

FINGERSTICK COLLECTION FOR BLOOD LEAD AND HEMOGLOBIN TESTS

Attention: Steps performed before, during, and after collection are of paramount importance.

- Lead is everywhere in the environment. Therefore, great care must be taken to remove lead from the hands of the patient and collection personnel prior to collection and also prevent contamination of filter paper by the environment.
- Lead testing requires that **a SINGLE large drop of blood freely falls and is absorbed uniformly** by the filter paper. In other words, the front and the back of the filter paper must show uniform and identical saturation with blood, see examples.
- **NOTE: Fingertick technique will affect collection.** See guidelines provided in *Fingertick Collection*.

Pre-Collection Preparation

1. **Complete all areas of the laboratory requisition:** Provide all patient information, which is required to meet state reporting guidelines; provide accurate billing information.
2. **Hand washing:** Collector must thoroughly wash hands with soap and water, dry hands, and put on gloves. Assist patient in thoroughly washing their hands with soap and water. Air dry hands or dry using a sterile individually wrapped gauze pad. Instruct the patient not to touch anything or hold their wrist to prevent contamination.
3. **Prepare collection supplies:** Lancet, sterile gauze, bandaid, appropriate collection Card
 - **Open** the matchbook-style collection Card and place on a clean, flat surface.
 - **Do NOT touch the filter paper or the inner shiny surface of the collection Card.**
 - NOTE: The outside surface of the collection Card is considered contaminated. Do NOT allow the outside surface to contact the filter paper, i.e., do NOT fold the front flap under or behind the filter paper.



Pediatric Fingertick Collection Cards for Lead & Hemoglobin Tests



Fingertick Collection

1. **Prepare patient's finger**
 - Thoroughly scrub the fingertip of the 3rd (middle) or 4th (ring) finger with an alcohol prep pad.
 - Allow finger to air dry or wipe dry with sterile gauze. **NOTE: If alcohol remains on the finger, it will prevent the blood from forming a well-rounded drop and will ruin the sample.**
 2. **Fingertick and sample collection**
 - a. Using a lancet, puncture the fingertip in the fleshy part of the finger, slightly to the side of the center and **across (or perpendicular to) the grooves** of the fingerprint. This enables the blood to form as a drop on the fingertip. If the puncture is parallel to the lines of the fingerprint, the blood will not form as a drop but will run down the finger making correct collection impossible.
 - b. Using dry sterile gauze, **wipe off the 1st drop of blood** (which is contaminated with excess tissue fluid).
 - c. Allow a **large drop of blood to form** on the fingertip. To enhance blood flow, apply *gentle, intermittent pressure* to finger below/surrounding the puncture site. **NOTE: Do NOT use strong, repetitive pressure or "milk" the site, which causes tissue fluid contamination.**
 - d. With the fingertip **over the filter paper**, turn the finger over such that the puncture site points downward.
 - e. Allow the **SINGLE, large drop** of blood to **fall freely** onto the filter paper.
 - **NEVER put a 2nd drop of blood on top of blood already on the paper**
 - **NEVER touch the finger with the blood drop to the paper**
 - f. Collect **at least TWO large, separate blood drops** that:
 - *Evenly saturate* the filter paper, i.e., appear the same on front & back of the paper (see examples, p. 2).
 - Are about the size of the black circles (½ inch diameter). **NOTE: Blood spots do NOT have to be within the black circles but must be large enough for testing (2 spots with minimum 3/8 inch diameter).**
 - **NEVER put a 2nd drop of blood on top of blood already on the paper (i.e., multiple drops)**, which makes the collection unacceptable for testing and will be cancelled as a smear, non-homogeneous, or unsuitable (see examples, p. 2).
 - g. If a **hemoglobin test** is also requested, a 3rd acceptable blood spot is required. A "HGB" circle is provided as a guide on the *white Pediatric Lead/Hemoglobin blood sample cards*.
 3. **Evaluate sample collection:** Examine the **BACK side** of the filter paper to ensure that the blood has soaked evenly through to the back of the paper. **If NOT acceptable, repeat fingertick and recollect sample on a new collection Card.**
 4. **Label collection:** Label front of collection Card by applying bar-coded sticker from requisition into box on card, or writing name and patient ID number on card. **NOTE: Information must match the requisition and cards without label or identifying information will NOT be tested.**
 5. **Dry collection Card:** Allow the opened collection Card to **air dry for at least 2 – 5 minutes**.
 6. **Package & send collection Card to MEDTOX**
 - Place the dry card into a plastic bag and seal. **NOTE: Samples received wet CANNOT be tested**—occurs when cards are *immediately* placed into plastic bag or when filter paper is saturated with too much blood.
- Place *white copy* of requisition and sealed plastic bag with labeled collection Card into postage free envelope. Send via US mail.

