

CAPILLARY COLLECTIONS (MICRO SPECIMENS)

A. **Definitions**

A small amount of blood collected from the finger of an adult/pediatric patient or the heel of a baby.

B. **Principle:**

In children and babies, skin punctures may be performed on heel or the distal phalanx of a finger.

Blood collected from neonates is performed mostly by heel puncture. Due to its design to limit the depth of the puncture while performing a cyclical incision, this device is **only to be used on infant heel sticks. Tenderfoots are not to be used to perform fingerstick collections on patients at any age.**

Lancets are not to be used on infant heels. Necrotizing osteochondritis and calcaneal punctures are examples of complications that result from performing the puncture with a lancet blade. The devices currently used (tenderfoots) offer a controlled depth of puncture, lessening the risk of complication.

Heel puncture is performed in children under one year of age. After this, they begin to stand and walk, limiting acceptable sites. In this case, the finger is used as the site of the collection. Safety Lancets are used to collect from the child's finger.

The skin puncture site must not be edematous (or swollen). A swollen site indicates that tissue fluid or blood has accumulated within the skin, and the introduction of these fluids into the blood specimen may cause erroneous results.

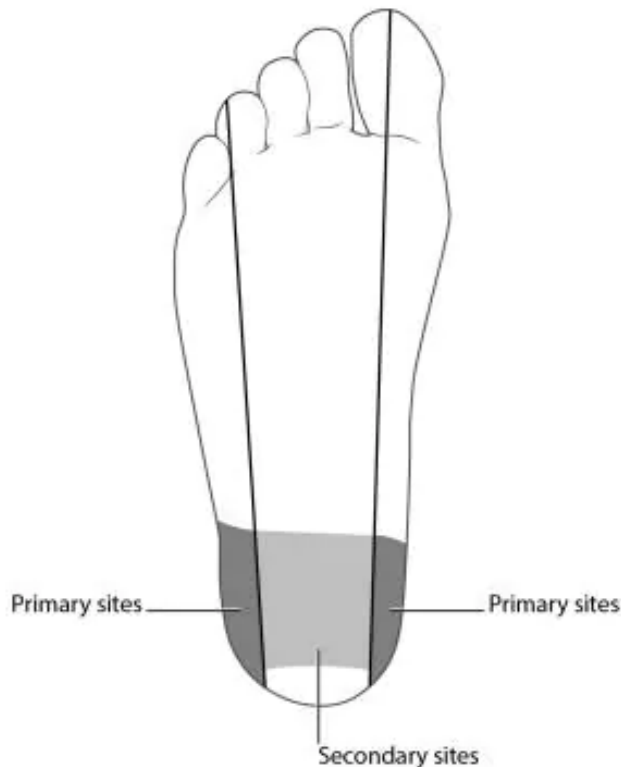
C. **Equipment**

- Safety Lancets (finger stick procedure only) or tenderfoot devices (infant heels only)
- Alcohol sponges
- Sterile, dry sponges
- Small, round band-aids for heels, band-aid strips for fingerstick
- Microtainers for specimen collection
- Gloves

D. **Procedure****HEEL**

1. Identify the patient by asking the child's parents to state their name and date of birth. If the patient is an adult, ask them to state their name and date of birth.

2. Gloves must be worn before patient contact is made.
3. Immediately before puncturing the skin, warm the site for approximately three minutes. Warming elevates the skin temperature and causes considerable dilation of the vascular bed. This increased blood flow makes specimen collection much easier. The method for warming is a ChristianaCare approved gel infant heel warmer. No other method is to be used. **DO NOT USE** glove filled with warm water. The temperature is not regulated and may burn the skin.
4. Clean the finger or heel with alcohol and allow to air dry. Hold firmly and make a puncture with the lancet.
5. Puncture the most medial or lateral portions of the plantar surface of the heel, medial to a line drawn posteriorly from the mid great toe to the heel or lateral to a line drawn posteriorly from between the fourth and fifth toes to the heel using the Tenderfoot device.



6. Do not puncture the posterior curvature of the heel because the distance from the skin to the bone is one half that from the plantar surface to the bone. Do not puncture through previous puncture sites which may be infected. The heel stick should never be performed in the arch of the foot as they may injure nerves, tendons, and cartilage and offer no advantage over punctures in the skin of the heel.

7. Grasp the infant's heel with a moderately firm grip, with your forefinger at the arch of the foot and your thumb placed well below the puncture site, at the ankle.
8. Place the blade-slot surface of the Tenderfoot device at the site you plan to use, so the center point of the blade is horizontally aligned with the incision site. In a smooth rolling motion, press the trigger device and immediately remove it from the infant's heel/patient's finger.
9. The first drop of blood should be wiped from the heel/finger with sterile gauze. Newborns often do not bleed immediately. If the blood is not free flowing, use gentle massage to produce a rounded drop of blood. Gentle pressure should be eased and reapplied as drops of blood form and allowed to flow into the appropriate containers. Avoid "milking" because this causes hemolysis and can contaminate the sample by mixing interstitial and intracellular fluid with the blood. Blood flow from the site will be increased if the puncture site is held downward and gentle pressure is applied, eased, and reapplied (do not apply continuous pressure).
If an adequate puncture has been done, 0.5 - 1.0 ml of blood can be collected from a single puncture site.
After blood has been collected, the infant's foot should be elevated above the rest of the body and sterile gauze pressed against the puncture site until the bleeding stops. Apply bandage to site.

Finger:

1. Identify the patient by asking the child's parents to state their name and date of birth. If the patient is an adult, ask them to state their name and date of birth.
2. Place all collection materials on top of a disposable pad. "Open the lancet, alcohol swabs, gauze, bandage, and other items." ("Types of Punctures Guide | PPT - SlideShare") Have all items ready for blood collection.
3. Make puncture using the Safety Lancet on the side of the ball of the finger. **Tenderfoots are not to be used on the fingers of adults or children.** The cut should be across the fingerprints (vertical to finger as opposed to horizontal)
4. Put on powder-free gloves. Turn the patient's hand upward. Massage the patient's hand and lower part of the finger to increase blood flow.
5. Scrub the patient's middle finger or ring finger with an alcohol swab. Dry with sterile gauze
6. Hold the finger in an upward position and lance the palm-side surface of the finger with proper-size lancet (adult/child). Press firmly on the finger when making the puncture. Doing so will help you to obtain the amount of blood you need.
7. Apply slight pressure to start blood flow. Blot the first drop of blood on a gauze pad and discard pad in appropriate biohazard container.

8. Keep the finger in a downward position and gently massage it to maintain blood flow. Hold the Microtainer® at an angle of 30 degrees below the collection site and use the scoop on the Microtainer® to 250 mL – 300mL level.
9. Cap the Microtainer® and gently invert it 10 times to prevent clots from forming.
10. Dry the area with dry gauze and apply a sterile adhesive bandage over the puncture site.

FINGER PUNCTURE:

CHOOSE THE FINGER CAREFULLY

- Best locations for a finger stick is the 3rd and 4th fingers of the non-dominant hand.
- Avoid the 2nd and 5th fingers if possible.
- Perform the stick off to side of the center of the finger.
- NEVER use the tip or center of the finger.

