

Vaccine/Immunization IM Administration



Vaccine Administration Learning Objectives

The immunizer will be able to:

- explain the best practices in vaccine management and administration
- discuss the identified vaccine, its use and potential adverse events following immunization
- administer vaccine in accordance with national guidelines, CDC, IDPH, and local protocols

Additional Objectives

Discuss staff training needs and strategies for communication

List positioning, comforting and pain control techniques

Review infection control guidelines

Discuss vaccine preparation, administration routes, sites, and needle sizes

Demonstrate IM Injection in skills lab and validations

Explain vaccine administration special situations

Review documentation requirements

Discuss avoiding vaccine administration errors and managing adverse events

Staff Training and Education

All EMS personnel who will administer vaccines will receive competency-based training and education on vaccine administration before providing vaccines to patients.

Providers will be validated on knowledge and skills about vaccine administration with a skills checklist.

Staff Training and Education

- Discuss vaccines indicated
- Use Vaccine Information Statements (VIS)
- Encourage questions
- Address concerns
- Insure consent form is signed
- Inform of next immunization due date if applicable
- Displaying a positive attitude through facial expressions, body language, and comment
- Using a soft and calm tone of voice
- Being honest and explaining what to expect (e.g., do not say that the injection will not hurt).

Staff Training and Education

Pt. Approach

- Comfort
- Safety
- Age
- Activity level
- Site of administration
- IM: Position limb to allow relaxation of muscle injected
 - Deltoid: flex arm
 - Anterolateral thigh: some degree of internal rotation
- Children: Above age of 6
 - Sit on parent's lap or edge of exam table and hug parent's chest
- Adolescents and adults should be seated for immunizations

Infection Control

Hand washing

- Critical to prevent the spread of illness and disease

Gloves

Equipment Disposal

- Used needles should not be recapped, cut or detached from the syringes before disposal
- Filled sharps containers should be disposed of properly; never dispose of sharps containers or empty vaccine vials at an outreach site.

IM Injections Review

Routes, Site and Needle Size Based upon:

- Age
- Volume of material
- Viscosity of material
- Size of muscle
- Recommended depth

IM Injections Review

Intramuscular (IM) Injections

Administer these vaccines via IM route

Tetanus, diphtheria (Td), or with pertussis (Tdap); hepatitis A; hepatitis B; human papillomavirus (HPV); trivalent inactivated influenza (TIV); pneumococcal conjugate (PCV13); and quadrivalent meningococcal conjugate (MCV4). Administer polio (IPV) and pneumococcal polysaccharide vaccine (PPSV23) either IM or SC.

Injection site

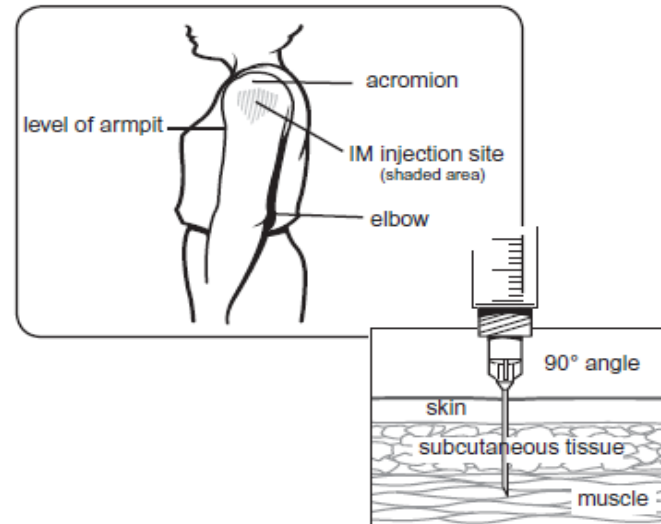
Give in the central and thickest portion of the deltoid—above the level of the armpit and below the acromion (see the diagram).

Needle size

22–25 gauge, 1–1½" needle (*see note at right*)

Needle Insertion

- Use a needle long enough to reach deep into the muscle.
- Insert the needle at a 90° angle to the skin with a quick thrust.
- Separate two injections given in the same deltoid muscle by a minimum of 1".



Note: 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-degree angle; a 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 152–200 lbs (70–90 kg) and men weighing 152–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (90 kg) or men weighing more than 260 lbs (more than 118 kg).

Vaccines Administered IM



Bleeding Disorders

Individuals with a bleeding disorder or who are receiving anticoagulant therapy may develop hematomas in IM injection sites. When any intramuscularly administered vaccine is indicated for a patient with a bleeding disorder, the vaccine should be administered intramuscularly if a physician familiar with the patient's bleeding risk determines that the vaccine can be administered by this route with reasonable safety.

