



Vaccine Administration

Sponsored by Kansas Pharmacists Association

Provided Through a Grant from the Kansas Department of Health and Environment –
Immunization Program



Objectives

Program Attendees will:

- Understand infection control in giving vaccinations
- Recognize patient comfort and safety concerns when giving vaccinations
- Be aware of how to administer intramuscular vaccinations correctly
- Be aware of how to give subcutaneous vaccinations correctly



Vaccine Administration Pre-Test

Infection Control:

When should you wear gloves?

- A. Any time you give an immunization
- B. When you are likely to come into contact with body fluids or the patient has open lesions
- C. You never should wear gloves
- D. When giving multiple patients a vaccination



Vaccine Administration Pre-Test

Patient Comfort and Safety

Which of the following is NOT an appropriate way to comfort a patient during administration?

- A. Distract them from what you are doing
- B. Rub the direct injection site after administration
- C. Ask them what arm they prefer the injection in
- D. Rub near the injection site after administration



Vaccine Administration Pre-Test

Intramuscular (IM) Vaccination

A 39-year-old woman weighing 141 lbs (64 kg) comes in for her influenza shot. What needle length would be most appropriate for an IM injection?

- A. 1½" needle
- B. 1–1½" needle
- C. 1" needle
- D. 5⁄8" needle



Vaccine Administration Pre-Test

IM Vaccination

What angle should you administer an IM shot?

- A. 90° angle
- B. 45° angle
- C. Any



Vaccine Administration Pre-Test

IM Vaccination

Which quadrant should you inject the Gluteus in?

- A. Upper Outer
- B. Upper Inner
- C. Lower Outer
- D. Lower Inner



Vaccine Administration Pre-Test

Subcutaneous (SC) Vaccination

A 78-year-old man weighing 220 lbs (100 kg) comes in for his Zostavax shot. What needle length would be most appropriate for an SC injection?

- a. 1½" needle
- b. 1–1½" needle
- c. 1" needle
- d. ⅝" needle



Vaccine Administration Pre-Test

SC Vaccination

What angle should you administer a SC shot?

- A. 90° angle
- B. 45° angle
- C. Any angle



Proper Infection Control

- Wash hands with soap and water
 - Before vaccine administration
 - Between patients
 - Any time hands become soiled
- Gloves
 - OSHA does not require gloves unless provider is likely to come into contact with body fluids or has open lesions
 - Gloves should be changed between patients, if worn
 - Gloves will not prevent needle sticks



Positioning an Adult for Vaccination

- Patient should be:
 - Seated as far back as possible in seat
 - Have a straight back
 - Have legs uncrossed, with both feet on the floor
 - Have their arm bent at the elbow and rested on the hip



Comforting Patient

- Any patient, regardless of age, might have concern and anxiety regarding injections and are often the reason they do not get vaccinated
- Distraction
 - Take their attention away from what you are doing
 - Can be accomplished through the use of music, diverted eyeline, conversation and other activities that preoccupy the patients thoughts while vaccine is administered
- Tactile stimulation can compete with the pain of the injection and can be as simple as rubbing or stroking the skin near the injection site with moderate intensity prior, during, and immediately after administration



Syncope (Fainting)

- Syncope can occur after vaccination and is most common among adolescents and adults
- 80 percent of incidents occur within 15 minutes
- Take measures to prevent injuries during vaccination
 - Have patients seated or lying down
 - Consider observing patients for 15 minutes after vaccination
- If syncope develops, manage patient according to the Immunization Action Coalition's *Medical Management of Vaccine Reactions in Adult Patients*, available at www.immunize.org/catg.d/p3082.pdf

