

POLICY & PROCEDURE



TITLE: Phlebotomy – Lab Draws				
Scope/Purpose: To create a standard process for phlebotomy. To ensure accuracy of test results through proper collection, labeling, processing, storing and transporting of blood specimens.				
Division/Department: All Clinics			Policy/Procedure #:	
Original Date: July 2015			<input checked="" type="checkbox"/> New <input type="checkbox"/> Replacement for:	
Date Reviewed:	Date Revised:	Implementation:	CPIC Approved:	Board Approved:
			09/17/2015	
Responsible Party: <u>Director of Nursing</u>				

DEFINITIONS:

1. **Phlebotomy** is the act of drawing or removing blood from the circulatory system through a cut (incision) or puncture in a vein with a needle in order to obtain a sample for analysis and diagnosis. Most routine lab tests are performed on either plasma or serum.
2. Blood specimens can be obtained via '**venipuncture**' (using needle/butterfly/vacutainer) or '**lancet puncture**' (often used for blood sugar glucometer testing and PKU tests for infants, lead and hemoglobin tests for toddlers.)
3. **Plasma** is the liquid portion of the blood and has a clear or light yellow color. It makes up 60% of total blood volume and is 90% water. It contains dissolved proteins, glucose, clotting factors, mineral ions, hormones and carbon dioxide.
4. **Serum** is the clear, pale yellow liquid that separates from the red blood cells when the blood is allowed to clot.
5. **Hemolysis** is the rupture (breakdown) of red blood cells and the release of hemoglobin. This occurs normally at the end of the life span of a red cell, but also occurs when there is trauma with a blood draw, or when procedures for lab draw and storage of blood is not followed.

POLICY:

To draw labs, individuals must be deemed qualified through HealthPoint training. It is mandatory that standard precautions be observed, and at a minimum, gloves worn, when collecting and preparing blood specimens to minimize risk to clinic staff or patients.

PROCEDURE:

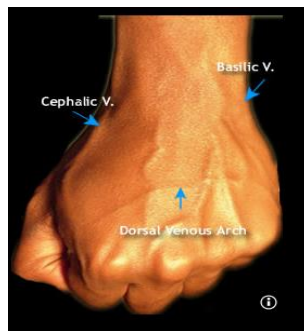
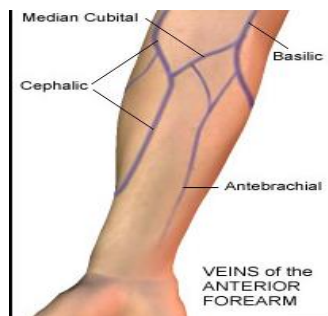
A. GUIDELINES FOR ANY TYPE OF PHLEBOTOMY (VENIPUNCTURE OR FINGERSTICK/HEELSTICK):

1. Introduce yourself to the patient and identify the patient by two forms of identification
 - a. Ask the patient/patient family to state and spell his/her or the child's name and check this information and the picture identification against the requisition (chart record).
 - b. Compare the birth date of the patient with date noted on the medical record if picture ID is not available.

2. Check the requisition form for requested tests, other patient information and any special draw requirements.
3. Gather the supplies you will need for the draw. (General materials are safety needles 22g or smaller, butterfly needles, 21 g or smaller, blood collection tubes as determined by test, **(ENSURE THEY ARE IN DATE AND NOT EXPIRED)**, tourniquet, alcohol wipes, 2x2 gauze or cotton balls, OSHA approved sharps container, bandages or tape, leak proof transportation bags and containers if specimen is to be sent to another lab. (Alcohol is preferable to iodine because blood contaminated with iodine may falsely increase levels of potassium, phosphorus or uric acid in test results).
4. Reassure the patient that the minimum amount of blood required for testing will be drawn. ASK THE PATIENT ABOUT THEIR FEARS AND IF THEY HAVE EVER FAINTED DURING THIS TYPE OF PROCEDURE.
5. Position the patient in a chair, or sitting or lying on a bed, (HAVE PATIENT RECLINE OR LIE ON A BED IF THE PATIENT HAS FEAR OF LAB DRAWS AND/OR A HISTORY OF FAINTING WITH PROCEDURE.) If it is an infant or toddler, the parent may assist with holding the patient in his/her lap.
6. Wash your hands, having the patient observe you, as this will promote patient confidence in your compliance with hand hygiene and safety practices.

