



Medication Administration Education

Medication Preparation

When administering medications, always follow safe injection practices.

- Use needle-shielding syringes or needle-free injectors to reduce the risk of needlestick injury.
- Discard all used syringe/needle devices in a puncture-proof sharps container in the same room where the medication is administered.
- Follow your facility's policies and procedures for reporting a needlestick injury.

During Preparation

- Always perform hand hygiene with a waterless, alcohol-based hand rub with 60% to 95% alcohol.
- Hands should be washed with soap and water for at least 20 seconds when visibly soiled.
- Use a designated, clean medication area away from any area where contaminated items are placed.
- Use aseptic technique.
- Avoid distractions.
- Prepare medication for only ONE patient at a time.
- Always follow the manufacture's instructions in the package insert.

Types of Packaging

- Single-dose vials: only used for one patient and for one injection. Do not use any medication left in a single-dose vial after you have administered the dose. Discard the vial and any leftover contents appropriately.
- Manufacturer-filled syringes: prepared with a single dose of medication and are sealed under sterile conditions by the manufacturer. Do not contain preservatives. Once the sterile seal has been broken, the medication should be used or discarded by the end of the workday.
- Multidose vial: contains more than one dose. Contains an antimicrobial preservative, so they can be punctured more than once. Intended for more than one patient. Never use partial amounts from two or more vials to obtain a dose. Can only be stored for 28 days from the date opened or expiration date (whichever comes first). Write open date or expiration date and nurse initials on vial once opened.

*Always check the label on the vial or box to make sure:

- It is the correct medication and diluent (if needed)
- The expiration date has not passed. Never use expired medication or diluent.

Choose the correct needle length based on:

Route

Patient age

Gender and weight for
adults

Site

Injection technique

Needle Length and Gauge for Children and Adolescents.

Needle Length and Gauge: Children and Adolescents (birth – 18 years) for *Intramuscular* Injection

Age and Gender	Needle Length and Gauge	Injection Site
Neonate, 28 days or younger	5/8-inch (16 mm)*: 22- to 25-gauge	Vastus lateralis muscle of anterolateral thigh
Infants, 1–12 months	1-inch (25 mm): 22- to 25-gauge	Vastus lateralis muscle of anterolateral thigh
Toddlers, 1–2 years	1- to 1.25-inch (25–32 mm): 22- to 25-gauge	Vastus lateralis muscle of anterolateral thigh (preferred site)
	5/8*- to 1-inch (16–25 mm): 22- to 25-gauge	Deltoid muscle of arm
Children, 3–10 years	5/8*- to 1-inch (16–25 mm): 22- to 25-gauge	Deltoid muscle of arm (preferred site)
	1- to 1.25-inch (25–32 mm): 22- to 25-gauge	Vastus lateralis muscle of anterolateral thigh
Children, 11–18 years	5/8*- to 1-inch (16–25mm): 22- to 25-gauge	Deltoid muscle of arm (preferred site) †

*If the skin is stretched tightly and subcutaneous tissues are not bunched.

†The vastus lateralis muscle of the anterolateral thigh can also be used. Most adolescents and adults will require a 1- to 1.5-inch (25–38 mm) needle to ensure intramuscular administration.

Needle Length and Gauge for Adults

Needle Length and Gauge: Adults (age 19 years or older) for *Intramuscular* Injection

Age and Gender	Needle Length and Gauge	Injection Site
Less than 130 lbs (60 kg)	1-inch (25 mm)*: 22- to 25-gauge	Deltoid muscle of arm (preferred site) [†]
130–152 lbs (60–70 kg)	1-inch (25 mm): 22- to 25-gauge	
Men, 153–260 lbs (70–118 kg)	1- to 1.5-inch (25–38 mm): 22- to 25-gauge	
Women, 153–200 lbs (70–90 kg)	1- to 1.5-inch (25–38 mm): 22- to 25-gauge	
Men, greater than 260 lbs (118 kg)	1.5-inch (38 mm): 22- to 25-gauge	
Women, greater than 200 lbs (90 kg)	1.5-inch (38 mm): 22- to 25-gauge	

*Some experts recommend a 5/8-inch needle for men and women weighing less than 60 kg; if used, skin must be stretched tightly and subcutaneous tissues must not be bunched.

†The vastus lateralis muscle of the anterolateral thigh can also be used. Most adolescents and adults will require a 1- to 1.5-inch (25–38 mm) needle to ensure intramuscular administration.