Managing Acute Vaccine Reactions

- Thorough screening for contraindications and precautions
- Procedures in place for managing reaction
- Be familiar with the signs & symptoms of anaphylaxis
- Know staff role in the event of an emergency
- CPR certified
- Emergency cart & equipment available

The 7 Rights of Vaccine Administration

- ✓ Right **Patient**
- ✓ Right **Vaccine or Diluent**
- ✓ Right **Time**
- ✓ Right **Dosage**
- ✓ Right **Route, Needle Length, Technique**
- ✓ Right **Site** for route indicated
- ✓ Right **Documentation**

Actual Vaccine Administration Process

- Client Interview (Fit to Immunize Assessment)(completed prior to IM Injection)
- Informed Consent)(completed prior to IM Injection)
- Vaccine Administration Process



Fit to immunize assessment

The immunizer will:

- Assess the need for immunization
- Confirm the client has not received a dose of vaccine to date
- Insure that the patient has completed the “fit to immunize” assessment
 - health status today
 - history of allergies
 - previous reactions
 - chronic illness/medications
 - pregnancy

Informed consent

- Clients must give informed consent before immunization
- Prior to immunizing the immunizer must confirm that the pre-screening has occurred. Pre-screening includes:
 - Determine that the client is eligible
 - Review the disease being vaccinated for
 - Discuss:
 - risks and benefits of getting the
 - Potential side effects and after care
 - how the vaccine is given
 - Provide the opportunity to ask questions
 - Affirm consent

Vaccine Management

- Insure vaccines are maintained and stored appropriately (e.g. temperature requirements, time frames, etc.) as identified by respective manufacturers
- All multi-dose vials must be dated upon opening
- Check expiration date of all products being administered
- Vaccine should be withdrawn from the vial by the immunizer administering the vaccine
- Do not mix vaccine from different vials

* Refer to local protocol for dating vials

Preparing the vaccine

- Determine the appropriate vaccine and route of administration
- Provide appropriate information to client
- Visually inspect the vaccine. Do not use if:
 - it is discolored
 - you notice extraneous particulate matter present
 - the multi-dose vial/prefilled syringe is defective

Preparing the vaccine (cont'd)

- Determine the site of injection
- For multi-dose vials – select appropriate syringe and needle
 - it is not necessary to change needles after drawing up vaccine, unless the needle is damaged or contaminated
- For prefilled syringes – select appropriate needle to attach to syringe
- Select and read the label on the multi-dose vial or prefilled syringe
- Check the vaccine expiration date
 - if applicable, check the date the multi-dose vial was opened
- For prefilled syringes, ensure the lot number on the syringe matches the lot number on the box (syringe is discarded after administering vaccine and lot number is recorded from the box)

Preparing the vaccine (cont'd)

- For multi-dose vials
 - agitate the vial before drawing up each dose
 - swab the top of the vial and allow it to dry
 - withdraw the appropriate dose of the vaccine
- For prefilled syringes
 - agitate the prefilled syringe before administration
- Recheck the vaccine label
- Check the record to verify you have the correct vaccine for each client

Administering Vaccine

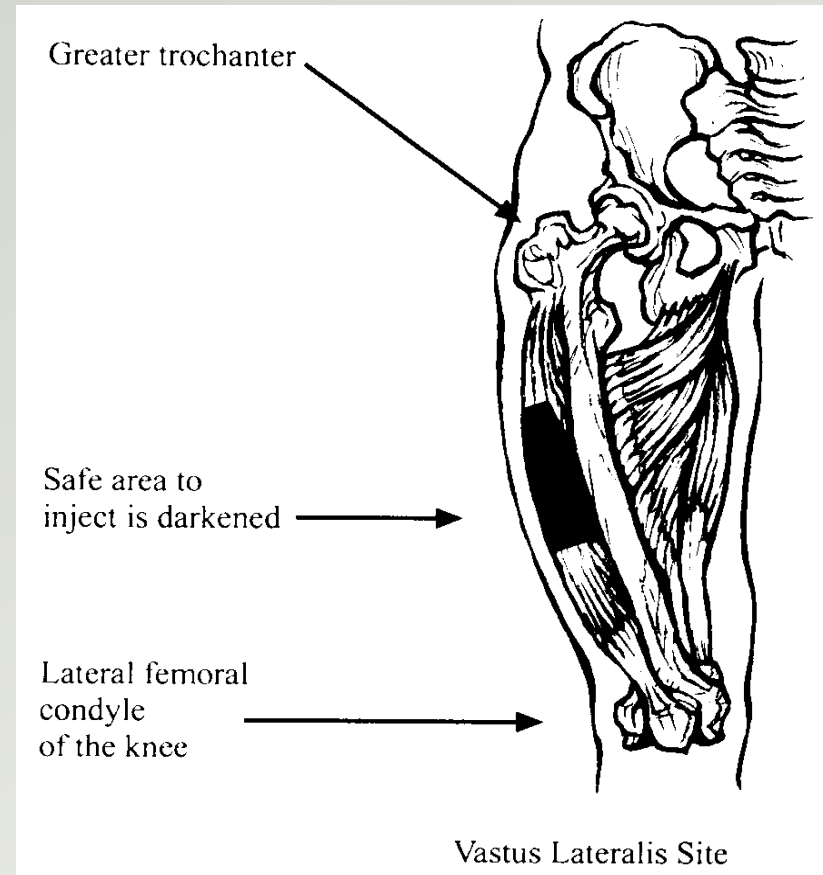
- Expose and position the client's limb for injection
- Swab the site of injection
- Allow the site to dry for 10 - 15 seconds
- Secure the injection site using the appropriate stabilization technique
- Insert the needle at a 90° angle
- Administer the vaccine with controlled pressure
- Withdraw syringe to insure no blood return
 - If blood return, withdraw needle and re-start the injection from beginning
- Activate the safety engineered device as applicable
- Discard the needle and syringe, and empty vaccine vials into an appropriate biohazard container
- Use a cotton ball and apply pressure to the injection site
- Reinforce the wait period with the client or parent/guardian