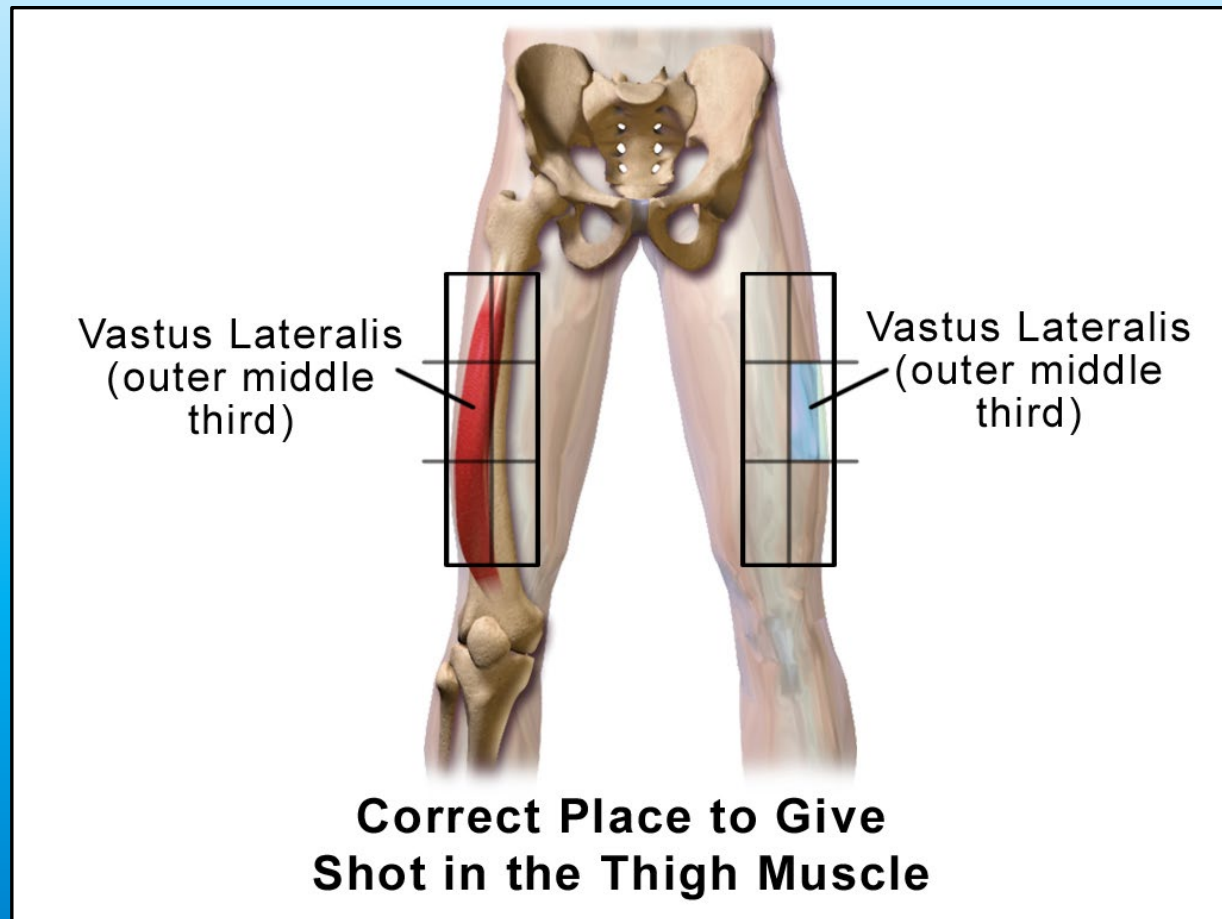


Intramuscular Injection (IM)



