Venipuncture Procedure

Procedure:
1. Identify patient: Patient identification must be confirmed using the 2-identifier system prior to collecting any specimen. The alert and oriented patient will be asked “What is your full name?” If correct, a second identifier will then be used to confirm identify (ie, date of birth).
2. Assemble supplies: Collect supplies for the venipuncture procedure within reach.
3. Position patient: Support the patient’s arm firmly on arm rest in a straight line from shoulder to wrist.
4. Apply tourniquet and select vein site - ensure patient’s hand is closed (Figure 1).

![Figure 1](Venipuncture Procedure)

There must not be vigorous hand exercise (“pumping”). Put on gloves. The median cubital and cephalic veins are used most frequently; hand veins are also acceptable. **A foot should never be used.** Factors in site selection:
- A. Extensive scarring - avoid scarred areas.
- B. Mastectomy: because of potential harm due to lymphostasis, a physician should be consulted prior to drawing blood from the side on which a mastectomy was performed.
- C. Hematoma - avoid a hematoma area or, if this is not possible, collect specimen distal to the hematoma.
- D. Cannula, fistula, vascular graft - avoid these areas.
- E. Veins on the underside of wrist must not be used except as the only option by designated, experienced phlebotomists using superficial veins.
5. Cleanse venipuncture site: Use 70% isopropyl alcohol to cleanse site in a circular motion from center to periphery. **Allow area to dry to prevent hemolysis of specimen.**
6. Perform venipuncture:
- A. Thread appropriate needle into holder until it is secure.
- B. Tap all tubes that contain additives to ensure that the additive is dislodged from the stopper and wall of tube.
- C. Insert collection tube into holder to the point it meets the needle.
- D. Ensure patient’s arm is in a downward position to prevent reflux.
- E. Grasp patient’s arm firmly. Draw skin taut with your thumb.
- F. With bevel up, line up needle with vein and, with an insertion angle of 30° or less, puncture vein (Figures 2 and 3). **Maintain tube below site when needle is in the vein.**
G. Remove tourniquet when blood flow is established. Do not allow the contents of the tube to contact the stopper as backflow of blood into the venous system can cause possible adverse patient reaction.

H. Fill tube until vacuum is exhausted and blood flow ceases. All tubes should have a complete draw to ensure there is a correct ratio of blood to additive.

I. To avoid possible test result error due to cross contamination from tube additives, the recommended order of draw is:
   1. Blood culture bottle
   2. Coagulation (sodium citrate) tube (eg, blue top)
   3. Serum tube with or without clot activator, with or without gel (eg, red top)
   4. Heparin tube with or without gel plasma separator (eg, green top)
   5. EDTA (eg, lavender top)
   6. Glycolytic inhibitor (eg, grey top)

   **Note:** When using a winged blood collection set for venipuncture and a coagulation tube is the first tube to be drawn, a discard tube should be drawn first. The discard tube should be a nonadditive tube. The discard tube must be used to fill the blood collection tubing dead space and need not be filled.

J. Remove tube from holder and immediately mix by inverting 5 to 10 times. Vigorous mixing may cause hemolysis. Insert additional tubes to obtain additional specimens.

K. When a blood specimen cannot be obtained:
   1. Change the position of the needle by pulling it back a bit, advance it farther into vein, or rotate needle half a turn.
   2. Try another tube.
   3. Loosen tourniquet.
   4. Probing is not recommended.
   5. It is advisable not to attempt a venipuncture more than twice.

7. Place gauze lightly over venipuncture site.

8. Remove the needle and activate the safety device. Slight pressure should be applied to the gauze as the needle is removed. Exercise care not to scratch the patient’s arm by pressing on the needle.

9. Apply pressure to site. When bleeding ceases, apply an adhesive or gauze bandage and instruct the patient to leave it on for at least 15 minutes.

10. Label tubes. Attach appropriate labels to tubes after specimen is collected. All tube labels should have the patient’s first and last name, identification number, and date and time of collection. The person collecting the specimen should initial the label and request form. Labels should be placed on tubes in the presence of the patient and before leaving the patient’s bedside.

11. Chill specimen(s) when required.
Additional Considerations:

**Hemolysis:**
To prevent hemolysis when performing a venipuncture:

- Mix anticoagulated specimens thoroughly by *inverting* tube gently 5 to 10 times. Avoid vigorous shaking.
- Serum tubes should be centrifuged in a timely manner according to protocol.
- Avoid drawing blood from a hematoma.
- Avoid drawing the syringe plunger back too forcibly.
- Avoid expelling blood forcefully through a syringe into collection tubes.
- Avoid using a needle that is too small or too large.
- Avoid overheating.
- Make sure needle is fitted securely on syringe to avoid frothing.
- Without touching, ascertain that the venipuncture site is dry.

**Clots:**
All hematology and coagulation testing utilizes anticoagulated blood. Clots, large or small, will lead to erroneous results. To prevent clots when performing a venipuncture:

- Mix anticoagulated specimens thoroughly by *inverting* tube gently 5 to 10 times. Avoid vigorous shaking.
- Always fill tubes with indicated amount of blood.
- Blood collected using a syringe should be expelled into an anticoagulant tube first.
- Avoid using expired tubes.

**Inadequate Volume - QNS:**
Hematology and coagulation testing require the correct ratio of anticoagulant to blood. Coagulation tests will not be performed on short draws. Short-draw hematology tubes will result in RBC crenation, reduced MCV and hematocrit, and possible changes in WBC morphology, platelet, and total WBC count.

**Butterfly Use:**
Butterfly use should be reserved for fragile veins. Evaluate each patient regardless of age. Butterflies are responsible for a high rate of accidental needlesticks to phlebotomists and usage should be minimized whenever possible. If you can use a tube holder (adapter), do so.