Intramuscular injections

Leg injection if Deltoid is not available

Children less than 6 years old

- Do not administer vaccine



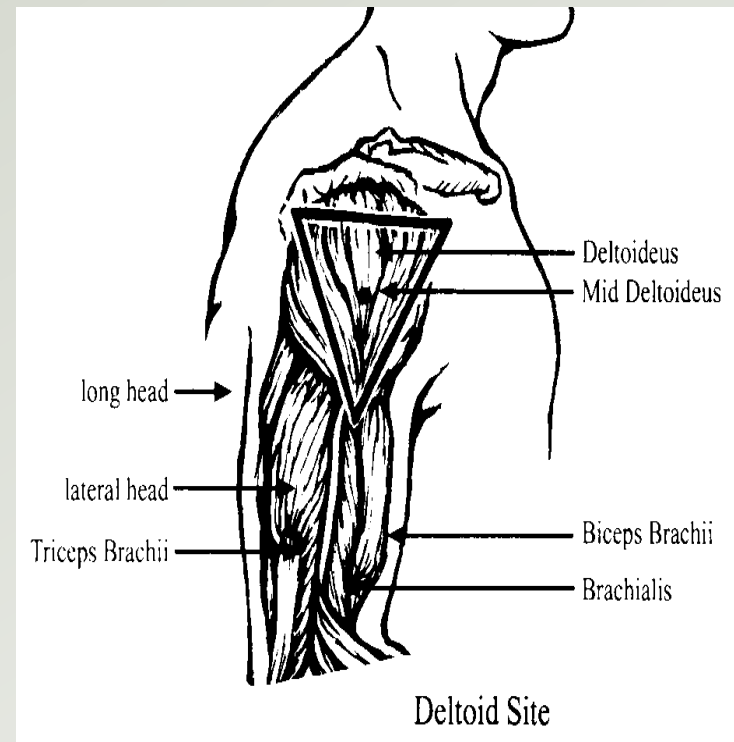
Intramuscular injections

Adults

- 3 mL syringe or identified equipment by CDC and IDPH
- 25G - 1" to 1½" needle depending on muscle mass and adipose tissue
- insert at 90 degree angle
- mid portion of deltoid

Children 7 years or older

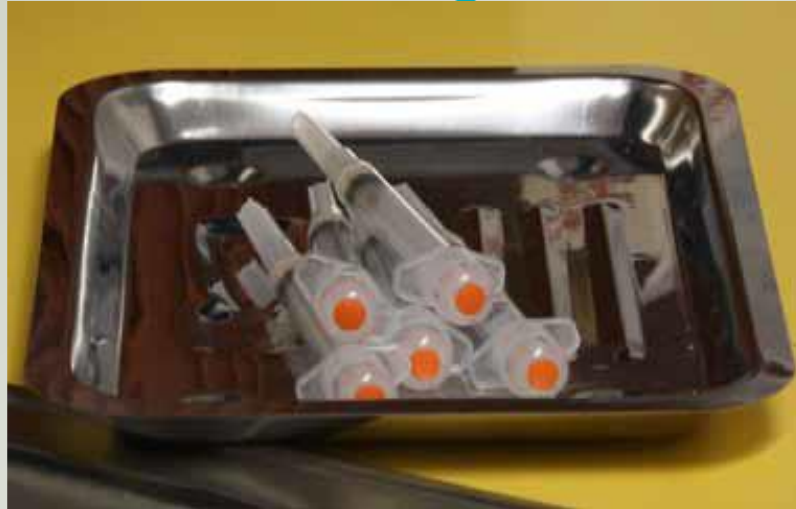
- 3 mL syringe
- 25G - 1" needle
- insert at 90 degree angle
- mid portion of deltoid



Limb Integrity

- Do not administer an immunizing agent in a limb that is likely to be affected by a lymphatic system problem, such as lymphedema or mastectomy with lymph node curettage.
- Vastus lateralis is an alternative site if deltoid is not available.
 - Individuals who present with A-V fistula (vascular shunt for hemodialysis) and those who have had mastectomies with lymph node curettage, axilla lymphadenectomies, limb paralysis and upper limb amputations may have short term or long term circulatory (e.g., lymphatic systems) implications that may impair vaccine absorption and antibody production.

