

Johns Hopkins Medical Laboratories

Department of Pathology

Core Lab Clinical Services

Zd7: Word: JHH Venous Blood Collection Procedure

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VENOUS BLOOD COLLECTION

PURPOSE: Quality patient care and accurate specimen results are dependent upon proper venipuncture technique, timely specimen collection, and proper processing of patient specimens. Common collection errors encompass incorrect identification of the patient, hemolyzed specimens, and the use of an incorrect anticoagulant. This procedure establishes criteria for the proper collection of blood specimens by venipuncture.

MATERIALS

- A. Disposable, single use, 21 gauge needle or 22 gauge needle
- B. Disposable, single use, needle holder
- C. Evacuated Blood Tubes
- D. Disposable Tourniquet (non-latex)
- E. Sterile alcohol preps or Beta dine (povidone-iodine) swab
- F. Disposable gloves (non-latex)
- G. Sharps Container
- H. Sterile gauze pads
- I. Sterile band aid /surgical tape/ paper adhesive tape

A. PHLEBOTOMY PREPARATION

1. Have all blood collecting equipment ready and available.
2. Review all laboratory requisitions and/or barcode labels. The following information must be complete and legible:
 - a. patient's full name
 - b. patient's medical record number
 - c. patient's date of birth (on requisitions)
 - d. ordering physician's name or code number (on requisitions)
 - e. tests requested
 - f. ordering location

3. Resolve any order discrepancies prior to beginning specimen collection.
4. You must identify yourself to the patient and explain the procedure you are about to perform.
5. Follow the procedure in the hospital's policy for the identification of both inpatients and outpatients. The policy is in the ICPM found at http://www.insidehopkinsmedicine.org/icpm/ADT004-ID_pts.pdf . Any identification discrepancy must be resolved before proceeding with specimen collection. In situations where the patient is not alert, coherent, or too young to respond, identification assistance must be obtained from another family member, guardian, nurse, physician, in the absence of an identification wristband.
 - All patients shall be identified by using two patient identifiers:
 - Inpatient – Ensure that the name and history number are the same on the patient's wristband and on the specimen labels.
 - Outpatient – Ask patient to state their full name and date of birth to ensure their identity
6. For Blood Bank samples print the patient's name and history number on the barcode label exactly as it is on the hospital card or bracelet.
7. Verify any patient diet restrictions (test dependent). If any of the test(s) being collected require the patient to fast and/or eliminate certain foods from their diet prior to blood collection, make sure that this condition has been met. Reschedule blood collection if necessary.
8. Wash your hands or disinfect with hand sanitizer. Frequent hand washing is a mandatory standard precaution to be done prior to and after contact with each patient.
9. Put on a pair of single-use disposable non-latex gloves and collect the specimens according to the venipuncture procedure.

B. VENIPUNCTURE PROCEDURE

1. Organize the type and number of tubes required. If barcoded labels are available, each label displays the required collection container. If specimens are being collected using handwritten or addressograph labels, review the J.H.H. Laboratory Handbook to determine the tube type(s) and quantity required (<http://pathology.jhu.edu/jhml/>).
2. Assemble the needle to the vacutainer holder. Leave protective sheath covering needle intact. The most frequently used needle is 21 gauge. A 22 gauge needle can be used for very small veins. This smaller needle must be used carefully as it can easily cause specimen hemolysis.
3. Position patient's arm in a flat position with the wrist lower than the bend of the arm. Tie the tourniquet approximately 4 inches above the intended venipuncture site. The tourniquet should be looped so that it can be released with a gentle pull while holding both ends of the tourniquet.