B. VENIPUNCTURE PROCEDURE: Following the techniques below will prevent ‘Hemolysis’ (which can interfere with many tests):

1. Position the patient with arm extended to form a straight-line from shoulder to wrist.
2. Select a suitable site for venipuncture, by placing the tourniquet 3 to 4 inches above the selected puncture site on the patient. (Do not put the tourniquet on too tightly or leave it on the patient longer than 1 minute.)
 - a. The larger median cubital, basic and cephalic veins (inside of elbow) are most frequently used but other veins may become more prominent if patient closes his/her fist tightly. Dorsum hand veins are also acceptable.



- b. AVOID AREAS of extensive scarring or healed burns, areas where there is presence of hematoma.

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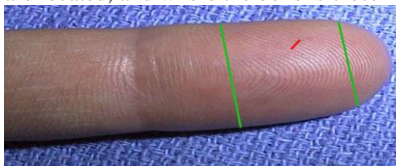
- c. NEVER DRAW LABS IN THE ARM ON same side as mastectomy or an arm that has a cannula, fistula, or vascular graft.
3. Put on gloves and palpate for a vein.
 4. When a vein is selected, cleanse the area in a circular motion, beginning at the site and working outward. Allow the area to air dry. (After the area is cleansed, it should not be touched or palpated again. If you find it necessary to reevaluate the site by palpation, the area needs to be re-cleansed before the venipuncture is performed.)
 5. Ask the patient to make a fist; avoid “pumping the fist.”
 - a. Grasp the patient’s arm firmly and pull the skin tight with your thumb and index figure just below the puncture site to ‘anchor’ the vein.
 - b. Holding the needle bevel side up, in line with the vein, (at a 15-30 degree angle with the arm surface), swiftly but gently insert the needle through the skin into the vein.
 - c. Avoid excess probing.
 - d. Never attempt a needlestick more than twice. Notify supervisor or the patient’s provider if you are not able to successfully obtain lab draw.
 6. Holding the hub (of the needle device securely), insert the first vacutainer tube and follow the proper order of draw into the large end of the hub penetrating the stopper.
 7. ‘LAB CORP TEST MENU’, ACCESSIBLE BY QUICK INTERNET SEARCH ON ANY OFFICE COMPUTER, WILL NOTE TEST TUBE COLOR AND AMOUNT OF BLOOD REQUIRED FOR ANY TEST. A PAPER REFERENCE TABLE IS ALSO AVAILABLE IN LAB OFFICES AT CLINICS.
 8. TO AVOID CROSS-CONTAMINATION OF ADDITIVES BETWEEN TUBES OR HEMOLYSIS OF BLOOD WHICH CAN LEAD TO ERRONEOUS TEST RESULTS OR REFUSED SAMPLE:
 - a. Draw samples in the CORRECT ORDER if multiple tests are ordered,
 - b. **THOROUGHLY MIX** all tubes with additives by gently inverting tubes.
 - c. ‘SPIN DOWN’ samples (generally required for all red/black/gold tubes – which are tubes with gel) **within 45 minutes of lab draw.**
 - d. Follow direction from Lab Corp or St. Joseph’s for STORAGE TIME of specimens
 - e. Follow direction from Lab Corp or St. Joseph’s regarding SPECIFIC INSTRUCTIONS for tests; EXAMPLE: Separating plasma after spinning, pipetting plasma into transport tube, and then storing specimen in freezer if PT INR cannot be sent to the lab on the same day
 9. CORRECT ORDER OF DRAW IS AS FOLLOWS: (LABEL TUBES WITH DRAWS!)
 - a. **BLOOD CULTURES: YELLOW BLACK TOPS**
 - b. **LIGHT BLUE TOP:** Coagulation tube – used for Prothrombin time (INR), coagulation studies, Factor VIII, Lupus Anticoagulant, Protein C&S and other tests). **IF BLUE TOP TUBE IS COLLECTED FIRST AND A BUTTERFLY IS USED, A PARTIALLY FILLED ‘DUMMY’ TUBE MUST BE DRAWN AND DISCARDED TO ELIMINATE THE TUBING’S ‘DEAD SPACE’.**
 - c. **RED/BLACK OR SST (GOLD) TOP:** Serum tube with or without clot activator – used for biochemistry, lipids, liver function tests, creatinine, cardiac enzymes, electrolytes, iron

studies, C Reactive protein, PSA, B12, Hormones and Serology/Immunology – Hepatitis (all), allergy Rubella, Rheumatoid Factor, HIV, Viral antibodies, Syphilis. **NEVER use this for toxicology or drug testing. (INVERT 5 TIMES...FOLLOW SPIN DOWN PROCEDURE)**

