

Blood collection

Blood Collection and Processing

The first step in acquiring a quality lab test result for any patient is the specimen collection procedure. The venipuncture procedure is complex, requiring both knowledge and skill to perform. Several essential steps are required for every successful collection procedure:

A. Venipuncture Procedure:

- 1.The first step to the collection is to positively identify the patient by two forms of identification; ask the patient to state and spell his/her name and give you his/her birth date. Check these against the requisition (paper or electronic).
- 2.Check the requisition form for requested tests, other patient information and any special draw requirements. Gather the tubes and supplies that you will need for the draw.
- 3.Position the patient in a chair, or sitting or lying on a bed.



Fig.1 : Chair of blood collection

- 4.Wash your hands and Select a suitable site for venipuncture, by placing the tourniquet 3 to 4 inches above the selected puncture site on the patient. See below for venipuncture site selection. “notes :Do not put the tourniquet on too tightly or leave it on the patient longer than 1 minute.
- 5.put on gloves, and palpate for a vein.
- 6.When a vein is selected, cleans 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.

7. Ask the patient to make a fist; avoid “pumping the fist.” Grasp the patient’s arm firmly using your thumb to draw the skin taut and anchor the vein. Swiftly insert the needle through the skin into the lumen of the vein. The needle should form a 15-30 degree angle with the arm surface. Avoid excess probing.

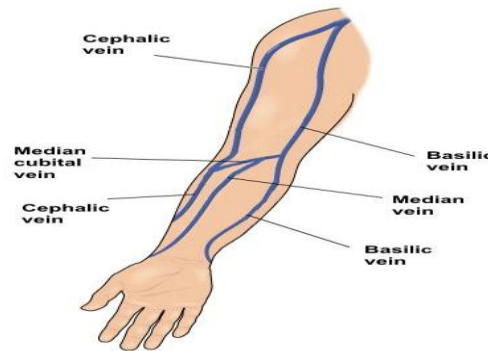


8. When the last tube is filling, remove the tourniquet. Remove the needle from the patient's arm using a swift backward motion.

9. 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.

10. Dispose of contaminated materials/supplies in designated containers .

Note: The larger median cubital and cephalic veins are the usual choice, but the basilic vein on the dorsum of the arm or dorsal hand veins are also acceptable. Foot veins are a last resort because of the higher probability of complications.



B. Finger stick Procedure:

1. Follow steps #1 through #4 of the procedure for venipuncture as outlined above.

2. The best locations for fingersticks are the 3rd (middle) and 4th (ring) fingers of the non-dominant hand. Do not use the tip of the finger or the center of the finger. 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 2nd (index) finger tends to have thicker, callused skin. The fifth finger tends to have less soft tissue overlying the bone. Avoid puncturing a finger that is cold or cyanotic, swollen, scarred, or covered with a rash.

3. When a site is selected, put on gloves, and cleanse the selected puncture area.

4. Massage the finger toward the selected site prior to the puncture.

5. Using a sterile safety lancet, make a skin puncture just off the center of the finger pad.

6. Wipe away the first drop of blood, which tends to contain excess tissue fluid.

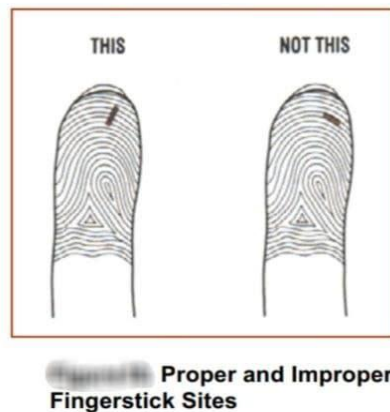
7. Collect drops of blood into the collection tube/device by gentle pressure on the finger. Avoid excessive pressure or “milking” that may squeeze tissue fluid into the drop of blood.

8. Cap, rotate and invert the collection device to mix the blood collected.

9. Have the patient hold a small gauze pad over the puncture site for a few minutes to stop the bleeding.

10. Dispose of contaminated materials/supplies in designated containers.

11. Label all appropriate tubes at the patient bedside.



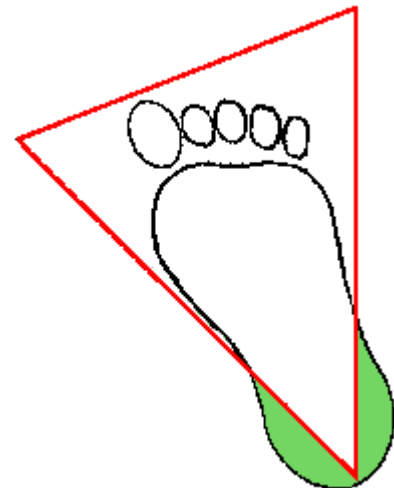
C. Heel stick Procedure (infants):

The recommended location for blood collection on a newborn baby or infant is the heel. The figure below indicates the proper area to use for heel punctures for blood collection.