IM Injection Sites – Vastus Lateralis

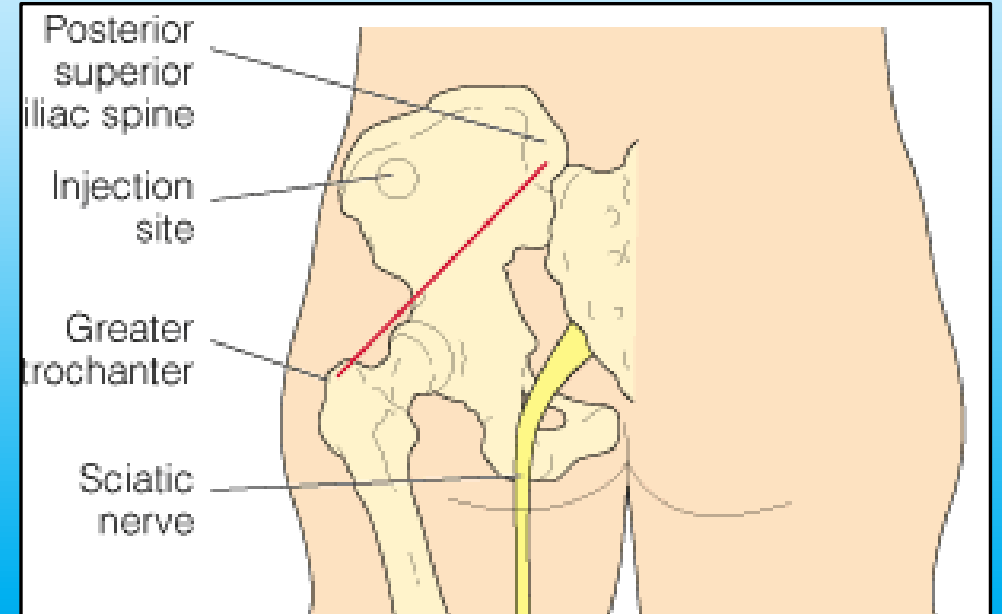
- First possible injection site:
 - Vastus Lateralis (Outer Thigh)
 - Good for infants and children
 - EpiPen Administration site





IM Injection Sites - Gluteus

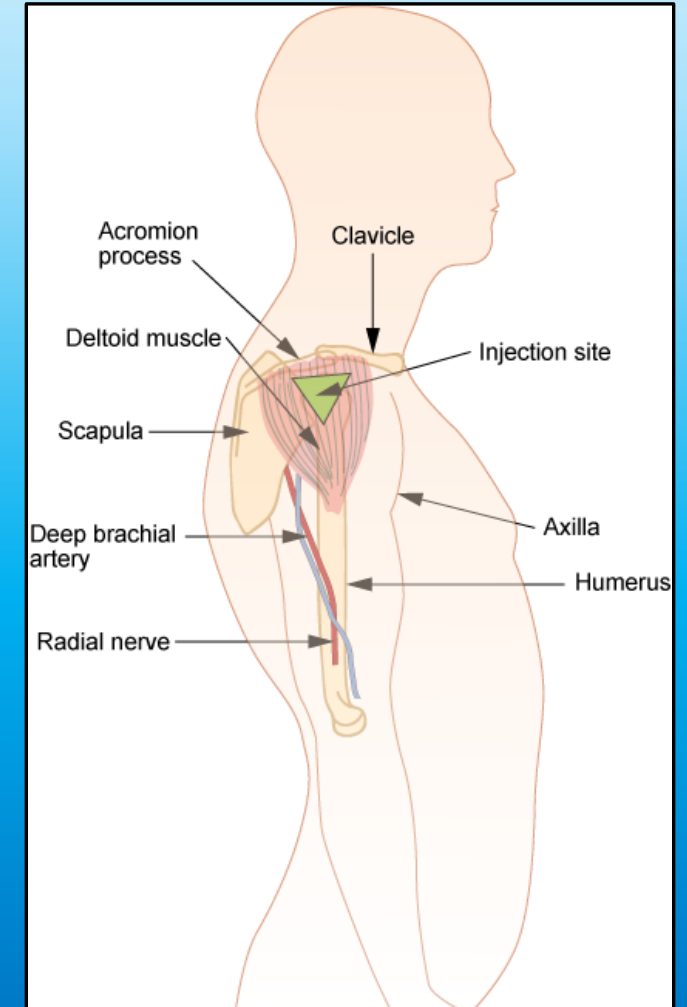
- Second possible injection site:
 - Gluteus
 - Do not use if possible
 - Inject upper outer quadrant only
 - Avoid sciatic nerve and peripheral nerve trunks





IM Injection Sites - Deltoid

- Last (and best) possible injection site:
 - Deltoid (Shoulder)
 - Recommended site for older children, adolescents and adults
 - Relatively large muscle mass and accessible
 - Large triangle
 - 2-3 finger widths below acromion process
 - Above level of armpit
 - Slightly posterior
 - Meaty area of muscle