- d. **RED (PLAIN) TOP:** Blood bank and biochemistry – certain therapeutic drugs and antibodies, serum copper. **(INVERT 5 TIMES) (MUST SPIN AND SEPARATE)**
 - e. **GREEN (OR SOMETIMES TAN) HEPARIN TOP:** used for cytogenetics, biochemistry – cholinesterase, red cell and insecticides. **(INVERT 8-10 TIMES)**
 - f. **LAVENDER (EDTA) TOP:** Hematology – CBC, White Count, Hemoglobin, Hematocrit, ESR, Infectious Mono; Biochemistry – Red cell folate, Ammonia, Troponin, Beta HCG, Homocysteine, Manganese; Blood bank – Cross Match, Group and Hold, Blood Group Antibody Screen. **(INVERT 8-10 TIMES....FOR SEDIMENTATION RATE TESTS - FOLLOW DIRECTIONS REGARDING SPINNING, SEPARATING, AND FREEZING)**
 - g. **GRAY TOP:** (SELDOM USED) Sodium Fluoride – Glucose **(INVERT 8-10 TIMES)**
 - h. **YELLOW TOP:** (SELDOM USED) – WITH ADDITIVE CITRIC ACID – **DRAW LAST**
10. When the last tube is filling, remove the tourniquet.
 11. Remove the needle from the patient's arm using a swift backward motion.
 12. Place gauze immediately on the puncture site. Apply and hold adequate pressure to avoid formation of a hematoma. After holding pressure for 1-2 minutes, tape a fresh piece of gauze or Band-Aid to the puncture site.
 13. Dispose of needles and any partially used blood collection tubes in the Sharps container. Dispose of other contaminated materials in appropriate waste containers.
 14. Remove your gloves and wash your hands.

C. FINGERSTICK PROCEDURE:

1. Put on gloves and select the location to perform the procedure. The best locations for fingersticks are the 3rd (middle) and 4th (ring) fingers of the non-dominant hand.
 - a. Do not use the tip of the finger or the center of the finger.
 - b. Avoid the side of the finger where there is less soft tissue, where vessels and nerves are located, and where the bone is closer to the surface.



The proper location on the 3rd or 4th finger of the non-dominant hand for performing a fingerstick is outlined here between the green lines. The puncture should be made just off center and perpendicular to the fingerprint ridges. (A puncture parallel to the ridges tends to make the blood run down the ridges and hamper collection.)

- c. Avoid puncturing a finger that is cold, cyanotic, swollen, scarred, or covered with a rash.
2. When a site is selected, cleanse the selected puncture area.
 - a. Massage the finger toward the selected site prior to the puncture.
 - b. Using a sterile safety lancet, make a skin puncture just off the center of the finger pad.
 - c. Wipe away the first drop of blood, which tends to contain excess tissue fluid.
3. Collect drops of blood into the collection tube/device by gentle pressure on the finger. Avoid excessive pressure or “milking” that may squeeze tissue fluid into the drop of blood.
4. Collect the blood onto a glucometer strip or cap, rotate and invert the collection device to mix the blood collected.
5. Have the patient hold a small gauze pad over the puncture site for a few minutes to stop the bleeding.
6. Dispose of contaminated materials/supplies in designated containers.
7. Remove your gloves and wash your hands.

D. HEEL STICK PROCEDURE (INFANTS):

1. The recommended location for blood collection on a newborn baby or infant is the heel. The diagram indicates the proper area to use for heel punctures for blood collection.
2. Pre-warm the infant's heel for 3-5 (three to five) minutes prior to the procedure by having the parent/guardian hold the infant's heel in his/her hand or by using a heel warmer. (This increases the flow of blood for collection.)
3. Wash your hands and apply gloves.
4. Clean the site to be punctured with an alcohol sponge and dry the cleaned area with a dry gauze pad or let site air dry.
5. Hold (or have the parent/guardian hold) the baby's foot firmly to avoid sudden movement.
6. Using a sterile blood safety lancet, puncture the side of the heel in the appropriate regions shown above.
7. Since newborns do not often bleed immediately, use gentle pressure to produce a rounded drop of blood. Do not use excessive pressure because the blood may become diluted with tissue fluid.
8. Wipe away the first drop of blood with a piece of clean, dry cotton gauze. Fill the required microtainer(s) as needed or PKU testing paper as appropriate.



