

## Venipuncture and IV insertion

- 1) Venous Anatomy
  - a. Vein Structure
  - b. Valves
  - c. Nomenclature
    - i. Cephalic
    - ii. Basilic
    - iii. Median Cubital
- 2) Arterial anatomy
  - a. Arterial Structure
  - b. Pressure difference
  - c. Nomenclature
    - i. Brachial
    - ii. Radial
    - iii. Ulnar
    - iv. Radial Recurrent
- 3) Vein Selection
  - a. Appearance
  - b. Feel
  - c. What to avoid:
    - i. Scarring
    - ii. Kinks
    - iii. Valves
    - iv. Subcutaneous implants
- 4) Needle types
  - a. Gauge
  - b. Length
  - c. Butterfly
- 5) Syringe types
  - a. Sizes (10cc, 5cc, 3cc, tuberculin)
  - b. Volume
  - c. Units (cc, ml) vs concentration
- 6) Route of Administration
  - a. Intravenously
  - b. Intramuscularly
  - c. Subcutaneously
  - d. Subdermally
- 7) Vein preparation
  - a. Ensuring a sterile environment
    - i. Alcohol swab
    - ii. Alcohol swab technique
    - iii. Betadine
  - b. Techniques to get the vein to "rise to the surface"
- 8) Tourniquet Placement
  - a. Positioning
  - b. Securing
  - c. Tightness
  - d. When to release
- 9) Use of syringe shields
- 10) Injection technique ("straight stick")
  - a. Angle of attack
  - b. Angle of insertion
  - c. How far to advance the needle
  - d. "Flashback" of blood in the hub
  - e. "rinsing" the syringe
  - f. Obtaining a sample of blood
- 11) Injection Technique (Butterfly)
  - a. Fill line with saline
  - b. Cap distal end of tubing
  - c. Remove plastic cap taking care not to trigger guard
  - d. Insert into vein using proper technique
  - e. Tape/secure needle and line
    - i. Tape allergies
    - ii. Maintaining visualization using adhesive window
- 12) Infusion Technique
  - a. Preventing infiltration/extravazation
  - b. Slow infusion
  - c. Bolus injection
  - d. Post-injection technique
    - i. 3-way stopcock
    - ii. Rinsing
    - iii. Flushing with saline
- 13) IV and Butterfly attachments
  - a. Needleless ports
  - b. Adapters
  - c. Caps
- 14) Anticoagulants
- 15) IV Preparation
  - a. Inserting into Saline bag
  - b. Flushing the line with saline
  - c. Removing all bubbles
- 16) IV insertion
- 17) Maintaining the line
  - a. Establishing flow if saline is being infused
  - b. Clamping butterfly or IV
  - c. Heparinizing the line
- 18) Disposal
  - a. Sharps trash
  - b. Biological hazards
  - c. Radioactive Waste

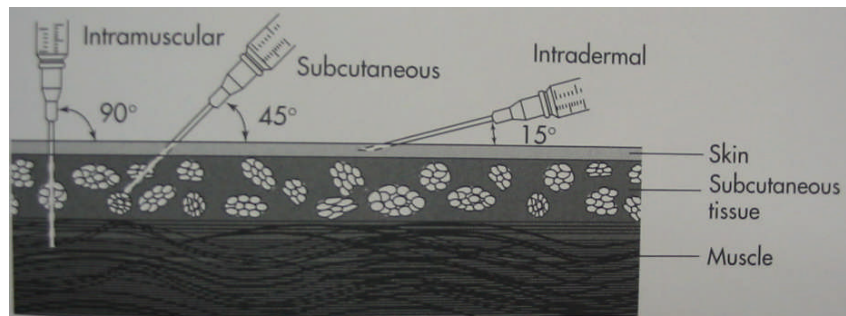
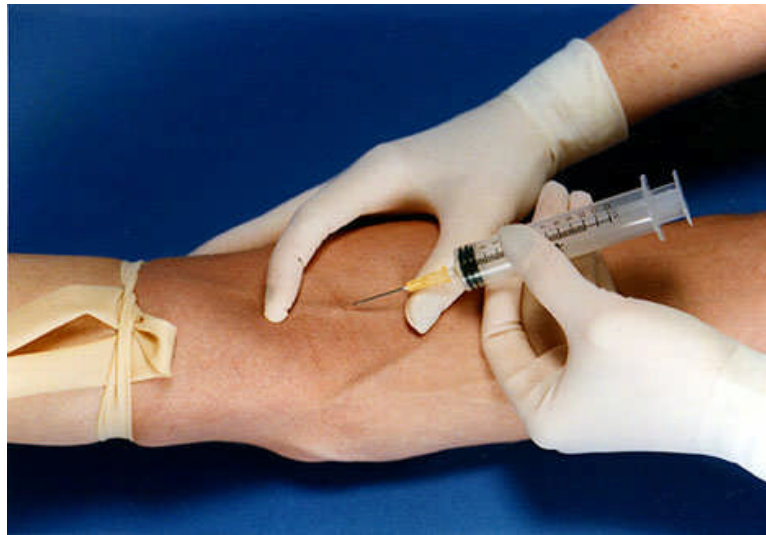
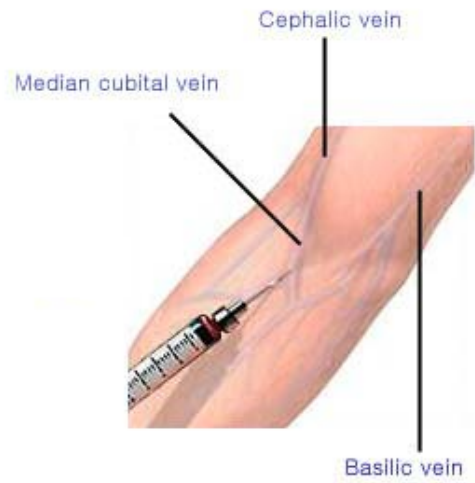
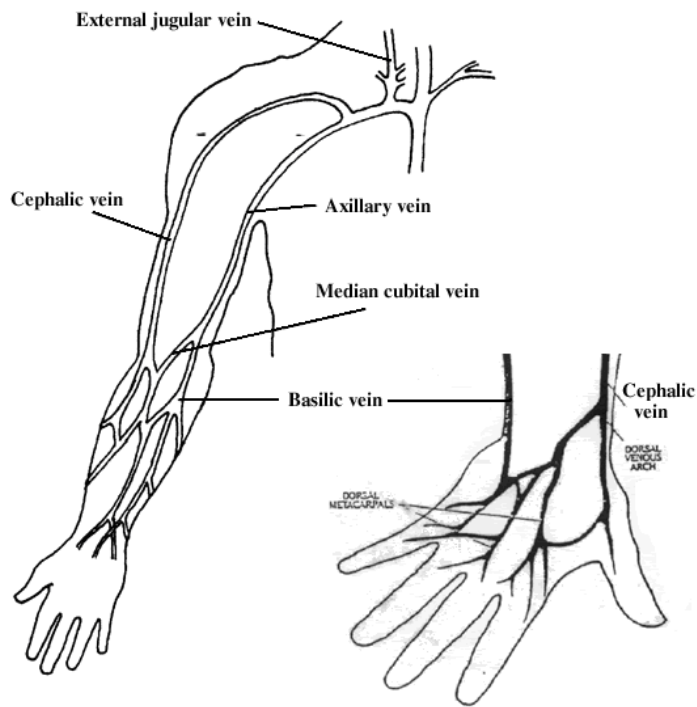


