

Policy #:	406 (PLH-406-06)	Effective Date:	9/30/2004	Reviewed Date:	2/4/2011
Subject:	VENIPUNCTURE PROCEDURE				
Approved by: Laboratory Executive Director, Ed Hughes (electronic signature)					
Approved by: Laboratory Medical Director, Mark P. Burton, MD (electronic signature)					

VENIPUNCTURE PROCEDURE

INTRODUCTION

When blood is removed from a vein, it is called venipuncture or phlebotomy. Venipuncture should be performed with care. The veins of a patient are the main source of specimens for testing, the entry point of medications, and the site for IVs and blood transfusions. Because there are only a limited number of easily accessible veins in a patient, it is important that everything be done to preserve their good condition and availability.

Universal precautions should be observed at all times. Gloves should always be worn when obtaining blood specimens.

BEFORE BEGINNING ANY PROCEDURE—**ACCURATELY IDENTIFY THE PATIENT**

Follow the proper protocol to identify the patient using the electronic patient identification system or make positive identification of the patient by checking hospital armband for patient's name and hospital number. Make sure the name and number correspond with the request label. When possible the patient's identity should be verified by asking the patient to identify him or herself. Any discrepancies must be clarified before the puncture is performed. If the patient is not wearing an armband, tell the nurse you are not permitted to draw the sample until the patient is wearing an armband. (Clients and walk-in outpatients in the stick room do not always have an armband. They should be identified by having them state their full name and some other identifying piece of information—date of birth, Social Security number, street address, etc. This is the only permissible exception.)

Check to make the timing and other special conditions indicated for the tests ordered have been met. Personal protective equipment (gloves) should be worn during venipuncture. Be sure to use any additional protection indicated when entering an isolation room. Always wash your hands or use a hand disinfectant between patients.

STEPS TO FOLLOW IN PERFORMING A VENIPUNCTURE

1. Assemble Supplies
 - a. Make sure all the necessary equipment is on phlebotomy tray before entering the patient's room. Item to check include:
 - b. Alcohol pads (70%)
 - c. Dry, clean gauze pads (2 inch X 2 inch)
 - d. Tourniquet (clean and in good condition)
 - e. Vacutainer holder—these are not reusable and should be discarded after use
 - f. Collection tubes (make sure you have correct tube for all tests ordered and confirm that the tubes are not expired.)
 - g. Syringe of size sufficient to draw volume of blood needed
 - h. Safety transfer devices for use with syringe draws.
 - i. Bandage tape, gauze, and/or adhesive bandages
 - j. Needles—stock tray with both Vacutainer collection needles and needles for syringes. The choice of needle will depend on the type of vein. The most commonly used needle is 1.5 inches in length and 21 Gauge. (This refers to needle diameter. The higher the gauge number the smaller will be the diameter or bore of the needle.) For small veins a needle 1 inch in length and 22 Gauge is preferred. The currently approved needles in use in this healthcare system are the BD Eclipse Blood Collection Needles. These needles have a safety shield which is locked in place over the needle after the venipuncture is performed.
 - k. Winged collection sets for difficult draws and blood cultures.
 - l. Sharps disposal container
2. Knock on the patient's door before entering. Identify yourself. Confirm the patient's identity by checking the arm band. The armband must be on the patient. It is not acceptable for the armband to be on the bed, the table, the wall, or any where except on the patient's body. Briefly explain venipuncture. Reassure the patient and be friendly. Ask the patient if they have a latex allergy. If the test requires a fasting state, ask the patient if they have been fasting. Guest Excellence and the Customer Satisfaction scripts should be followed at all times. Make sure the patient does not have gum, food or liquid, or other object in his/her mouth before beginning the procedure.
3. The recommended procedure is to have the patient lying down, but if this is not possible, have the patient sit in a comfortable, sturdy chair with his/her arm supported on a table or chair arm for easy access. A patient should never stand or sit on a high stool during the process of blood collection. The phlebotomist should always be prepared for the occasional patient has an adverse reaction to phlebotomy. Refer to procedure "Adverse Reaction to Phlebotomy.
4. Select and assemble the needed equipment.
5. Place the arm in a downward position to prevent back-flow. Apply a tourniquet three to four inches above the puncture site, just tight enough to be slightly uncomfortable. Ask the patient to make a fist. Do not allow the patient to make a very tight fist or to pump

