



# Epinephrine Intramuscular (IM) Injection Administration

EMT Optional Scope

Nor-Cal EMS  
2021



# Learning Objectives

- Understand the indications for Epinephrine
- Know how to store Epi.
- Know what is required in an Epi draw kit.
- Understand the procedures for epi draw

# Anaphylaxis

## **What anaphylaxis is not !**

- An insect bite that itches
- A runny nose
- Sneezing
- Watery eyes

## **What anaphylaxis is!**

- Rapid Onset
- Multisystem
- Life Threatening
- Anaphylaxis: a systemic and life- threatening
- Allergic reaction from contact with an allergen



# Anaphylaxis - Treatments

- Epinephrine
- Immediate treatment - lifesaving
- Improves respiratory distress
- Reduces airway swelling
- Treats shock
  
- Supplemental Interventions
- Antihistamines (Diphenhydramine) – BLS (EMT and above)
- Inhalers (Albuterol) – Assist patient with own medication –BLS (EMT- B and EMR)



# Anaphylaxis is likely when either criteria is met:

## Likely Allergen

With any **two** of the following occurring rapidly after exposure:

**Skin and/or Mucosa**

**Respiratory**

**Compromise**

**Decreased Blood**

**Pressure**

## Known Allergen

• With any **One** of the following occurring rapidly after exposure:

• **Respiratory Compromise**

• **Decreased Blood Pressure**



# Epinephrine

## Epinephrine Kit To Be Put Together

- One vial of epinephrine, Epinephrine 1:1000 for IM Injection Only
- One custom syringe that has markings at 0.15 ml and 0.3 ml only, three syringes
- Three safety needles 23 gauge
- Three alcohol wipes
- Three adhesive bandage
- One set of Nitrile Gloves
- One sharps box for disposal of needles

## Storing Epinephrine

- Store epinephrine away from light.
- Store epinephrine away from heat.
- Keep away from extreme cold to avoid freezing.
- Leave it in its carton until ready to use.

# Epinephrine After Being Exposed To Sunlight for Various Times





# Epinephrine Vial

**Training Vial**



**Actual Vial**



## *Par Levels*

- *Please note that the syringes and needles are single use only.*
- *Will need to carry 2 extra needles for repeat doses.*
- *Further will need to carry 2 extra syringes for repeat doses.*



# Onset Epinephrine

- Onset (how long does it take to start working)
- IM Injection
- Typically 90 seconds in a healthy patient
- IM epinephrine in anaphylaxis: may take 3-5 min
- If no change at 5 min. consider 2nd dose!
- Duration (how long does it last)
- IM Injection
- Typically 1-4 hours

# Procedure

## Always Wear PPE

- Wear gloves and goggles when assessing the patient, preparing the medication, cleaning the site of injection, and administering the drug.





# 1) Verify the Need – Always for Every Injection

- 1) Trigger
  - Food allergy
  - Insect sting
  - Drug allergy
- 2) Symptoms
  - Respiratory distress
  - Decreased BP
  - Skin and mucosa involvement



## 2) Select the Site

- Select the appropriate site

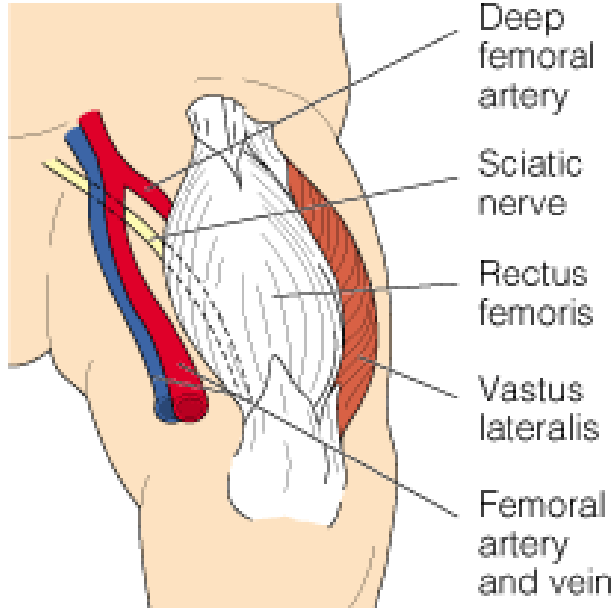
### Medication Via the IM route

- Intramuscular (IM) sites allow a drug to be injected into the belly of a muscle so that the blood vessels supplying that muscle distribute the medication to its site of action via the blood stream.