4. Palpate patient's arm for the best venipuncture site. Ask the patient to make a fist; this helps to distend the veins. Choose the vein that feels the fullest. A good vein is ALWAYS palpable. It springs back like a small rubber band. If you have any doubt about using the veins in one arm, check the other arm before starting the venipuncture. (The vein may not be visible. Small surface veins are not always the best because they collapse with the pressure of the vacuum).
5. The larger and fuller median cubital and cephalic veins are used most frequently, but wrist and hand veins, are also acceptable. Determine the direction in which the vein runs. Open alcohol prep and clean potential venipuncture site, wiping with a circular motion from the center to the periphery. (If volatile or toxicology tests are being collected, DO NOT USE alcohol pads to clean the venipuncture site. Use a betadine swab to eliminate the potential of alcohol contamination in the specimen). Dry venipuncture site with a STERILE gauze one time only to assure the site is dry before performing the puncture. Have spare sterile gauze readily available. If the venipuncture site proves difficult and the vein must be touched, the site must be cleansed again.
6. Discard the protective sheath covering the needle. Visually inspect the needle tip to determine that it is free of hooks at the end of the point. Assure that the bevel of the needle is up. Hold the skin below the site taut by drawing the skin downward with your thumb. It is wise to tell the patient just prior to performing the skin puncture so that the patient is not frightened.
7. Stick the vein in the same direction as the vein runs. Start puncture at bend of arm or just below bend whenever possible. Make the puncture as smooth and quick as possible while holding the vacutainer barrel at approximately a 15 degree angle.

NEVER PASS EQUIPMENT IN FRONT OF PATIENT'S FACE.

8. Grasp the flange of the needle holder and push the tube forward until the butt end of the needle punctures the stopper. Release the tourniquet as soon as possible after the blood begins to flow. Fill the tube until the vacuum is exhausted at which time blood flow will cease. Remove the tube from the holder. The shut off valve re-covers the point, stopping blood flow until the next tube is inserted into the holder.
9. Vacutainer tubes must be collected in the proper order based on the additive type and whether the tubes are glass or plastic.
Follow the order of draw:
 - (1) Blood culture tube
 - (2) Coagulation tube (e.g. blue top)
 - (3) Serum tube with or without clot activator, with or without gel (red top)
 - (4) Heparin tube with or without gel plasma separator (green top)
 - (5) EDTA (lavender top)
 - (6) Glycolytic inhibitor (gray top)

Any tubes containing anticoagulants (lavender top, blue top, clot activator tubes, and others) should be gently inverted several times immediately after

collection to prevent specimen clot formation. These tubes should be filled to capacity to obtain the proper anticoagulant to blood ratio.

Note: When collecting only a sodium citrate tube for PT and/or APTT testing using BD Vacutainer® Blood Collection Set tubing, a plain glass discard tube should be used first to purge the air from the tubing and allow a full draw into the citrate tube

10. Remove the last vacutainer tube from the holder. Fold a sterile gauze pad over needle. Remove needle in a quick careful motion. Don't press down on gauze until the needle has been completely removed from the vein. Apply pressure to puncture site. (Patient can hold, if possible.) Activate the needle safety device and immediately discard the needle in the sharps container to prevent reuse or accidental injury. NEVER RECAP THE NEEDLE.
11. All specimens must be labeled in the presence of the patient before leaving collection site. Place barcode labels with the printed specimen number adjacent to the stopper end.
12. Observe the patient's venipuncture site to assure that bleeding has stopped. Cover site with a band Aid or sterile gauze held in place with surgical tape.

C. DISPOSAL OF DIRTY EQUIPMENT

1. Used needles are discarded in an approved sharps needle container.
2. Used gauze and other disposable or soiled equipment must be discarded in a red bag lined biohazard receptacle.
3. Gloves may now be removed and discarded into a red bag.

D. COLLECTION TIME ENTRY

1. Manual Labels:
Specimens collected with manual labels require that the specimen collection date/time and the collector's initials are recorded in the appropriate areas of the lab requisition.
2. Barcoded Labels:
Once collected, take the properly labeled specimens to the barcode scanner. Press the trigger and wand each of the barcodes. As the barcode is read a green light will flash and a single beep will occur with a successful read. The current time and date of specimen collection will be recorded for all barcoded specimens in the Pathology Data System at this time.
 - a. If the system is unable to communicate to PDS, a red light will be displayed. In this situation the user should handwrite the collection date and time on the label so that the lab can manually record this information in the lab computer (PDS)

3. Perform any special collection requirements as noted on the barcode labels or as stated in the J.H.H. Laboratory handbook. <http://pathology.jhu.edu/jhml/> (example - Place specimen on ice).

REFERENCES:

Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture. NCCLS: H3-A5, 5th Edition, Dec 2003.

Tubes and Additives for Venous Blood Specimen Collection. NCCLS: H1-A5, 5th edition, Dec 2003.

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Phlebotomy Handbook. Diana Garza and Kathleen Becan-McBride, 3rd edition. pp. 103-148. Appleton & Lange, Norwalk, Connecticut. 1993.