IM - Deltoid Needle Selection

- Length
 - Long enough to reach muscle but not seep into subcutaneous tissue
 - Can be from 5/8" to 2"
 - A 5/8" needle is sufficient in adults weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the subcutaneous tissue is not bunched and the injection is made at a 90° angle
 - 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg)
 - 1–1½" needle is recommended in women weighing 153–200 lbs (70–90 kg) and men weighing 153–260 lbs (70–118 kg)
 - 1½" needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (more than 118 kg)
- Gauge
 - Typically 22 to 25



IM - Deltoid Administration

- Needle insertion
 - Needle long enough to reach deep into the muscle
 - Insert at 90° angle to the skin with a quick thrust
 - Separate two injections given in the same deltoid muscle by a minimum of 1”
- Vaccines to give IM

Hib	HepA	HepB	HPV
IIV	RIV3	MCV4	MenB
PCV13	PPSV23 (also Subcut)	IPV	Td or Tdap



IM Technique – Screen Patient

Questions:

1. Sick today
2. Allergies
3. Previous reactions
4. Chronic disease
5. Immune system problems
6. Immunosuppressant medications in last 3 months
7. Seizure or other brain or nervous system problems
8. Transfusions, immune globulin or antiviral in past year
9. Pregnant or chance to become pregnant in next month
10. Vaccines in last 4 weeks

Checklist available at: <http://www.immunize.org/catg.d/p4065.pdf>



IM Technique – Load Dose

To prepare a vaccine from a vial:

- Wash hands
- Check expiration dates
- Confirm you have the right vaccine
- Verify manufacturers preparation instructions
- Maintain sterility
 - Use appropriate technique
 - Swab top of vial with alcohol
- Carefully withdraw the correct final volume of vaccine



IM Technique – Loading Syringe

When loading the syringe, use the following technique:

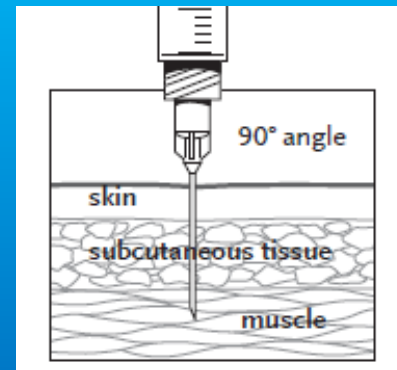
- Pull back plunger to draw air into the syringe, drawing in a volume of air equal to the correct volume of vaccine for the injection
- Insert the syringe into the vial and inject air to displace volume of vaccine to be withdrawn
- Turn the vial and syringe upside down and withdraw the dose
- Ensure that large air bubbles do not exist in the syringe



IM Technique – Giving the Injection

To deliver the vaccine:

- Expose the area and select the injection site
 - Slightly posterior to the midline
- Clean the area with an alcohol pad using a circular motion
- Compress skin surrounding the site taut using thumb & index finger of non-dominant hand
- Position needle between 1 and 2 inches from the injection site at a 90° angle to the skin
- Insert the needle to the hub





IM Technique – Giving the Injection (Continued)

To deliver the vaccine:

- Fully depress plunger
- Remove needle at same angle of insertion
- Activate needle safety device
- Immediately discard syringe and needle into appropriate sharps container, never taking eyes off of syringe
- Apply light pressure to injections site with cotton ball
- Apply bandage



IM Technique – Preventing Needlesticks

- Sharps container where risk of needlesticks is minimized
 - Should not have to cross body to deposit syringe in container
- Immediately after injection, safety device should be activated and discarded
- Do not take your eyes off the needle
- Never recap a needle after use





IM Technique – Common Errors

- Improper insertion (darting)
- Insertion beyond hub (dimpling)
- Not securing syringe during manipulations (wavering)
- Improper disposal (admiring)



IM Technique – Best Practice

- Patient should be sitting
- Expect bleeding
 - Have patient hold cotton ball on injection site until bandage is in place
- When possible, avoid:
 - Scars
 - Tattoos
 - Moles
- Do not aspirate the syringe in patient



Shoulder Injury Related to Vaccine Administration (SIRVA)

