Middlesex Community College

Phlebotomy for Beginners

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## Phlebotomy

Phlebotomy is a procedure of collecting blood from the arms, or back of the hands, which then is used for laboratory testing to either diagnose or monitor diseases.

Personnel or Professionals that collect blood specimens are Phlebotomists.

Other than drawing blood, Phlebotomists may also help in the collection of bodily specimens, such as urine, stool, phlegm, sweat. In the case of newborn babies, Phlebotomists may need to collect specimens from blood vessels on their heels, by puncturing the skin with a device called a lancet.

## Things to consider before starting a blood or other types of specimen collection

1. Identifying or verifying the patient using at least two different identifiers.
2. Using aseptic methods for infection control measures.
3. Using needles or sharp devices with safety controls.
4. Matching appropriate blood collection tubes with the requested lab tests.
5. Being mindful of time-sensitive specimens, and specimens with specific requirements such as protection from light, or from unwanted heat or cold exposure.
6. In case of non-blood testing, gather all the required kits or containers.

A.

Ask the patient’s full name and date of birth to verify identity, and then scan the wristband on them, to enter the information into the laboratory information system (LIS).

Select and activate the tests from the list in the laboratory’s computer system and print out the labels to attach to each tube containing the blood specimens.

B.

Wash your hands or use sanitizer and put on gloves.

C.

Use needles and lancets with safety controls to protect from injuries at blood drawing.

D.

Use tubes with or without specific chemical additives to match the requested tests.

E. Prepare ice pack, heat wrap or aluminum foil before collection to protect from temperature and light if required for specific tests.

## Supplies needed

1. Alcohol swabs and gauze pads.
2. Tourniquets.
3. Needles and lancets with safety controls.
4. Adaptors.
5. Evacuated or vacuum tubes.
6. Band aide or tape.
7. Blood-culture bottles.

## The Blood collection process

1. Using your finger pads and by visual inspection find an appropriate vein.
2. Use alcohol swabs to clean the skin over the vein before puncturing with a needle or a lancet.
3. Let the alcohol air-dry, do not blow or fan over the cleansed site.
4. Break the sealed end of the needle and attach it to the adaptor.
5. Have all the appropriate vacutainer tubes lined up within reach.
6. Tie the tourniquet around the patient’s arm or wrist, 3 to 4 inches above the intended puncture site.
7. Insert the needle with bevel side up at a 30-degree angle at the intended spot.
8. Insert the selected tubes in the correct ‘order of draw’ into the adaptors.
9. Let each vacuum tube fill with blood up to the volume as indicated on the tube.
10. Gently invert each tube 4-8 times after releasing it from the adaptor.
11. Do not leave the tourniquet tied on the patient’s arm any longer than one minute.
12. After the last tube is filled and withdrawn from the adaptor, pull the needle out.
13. Activate the safety device on the needle or the lancet immediately after use.
14. Apply firm pressure on the puncture site with a clean gauze pad for 10 to 15 seconds, or until there is no active bleeding from the site to prevent a hematoma (a lump of blood collection) formation.
15. Place a tape over the gauze pad.
16. Place the tubes in a biohazard bag and deliver to the lab for processing after checking for special requirements such as wrapping the specimens with aluminum foil to protect from light or putting the tube in icy water or a heat pack when required.
17. Types of Blood vessels in our body:

There are three types of blood vessels in the body, and they are:

1. Veins
2. Arteries
3. Capillaries

## Important tips

* Phlebotomists mostly use the **veins** for blood collection; sometimes they use skin puncture or a heel stick from a newborn baby to collect blood for testing. Blood collected by a skin puncture comes from the **capillary** blood vessels which are the smallest network of blood vessels.
* Testing for blood sugar, cholesterol and HbA1c are done using capillary blood from a skin puncture.
* Lancets are used to puncture the skin to collect blood from capillaries.
* Newborn screening tests also are done by a skin puncture on the heel by collecting capillary blood.
* Phlebotomists do not collect blood from the arteries which is, on rare occasions, collected by respiratory nurses. Before collecting blood from the arteries, an ‘Allen test’ must be done to check for the patency of the arteries. An ‘Allen test’ is not required for blood collection from veins or capillaries.
* There is a much higher risk of hematoma formation from an arterial puncture.
* Usually, blood from a vein is dark red and blood from an artery is bright red in color.

## Order of Draw

Each tube stopper is of a specific color according to the additives they may have in them, and the mnemonic to remember the sequence of tubes to draw to prevent improper carry-over of tube additives, goes like:

**“Stop Red Light Green Light Go’**

**S**top→ Sterile→ Blood Culture.

**R**ed→ Chemistry.

**L**ight→ Light blue→ Anticoagulation.

**G**reen→ Heparin.

**L**ight→ Lavender.

**G**o→ Gray→ Oxalate tube.