

BLOOD COLLECTIONS

I. GENERAL CONSIDERATIONS:

Proper collection of blood specimens is essential for accurate sample analysis and reporting of patient results. Blood collections should only be performed by trained personnel.

II. SPECIMEN COLLECTION:

A. Blood Collection Preparation:

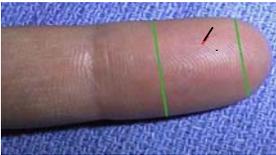
- (1) Wash hands.
- (2) Select appropriate blood collection materials.
- (3) Identify patient and explain procedure to child and family.
- (4) Gloves must be worn when performing blood collections.
- (5) Pre-warming the capillary puncture site when drawing blood samples from infants and patients who do not bleed well or who have cold hands may increase the blood flow. The commercial warming device should not exceed 42° C or 108 ° F.
- (6) Cleanse the site with an alcohol swab.
- (7) Allow the site to dry for at least 30 seconds prior to performing the puncture.

B. Blood Collection Procedure:

(1) Capillary

a) Finger puncture

- i. The puncture should be made perpendicular to the fingerprint on the palmer surface of the distal phalanx. The 2nd, 3rd, or 4th finger is generally used.
- ii. Grasp finger and hold the puncture site downward so blood flows away from gloved hand.
- iii. Perform the finger puncture by holding the safety lancet on the site with firm pressure. Make the puncture in one continuous deliberate motion in a direction perpendicular to the puncture site.
- iv. Depress the plunger with the index finger to make the puncture.
- v. Immediately release the plunger while holding the lancet on the site.
- vi. Remove the lancet.



b) Heel puncture

- i. The puncture should be made in the medial and lateral areas of the plantar surface of the heel generally used. Medial is an



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imaginary line drawn posteriorly from the middle of the great toe to the heel.



- ii. Grasp the infant's heel with the forefinger at the arch of the foot and the thumb placed well below the puncture site at the ankle.
 - iii. Hold the puncture site downward so blood flows away from the gloved hand.
 - iv. Perform the heel puncture by holding the safety lancet on the site with moderate pressure.
 - v. Depress the plunger with the index finger to make the puncture.
 - vi. Immediately release the plunger while holding the lancet on the site.
 - vii. Remove the lancet
- c) Using a sterile gauze pad, wipe away the first drop of blood to prevent contamination with residual alcohol and the introduction of tissue fluid into the specimen.
- d) Collect the blood in the appropriate microtainer.
- i. Apply intermittent application and relaxation of pressure, allowing the capillaries to refill and ensure continuous blood flow.
 - ii. Do not massage the finger or heel as this may cause hemolysis.
 - iii. Allow droplets of blood to fall into the microtainer. Do not scrape the tube near the site to get blood droplets.
 - iv. If the blood flow decreases, wipe the area intermittently with a sterile gauze pad to help maintain blood flow.
 - v. If using a microtainer that contains an additive, gently swirl the tube several times after 1-3 drops of blood has been added to allow for complete mixing of the blood with the anticoagulant. After the tube has been filled, cap the tube and gently invert the tube 6-8 times to prevent clotting.



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- vi. To decrease the possibility of blood spraying when capping, place a piece of gauze over the cap.
 - vii. Place samples that require ice on ice immediately after collection.
- e) Using a sterile gauze pad, apply pressure on the puncture site until the bleeding stops. Apply an adhesive bandage.
- f) Label specimens at draw station in the presence of the patient and ask for parent/guardian to verify every tube is labeled and has correct spelling of child's full legal name once the label has been placed on the sample(s). Standard labeling requirements include:
- Full Legal Patient Name
 - Test Requisition Barcode, Medical Record Number or Date of Birth (DOB)
 - Date & time of collections (documented on sample or requisition)
 - Tech code of phlebotomist or Name of phlebotomist if not an employee of NCH
- g) Remove gloves and wash hands.
- h) Order of Collection: Multi-specimen
- i. Hematology specimens (purple top -EDTA)
 - ii. Blood gas and ionized calcium specimens
 - iii. Other specimens: chemistry, and therapeutic drug monitoring specimens (green top- Lithium Heparin)

(2) Venipuncture

- a) Identify the site to be used for the venipuncture.
- i. The larger and fuller median cubital, basilic and cephalic veins at the antecubital fossa at the bend of the elbow are the sites of choice for routine venipuncture.
 - ii. The median cubital vein is the vein of choice because it is anchored better and more easily accessed than the cephalic and basilic veins.
 - iii. Wrist and hand veins are also acceptable alternative venipuncture sites.
 - iv. The tip of the finger is used to palpate the vein to determine its size, depth and direction.
 - v. Always check both arms for selection of the best venipuncture site.
 - vi. Avoid burned areas, areas with extensive scarring, areas with open wounds or areas with a hematoma.
 - vii. Avoid I.V. infusion sites. Collect samples from sites on the other arm/hand.



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- b) Insert the needle into the skin with the bevel up at a 15 to 30 degree angle with a quick smooth motion.
- c) Gently draw back on the plunger until the desired amount of blood is obtained in the syringe.
- d) Remove the tourniquet once the blood starts to flow. Do not leave the tourniquet on for more than 1 minute.
- e) Fill the blood collection tubes in the following order:
 - i. Blood culture tube
 - ii. Coagulation tube (blue top)
 - iii. Plain tube, non-additive with or without gel (red top)
 - iv. Heparin tube with or without gel (green top)
 - v. EDTA tube (purple top)
 - vi. Glycolytic inhibitor oxalate/fluoride (gray top)
- f) Do not remove rubber stoppers from evacuated tubes to transfer blood to multiple tubes.
- g) Use a safety syringe shielded transfer device to transfer the blood from the syringe to an evacuated tube.
- h) The stopper is pierced with the needle and the tube is allowed to fill without applying any pressure to the plunger.
- i) After the tube has filled, gently invert any tubes that contain anticoagulant 6-8 times to prevent clotting.
- j) Apply pressure to the site until the bleeding stops. Apply an adhesive bandage.
- k) Label specimens at draw station in the presence of the patient and ask for parent/guardian to verify every tube is labeled and has correct spelling of child's full legal name once the label has been placed on the sample(s). Standard labeling requirements include:
 - Full Legal Patient Name
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- l) Remove gloves and wash hands.