I. PURPOSE
When venipuncture is not appropriate, capillary blood collecting techniques may be performed. Dermal puncture is the method of choice on infants and children under the age of twelve months for the heelstick. Finger sticks should only be performed on children one year or older. This technique may also be indicated in the following circumstances: burned or scarred patients, patients receiving chemotherapy who require good veins be “reserved” for treatment, patients with fragile veins, patients with inaccessible veins, or patients who are extremely obese.

II. MATERIALS
1. 70% Isopropyl alcohol
2. 2 x 2 Gauze Squares
3. Automatic retractable safety puncture device
4. Warming device
5. Sterile flexible bandage or paper tape
6. Capillary collection tubes (microtainer)
7. Gloves

III. PROCEDURE
A. Fingerstick Procedure
1. Interaction with the patient should be done in a friendly and professional manner.
2. Patient Identification
   a. Ask the patient for his/her full, legal name.
   b. Compare the patient’s name with the label and the armband to confirm the name, test and patient medical record number. “I need to check your wristband to verify your identification.”
   c. If the patient cannot communicate and no armband is located, the nurse will need to be notified and the patient’s identity confirmed.
   d. A wristband MUST be placed on the patient before blood is drawn. If there is no band, the patient will not be drawn until a hospital identification band is placed on the patient. TypenEx bands may be used.

NOTE: For outpatient ID, ask the patient for his/ her full, legal name. Compare the name stated by the patient to the information on the laboratory computer labels or the test requisition form. When a blood sample is required for blood components, the patient MUST be issued a TypenEx band at the time of the draw. Be sure to tell the patient that the TypenEx band cannot be removed.

3. Assemble supplies needed for the procedure. Trays or extra supplies should be within arm’s reach. Do not place tray on the bed.
Selection of Site

a. Select a puncture site that provides sufficient distance between the skin and bone.

b. Primary sites include the distal segments of the third and fourth fingers on non-dominant hand.

c. Areas selected should not be scarred, callused, bruised, edematous, cold, infected, cyanotic or on the side affected by a mastectomy.

**NOTE:** Punctures should never be made through previous puncture sites due to the possibility of introducing microorganisms into the puncture.

5. Gently massage the finger 5 or 6 times from base to tip to aid blood flow. If a patient’s hands are cold, a warming device may be used for 3 to 5 minutes before the puncture is performed. Warming dilates the blood vessels and increases arterial flow.

6. Cleanse the site: with an alcohol prep pad, cleanse the ball of the finger. Allow to air dry. Failure to air dry may:

   a. Cause a stinging sensation when the skin is punctured
   b. Hemolyze the red blood cells
   c. Contaminate the specimen

7. Support the patient’s finger without squeezing the puncture area. The phlebotomist will hold the patient’s finger with their thumb and index fingers. Angle the patient finger downward to increase the blood flow.

8. Place the device firmly on the puncture site, halfway between the center of the finger and its side. Depress the puncture device hold for a moment, then release. Maintain pressure so the elasticity of the skin does not inhibit the penetration of the blade. Removal of the device before the puncture is complete will result in low blood flow.

**NOTE:** The blade of the device should be aligned to cut across the grooves of the fingerprint. This aids in the formation of a large drop of blood because the blood will not have the tendency to run into the grooves. An immediate repeat puncture (double sticking) at the same site must not be performed.
8. Wipe the first drop of blood away with a piece of gauze. This will prevent contamination of the sample with residual alcohol and tissue fluid released during the puncture.

9. Gently massage the finger from the base to about ½ inch away from the puncture site. Do not use excessive squeezing to obtain blood. A free flowing puncture is essential to obtain accurate results.

10. Collection containers will fill by capillary action. The collection tip of the microtainer may lightly touch the drop of blood, and the blood will be drawn into the container. Collection containers are not to touch the puncture site directly, nor should they be scraped over the skin. This may produce hemolysis and contamination.

