

LABORATORY COLLECTION MANUAL	<b>BLOOD COLLECTION PROCEDURE</b>
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**PURPOSE:**

Blood collection is the first link in a chain of events that is completed when a physician receives test results on his or her patient. Obtaining a good blood specimen is one of the most important duties of any laboratory employee. Without a properly drawn and labeled specimen, further work is of no value.

I. Blood Specimen Tube Labels:

A. The computer generates blood tube labels when orders are either entered into the Order Entry system or the Laboratory System. These labels are taken to the nursing units and used at the bedside of the patient to label the tube properly.

B. The tube labels have all the following information:

- ❖ Name of the patient.
- ❖ Patient identification (billing) number
- ❖ Date and Time of collection
- ❖ Tests ordered.
- ❖ The unique accession number for test.
- ❖ Date of Birth

C. All Labeling of blood tubes must be done at the bedside, or in the presence of the patient. If a computer generated label is not available, the tube must be labeled with at the very least the first and last name, Date of Birth, time and date, tests ordered, and another identifying number if possible.

II. Always use proper Hand Hygiene prior to touching the patient as well as after the process is completed.

III. Patient Identification:

After obtaining labels and preparing your tray, you arrive on the floor. Begin by **Acknowledging** your patient by name and putting him/her at ease. Introduce yourself in a friendly, courteous manner: "Good morning, I'm Alice Burns from the laboratory. I've come to collect a blood specimen." Then ask the patient for **his/her stated full name and date of birth**. Do not automatically assume he is Mr. Smith, even if his name is on your list. Never ask a patient, "Are you Mr. Smith?" If the patient does not hear you or understand, he may agree without knowing what he is saying.

- (Please see Key Words Suggestions for more specific AIDET tips)

As identified by Joint Commission National Patient Safety Goals, there must be at least two (2) patient identifiers, before taking a blood specimen from a patient. The 2-patient identifiers are stated name and Date of Birth. The patient location **MUST NOT BE USED FOR IDENTIFICATION OF THE PATIENT. If the patient is unable to give their name and date of birth, the nursing caring for the patient must ID the patient. A parent can identify a pediatric patient by giving their name and DOB.**

After the patient has given his/her name, and date of birth, it is essential that his/her name and date of birth (at the very least) on the band be checked to confirm the information. All information that is stated, on your printed labels, and on the patient's armband **MUST MATCH**. Occasionally, the patient will not be wearing a name band. It is then your responsibility to contact a floor nurse to identify the patient and see that he/she obtains a name band. If the patient is in the Emergency Room, on a nursing unit, or in the Day Surgery or Surgery areas,

**THEY MUST HAVE AN IDENTIFICATION BRACELET BEFORE YOU DRAW THE BLOOD. The only exception to this is during extreme trauma cases in the Emergency room where the patient is not registered and it would affect patient care in order to wait for the armband. Then and only then can you draw a patient without the armband in place.**

***REMEMBER, THAT THE IDENTIFICATION OF THE PATIENT DOES NOT END UNTIL THE LABELS ARE ON THE SPECIMEN TUBES. THE LABELS MUST BE VERIFIED***

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***AGAIN TO MAKE SURE CORRECT LABELS ARE BEING USED FOR THAT PATIENT EACH AND EVERY TIME.***

- IV. Ask the patient if they have a sensitivity to latex. (Make sure you use latex-free gloves and tourniquet when applicable.)
- V. Selecting the Vein for Venipuncture:
- A. First inspect the area you plan to use.
  - B. Apply the tourniquet about midway between elbow and shoulder and have patient clench and unclench his/her hand. The tourniquet must be applied with enough tension to compress the vein, but not the artery.
  - C. Always palpate or feel for the vein, even when the vein can be seen. This gives you practice in finding deeper, unseen veins. The vein will feel like an elastic tube that gives under pressure. Arteries pulsate, so make certain the structure you feel is not pulsating. If a vein is difficult to find, it may become easier to see if you massage the arm from wrist to elbow, or tap sharply with index and second finger. **Do not draw from an artery.**
  - D. Attempt to locate the median cubital vein on either arm before considering alternative veins. Due to the proximity of the basilic vein to the brachial artery and the median nerve, this vein should only be considered if no other vein is more prominent.
  - E. If you are not certain that you have found a vein, examine the other arm.
  - F. You should never request RT to perform an arterial specimen for a routine blood draw, unless there is no other option, and then only with approval from the physician.