Drawing Up a Medication into a Syringe

- The cap on top of an unopened medication vial functions as a dust cover. Manufacturers do not guarantee the tops of unused vials are sterile and the stopper can be contaminated in the process of removing the cap. Using a sterile alcohol wipe and friction to swab the stopper will help to ensure aseptic technique. Allow it to dry while preparing the needle.
- Do not instill air into a multidose vial before withdrawing a dose unless directed to do so by the manufacturer. It could cause a “spritz” of medication to be lost the next time the vial is entered, which, overtime, can lead to the loss of medication.
- Before withdrawing each dose, follow the manufacturer’s guidance for mixing the medication.

When Filling a Syringe:

- Never enter a vial with a previously used syringe or needle.
- Never mix different medication products in the same syringe.
- Never transfer medication from one syringe to another.
- Never combine partial doses from separate vials to obtain a full dose.
- Once the syringe is filled, label it with the name of the medication in the syringe. Often more than one medication/vaccine is administered at the same visit and once drawn into a syringe, vaccines look very similar. Labeling the syringe will help you know which route to use to administer the medication correctly.

Medication Administration in Children

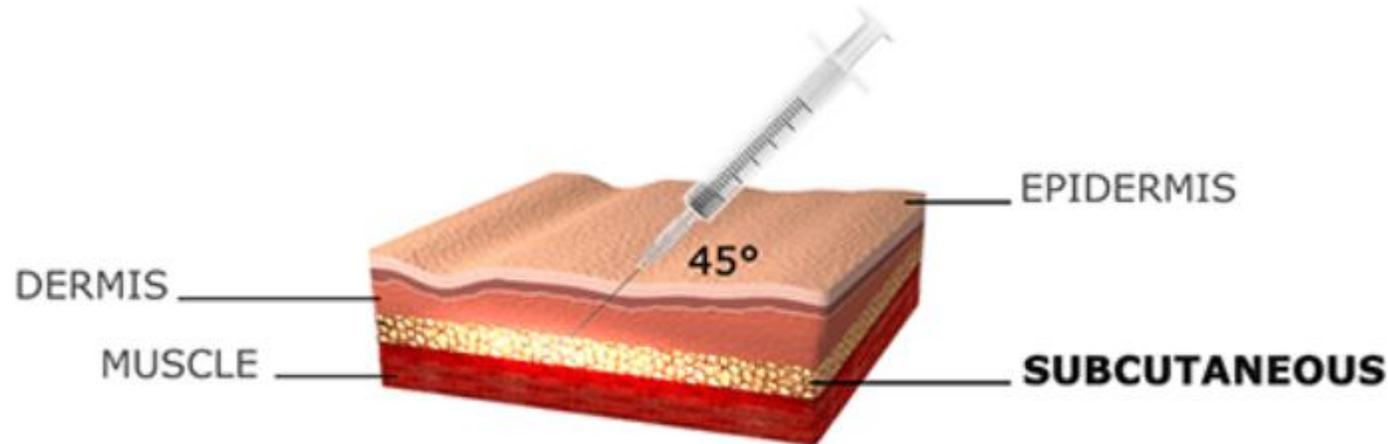
Instruct parents to hold the child in a comfortable position, with one or more limbs exposed for injections. A parent's embrace during medication administration offers several benefits:

- Avoids frightening the children by embracing rather than overpowering them
- Allows the provider steady control of the limb and injection site
- Prevents children from moving their arms and legs during the injections
- Encourage parents to nurture and comfort their children.

For children 4 years and older and adults, rubbing or stroking the skin near the injection site before and during the injection may decrease pain.

Subcutaneous Injections (Subcut or SC)

- Administered into the fatty tissue found below the dermis and above the muscle tissue.



Subcutaneous injections (Subcut or SC)

- The appropriate site for a subcutaneous injection depends solely on the patient's age.
- For infants younger than 12 months, the recommended site is the fatty tissue over the anterolateral thigh.
- If needed, the fatty tissue over the triceps area of the upper arm can also be used.



Subcutaneous injections (Subcut or SC)

- For persons 12 months or older, the recommended site is the fatty tissue over the triceps of the upper arm.



Note: Subcutaneous injections may be given through a tattoo.

To Administer a Medication by Subcutaneous Injection:

1

Perform proper hand hygiene.

2

Cleanse the skin with a sterile alcohol swab and allow it to dry.

3

Pinch up the skin and underlying fatty tissue.

4

Insert the needle at a 45-degree angle into the subcutaneous tissue and injection the medication.