their fist since this can falsely elevate the potassium level. This makes the veins more palpable. Do not leave the tourniquet on for more than 1 minute. It may be necessary to release the tourniquet after vein selection and to reapply it immediately prior to the puncture. Check both arms. Always select the most suitable vein for puncture. The three main veins are the cephalic, median cubital, and basilic. Generally, the median cubital is the one of choice because it is well-anchored in tissue and will not roll or move when the needle punctures it. The median basilic, at the inner edge of the arm, may have tendency to roll and is near a main artery and nerve. This part of the arm is very tender. The cephalic vein also has a tendency to roll and the skin over it is often tough. Using the index finger, palpate the arm, feeling for the best vein. It should feel similar to an elastic tube.

6. If a vein cannot be found try the following suggestions.
 - a. Gently pat the site to enlarge the veins.
 - b. Massage the arm.
 - c. Wrap the arm in a warm towel.
 - d. Check both arms. Always select the most suitable vein for puncture.
 - e. When selecting a vein, seek another site for puncture if any of the following conditions exist.
 - i. edema
 - ii. burn
 - iii. hematoma
 - iv. I.V. (See notes at end of procedure for patients with IVs)
 - f. blood transfusion (It is best to wait until 1 hour after transfusion is complete if possible; if not document this on a note and send with the specimen.)
 - g. cannula
 - h. pustules on the puncture site
 - i. vascular graft
 - j. mastectomy on side of puncture site

If another site is not available, consult the supervisor.

7. Scrub the site of the puncture with a 70% alcohol pad. Use a circular scrubbing motion, from inside to outside only. Cover a wide area around the selected site, 3 to 4 inches and scrub for at least 30 seconds. This may have to be repeated depending on the cleanliness of the patient. Cleansing the site prevents chemical or microbial contamination of specimen and patient. Do not touch this area again.
8. Let the area air dry. Do not blow on or fan the area. The alcohol should be allowed to dry to avoid hemolysis and/or burning sensation when the venipuncture is performed.
9. It is better to use syringes if veins are small. Winged collection sets ("butterflies") are also available and useful if multiple tubes are needed. If a syringe is used, move the plunger up and down in the barrel once or twice to make sure it does not stick. Expel all

air before proceeding. Do not remove the needle cap until immediately prior to the puncture.

10. Grasp the arm just below the site and pull the skin tight with the thumb.
11. Hold the syringe or Vacutainer assembly with the opposite hand. Rest the index finger on the hub of the needle as a guide. Other fingers will serve as a cushion for the syringe or Vacutainer and will help steady it.
12. Point the needle in the direction of the vein and in line with the vein. Hold it at an approximate 15 degree angle to the arm.
13. Enter the vein slightly below the area where it can be seen. This way, there is more tissue and this will anchor the needle. The bevel of the needle should be directed up. As the needle enters the vein, a "give" will be noted.
14. Filling of tubes--
 - a. If a syringe is used, blood will begin to flow as soon as the needle enters the vein. If using a syringe, do not pull back too hard on the plunger; this may hemolyze the cells, collapse the vein, or pull the wall of the vein over the bevel, stopping the blood flow. Keep the needle steady; do not push in or pull out. Continue pulling plunger back gently until enough blood is collected to fill all needed tubes.
 - b. If a Vacutainer is being used, as soon as the needle is in the vein, push the tube firmly but carefully into the holder centered onto the back end of the needle until a resistance is felt. If the vein has been located, blood flow will begin at the resistance point. Keep the needle steady. If collecting multiple samples, wait until the vacuum is exhausted and blood flow ceases. Gently remove the tube from the holder, keeping the needle steady, and place the next tube into the holder.
 - c. The proper order of draw is:
 - i. Blood culture bottles
 - ii. Non-additive red or blue if any coagulation tests other than PT/PTT ordered (invert 3-4 times)
 - iii. Blue top - must be at least 90% full (invert 3-4 times)
 - iv. Gold top (invert 5 times)
 - v. Red top (invert 5 times)
 - vi. Green top (invert 8-10 times)
 - vii. EDTA pink and/or purple (invert 8-10 times)
 - viii. Any other tubes

Remember to invert tubes gently after drawing to properly mix additive and blood.

