



Low Hemoglobin Tips: Nutrition Assessment, Education & High Risk Follow Up

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Low Hemoglobin

Iron deficiency occurs when the body's iron stores are depleted. This may be caused by a diet low in iron, insufficient absorption of iron from the diet, increased iron requirements due to growth or pregnancy, or blood loss. Higher intake of foods like dairy products, tea, and coffee can impact iron absorption when consumed in excess and at mealtimes. It is important to assess pregnant and postpartum women, infant, and children to ensure they receive adequate nutrients, as these groups are at an increased risk for iron deficiency.

Iron Sources

The best sources of iron come from **animal-based** foods. This type of iron is called **heme iron** and is more easily absorbed by the body. Good sources include beef, pork, chicken, and turkey.

Non-heme iron, which is primarily found in **plant-based** foods, is not absorbed by the body as efficiently as heme iron. It can still contribute to iron intake and overall health but is not the best source of iron when hemoglobin is low. Sources include iron fortified cereals, leafy greens, eggs, peanut butter, and enriched bread, tortillas, rice, and pasta.

Increasing Non-Heme Iron Absorption

- Absorption can be enhanced by pairing non-heme iron foods with high vitamin C sources: oranges, orange juice, grapefruit, tomatoes, potatoes, broccoli, bell peppers, watermelon, cantaloupe, kiwi, and strawberries.
- Absorption can also be enhanced by pairing non-heme food sources with heme iron sources such as meat, chicken, and fish.

Technical Assistance & Tips

Review training materials and policy:

- [Prevent Iron Deficiency Anemia Module](#)
- [Introduction to Hematological Assessment](#)
- [Section 5.2.3 Hematologic Assessment](#)
- [HemoCue OnCue Education](#)

Lancets should be

- For children: the blade or needle should be about 1.5 mm.
- For women: the blade or needle should be less than 2.4 mm.

Testing techniques

- Do NOT 'milk' or squeeze the finger because this forces tissue fluid into the sample resulting in an incorrectly low reading.
- The participant's fingers should be straight but not tense, to avoid the stasis effect which occurs when the fingers are bent.
- Fingers with rings on should not be used.
- Fill the cuvette in one continuous draw. Do not stop and restart.

What to do When Hemoglobin is Low

The WIC information system will suggest risk code 201-Low Hemoglobin for any values less than the blood values listed on [Exhibit 5-T](#). **Hemoglobin measurements below 10 should be re-tested.** It is best practice to collect a second sample from a different puncture site rather than obtaining a second sample from the original puncture site.

Complete a thorough nutrition assessment looking for:

- Excessive milk/dairy product intake.
- Excessive juice intake.
- Consuming coffee or tea throughout the day.
- Diet low in high iron foods.
- Late weaning.
- Child drinking milk in a bottle/cup throughout the day and night.
- Taking a multi vitamin with iron or iron supplement.

Provide the appropriate education

Explore options the participant is interested in and ideas they have for making a change. Offer suggestions for specific activities based on the participant's preferences. For example: "Will offer Cheerios for snack during the week" or "Will offer eggs paired with orange slices for breakfast twice a week".

For more nutrition assessment guidance and nutrition counseling tips, see [WIC 201 Low Hematocrit/Low Hemoglobin](#) Implications for Minnesota WIC Nutrition Services. Review and enhance your education by providing the nutrition education card [Eating More Iron](#).

Complete referral

A referral to a health care provider is required when the hemoglobin value meets the high risk criteria. Include any pertinent assessment information such as excessive milk intake due to bottle use. See [Exhibit 6-A: High Risk and Medical Referral Criteria](#).

Complete high risk charting

If the participant is high risk, with a hemoglobin below 10, complete an Individual Nutrition Care Plan (INCP). Review [Section 6.6](#) for more details.

Documentation must adequately provide details about the condition:

- Is there a history of low hemoglobin?
- Is the participant eating high iron foods? If so, how many servings/day?
- How many servings of milk or dairy/day?

The Nutrition Intervention and Plan should be detailed, so others reviewing the record can follow-up appropriately. What is your recommended intervention? What sources of iron are you recommending, and how many servings per day? Do you recommend pairing iron sources with high vitamin C foods or taking a multivitamin with iron? When is the next WIC follow-up appointment? Is a doctor's visit scheduled?

INCP follow up

- Follow up on the referral to health care provider:
 - Was the participant able to connect with their provider?
 - Are they able to follow the treatment plan?
 - If an iron supplement was prescribed, are they able to take it?
 - If referral data is available, add it to participant chart.
 - If referral data is below 10 continue close follow up.
- Reassess the participant's nutrition intake:
 - Excessive milk/dairy product intake.
 - Excessive juice intake.
 - Consuming coffee or tea throughout the day.
 - How many servings of high iron sources are they eating/day.
 - Pairing with vitamin C sources.
 - Taking a multi vitamin with iron or iron supplement.
- Reassess nutrition goal.
 - Have they met their current goal?
 - If so, what will their new goal be?
- Provide additional nutrition education.
 - This should be based on what was learned from following up with primary care and reassessment of nutrition intake.

If the participant's hemoglobin is less than 10, and they have not seen their health care provider by their next WIC contact, the CPA should schedule an in-person appointment to recheck hemoglobin at the WIC office. The CPA should use professional discretion when determining high risk follow-up. Some participants may need to be seen more frequently (monthly or bi-monthly) depending on their HGB level.

What to do When Hemoglobin is Borderline

If the hematologic value at the child's previous certification was **near the cut-off point (11-11.5)**, it is best practice to repeat blood work at the next certification/recertification/mid-certification.

As mentioned above, assess the participant's nutrition intake for potential low hemoglobin risk factors and offer relevant nutrition education based on your findings.

How can I Use This Information

- Review this document and links individually.
- Annually review this document and links at a staff meeting.

Resources

[WIC 201 Low Hematocrit/Low Hemoglobin - MN Dept. of Health](https://www.health.state.mn.us/people/wic/localagency/riskcodes/201.html)

(<https://www.health.state.mn.us/people/wic/localagency/riskcodes/201.html>)

[Food Sources of Iron: Standard Portions](#)

[Exhibit 5-T MN WIC Risk Criteria](#)

(https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex5/5t_new.pdf)

[Exhibit 6-A: High Risk and Medical Referral Criteria](#)

(<https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/exhbts/ex6/6a.pdf>)

[Section 6.6: High Risk Individual Nutrition Care Plans](#)

(https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/chsctns/ch6/sctn6_6.pdf)

[Section 5.3.2 Hematologic Assessment](#)

(https://www.health.state.mn.us/docs/people/wic/localagency/program/mom/chsctns/ch5/sctn5_3_2.pdf)

[Introduction to Hematological Assessment](#)

(<https://www.health.state.mn.us/docs/people/wic/localagency/training/nutrition/nst/blood.pdf>)

[Prevent Iron Deficiency Anemia](#)

(<https://www.health.state.mn.us/training/cfh/wic/nutrition/nepresources/preventanemia/index.html>)

[Eating More Iron](#) (<https://www.health.state.mn.us/docs/people/wic/nutrition/english/geniron.pdf>)

[HemoCue OnCue](#) (<https://hemocueoncue.education/>)

Minnesota Department of Health - WIC Program, 625 Robert St N, PO BOX 64975, ST PAUL MN 55164-0975; 1-800-657-3942, health.wic@state.mn.us, www.health.state.mn.us; to obtain this information in a different format, call: 1-800-657-3942.

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