



Department of Pathology and Laboratory Medicine

Venipuncture Procedure

Purpose

The primary purpose of venipuncture is to collect optimal specimens for best testing results at minimal risk to collection personnel.

Gloves must be worn when there is risk of exposure to infectious disease from patient specimens of blood, semen, vaginal secretion, tissues, cerebral spinal fluid, synovial fluid, peritoneal fluid, or amniotic fluid. Specimens from any patient should be considered potentially infectious. (See the Laboratory Safety Manual for Universal Precautions.)

Venipuncture Procedure

1. Identify the patient. Always ask the patient to state full name. **Also verify their SS# or date of birth.**
2. Select the appropriate tubes and needles needed for the tests.

The National Committee for Clinical Laboratory Standards (NCCLS) simplified the order of draw by function, regardless of the type of tubes being filled and regardless of whether a tube holder or syringe is used to collect the specimen.

THE ORDER OF DRAW IS NOW AS FOLLOWS:

- a. Sterile tubes for cultures
- b. Sodium Citrate tube (blue stopper)
- c. Serum tube (with or without clot activator or gel; e.g., red-gold or speckle stopper)
- d. Heparin tube (green stopper)
- e. EDTA tube (lavender stopper)
- f. Oxalate-fluoride tube (gray stopper)

Although NCCLS notes that glass non-additive serum tubes can be drawn before the citrate tube, it simplified the order above to function for all serum tubes, regardless of content. Always follow manufacturers' instructions for tubes with preservatives or anticoagulants as improper filling may alter values.

3. Reassure the patient. The laboratorian must gain the patient's confidence and assure the patient that, although the venipuncture might be slightly painful, it won't last long. Never tell a patient, "This won't hurt."
4. Position the patient. The arm should be supported and should not be bent at the elbow.
5. Have the patient make a fist.
6. Apply the tourniquet. The tourniquet should not stop blood flow in the veins for more than a minute before the blood is drawn because this causes hemoconcentration. If necessary, release

the tourniquet and reapply. Occluding venous blood flow for more than three minutes raises the cholesterol by 5.1 percent over that with a one-minute occlusion.

7. Evaluate both arms to insure best site selection. Select the venipuncture site
8. Clean the venipuncture site. Clean the skin with an alcohol pad, making one smooth, circular pass of the venipuncture site. Allow the skin to dry to prevent hemolysis of the specimen and to prevent the patient from having a burning sensation when the venipuncture is performed. **DO NOT TOUCH THE VEIN SITE AFTER CLEANING IT.**
9. Perform the venipuncture. Grasp the patient's arm near the venipuncture site, using your thumb to draw the skin tight. With the needle bevel facing up, line up the needle with the vein. Penetrate the skin and enter the vein at an angle of approximately 15 degrees.

Holding the flange of the needle holder, push the tube forward until the back end of the needle punctures the stopper. While the needle is in the vein, keep the tube below the puncture site.

When the blood starts flowing into the tube, release the tourniquet and open the patient's hand. This allows circulation to return to normal and reduces bleeding at the venipuncture site.

Keep constant, forward pressure on the tube (in the direction of the needle). This prevents the shut-off valve from closing and stopping the flow of blood.

When the blood stops flowing, remove the tube from the holder. The needle's shut-off valve will stop the blood flow until the next tube is inserted.

Tubes containing an anticoagulant should be allowed to fill until vacuum is exhausted and blood flow ceases, thus assuring the correct ratio of anticoagulant to blood. Immediately after drawing blood into a tube containing an anticoagulant, gently invert the tube five to ten times to mix the blood and anticoagulant. Do not shake the tube vigorously.

If you are going to draw blood into other tubes, insert them in the proper order into the holder and repeat the collection procedure.

If a blood sample cannot be obtained, change the position of the needle. If the needle has penetrated too far into the vein, pull it back a bit. If it has not penetrated far enough, move it farther into the vein, but do not probe with the needle. You may need to try another tube.

10. Remove the needle/bandage the site.

After the last tube has been withdrawn from the holder, ask the patient to open the fist, and then gently remove the needle from the venipuncture site. Then immediately apply a sterile gauze pad to the site. Tell the patient to keep pressure on the site for two minutes.