- Shoulder pain is a common side effect of IM injection
- Infrequently, patients can develop prolonged pain and dysfunction following vaccine
- SIRVA is caused by an injury to musculoskeletal structures of shoulder
- SIRVA presents as shoulder pain and limited range of motion after vaccine administration



SIRVA Characteristics

- No previous history of shoulder dysfunction
- Previous exposure to administered vaccine
- Rapid onset of pain
- Limited range of motion
- The symptoms are thought to occur due to an inflammatory reaction resulting from unintended injection of vaccine or trauma from the needle into and around the bursa
- SIRVA is not a neurological injury



SIRVA Prevention

- Be aware of potential injury
- Avoid upper 1/3rd of deltoid during administration
- Use appropriate needle length for the patient
- Position yourself correctly in relation to the patient during administration



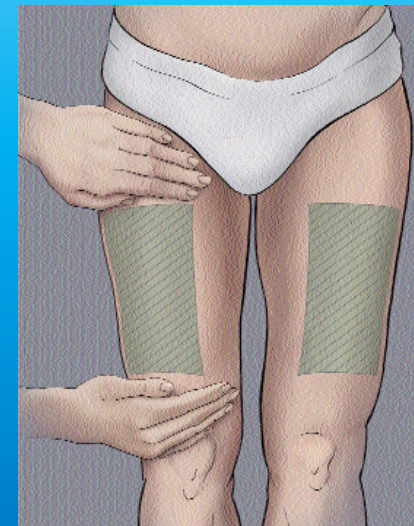
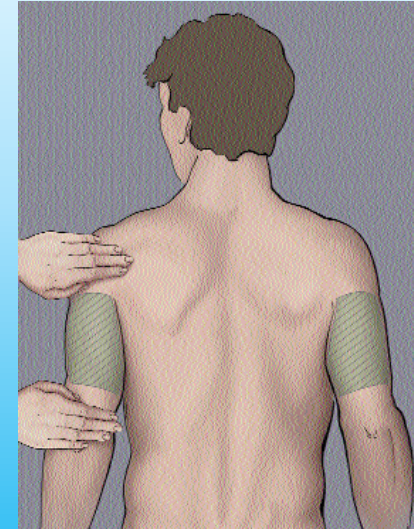
Subcutaneous Injections (SC)



SC - Injection Sites

- Lateroposterior aspect of triceps
 - Primary site for adults and children over 12 months old

- Anterolateral aspect of thigh
 - Primary site for children under 12 months old





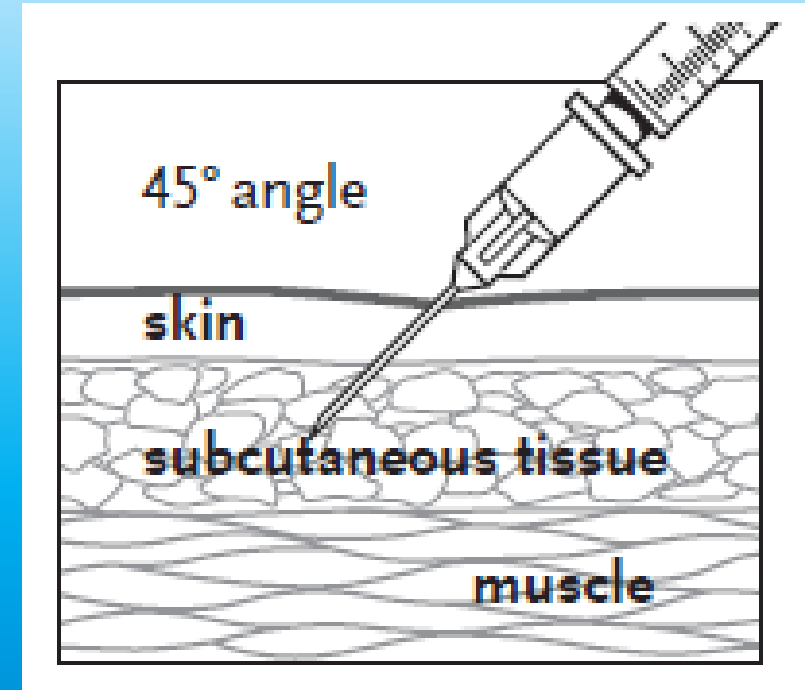
SC – Needle Selection

- 5/8" needle
- Gauge 23 to 25



SC – Technique

- Differences between SC and IM
 - Skin and tissue bunched or elevated instead of being pulled taut
 - Angle of insertion is 45° instead of 90°
 - Administration is to the subcutaneous layer and not the muscular layer





