



### Vascular Access

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Approval: John Poland – Executive Director

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#### INDICATIONS

- Vascular access may be established by authorized EMS personnel when there is a current or anticipated need to administer intravenous medications/fluids.

#### ADDITIONAL DIRECTIONS/CONSIDERATIONS

- Do not delay transport to establish vascular access unless clinically necessary.
- Avoid establishing vascular access in an extremity with a functioning dialysis shunt unless no other vascular access is available/appropriate.
- Intraosseous (IO) access or external jugular (EJ) vein cannulation shall only be attempted if unable to establish peripheral vascular access & immediate medication/fluid administration is necessary.
- Preexisting Vascular Access Devices (PVADs) may be utilized for pts in extremis when no other vascular access is available/appropriate.
- Limit vascular access attempts to three (3) unless necessary for emergent treatment.
- Do not connect the primary IV tubing directly to the IV catheter. IV extension/saline lock tubing shall be utilized between the primary IV tubing and the IV catheter.

#### INTRAOSSIOUS (IO) ACCESS

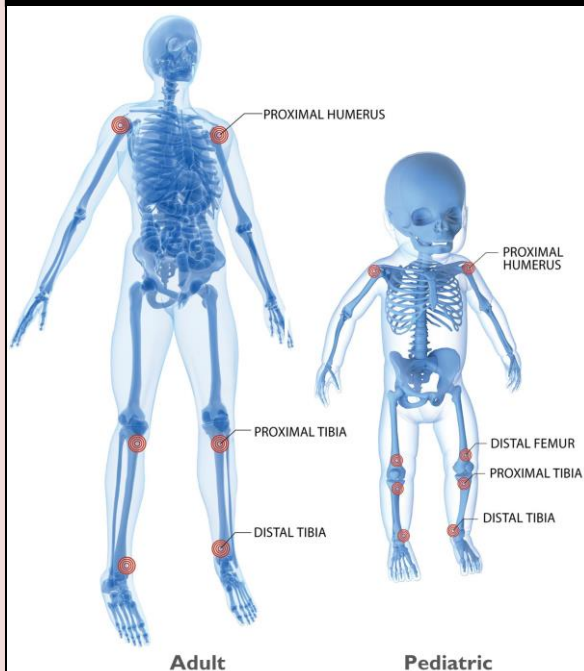
##### Contraindications:

- Fracture/suspected vascular compromise in targeted bone or infection at area of insertion site.
- Excessive tissue or absence of adequate anatomical landmarks.
- Previous significant orthopedic procedure at site or IO access in targeted bone within past 48 hours.

##### Procedure:

- Prep selected site (see images) with a recognized antiseptic agent & wipe dry with a sterile gauze pad.
- Insert device per manufacturer specific instructions.
- Attach primed extension set to needle & secure needle per manufacturer instructions.
- For pts unresponsive to pain:
  - Rapid flush with 10 mL of normal saline.
- For pts responsive to pain:
  - Prime extension set with 2% lidocaine.
  - Slowly administer 2% lidocaine over 120 sec.
    - Adult pts - 40 mg.
    - Pediatric pts - 0.5 mg/kg (max: 40 mg).
  - Allow lidocaine to dwell in IO space 60 sec.
  - Rapid flush with 10 mL of normal saline.
  - Slowly administer a subsequent ½ dose of 2% lidocaine over 60 sec.
- Connect fluids to extension set – infusion may need to be pressurized to achieve desired rate.
- Dress site and secure tubing.

##### Approved IO Sites





## Vascular Access

### EXTERNAL JUGULAR (EJ) VEIN CANNULATION

**Contraindications:**

- Suspected coagulopathy (e.g. advanced liver disease, anti-coagulant medications)
- Suspected cervical spine injury
- Inability to tolerate supine position

**Procedure:**

- Place pt in Trendelenburg or supine position and elevate shoulders.
- Turn head 45° - 60° to side opposite of intended venipuncture site.
- Palpate to assure no pulsatile quality to vessel.
- Prep site with recognized antiseptic agent & wipe dry with a sterile gauze pad.
- 'Tourniquet' vein by placing finger just above clavicle near midclavicular line.
- Stabilize skin over vein with thumb.
- Point needle toward shoulder in direction of vein & puncture vein midway between jaw & clavicle, over belly of sternocleidomastoid muscle.
- Maintain compression of vein at clavicle area until needle is withdrawn & IV tubing has been connected.
- Secure IV site.

### PREEXISTING VASCULAR ACCESS DEVICE (PVAD) UTILIZATION

**Contraindications:**

- Subcutaneous access requiring special equipment & entry through the skin is not approved for use by EMS personnel

**Procedure:**

- Do not remove injection cap from catheter.
- Do not use a syringe smaller than 10 ml to prevent catheter damage from excess infusion pressure.
- Always expel air from syringe prior to administration.
- Follow all medications with 5 ml of saline to avoid clots.
- Do not inject medications or fluids if resistance is met when establishing patency.
- Do not allow IV fluids to run dry.
- Do not manipulate or remove an indwelling catheter under any circumstances.
- Should damage occur to the external catheter, clamp immediately between the skin exit site & the damaged area to prevent air embolism or blood loss.