VI. Anticoagulants:

Many blood tests performed in the laboratory require that blood specimens be collected in collection tubes, which contain an anticoagulant. Anticoagulants are substances, which prevent blood from clotting. The three main anticoagulants used in our laboratory are:

- K<sub>2</sub>EDTA
- Heparin, and
- Sodium Citrate.

Tubes containing an anticoagulant are color-coded. Blood collected in these tubes should be inverted very slowly six to eight times to insure proper mixing.

- A. K<sub>2</sub>EDTA: Lavender coded containers contain K<sub>2</sub>EDTA. K<sub>2</sub>EDTA is the preferred anticoagulant for most hematology procedures. K<sub>2</sub>EDTA pink top tubes are now used for compatibility testing
- B. Heparin: Green coded containers contain heparin. Heparinized specimens are used in collecting many chemistry tests.
- C. Sodium Citrate: Blue coded containers contain sodium citrate. This anticoagulant is used mainly for blood coagulation studies in a mixture of one part 3.2 aqueous solution and nine parts blood. It is very important that the proper amount of blood be drawn in these tubes.

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VII. Order-Of-Draw:

The following order-of-draw, which is recommended when drawing several specimens during a single venipuncture, is based on pragmatism. Its purpose is to avoid possible test result error due to cross contamination from tube additives. This procedure should be followed for both evacuated tubes, and syringe transfer of blood to multiple tubes.

- A. Blood culture or Blood culture tube (rotate tube 8-10 times)
- B. **(Extra Blue top tube) \*\* (This tube is only drawn when special coagulation studies are ordered to be drawn) Studies have shown that the PT and APTT results are not affected if tested on the first tube drawn. When PT, PTT, Dimers, and Fibrinogens are ordered, the order of draw begins with the blue top tube, HOWEVER, YOU WILL ALSO NEED TO SAMPLE AN EXTRA BLUE TOP TUBE BEFORE YOUR BLUE TOP TUBE IF DRAWING FROM A BUTTERFLY DUE TO THE DEAD SPACE IN THE TUBING. Please see note below:**

***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 must be used to fill the blood collection tubing dead space and to assure maintenance of the proper anticoagulant/blood ratio and need not be completely filled. The discard tube can be an additional blue top tube.***

- C. Coagulation tube (blue top tube) (rotate tube 3-4 times)
- D. Other Additive tubes:
- ◆ Red top plastic tube with clot activator (rotate tube 8-10 times)
  - ◆ Gel separator tube (Tiger top tube or yellow top tube with gel) (rotate tube 8-10 times)
  - ◆ Heparin (green top tube) (rotate tube 8-10 times)
  - ◆ EDTA<sub>2</sub> (lavender top tube) (rotate tube 8-10 times)
  - ◆ EDTA<sub>2</sub> (Pink top tube) (rotate tube 8-10 times)
  - ◆ Oxalate/fluoride (gray top tube) (rotate tube 8-10 times)
- E. For syringe draws, the order of draw is the same, except the Blood Culture bottle or tube is always sampled first, and if two syringes are used in the draw, the coagulation (blue top tube) must be sampled from the 2<sup>nd</sup> syringe.

VIII. Performing the Venipuncture:

- A. Always wear gloves when drawing blood. (Make sure they are latex-free, if patient has a sensitivity to latex.
- B. Assemble your equipment and put in a convenient place. The patient should be in a comfortable position that is also convenient for doing the venipuncture. They should never be standing.
- C. Apply tourniquet for a brief time while you search for a vein. Make sure it is latex-free if the patient has a sensitivity to latex. It may be necessary to release the tourniquet for a few seconds and reapply. Prolonged obstruction of blood flow by the tourniquet changes some test results.
- D. Scrub the venipuncture site with an alcohol pad or iodine solution.
- E. The vein should be "fixed" or held taut during the puncture. To do this, place the thumb about an inch below where the needle is to enter and press down and, at the same time, pull the skin toward the hand. The fingers of the one hand should be around and underneath, grasping the arm as the thumb stretches the skin and holds the vein taut.
- F. The needle should be in line with the vein. The needle should be introduced with the bevel up at about a 25-degree angle with the skin.
- G. ALWAYS Release the tourniquet before removing the needle.

