



## EMS System for Metropolitan Oklahoma City and Tulsa 2020 Medical Control Board Treatment Protocols



Approved 9/11/19, Effective 1/15/20, replaces all prior versions

### 9H - VASCULAR ACCESS - INTRAVENOUS ADULT & PEDIATRIC

EMT-INTERMEDIATE 85

ADVANCED EMT

PARAMEDIC

#### Indications:

1. Vascular access for intravenous administration of crystalloid fluids in hypotension and/or volume insufficiency.
2. Vascular access for intravenous administration of medications for a multitude of medically indicated effects.
3. Vascular access in a patient with an increased potential for needing either of the above indications.

#### Contraindications:

1. None absolute, though despite aseptic technique and using sterile angiocatheters, there is always a risk of introducing infection when the skin integrity is violated. Do not establish IV access unless directed by applicable treatment protocol(s) or the patient meets one of the indications above.
2. Venous sites distal to a fracture.
3. Venous site underlying cellulitis/abscess.

#### Technique:

##### A. Extremity:

1. Apply IV tourniquet proximal to proposed vascular access site.
2. Clean insertion site with Chloraprep®, Betadine®, or alcohol prep.
3. Stabilize vein in place by applying gentle traction on vein distal to point of entry.
4. Puncture the skin with the bevel of the needle upward about 0.5 - 1 cm from the vein and enter the vein from the side or from above.
5. Note blood return and advance the catheter over the needle.
6. Remove needle and connect IV line. Note: venous blood for laboratory work may be drawn with syringe before connecting IV line.
7. Release IV tourniquet.
8. Open IV tubing clamp full to check flow and placement, then slow rate to TKO or as indicated by applicable treatment protocol.
9. Secure catheter and tubing with tape or commercial device in a manner that reduces traction upon the catheter.
10. Anchor with an arm board or splint if the catheter is likely to be dislodged.
11. Recheck IV patency periodically to minimize occurrence of unrecognized fluid/medication extravasation.



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### **PROTOCOL 9H: Vascular Access - Intravenous – Adult & Pediatric, cont.**

#### Technique:

- B. External Jugular Vein – for peripheral venous access in a patient in extremis only.  
Anatomical landmarks, including the vein, must be visible – no “blind” sticks.  
Avoid multiple attempts and avoid attempts on both sides – use IO access prn.
  1. Position the patient supine, head down (this may not be necessary or desirable if congestive heart failure or respiratory distress present). Turn patient's head to opposite side from procedure. (Maintain cervical spine alignment if cervical spinal injury suspected; do not attempt external jugular vein cannulation in suspected cervical spine injury patients.)
  2. Expose vein by having patient bear down if possible, and "tourniquet" vein with finger pressure just above clavicle.
  3. Clean insertion site with Chloraprep®, Betadine®, or alcohol prep.
  4. Stabilize vein in place by applying gentle traction on vein distal to point of entry.
  5. Align the cannula in the direction of the vein, with the point aimed toward the shoulder on the same side.
  9. Puncture skin over vein first, then puncture vein itself. Use other hand to traction vein near clavicle to prevent rolling.
  10. Proceed as with extremity vein. Do not wrap any tape/retaining device around the circumference of neck to stabilize IV catheter/line.

#### Complications:

1. Local: hematoma formation, infection, thrombosis, phlebitis.
2. Systemic: bacteremia/sepsis, catheter fragment embolus.

#### Additional Notes:

- A. Antecubital veins are useful access sites for patients in shock, but if possible, avoid areas near joints (or splint well!).
- B. The point between the junction of two veins is more stable and often easier to use.
- C. Start distally and, if successive attempts are necessary, make more proximal attempts.
- D. The most difficult problem with IV insertion is to know when to try and when to stop trying. If the procedure is not accomplished after two attempts or two minutes, the EMT – I85 or higher licensed EMS professional must consider expediting other care, including transport to the emergency department, with further attempts enroute. This does not pertain to the trauma patient where rapid transport is advised with IV's performed enroute to the hospital.
- E. Renal dialysis fistulas and surgically implanted ports should not be used for vascular access. Use IO access in critical patient situations otherwise.
- F. Saline locks may be utilized in place of crystalloid infusions/IV lines in conditions less likely to require rapid administration of IV fluid.