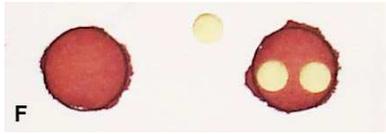
Correct Fingertick:
Puncture across grooves of fingerprint; a round drop of blood will form



Incorrect Fingertick:
Puncture parallel to grooves of fingerprint; blood runs down finger; will not form into a drop



How Card Is Used For Testing



F – Front of paper
B – Back of paper

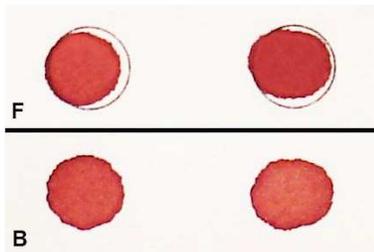
Samples Removed from Card for Testing

- Two punches (5 mm in diameter) are removed by a semi-automated sampler for initial analysis
- Up to six punches may be required for final results
- One punch *without blood* is used to prime the punch sampler

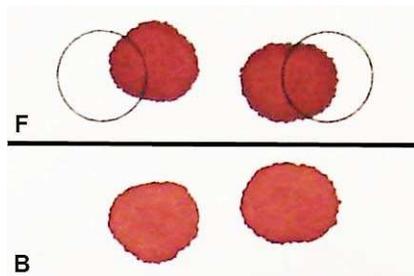
Acceptable Specimens

- Even distribution of blood that soaked uniformly through to back of paper
- Two large spots of optimal size (½ inch diameter) from **SINGLE** drops of blood
- Note that the blood does NOT have to be within the black rings**
- Black rings are a **size guide**; minimum amount—2 spots, ~3/8 inch diameter

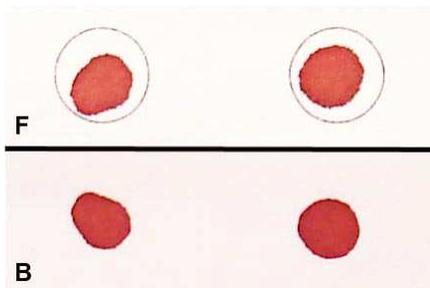
Optimal



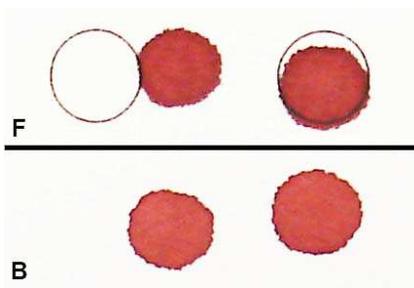
Acceptable



Acceptable

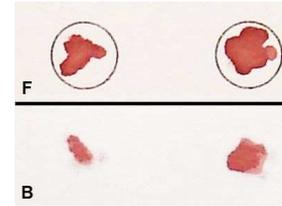


Acceptable

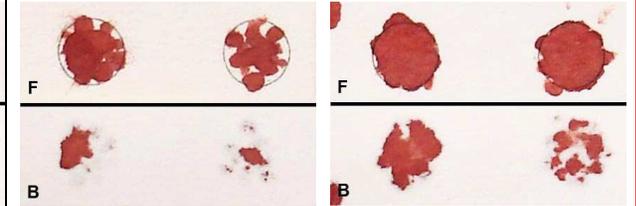


Unacceptable Specimens

Quantity Not Sufficient (QNS) & multiple spots

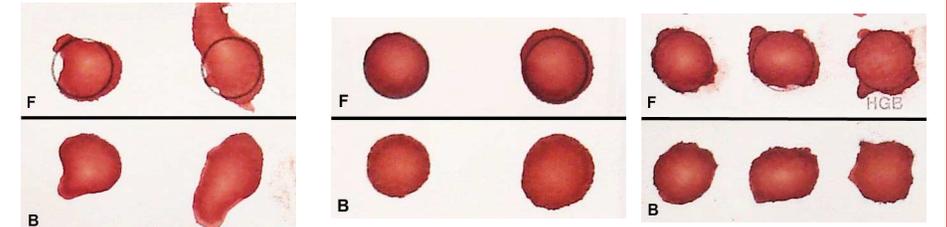


Smears – blood did NOT soak through to back of paper and multiple blood spots applied

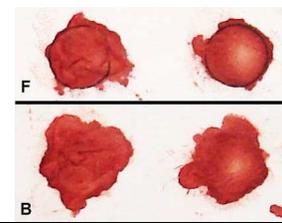


Non-Homogeneous Samples

- Blood did not evenly saturate the paper. Note the **central pallor**—the edges of the blood spot are darker than the center; evident on front and back of the paper
- Concentric rings present that indicate multiple drops of blood applied; more evident on back of filter paper
- Sufficient blood that is **UNEVENLY** distributed and **UNACCEPTABLE** for testing
- Causes:
 - Blood drops applied on top of another—must use a single, large blood drop
 - Touching the fingertip with blood to the filter paper—a single, large drop must fall freely unto paper; cannot be “touched off”
 - Excess tissue fluid contamination or alcohol residue—1st drop of blood not wiped off



Unsuitable & Non-Homogeneous



- Surface of filter paper disrupted and wrinkled
- Uneven distribution of blood; note central pallor in blood spot on right

For questions concerning collection, contact **MEDTOX Client Services** at **1.877.474.5767**