*Pre-Drawing Vaccines



CDC recommends that providers draw up vaccines only at the time of administration. **Do Not** pre-draw doses before they are Needed unless approved to do so by IDPH or local protocols.

Managing Acute Vaccine Reactions

- Thorough screening for contraindications and precautions
- Procedures in place for managing reaction
- Be familiar with the signs & symptoms of anaphylaxis
- Know staff role in the event of an emergency
- CPR certified
- Emergency cart, staff, & equipment available

Always Document...

- After vaccine administration, document:
 - ✓ Publication date of VIS & date VIS given
 - ✓ Date, site, route, antigen(s), manufacturer, lot #
 - ✓ Person administering vaccine, practice name and address

The 7 Rights of Vaccine Administration

- ✓ Right **Patient**
- ✓ Right **Vaccine or Diluent**
- ✓ Right **Time**
- ✓ Right **Dosage**
- ✓ Right **Route, Needle Length, Technique**
- ✓ Right **Site** for route indicated
- ✓ Right **Documentation**

Check Expiration Dates



Skills Practice and Validations

Name : _____ Date : ____/____/____

Medication Skills "Intramuscular Injection"

	S	U
Takes or verbalizes "BSI" precautions	<input type="checkbox"/>	<input type="checkbox"/>
Confirms patient's allergies	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes indications for medication:	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes "Contra-indications" for medication:	<input type="checkbox"/>	<input type="checkbox"/>
Checks expiration date of medication	<input type="checkbox"/>	<input type="checkbox"/>
Verifies: <input type="checkbox"/> Right patient <input type="checkbox"/> Right Med (Vaccine) <input type="checkbox"/> Right time <input type="checkbox"/> Right dosage <input type="checkbox"/> Right route, needle length & technique <input type="checkbox"/> Right site <input type="checkbox"/> Right Documentation	<input type="checkbox"/>	<input type="checkbox"/>
Inspects medication for discoloration, particles	<input type="checkbox"/>	<input type="checkbox"/>
Demonstrates proper assembly of syringe and needle (21g to 23g – 3/8 to 1 in needle)	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes re-checking the drug and dose	<input type="checkbox"/>	<input type="checkbox"/>
Ejects any air from syringe	<input type="checkbox"/>	<input type="checkbox"/>
Identifies appropriate injection site and maximum injection allowed	<input type="checkbox"/>	<input type="checkbox"/>
Cleanse site with alcohol or iodine	<input type="checkbox"/>	<input type="checkbox"/>
Stretch or flatten the skin and advise the patient to prepare for a stick	<input type="checkbox"/>	<input type="checkbox"/>
Insert the needle at a 90 degree angle into subcutaneous tissue	<input type="checkbox"/>	<input type="checkbox"/>
Aspirate syringe, checking for air or blood	<input type="checkbox"/>	<input type="checkbox"/>
Slowly inject the medication	<input type="checkbox"/>	<input type="checkbox"/>
Withdraw needle and apply pressure to site with sterile gauze pad	<input type="checkbox"/>	<input type="checkbox"/>
Properly dispose of syringe and medication container	<input type="checkbox"/>	<input type="checkbox"/>
Monitor patient for drug effects	<input type="checkbox"/>	<input type="checkbox"/>

Critical Criteria:

- ☐ Did not take or verbalize "BSI" precautions
- ☐ Did not know indications / contra-indications / dosages for the medication
- ☐ Did not check the "6 Rights"
- ☐ Did not use appropriate injection site
- ☐ Did not aspirate syringe checking for blood or air
- ☐ Did not dispose of needle properly
- ☐ Did not monitor patient for drug effects

Muscle	Max Injection
Deltoid	2.0 ml
Dorsal Gluteal	5.0 ml
Vastus Lateralis	5.0 ml
Rectus Femoris	5.0 ml

Comments: _____

Evaluators Signature _____ ☐ Pass ☐ Fail

Mercyhealth EMS Vaccination/ Immunization Education Program

Please email dcrawford@mhemail.org confirming you have reviewed and understand this material. CEU certificates are available, and may be required if assisting other agencies at vaccine sites.

June 13, 2022



Mercyhealth Prehospital and Emergency Services Center
MercyEMS.org

QUESTIONS?
(815)971-6262