# Administration Site – Outer/Lateral Thigh, between Groin Crease and Knee



# Vastus lateralis (outer/lateral thigh) is the approved site for administration



- Good site for all ages, especially under 3 years of age.
- Far from major blood vessels & nerves







### 3) Prepare Site for Injection

- Expose the site.
- Please clean the site prior to administering the epinephrine injection using the alcohol wipes included in the kit.
- The site will have plenty of time to dry as you complete the next steps in the process.
- Don't blow on or fan the area to dry the alcohol.



## 4) Verify That It is The Correct Drug

- Use only Epinephrine 1:1000  
1mg per 1ml
- Pediatric dose is 0.15 ml
- Adult dose is 0.3 ml
- Check the expiration date
- Contents of the vial should be clear

## 5) Clean the Vial's Rubber Top





## 6) Verify the Dose

- Adults: equal to and/or greater than 30 kg or 66 lbs.
- Look at the syringe and find the adult marking at **0.3 ml**
- ***Fill to the .03 ml marking***
  
- Pediatric: less than 30 kg or 66 lbs.
- Look at the syringe and find the pediatric marking at **0.15 ml**
- ***Fill to the .015 ml marking***
  
- There are only two marking on the barrel of the syringe.
- There is an Adult (0.3 ml) and Pediatric dose (0.15 ml).

# Approved Epinephrine Syringe (EpiRite)/Dynarex



## 7) Drawing Up The Epinephrine



## 8) Instilling The Air



1. Insert the needle into the rubber top and inject the same volume of air from the syringe into the vial.
2. Withdraw the appropriate volume of medication.

## 9) Withdrawing the Epinephrine



- With the needle on, pull back the plunger to the appropriate dosage. You will inject the same volume of air into a single use vial as you will withdraw medicine.
- Strength 1:1,000 epinephrine and contains 1mg/ml.