9. When the procedure is completed, elevate the heel, place a piece of clean, dry cotton on the puncture site, and hold it in place until the bleeding has stopped. Apply tape or Band-Aid to area if needed.
10. Dispose of the lancet in the sharps container. Dispose of contaminated materials in appropriate containers.
11. Remove your gloves and wash your hands.

E. LABELING THE SAMPLE

1. A properly labeled sample is essential so that the results of the test match the patient. On the lab computer:
 - a. Highlight the patients name with lab ordered.
 - b. Highlight visit and click on 'View Order' selection on bottom
 - c. A screen will pop up titled 'Patient Orders'; select 'quick transmit'
 - d. Another box will appear that lists all labs ordered for that patient
 - e. 'Unclick' boxes in 'A' and 'Sp' columns for any in-house lab
 - f. **CHECK THE BOX BY THE DATE TO 'DATE & TIME STAMP' THE LABEL.** (Ensure the date is accurate.)
 - g. Ensure the Requisition number matches the test number on the requisition slip
 - h. Select the box titled "Transmit" (not the arrow that is next to transmit button.
 - i. Print labels at time of visit to ensure accurate date/time stamp.
 - j. Label the specimens IMMEDIATELY by attaching the requisition label.
 - k. Specimens that are not labeled properly nor have any missing components of label requirements (patient name/DOB, test number, date) will not be accepted by the outside lab.
2. Select "print" on the pop up screen to print out the requisition form. (There are eight peel-able "peel-able" labels on each requisition that can be attached to a specimen.)

F. BLOOD SAMPLE HANDLING AND PROCESSING:

1. **Pre-centrifugation Handling:** The first critical step in the lab testing process, after obtaining the sample, is the preparation of the blood samples. Specimen integrity can be maintained by following some basic handling processes:
 - a. Fill tubes to the stated draw volume.
 - b. Store vacutainer tubes at 39-77°F.
 - c. Do not use tubes after designated expiration date.
 - d. Mix all gel barrier and additive tubes by gentle inversion 5 to 10 times immediately after the draw.
 - e. Prior to centrifugation, allow serum separator tubes to clot for a full 30 minutes in a vertical position.
2. **Blood Sample Centrifugation** – It is recommended that serum be physically separated from contact with cells as soon as possible, with a maximum time limit of 2 hours from the time of collection.

- a. In general, for a horizontal, swing-bucket centrifuge, the recommended spin time is 10 minutes. For a fixed-angle centrifuge, the recommended spin time is 15 minutes.
- b. Tubes should remain closed at all times during the centrifugation process
- c. Place the closed tubes in the centrifuge as a “balanced load” noting the following:
 - i. Opposing tube holders must be identical and contain the same or no cushion.
 - ii. Opposing tube holders must be empty or loaded with equally weighted samples (tubes of the same size and equal in fill).
 - iii. If an odd number of samples is to be spun, fill a tube with water to match the weight of the unpaired sample and place it across from this sample.
 - iv. NEVER OPEN THE CENTRIFUGE WHILE IT IS SPINNING

G. TRANSFERRING/TRANSPORTING:

1. Specimens should be capped tightly and placed in a secondary plastic bag for storage and transport.
2. A label must be attached to the outside of the specimen bag.
3. The requisition should be placed inside the pocket of the storage bag, not inside the bag with the specimen
4. All specimens should be LABELED AND PROPERLY SEALED before being transported. Follow special Lab Corp instructions regarding containers, as some specimens must be protected from light. (It is acceptable to wrap specimens in aluminum foil should protection from light be required and a container is not available).
5. Inspect specimen prior to specimen pick-up. Specimens that are damaged or hemolyzed must be re-drawn. (Notify the provider and the patient of the need for collection process to be repeated.

RELATED POLICY: (NONE)

REFERENCES:

www.guideline.gov
www.phlebotomyguide.org
www.labtestsonline.org
www.geisingermedicallabs.com

(Leave blank if none)

ATTACHMENTS/ENCLOSURES:

(Leave blank if none)

documentation of changes)

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