

Al-Mustaqbal University

College of Engineering and Technologies

Biomedical Engineering Department



Practical Biology

Lecture: 4

Capillary puncture (Finger puncture)

Prepared by:

Dr. Asma'a Hassan Mohamed

Asmaa_Hassan@uomus.edu.iq

2024-2023

Capillary puncture (Finger puncture)

-Finger puncture is performed on adults when there are no accessible veins, to save veins for other procedures such as chemotherapy, when the patient has thrombotic tendencies, and certain bedside and home testing procedures such as glucose monitoring.

-Finger puncture is the preferred method of obtaining blood from children over 1 year of age. A heel stick is the preferred method for collecting blood from children under 1 year of age.

-Obtaining blood from young children by vein puncture may be difficult, may be potentially hazardous and obtaining large quantities of blood may result in anemia. Puncturing deep veins in children may cause cardiac arrest, hemorrhage, venous thrombosis, and causes arteriospasm, damage to surrounding tissues or organs, infection and injury from restraining the child during the collection procedure.

CAUTION: All specimen material should be considered potentially hazardous and thereby the proper personal protective equipment (i.e. Lab coats, gloves) must be used for procedures in which exposure to blood or other potentially infectious material.

Materials:

- Alcohol (70% isopropyl)
- Gauze or cotton
- Warmer device
- Sharps container to dispose of used lancet
- Micro collection tubes
- Slides (if applicable)

-Disposable gloves

-Sterile lancet

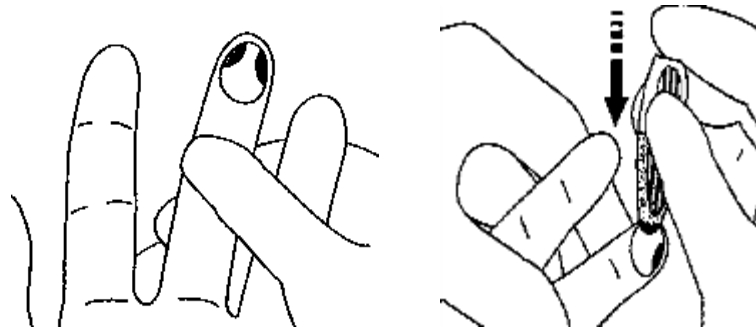
□ **Preparation:**

1. Select a finger that is not cold, cyanotic, bruised, cut, swollen, or has a rash.
2. Use the non-dominant hand.
3. Do not puncture the index finger which is more callused and used by the patient frequently and the fifth or little finger because the amount of tissue between skin surface and bone is the thinnest in these fingers.
4. Select the central palmar fingers such as the **fourth** (ring), first finger, and the **third** (middle) finger. The puncture should be made at the thickest part of the finger (not the sides or extreme tip where the tissue is not as thick).
5. Place a chemical warmer on the finger for approximately 3-5 minutes, to increase the blood flow to the area by seven fold.
6. Gently massage the finger five or six times from the base to the tip of the finger to aid in the blood flow.
7. Cleanse the finger with an alcohol and allow to air dry. Alcohol residue on the finger may cause a sting sensation and hemolysis of the red cells. Alcohol will also prevent formation of rounded drops of blood.

❖ **Performing the capillary Puncture**

1. Remove the lancet from the protective package. Pull off protective tab of lancet.
2. Hold the patient's finger firmly with one hand and place the lancet on the finger perpendicular (across the fingerprint). This will allow the blood to form a bead or drop that is easily collected. If the puncture is made

parallel to the fingerprint, the blood will run down the finger, making the collection a difficult procedure.



4. Wipe the first drop of blood with gauze. This will remove any fluids or tissue that may contaminate the sample.

5. Gently massage the finger from the base to tip. Do not squeeze the finger as this may cause the sample to hemolyze creating erroneous test results.

6. Collect the desired amount for testing.

a. Touch the “scoop” of the micro collection tube to the drop of blood and let the drop of blood run down the walls of the tube.

b. Occasionally, tap the tube gently to make the blood to settle to the bottom of the tube. Do not use a “scooping” motion against the surface of the skin. Scraping against the skin activates platelets and may also cause hemolysis.

c. Fill tubes to the proper volume. For EDTA tubes, fill between 0.5-1ml.

d. Cap micro collection tubes with the caps provided and mix tubes by inversion 8-10 times.

e. When finished, apply pressure to the site with gauze until bleeding has stopped.

d. Keep the site elevated.

e. Dispose of the contaminated lancet in the sharps container.

f. Label all tubes with name, date of birth, date, time and other related information.

❖ **Tests that cannot be performed by capillary puncture**

Some tests cannot be performed on a capillary sample. Examples: ESR (erythrocyte sedimentation rate), coagulation tests, blood cultures, high volume requirements.