Indiana WIC Program
Indiana State Department of Health

Hematologic Assessment

Policy

Local agency staff shall use standard procedures for performing hematologic assessments. The nutrition risk criteria cut-off value for risk factor 201 (Low Hematocrit/Low Hemoglobin) will be used to determine when a low hematologic value exists.

Authority

WIC Final Policy Memorandum #2001-2
7 CFR Part 246.7 (e)(1)(i)(A)(1-3),(B);(ii)(B)(1-3)
HemoCue Hb 201+ Operating Manual: Measuring Capillary blood pg.8-15
Masimo Pronto Pulse CO-Oximeter Operator's Manual

Procedures

I. Hematologic assessments shall be performed by a CPA or a Qualified Staff Person (see the definition list).

II. Hematologic testing is performed based on criteria specific to applicant/participant.

Category	Pregnant Women	Breastfeeding Women	NBF Postpartum Women
Timeframes to collect blood work	At the prenatal certification.	Not before 4 weeks postpartum.	Not before 4 weeks postpartum.
Additional Testing	An additional test will be done at the discretion of the CPA based on a low hematologic value at certification.	An additional test will be done at the Mid-certification Screening based on a low hematologic value at certification.	An additional test will be done at the discretion of the CPA based on a low hematologic value at certification.
Special INWIC instructions	None	An entry must be made in the lab screen of the INWIC when blood work is delayed.	An entry must be made in the lab screen of the INWIC when blood work is delayed.

Category	Infants	Children 1 to 2 Years	Children 2 to 5 Years
Timeframes to collect blood work	From 9 to 12 months of age	From 15 to 18 months of age	Once every 12 months
	(**Note:** According to the Centers for Disease Control (CDC), children between 9 and 18 months of age are at the highest risk of any group for iron deficiency. The CDC recommends two screenings during this vulnerable time.)		
Additional Testing	None	None	An additional test will be done after 6 months based on a previously low hematologic value.
Special INWIC instructions	None	An entry must be made in the lab screen of the INWIC when blood work is skipped.	An entry must be made in the lab screen of the INWIC when blood work is skipped.

III. Hematologic test results, less than 90 days prior to the appointment and reflective of the participant's category, may be obtained from another agency/program or a private physician's office. Document the lab value, date, and source in the breastfeeding note, nutrition ed counseling note or Individual Care Plan note (ICP).

IV. Reasons for waiving the requirement for hematologic test:

A. Applicants whose religious beliefs prevent them from having blood drawn must provide a statement of refusal to be scanned into the INWIC. A new statement is needed at each blood draw. The refusal to have blood drawn due to religious beliefs must be documented in the breastfeeding note, nutrition ed counseling note or ICP and entered in the INWIC lab screen.

B. Applicants with chronic medical conditions such as skin diseases, hemophilia, fragile bones, or osteogenesis imperfecta, shall provide written documentation from their physician. The condition should be noted in the breastfeeding note, nutrition ed counseling note or ICP. A statement from the physician is not necessary for subsequent certification.

C. Applicants with an acute and/or treatable skin disease shall provide written documentation from their physician stating that the applicant's blood test shall be waived. The condition should be noted in the breastfeeding note, nutrition ed counseling note or ICP. A

statement from the physician is required at each subsequent certification.

V. Accurate hematologic testing shall be performed based on standardized procedures using the HemoCue 201+ analyzer or the Pronto device.

A. The HemoCue 201+ analyzer will be used for participants weighing less than 22 pounds or when the Pronto device does not produce a reading.

B. Local agency staff shall follow Blood borne Pathogen Controls when conducting HemoCue blood sample testing.

VI. HemoCue Finger Stick Hemoglobin Screening

A. Microcuvette storage and environmental requirements must be followed according to manufacturer's specifications. Microcuvettes must be used prior to the expiration date printed on the package and must be stored at room temperature (59-86ºF). Staff should date the bottle upon opening. Microcuvettes must be used within 90 days of opening.

B. The following procedures shall be followed:

1. When taking a sample from an infant, use the big toe or heel (CPA preference).
2. When taking a sample from a child, use the big toe, heel or middle finger (CPA preference).
4. When taking a sample from an adult use only the middle or ring finger for sampling. Avoid fingers with rings on.
5. Clean area with alcohol or suitable disinfectant and allow drying or wiping off with a dry, lint-free wipe.
6. Using your thumb, lightly press the finger from the top of the knuckle towards the tip. This stimulates the blood flow towards the sampling point.
7. For best blood flow and least pain, sample at the side of the fingertip, not in the center. Hold a few fingers at one time instead of only the one being used for sampling. For a child the parent or assistant should hold around the child's wrist using a steady but not tight grip.
7. While applying only light pressure towards the fingertip, puncture the finger using the lancet. (Do not use a tight or constricting hold as this will limit the blood flow.) (See picture 4 on page 8 of the HemoCue operating manual).
8. Wipe away the first 2 to 3 drops of blood.
9. Re-apply light pressure towards the fingertip until another drop of blood appears.