1. Prewarming the infant's heel (42° C for 3 to 5 minutes) is important to increase the flow of blood for collection.
2. Wash your hands, and put gloves on. Clean the site to be punctured with an alcohol sponge. Dry the cleaned area with a dry gauze pad.
3. Hold the baby's foot firmly to avoid sudden movement.
4. Using a sterile blood safety lancet, puncture the side of the heel in the appropriate regions shown above.
5. Wipe away the first drop of blood with a piece of clean, dry cotton gauze. 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.
6. Fill the required tubes.
7. When finished, 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.



Figure 17 Proper Heelstick Sites



Blood Spot Collection

Blood spot collection on filter paper has several advantages over venipuncture and obtaining samples with capillary tubes, which makes it ideal for field-based research in human biology and health:

1. Collection requires only a simple finger prick and is relatively painless and noninvasive.
2. Samples do not have to be centrifuged, separated, or immediately frozen.
3. The filter paper matrix stabilizes blood so that most analyze do not degrade at ambient temperatures for at least 2 weeks (and often longer).
4. Samples are easily stored and transported.
5. Multiple assays can be performed from a single drop of whole blood.

Blood Spot Collection—Finger stick Procedure

1. Follow the same steps as described in the previous section for finger stick technique.
2. Wipe away the first drop of blood, which tends to contain excess tissue fluid.
3. Hold finger down over the first circle on the blood collection card, but do not touch the circle, as shown in Figure

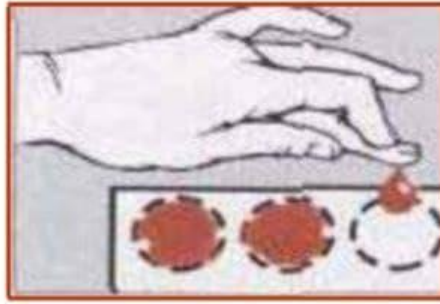
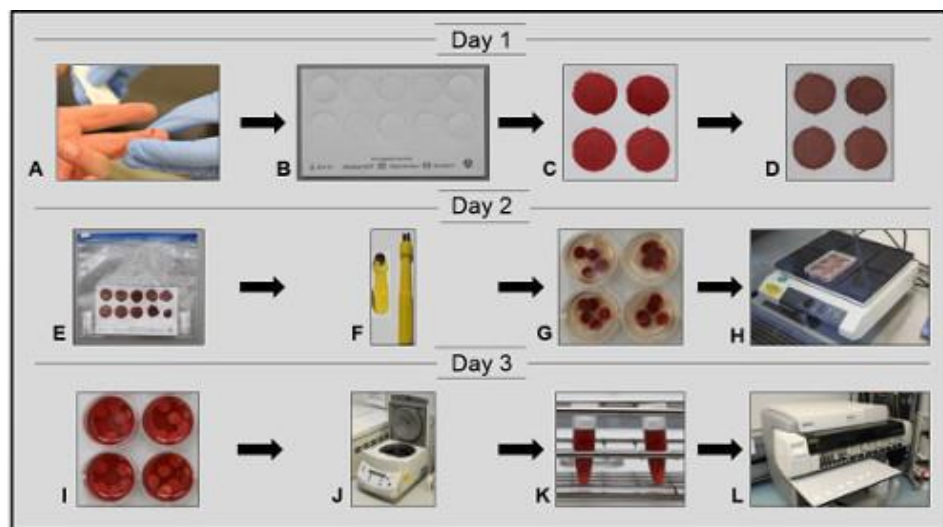


Figure 10-10 Using a Blood Collection Card

4. When a full hanging drop of blood is formed, gently touch the blood drop inside the first circle.
5. Blood should be applied from only one side of the paper and appear as an even, uniform layer.
6. After filling all of the circles completely, apply an adhesive bandage to the finger. Label the blood collection card with the identification information required by the protocol or laboratory.
7. Air-dry the specimen for at least 3 to 4 hours on a flat, nonabsorbent surface in a horizontal position.



Labeling The Sample:

The specimen must be labeled with the patient's full name , Patient's full date of birth (must include the month, day, and year) and the time of specimen collection.