## 10) Withdraw the appropriate volume of medication

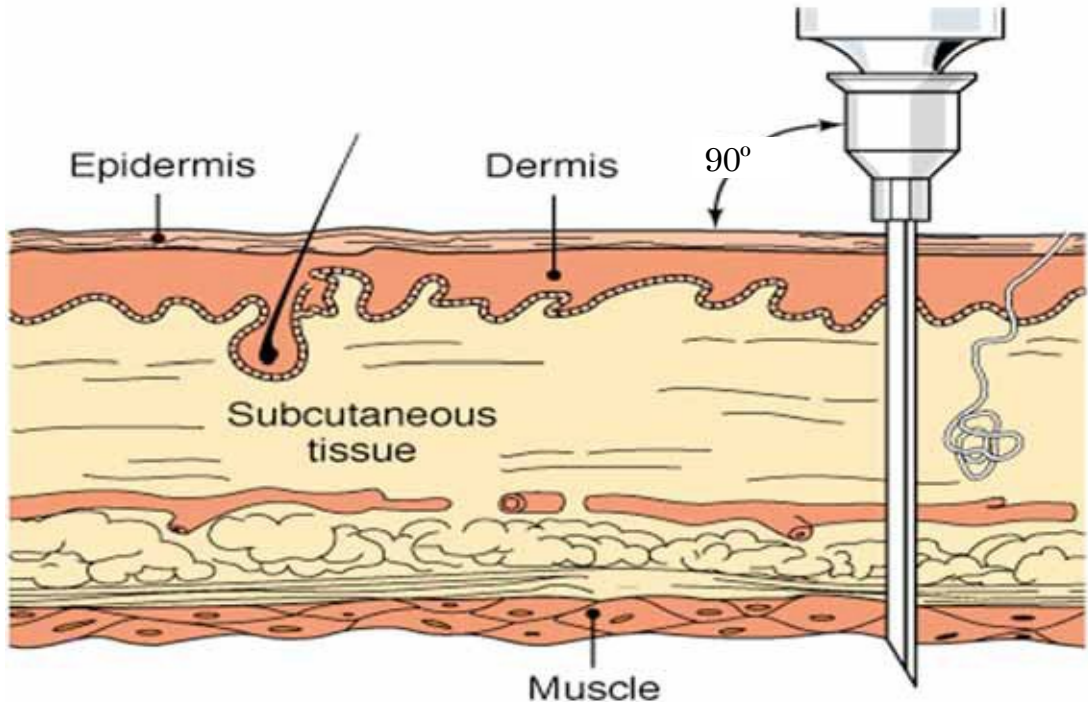


Using a 1ml Safety Syringe, insert the needle into the vial, draw the plunger back on the syringe until you reach (Pediatric) 0.15 ml or (Adult) 0.3 ml mark on the syringe.

## 11) Insert the needle at a 90-degree angle

- Broadly hold the muscle
- Do not pinch the skin
- Hold the syringe like a dart
- Insert the needle with a quickly and smoothly to avoid/minimize tissue pulling.
- Perform the movement (almost a Stab) at a 90° angle to the skin surface

# Intramuscular Drug Administration



## 12) Aspirate

- Aspirate to ensure not in a blood vessel
- Discard syringe if needed
- **If blood is present when aspirating, withdraw the needle and discard the medication.**
- **This is another reason to carry extra needles and syringes.**



## 13) IM Technique

- Grasp the plunger with one hand and the barrel of the device with the other. Pull back (aspirate) slightly on the plunger and wait 5 seconds.
- If no blood aspirates into the syringe, proceed with the injection. Slowly depress the plunger to administer the injection. A slow, steady injection rate allows the muscle to distend gradually and accept the medication under minimal pressure.
- Once the medication has been administered, wait 5 seconds, then withdraw the needle using appropriate safety features and/or activating the needle safety engineering device.

## 14) Post Injection

- 1) Massage the site for 10 to 20 seconds
- 2) Reassess your patient
- 3) Prepare for transport by ALS
- 4) Properly dispose of the syringe and needle assembly in an appropriate sharps container
- 5) Place a bandage over the injection site

# Needle Handling Precautions

- Always immediately dispose of used sharps in a sharps container.
- **NEVER** recap needles





## 15) Monitor and Document

Monitor the patient

- Reassure patient
- Observe response
- Observe side effects
- Reassess every 5 minutes
- Update ALS
- Document
- Always follow your local protocols regarding product use and procedures





# Right Documentation: Document Your Findings

- Vital signs
- Appearance
- Work of breathing (for example: labored or easy)
- Lung sounds (for example clear or wheezing)
- Ability to speak
- Report responses and side effects to treatment
- Report findings of on-going assessments every 5 minutes



# Recap

Always Check the Rights of Drug Administration

1. Right person
2. Right drug
3. Right dose
4. Right concentration
5. Right time
6. Right route



# EMT Epinephrine Administration Protocol

- 1) Refer to Allergic Reaction protocol either Adult or Pediatric
- 2) Ask patient if they have any drug allergies
- 3) Confirm medication, concentration, dose and clarity of liquid in vial with partner
- 4) Extract the medication from either the vial
- 6) Clean the top of the vial and withdraw medication
- 7) Draw up Pediatric 0.15 ml or Adult 0.3 ml of epinephrine 1mg/ml 1:1000
- 8) Pointing syringe up, expel all air
- 9) Again confirm the amount, dose, strength, clarity, and outdate with partner, “patients rights”



# EMT Epinephrine Administration

- 10) Inform patient they are going to receive an injection, side effects may include feeling shaky or heart racing
- 11) Cleanse area for Intramuscular injection, the middle, lateral, outer thigh.
- 12) Keeping the skin taut, insert needle at 90 degrees into administration site and draw back checking for blood return. If there is blood return, select a different site, and insert needle, again check for blood return.
- 13) If no blood, administer 0.15 ml or 0.3 ml of epinephrine
- 14) Discard needle properly in sharps container
- 15) Observe patient for improvement or deterioration of condition. Repeat exam and vitals after each dose.
- 16) Document procedure, vitals and response to treatment



Thank You