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- H. Remove needle from the vein and apply pressure with a dry gauze pad; a band-aid or piece of adhesive tape may be used if necessary. Please observe the site for hemostasis (complete clotting) before the site is bandaged in any way. This requires pressure to the puncture to be released and a visual observation to determine whether there is subcutaneous bleeding that might cause a hematoma.
- I. Each tourniquet **MUST be discarded** after each patient.
- VIII. Difficulties in Drawing Specimen:
- A. If enough blood is not obtained from the first puncture, the opposite arm or another vein may be examined. If the second try is also unsuccessful, do not try again; get help.
- B. You may look for an alternative site such as a hand or foot vein. **NEVER DRAW BLOOD FROM A FOOT VEIN WITHOUT PRIOR APPROVAL FROM NURSING.** It may be possible to substitute a finger stick to obtain blood. Check laboratory specimen requirements to see if a finger stick is appropriate.
- C. Sometimes with very hard to draw patients, the patient might request that they use our supplies and stick their own vein. This is totally **NOT ALLOWABLE**. Politely tell the patient that they can direct you to a specific vein/area to draw, but the patient cannot perform the venipuncture.
- IX. The Finger Puncture:  
See following procedure--Skin Puncture Technique.
- X. Specimen Labeling: **(All labeling must occur at the bedside in the presence of the patient.)**
- A. Label the specimen with labels produced by the computer. Also write your initials on each tube.
- B. If a computer-generated label is not available, make sure to label the tube with at the very least the patient's full name, DOB, time and date, and the phlebotomist's initials.
- C. ***Always check when labeling to make sure the correct labels are used for the correct patient each time. Your patient identification process is not complete until all tubes are labeled correctly.***
- XI. Precautions:
- A. Intravenous fluids-- Do not use the same arm for the venipuncture if at all possible. If there is no other vein accessible, *Always consult the charge nurse before stopping IV flow* for approximately 3-4 minutes. Always have the nurse stop the IV. Obtain specimen, have nurse restart IV. Report to the appropriate section of the lab that fluid had been flowing and the type in case there is still contamination from IV fluid.
- B. Hematoma--If a hematoma develops, apply a pressure bandage and elevate the arm.
- C. Reactions--
1. Never draw blood from a patient who is standing.
  2. If feeling faint, lower his/her head to their knees.
  3. Apply wet cloth to face. A faint kit is available in the outpatient area. A cold pack can be used. Nurses from Centralized Scheduling are called to help. Glass of water or orange juice may be given.
  4. Contact the nurse on the floor, if patient is an inpatient.
- D. Do not draw patients on the same side as a mastectomy.
- E. Do not draw patients in the same arm as a dialysis shunt.
- XII. The Blood Culture:  
Please see Blood Culture Procedure.
- XIII. Blood Culture Protocol for Emergency Room and Express Admissions Unit patients:
- A. Any time Blood Cultures are ordered on an Emergency Room patient, you will need to band these patients with our green-striped bands that are used for this purpose.
- B. **The band must have the patient's full name or you may place one of the small specimen labels on the band. Write on the band the SPECIFIC time that the Blood Cultures were drawn, and your initials.**
- C. Make sure when you receive your Blood Culture specimens in the lab system that you always enter the collection time as the specific time that you drew and wrote on the band.