5

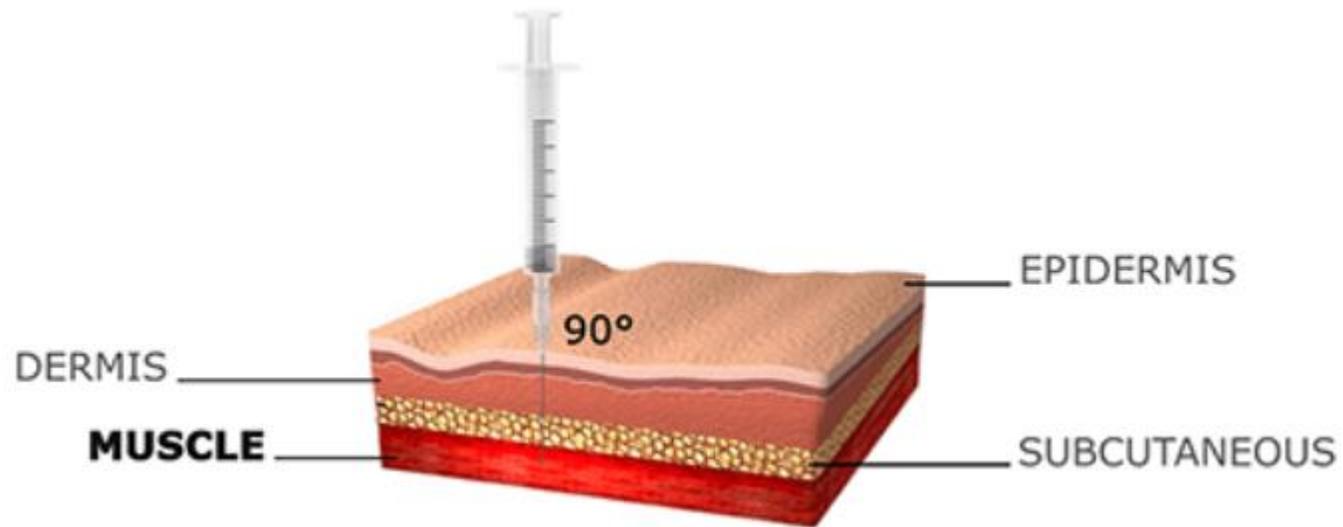
Withdraw the needle.

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Apply an adhesive bandage to the injections site if there is any bleeding.

Intramuscular Injections (IM)

- Administered into the muscle tissue below the skin and subcutaneous tissue.



Intramuscular Injections (IM)

- The recommended injection site depends on the patient's age.
- For infants and toddlers less than 3 years of age, use the vastus lateralis muscle in the anterolateral thigh. The buttock muscles are not used for vaccine administration because of concern about potential injury to the sciatic nerve.



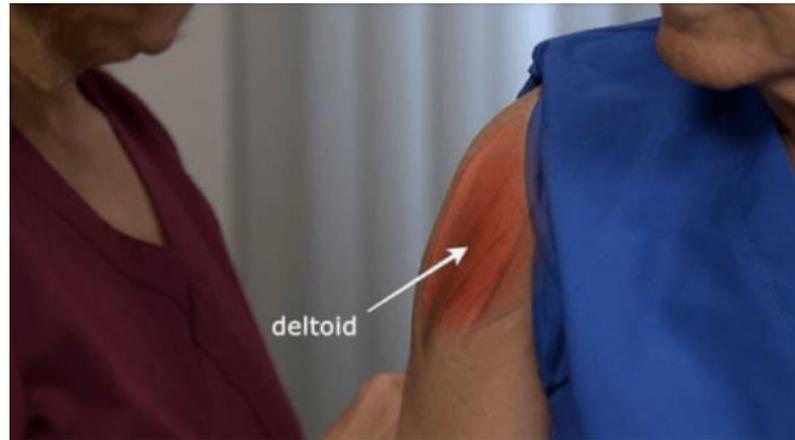
Intramuscular Injections (IM)

- For children 3 through 18 years of age, use the deltoid muscle in the upper arm. If the muscle mass is not adequate, use the vastus lateralis muscle in the anterolateral thigh.