**NOTE:** Tip: Rotate the patient’s hand to a 90 degree position to allow the phlebotomist to clearly see the blood, hold the collection container below the puncture site, and allow gravity to help fill the tube avoiding the temptation to touch the puncture site or scrape the skin.

11. Invert tubes at least 8 times (up to 20) if tube contains anticoagulant. It may be necessary to invert during collection, or use a vortex mixing technique, if blood is slow. Fast collection and mixing ensure accurate test results.

12. Bandaging the patient
   a. Apply pressure to the puncture site after sufficient blood has been collected.
   b. Elevate the finger and apply pressure until bleeding has stopped.
   c. Cover the puncture site with a small bandage or piece of gauze.  

   **DO NOT** apply bandages to children under the age of two.

13. Label all tubes according to St. John’s Mercy Medical Center labeling policy.

14. Dispose of contaminated materials in designated puncture resistant containers.

B. Heelstick Procedure: In general, the nurseries (FTN, NICU, FICU) collect all heelstick samples. On occasion, an infant requiring a heelstick may be presented to the Control Room or Outpatient Lab for specimen collection.

1. For draws on nursery patients: Prepare to enter the nursery; wash hands at the sinks provided outside the unit (using the scrub brushes containing soap), use gowns and gloves (yellow fluid resistant gowns located at the entrance to the nursery).

2. Inpatient: Identify infant via patient identification process. For outpatients, ask the parent/ responsible party the full name of the child and date of birth. Compare the information to the information provided on the requisition. In the NICU, bracelets are often removed for IV’s or due to the very small size of some
CAPILLARY BLOOD COLLECTION TECHNIQUE

3. Assemble the supplies needed for the dermal puncture.

4. Select the puncture site.
   a. Medial and lateral areas of the bottom surface of the heel
   b. Do not perform punctures in other areas of the foot, particularly the arch, where damage to the nerves and tendons are possible.

5. If the infant’s foot is cold, a warming device may be used for 3 to 5 minutes before the puncture is performed. Warming dilates the blood vessels and increases arterial flow.

6. Cleanse the site using an alcohol prep pad in concentric circles.
   a. Allow to air dry
   b. Failure to air dry may cause a stinging sensation for the patient and/or rapid hemolysis

7. Hold the heel gently but firmly in one of two ways:
   a. Place forefinger around ankle and thumb over arch of foot
   b. Place forefinger over the arch of the foot and thumb below puncture site at the ankle

8. In one continuous motion, perform puncture with the puncture device.

   **NOTE:** Do not stick the heel more than twice to obtain the sample at any given time.

9. With a piece of gauze, wipe away first drop of blood which may contain excess tissue fluid.
CAPILLARY BLOOD COLLECTION TECHNIQUE

10. Gently massage (milk) the heel with thumb and forefinger. Do not use excessive squeezing to obtain blood. A free flowing puncture is essential to obtain accurate results.

11. Collection containers will fill by capillary action. The collection tip of the microtainer may lightly touch the drop of blood, and the blood will be drawn into the container. Collection containers are not to touch the puncture site directly, nor should they be scraped over the skin. This may produce hemolysis and contamination.

12. Invert tubes at least 8 times (up to 20) if tube contains anticoagulant. It may be necessary to invert during collection, or use vortex technique, if blood is slow. Fast collection and mixing ensure accurate test results.

13. Hold a clean piece of gauze over the puncture site until bleeding stops. It is not advisable to apply adhesive bandages over skin puncture site of children less than two years old.

14. Label all tubes collected per the labeling policy of St. John’s Medical Center.

15. Remove and discard all collection equipment used in the procedure. Use designated puncture resistant containers.

C. Additional Notes:

For other information pertaining to capillary blood collection, please refer to the online procedure, “Capillary Blood Collection Technique”. (From the Main Intranet Page, click on the following links to access procedure: Policy Manuals, Laboratory, Specimen Collection, “Capillary Blood Collection Technique”.

IV. REFERENCES


2. NCCLS Standard H4-A4: Procedures for the Collection of Diagnostic Blood Specimens by Skin Puncture, 1999