SC – Pitfalls

- Incorrect site location
- Syringe handling and manipulation
- Maintaining angle of insertion



Intranasal Vaccine Administration



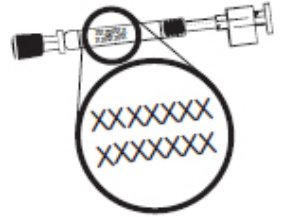
FluMist

- Live attenuated influenza vaccine (LAIV)
- Inside a special sprayer device
- Only currently approved vaccine delivered intranasally
- Does not have to be repeated if patient coughs, sneezes or expels dose in any other way



FluMist - Administration

1




Check expiration date.
Product must be used before the date on sprayer label.

2




Remove rubber tip protector. Do not remove dose-divider clip at the other end of the sprayer.

3




With the patient in an upright position, place the tip just inside the nostril to ensure the vaccine is delivered into the nose.

4




With a single motion, depress plunger **as rapidly as possible** until the dose-divider clip prevents you from going further.

5



Pinch and remove the dose-divider clip from plunger.

6



Place the tip just inside the other nostril and with a single motion, depress plunger **as rapidly as possible** to deliver remaining vaccine.

 **DO NOT INJECT. DO NOT USE A NEEDLE.**

Note: Active inhalation (i.e., sniffing) is not required by the patient during vaccine administration.



Intradermal Vaccine Administration



Intradermal

- No approved intradermal vaccines for 2018-2019 flu season
- Administration
 - Given in deltoid
 - Remove needle cap
 - Hold microinjection system between thumb and middle finger
 - Do not place fingers on the windows
 - Insert needle rapidly, perpendicular to skin
 - Use index finger to depress plunger
 - Do not aspirate
 - Remove needled from skin
 - Direct needle away from any people and press firmly on plunger to activate needle shield
 - Dispose of mechanism in sharps container



Jet Injector Vaccine Administration



Jet Injector

- Two vaccines approved for jet injector administration for 2019-2020 flu season
 - Afluria and Afluria Quadrivalent
 - Approved only for people 18-64
- Administration
 - Uses a high-pressure, narrow stream of fluid to penetrate the skin instead of needle
 - Fill syringe from multi-dose vial
 - Attach needle free syringe to reusable auto injector
 - Inject patient
 - Dispose of syringe in sharps container
 - Reset injector



Vaccine Administration Pre-Test

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- B. When you are likely to come into contact with body fluids or the patient has open lesions
- C. You never should wear gloves
- D. When giving multiple patients a vaccination



Vaccine Administration Post-Test

Infection Control:

When should you wear gloves?

- A. Any time you give an immunization
- B. When you are likely to come into contact with body fluids or the patient has open lesions*
- C. You never should wear gloves
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Vaccine Administration Pre-Test

Patient Comfort and Safety

Which of the following is NOT an appropriate way to comfort a patient during administration?

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Vaccine Administration Post-Test

Patient Comfort and Safety

Which of the following is NOT an appropriate way to comfort a patient during administration?

- A. Distract them from what you are doing
- B. *Rub the direct injection site after administration***
- C. Ask them what arm they prefer the injection in
- D. Rub near the injection site after administration



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Vaccine Administration Post-Test

IM Vaccination

What angle should you administer an IM shot?

- A. *90° angle*
- B. 45° angle
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Vaccine Administration Pre-Test

IM Vaccination

Which quadrant should you inject the Gluteus in?

- A. Upper Outer
- B. Upper Inner
- C. Lower Outer
- D. Lower Inner



Vaccine Administration Post-Test

IM Vaccination

Which quadrant should you inject the Gluteus in?

- A. *Upper Outer*
- B. Upper Inner
- C. Lower Outer
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