Figure 8-5 Comparison of the angles of needle insertion.

# Peripheral IV Insertion Site Documentation

Sue Masorli, RN

Competency in inserting IV devices and drawing blood includes a working knowledge of the venous, arterial, and nervous systems.

It's no longer acceptable, either clinically or legally, to document peripheral IV insertion sites using vague geographical terms such as right and left antecubital fossa. Document peripheral IV sites by using anatomical vein names.

## Appropriate veins for IV insertion

### A Metacarpal veins

Located on the dorsal surface of the hand. The vein should be palpable for one inch and not terminate over the wrist. This is the best site for preoperative patients.

### B Dorsal venous arch

Located on the dorsal surface of the wrist, this site allows for mobility of the hand and is comfortable for the patient.

### C Cephalic vein

Begins at the wrist above the thumb and runs along the radial bone, and then crosses the antecubital fossa up to the shoulder. This large vein is appropriate for all therapies.

### D Basilic vein

Located on the ulnar, underside of the arm, and runs from the wrist to the shoulder. This largest vein in the forearm is appropriate for all therapies.

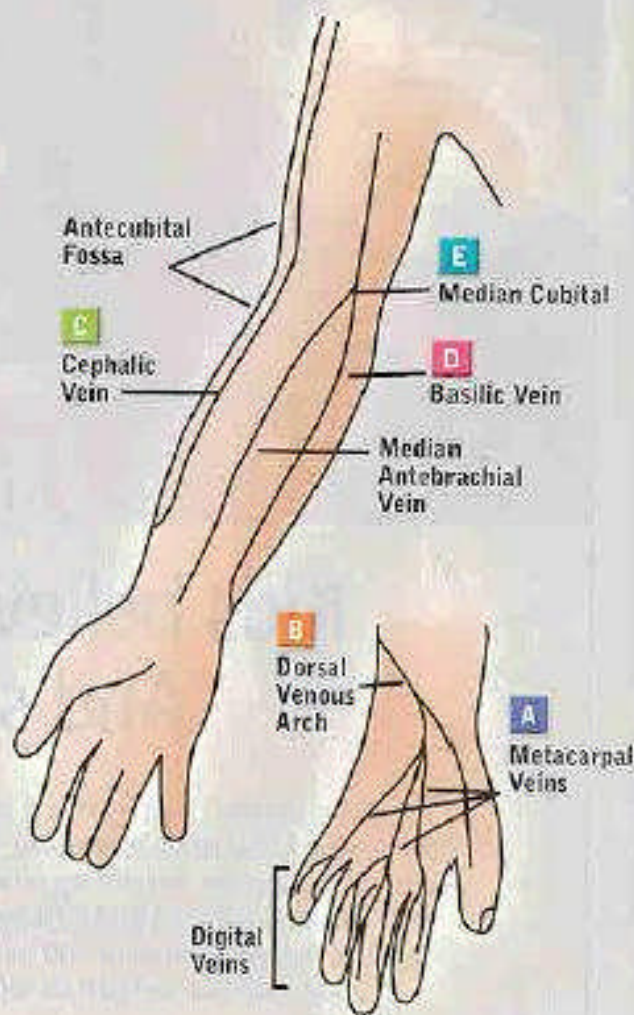
## Phlebotomy

### E Median cubital veins

Located in the antecubital fossa and is the first choice for drawing blood. This site is not appropriate for routine IV therapy.

## Peripheral Venous Placement

Ventral View



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## Inappropriate IV insertion sites

The distal cephalic vein over the radial styloid process and the palmar aspect of the wrist should not be used for IV insertions because of the high risk of nerve injury.

The median antebrachial vein, located on the palmar side of the arm, is very painful for venipuncture. The vein is too small in diameter for blood drawing or to accommodate many IV infusions.

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