NOTE: This same order should be used to fill tubes when a syringe is used to collect the sample. After collecting the sample, lock the safety device over the syringe needle. Carefully remove the used needle and attach a transfer device to the syringe. Using the same order as above, fill each tube. Allow the vacuum in the tube to pull the blood into the tube. Do not use the plunger to force the blood into the tube. This can lead to hemolysis. It can also cause excess pressure in the tube which could cause the stopper to pop off resulting in a blood splatter.

15. If blood does not flow immediately, several steps can be taken to obtain the specimen.
 - a. Change the position of the needle. The needle may have penetrated the vein too far. In that case, pull back gently. If the needle has not penetrated far enough, gently push it in. Use the free index finger to feel above the puncture to locate the vein. Do not probe through tissue. This is painful and damaging. It may be just necessary to change the needle angle slightly. The bevel of the needle may be up against the vein wall and may be obstructing the blood flow.
 - b. Sometimes the Vacutainer tubes will lose vacuum and will not fill. In this case, try another tube.
 - c. Sometimes the tourniquet is so tight that it is obstructing blood flow. Loosen the tourniquet to see if this helps.

16. If blood still does not flow trying another site may be necessary, preferably in the other arm. Never stick a patient more than twice and use a new needle each time. After two unsuccessful tries, call someone else more experienced. By this time, the phlebotomist and the patient have lost confidence.

NOTE: You should never attempt an arterial stick or a stick to a foot vein without an order from the physician. An arterial stick is very traumatic to the patient and can result in serious, permanent damage to the circulation in that limb and to the nerves in that area. (Refer to the arterial puncture procedure for more details concerning the risks involved in arterial punctures.) Sticking a foot vein also involves risk, especially to a diabetic patient or any patient with poor circulation, due to risk of infection. If you cannot obtain blood from the arm by way of venipuncture (maximum of two attempts), ask another phlebotomist to try. Only after we have exhausted all other means, should an arterial puncture or a foot-puncture be attempted, and then only with a physician's order.

17. As soon as the blood starts to flow, loosen the tourniquet. Remember, if the tourniquet is left on too long, the blood in this area will have an increased concentration of cells (hemoconcentration) and test results may be affected. If the veins are very small, leave the tourniquet on until the collection is complete. Always remove the tourniquet before removing the needle. The patient may open his fist as soon as the blood flow starts.
18. Apply clean, dry gauze to the site and gently withdraw the needle. Immediately lock the safety shield in place over the needle.
19. Apply gentle pressure to the point of the puncture until the bleeding has stopped. The patient should keep arm straight and/or elevate it above the heart. After the bleeding

stops, apply a pressure bandage to the site, unless the patient refuses. Instruct the patient to leave the bandage on for at least 15 minutes. (NOTE: The patient may apply pressure if able.)

20. Dispose of needle and needle holder by way of Bio-Hazard sharp container.
21. **PROPERLY LABEL TUBES FROM THE ARMBAND.** Computer labels may be used after comparing with the armband. All tubes must be labeled, in the presence of the patient, with the patient's name, account number, date collected, time collected, and collector's initials. Additionally, any tube collected for any Blood Bank test, must have the hospital number handwritten from the armband, unless the patient identification system label is used.
22. Clean the area. Never leave anything in a patient's room unless isolation techniques are warranted. Remove gloves after each patient contact. Wash hands before leaving the patient's room. Do not wear gloves while going from room to room.

PATIENTS WITH IVs

- a. Blood may be drawn in an arm with an I.V. only if drawn below the I.V.
- b. If the patient has an I.V., one alternative to an impossible venipuncture is to request the nurse in charge to disconnect the I.V., wait at least 2 minutes, and draw blood from the needle already in the vein. Just remember that at least 3 ml should be discarded before the samples are collected. This avoids dilution and contamination of the sample with the I.V. fluid. Alternately, venipuncture can be performed in this arm after the 2 minute wait.
- c. Always have the nurse disconnect the I.V. Phlebotomists should never turn off or on the patient's I.V.
- d. Do not put a tourniquet on above an I.V. without checking with the nurse.
- e. The phlebotomist should always check with the nurse or the lab supervisor/charge tech if there are any questions.

Note: Refer to the procedure, "Adverse Reactions to Phlebotomy" for additional information. If the patient develops a hematoma, excel bleeding, tingling in the arm, or any other adverse reaction, this should be reported to the patient's nurse and documented. Inform your supervisor so that a Risk Management report may be initiated.