Apply an adhesive or gauze bandage over the venipuncture site after making sure that bleeding has stopped. Tell the patient to leave the bandage on for at least 15 minutes.

If the patient exhibits sensitive skin, dress venipuncture site with a gauze and paper tape or cloth tape.

11. Dispose of the puncture unit. Carefully dispose of needles promptly to prevent injury and to make sure they are not reused.

Use of Syringes

In general, use a disposable syringe with a 21 to 23-gauge needle when drawing a specimen from patients with fragile, thready, or "rolly" vein walls.

For complete procedure, see the Blood and Urine Collection, Preparation, and Transport chapter in NCCLS Physician's Office Laboratory Guidelines

Use of Safety Lok Blood Collection Sets (Butterfly needles)

When drawing pediatric patients, multiple sets of blood cultures/tests, or veins for which traditional drawing devices (needle/syringe, vacutainer, etc.) would be unusable due to the following: location of draw site, patient age, patients' size, etc., a blood collection device (butterfly needle) may be used. In using this device, please follow steps 1-8 of the venipuncture procedure, before performing the venipuncture.

To perform venipuncture:

1. Attach drawing device to vacutainer hub using a luer adapter or to the hub of a syringe.
2. Grasp the patient's arm near the venipuncture site, using thumb to draw skin tight. With your other hand clasp wing tips of the collection device and bring together. Then with needle bevel pointed up, insert needle into the drawsite at a 15 degree angle.
3. Once blood flash is observed into attached tubing of the collection device, either pull back on the syringe or place tube into holder to fill.
4. Once collection is completed, remove the collection device by grasping the wing tips on the device and pulling back from the drawing site, and apply pressure with gauze.
5. If using a syringe, it is also necessary to pull back on the plunger during needle removal to prevent blood loss from the device.
6. Tape should be used to secure gauze on the drawing site. Paper tape should be used, if the patient is allergic to adhesives.

Safely disposing of the safety lok needle (butterfly) should be done by the following method(s):

1. Pierce the top of a pediatric red and toss the tube along with the needle in the closest sharps container.
2. Carefully place the needle into the sharps container directly after use.
3. Use of the safety device is not recommended due to increase risk of needle sticks.

Special Precautions

1. Blood collections should not be drawn from same arm IV fluids are infusing into. Select the other arm. If not accessible:
 - a. Request Nurse to stop IV infusion for 2-5 minutes
 - b. Draw a pilot tube for waste (or waste 10 ccs), then proceed with collection. Document - "Sample drawn from arm with IV site, IV off _____ min." (Fill in the blank)
2. Avoid sites of edema, thrombi, hematomas, or skin injury as specimens may be contaminated with tissue fluid or possible clots.
3. Only nursing personnel may draw blood from indwelling lines, arterial lines, dialysis

fistulas/shunts.

4. A waste of 5-10 ccs must be drawn before collection of sample for analysis. Coagulation samples should not be drawn from lines unless specified by physician order.
5. If line collection is performed, the blunt needle used by the nursing staff may be attached to a vacutainer with luer adapter or to a syringe.
6. If collected by syringe method, the blunted needle used by the nursing staff for line blood collection must be removed and replaced with a safety needle device, before dispensing blood into the needed tubes for testing.
7. To remove the blunted needle, it must be capped by resheathing. This is accomplished by placing the cap on the counter, and scooping the cap onto the needle. Once the needle is covered, the cap can be secured by gloved hand. The needle may now be removed safely, disposed of in a sharp's container, and replaced with the safety device needle.
8. Use smaller gauge needles with minimal draw tubes to prevent excessive vacuum-suction pressure from collapsing veins on difficult patients.
9. A syringe with a smaller needle or butterfly may be used in cases of small, fragile veins, or venipuncture from hands, legs, or feet. *Remember to insert needle toward side of tube if using a syringe so that vacuum from larger vacutainer tubes will not hemolyze red cells. It is preferable to change needle to a 20 or 21 gauge needle before aspirating syringe draws into vacutainer tubes. Do not force sample into tube, allow vacuum to aspirate!

Written By: Janis Brazell, MT(ASCP)

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8/15/03 – Karla Davis
10/15/04 – Karla Davis
11/11/14- Jenni Edmonds, MT (ASCP)