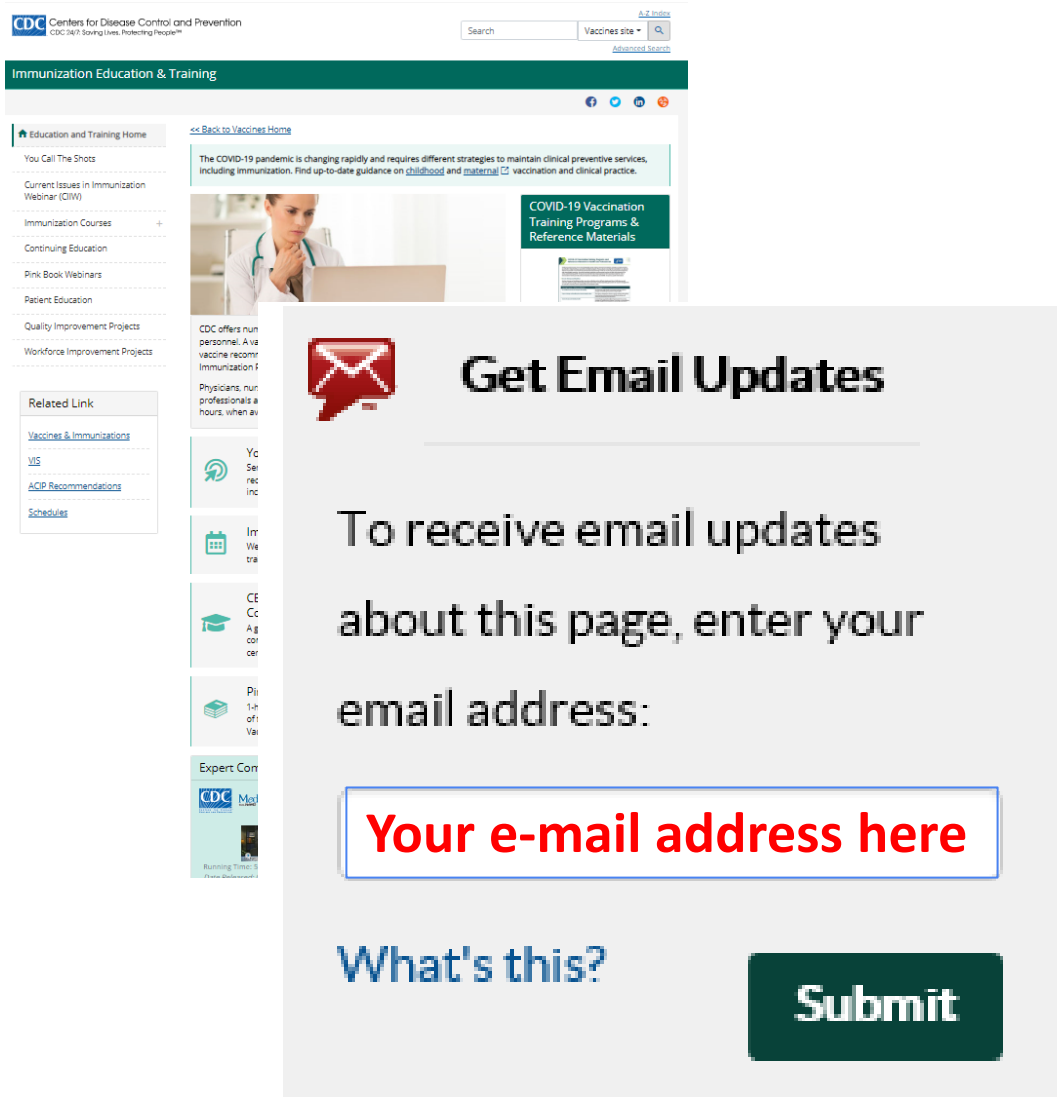
Clinical Resources

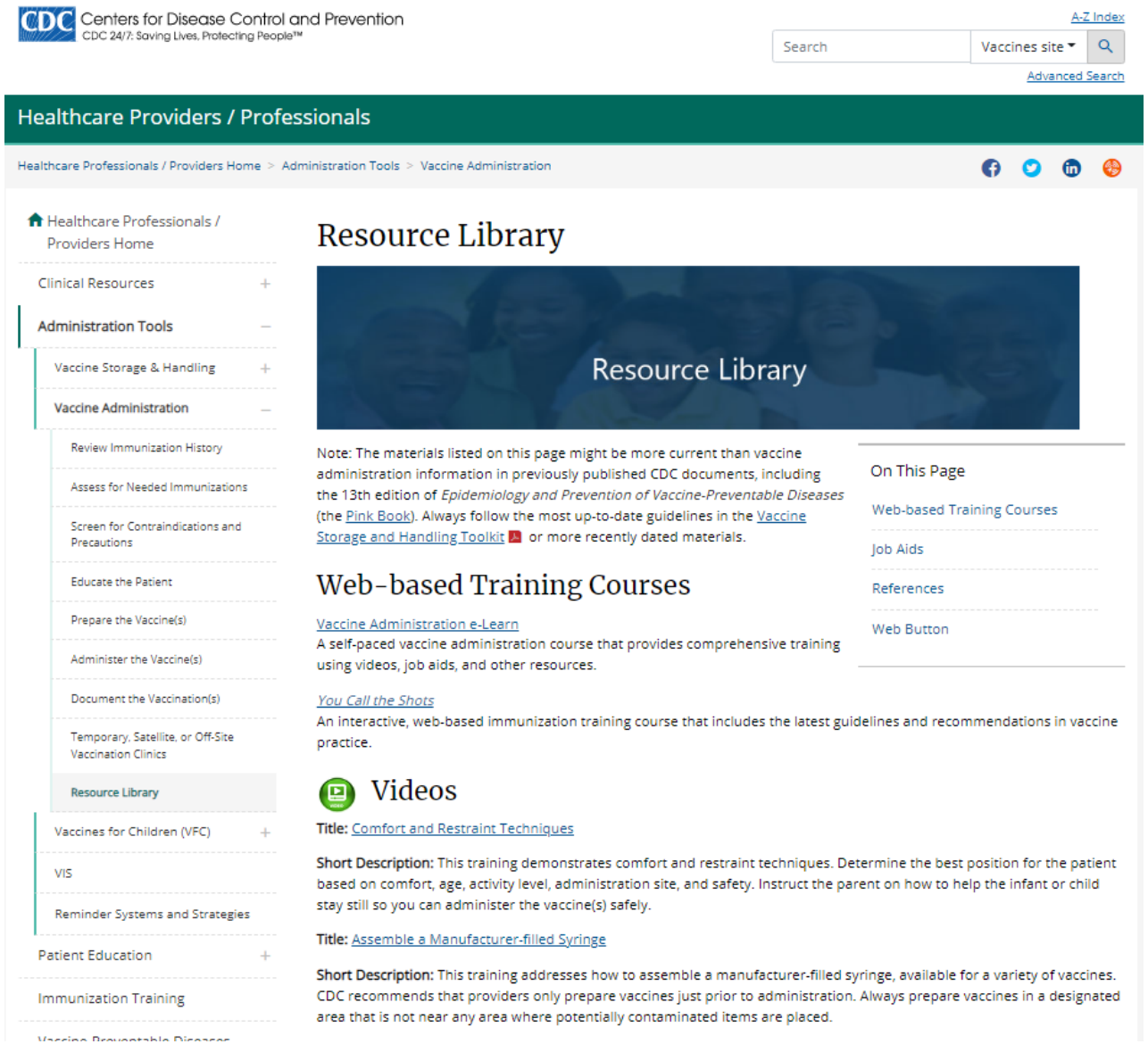
CDC Resources for Staff Education

- **Multiple education products available free through the CDC website including:**
  - *You Call the Shots* self-study modules
    - Vaccine Administration and others
  - Pink Book webinar series
  - Current Issues in Immunization webinars
  - Continuing education available for all

- **Sign up for e-mail updates**



Vaccine Education and Training for Healthcare Professionals | CDC



Vaccine Administration Resource Library | CDC

Continuing Education Information

- **CE credit, go to**: https://tceols.cdc.gov/
- **Search course number: WD4564-080322**
- **CE credit expires: July 1, 2024**
- **CE instructions are available on the Pink Book Web-on-Demand Series web page**
- **Questions and additional help with the online CE system, e-mail** CE@cdc.gov

E-mail Your Immunization Questions to Us

- NIPINFO@cdc.gov

Thank You From Atlanta!