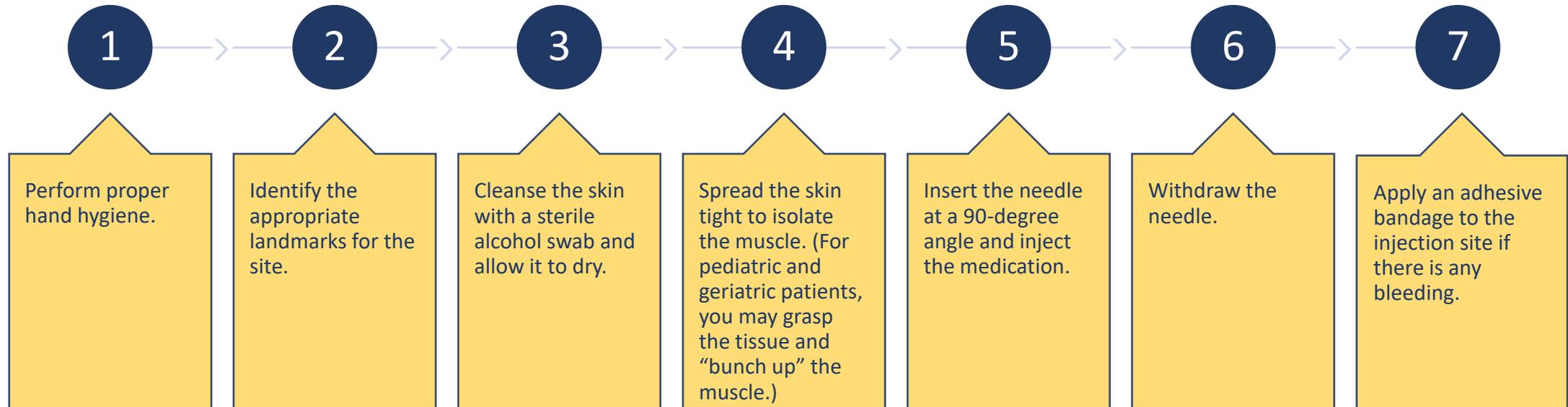
Intramuscular Injections (IM)

- For adults 19 years of age or older, use the deltoid muscle in the upper arm. If the muscle mass is not adequate, the vastus lateralis muscle may be used. For most adult patients, the skin should be spread and the tissues not bunched. For geriatric patients, it is acceptable to grasp the skin and “bunch up” the muscle.



Note: An IM injection can be given through a tattoo.

To Administer a Medication by Intramuscular Injection:



Administering Multiple Vaccines

- You can reduce the number of injections by using combination vaccines.
- Separate injection sites by 1 inch or more so that if there's a local reaction, you can tell which vaccine caused it.
- Vaccines that are the most reactive and more likely to cause an enhanced injection site reaction (e.g., DTaP and PCV13) should be administered in different limbs, if possible.
- Vaccines that are painful when injected (e.g., HPV and MMR) should be administered after other vaccines.
- If both a vaccine and an immune globulin (IG) preparation are needed (e.g., Td/Tdap and tetanus immune globulin [TIG] or hepatitis B vaccine and hepatitis B immune globulin [HBIG]), administer the injections in different limbs.

Note: Report adverse events following vaccination to the Vaccine Adverse Event Reporting System (VAERS).

Preventing Accidental Needlesticks

- Place all needle/syringe devices in a biohazard container immediately after use. Biohazard containers should be closable, puncture-resistant, leakproof on sides and bottom, and labeled or color-coded. Used needles should not be recapped or cut or detached from syringes before disposal.
- Empty or expired vaccines vials are considered medical waste and should be disposed of in the biohazard container.
- The containers will have fill lines, they should be disposed of in the biohazard medical waste, once they are to the fill line.

Documenting Medication Administration

It is required by law to document the following information in the patient's permanent medical record:

- Medication and date it was administered
- Medication manufacturer
- Medication lot number
- Name and title of the person who administered the vaccine

Best practice documentation also include documenting:

- Route
- Dosage (amount)
- Site

For vaccines also record:

- Edition date of the vaccine information statement (VIS), located on the back in the lower right corner
- Date the VIS was given to the patient, parent, or guardian.

Medication administration as a nurse visit:

- If you are administering a medication during a nurse visit, where the patient does not have an appointment with a provider, the nurse administering the medication is responsible for opening a nurse note and documenting the medication administration and have a provider sign the note.

Common Medication Administration Errors

Schedule and frequency

Wrong medication

Wrong dosage

Wrong route

Wrong site

Vaccine administered outside the approved age range

Expired vaccine or diluent

Improperly stored

Reconstituted with the wrong diluent

Contraindication for receiving medication

Strategies to Reduce Medication Errors

- Establish an open, trusting environment to help staff feel comfortable with disclosing errors. When an error occurs, use it as an opportunity to determine how it happened and what steps can be taken to prevent it from happening again.
 - Provide ongoing staff education.
 - Make reference materials available to staff.
 - Clearly label medication containers and consider color-coding containers or labels based on age indications (for vaccines).
 - Store sound-alike or look-alike vaccines in different containers and areas of the unit.
 - Check expiration dates weekly and remove expired medications from inventory.
 - Establish “Do NOT Disturb” or no-interruption areas or times when medications are being prepared or administered.
 - Use standing orders, if possible, to provide protocols for administering medications in a consistent way.
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