10. When the blood drop is large enough, fill the microcuvette in one continuous process. Do NOT refill!
11. Wipe off excess blood from the outside of the microcuvette with a clean, lint-free wipe, being careful not to touch the open end of the microcuvette, which could result in blood being drawn out of the microcuvette.
12. Look for bubbles in the filled microcuvette. If present, discard the microcuvette, perform a second puncture at a new site and repeat the process to fill a new microcuvette. Small bubbles around the edge can be ignored.
13. Wipe excess blood from the punctured area, apply a bandage.
14. Place the filled microcuvette in the cuvette holder. This must be performed within ten minutes after filling the microcuvette.
15. Push the cuvette holder to the measuring position. After 15-60 seconds, the value is displayed.
16. To avoid contamination care should be taken not to touch other surfaces or people while wearing gloves.
17. Place the lancet and microcuvette into an approved disposal container.
18. Place soft waste in regular trash container.
19. Remove gloves, wash hands.
20. Additional operating procedures may be found in the HemoCue 201+ analyzer manual.

C. If the hemoglobin result is higher or lower than anticipated, re-measure using a new microcuvette from a new puncture site.

VII. Infection Control Guidelines for HemoCue hemoglobin blood sample tests:

A. Employees doing finger sticks must wear disposable medical gloves. Gloves must be available at all clinic sites. A new pair of gloves must be used for each person's blood test.

B. Hands must be washed between each participant following removal of gloves. If a sink is not readily available, hands must be washed with hand sanitizer containing a minimum of 60% ethyl-alcohol. Skin is to be washed with soap and water immediately following accidental skin contact with blood or sharps.

C. **Only** self-retracting lancets are to be used when taking a blood sample.

D. A protective and imperviously-backed material, such as plastic wrap, aluminum foil, or wax paper must be used as a surface covering while performing a blood test.

E. Used lancets and microcuvettes are to be placed IMMEDIATELY into the puncture resistant and leak-proof disposal containers. Containers must be out of reach of children. The container should not be filled beyond capacity.

F. Soiled soft waste, such as gloves, alcohol swabs, cotton balls/gauze, bandages and other materials containing blood are to be disposed of in the normal trash container.

VIII. Pronto Non-invasive Hemoglobin Screening

A. There should be no restrictions that would inhibit blood flow. Remove restrictive clothing, accessories, purses, backpacks, watches and tight fitting ring or jewelry.

B. If there has been an injury to the arm, hand or fingers that could affect blood flow the opposite arm, hand or finger should be used. An anatomically abnormal finger (damaged, clubbed, deviated, etc.) should not be used.

C. Selection of sensor site by priority:

1. Non-dominant ring or middle finger
2. Dominant ring or middle finger
3. Thumb may be used on smaller participants (22-110lbs)

D. Participant should be in a seated position with no movement and breathing normally.

E. Finger should be cleaned of debris and dry prior to testing.

F. Sensor size determined by:

1. Weight
   - Pediatric sensor: 22-110lbs
   - Adult sensor: $\geq$ 66lbs

OR

2. Use of slender digit gauge on the sensor cable for participants weighing greater than 66lbs that have slender fingers. Slide the Slender Digit Gauge circle on the finger. If the circle stops at any point of the nail bed before the cuticle, the sensor can be used on that finger. If the gauge slides past the cuticle, the finger is too slender for the sensor. A different finger may be selected or a pediatric sensor should be used.

G. Rest the hand/arm on the horizontal surface (desk or table) to limit movement.

H. Place sensor on finger ensuring the tip of the finger is touching the finger stop and the cord is running over the top of the hand without twists or kinks. If the participant has a long fingernail, the fingernail can extend over the finger stop.

I. Position the selected finger so that it corresponds to that of the finger shown on the top of the sensor.

J. The fleshiest part of the digit should be covering the detector window to ensure accurate data.

K. Readings may be affected by:

1. Finger nail polish.
2. Cold hands may effect results. Try clapping or rubbing hands together.
3. Extremely bright office light. Cover the probe with a Masimo Ambient Light Shield before initiating the test.
4. A perfusion index (PI) measurement on the Pronto device of less than 1. Make sure the initial reading on the device is at least 1% for a successful test.
5. Low Signal IQ on the Pronto device. This may be caused by improper sensor type/application, excessive motion or very poor perfusion, damaged/non-functional sensor, distortion of the sensor/tissue/blood flow interface either by excessive motion or clinical care, low perfusion index (PI) or ambient light interference. Refer to Operator's manual for further information.
6. Peripheral vascular disease, elevated levels of bilirubin or low arterial oxygen saturation levels.

L. If a reading is not obtained after two tries a HemoCue measurement will be initiated.

M. After Hgb reading is completed remove sensor from the participant. Disconnect the sensor from the patient cable. Wipe the entire sensor with a 70% isopropyl alcohol pad. Allow to air dry thoroughly before returning it to operation. Refer to Operator's manual for further information.

N. It is not required to turn off the device between screenings; turning off the device will extend the battery life. Pronto will automatically power off after ten minutes of inactivity, but waiting for this will waste battery power. Turning it off immediately when not needed is best if there are no more tests to do. Press and hold the power on/off button for two seconds to power down the Pronto.

O. The four "AA" alkaline batteries operate the Pronto device up to eight hours. Back up batteries should always be available in the clinic. The battery change level is indicated by four LED indicators at the

bottom of the front panel. All four indicators will be lit when the batteries are full, with fewer indicators being lit as the batteries lose their charge. When battery life is approaching depletion (9-0%), the final battery indicator will begin to flash and an audible alarm will sound.

P. The approximate number of sensor uses remaining is displayed upon power up and the connection of a sensor. The red LED light indicate remaining uses for the connected sensor are low.

Q. Additional operating procedures and equipment cleaning may be found in the Pronto Operator's manual.