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- D. These will be used by ER personnel to make sure they know specifically when the blood culture was drawn so that antibiotics can be administered correctly and timely. After antibiotics are administered, the band will be removed from the patient's arm by Emergency Room personnel.
  - E. Follow your usual procedure for drawing blood cultures by reviewing the Blood Culture Procedure in the Microbiology section of this manual.
- XIV. Isolation Patients:  
When drawing blood from a patient who is in isolation, the precautions posted outside the patient's door should be closely followed. All hospital bloodborne pathogen standards should be closely followed. Please do not carry your phlebotomy tray into the patient's room; leave it at the nursing station after removing needed supplies.
- XV. Timed Specimens:  
There are two types of timed specimens--those in which a single blood specimen is ordered at a specific time, and those in which a test is ordered which may require several blood specimens to be collected at several specific times (i.e., glucose tolerance test). When an order for a timed collection has been received by the laboratory, the person assigned to collect the specimen must make sure the specimen is obtained at the proper time.
- XVI. Specimen Requirements:
- A. It is imperative that the proper collection container be used when obtaining a laboratory specimen. A specimen should never be collected until the phlebotomist is sure what color-coded tube to collect. Please see SPECIMEN REQUIREMENTS section for information on specific collection requirements for each individual test and profile.
  - B. Twenty-four hour urine containers are provided to nursing service by the laboratory. Before issuing a container to nursing service, be sure to find out what tests are to be performed on the specimen to determine if a preservative needs to be added to the container. This information can be found in the chemistry or reference lab manual, or is usually posted in the chemistry area of the laboratory. Most preservatives are not added until the specimen is returned to the laboratory due to safety reasons.
  - C. Central Lines/Arterial Lines:  
Nursing service will collect all specimens from Central lines or arterial lines. The laboratory should be prepared to be present with necessary supplies at the time nursing service collects the specimen. The IV must be turned off before the beginning of the collection. On any collection, 5-10 ml of blood should be discarded before filling blood collection tubes. The laboratory should be notified of the fluid being infused and that the specimen was drawn from the line in case it could alter the results. The laboratory staff now have "Line Draw Kits" that include all the necessary supplies, except for the heparin.
- XVII. Legal Specimens:  
Specimens requested by law enforcement officers will be drawn by certified or registered personnel. Instructions of the officers will be followed. A chain of custody will be provided by the office and must be completed. Proper technique for drawing blood alcohol levels includes using a non-alcohol product such as betadine to cleanse the skin. Please get a copy of the paperwork to place in the Blood Alcohol folder in the lab. Make any identifying notes on the paperwork that might give us needed information later.
- XVIII. Serum Drug Screens/Ethanol Specimens:
- A. Use proper technique for collecting ethanol samples as listed above.
  - B. Please see SPECIMEN REQUIREMENT section for types of drug screens offered and the specimen required (i.e., urine, serum)
- XIX. Training for Blood Collection and Competency Checklists:
- A. As any other technical procedure in the Laboratory, all employees that are required to draw blood must be properly trained on all of the preceding procedures. They must also be trained on the proper selection of all phlebotomy equipment, supplies, and techniques, including all applicable safety supplies and equipment.
  - B. This training is documented in The Phlebotomy Competency Checklist within the first three months of employment and annually thereafter.

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Specimen Integrity and Quality:

When specimens are not drawn or labeled correctly, and the specimen must be rejected, the phlebotomist is notified verbally or via the internal email system. A variance is completed.

**APPROVED BY:** Martin F. Belli, M.D.      **DATE:** 10-94

**REVISED BY:** Kay Shaw, MT(ASCP)SBB      **DATE:** 6-96, 3-98, 4-99, 5-2000, 2-2002, 4-2002, 5-2002, 1-2004, 5-2004, 3-2005, 7-2005, 2-2006, 12-2006, 1-2007 3-2008, 4-2008, 6-2009, 4-2010, 7-2011, 3-2012

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***See original policy in the Laboratory for all documented annual reviews.***

References:

Compliance Primer, Quality Assurance in the Laboratory, 2nd Edition, 1994, pp. 57-68.

Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard, 4<sup>th</sup> Edition, NCCLS, June, 1998

JCAHO official Web Site: Facts about 2004 National Patient Safety Goals, updated December 31, 2003.

Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard, 5<sup>th</sup> Edition, NCCLS, December, 2003

MLO: February 2005: "Specimen-Collection Standards Complete Major Revisions" pp 26-29

Procedures for the Collection of Diagnostic Blood Specimens by Venipuncture; Approved Standard, 6<sup>th</sup> Edition, CLSI, October, 2007