

**14.2 ABNORMAL HEMOGLOBIN – LOW**

TITLE	DESCRIPTION
DEFINITION:	<p>Low Hgb levels may be &lt; 12.1 g/dL in females or &lt; 13.8 g/dL in males. Clients with Hgb &lt; 12 may have a wide range of underlying causes from acute, life-threatening pathology to chronic diseases, as well as acute non-life-threatening pathology such as recent delivered pregnancy, surgery, or injury. Management depends upon correct diagnosis.</p> <p>(Note: Normal value ranges may vary slightly among different laboratories).</p>
SUBJECTIVE:	<p><b>May Include:</b></p> <ol style="list-style-type: none"> <li>1. Asymptomatic, particularly initially.</li> <li>2. Fatigue, weakness, pallor, paresthesias, listlessness, memory loss or concentration difficulties.</li> <li>3. Palpitations, dyspnea, headaches, angina pectoris.</li> <li>4. Weight loss, anorexia, bone and joint pain, restless legs, leg cramps, exercise intolerance.</li> <li>5. Unusual blood loss – hematemesis, melena, hematuria.</li> <li>6. Chronic blood loss (e.g. hemorrhoids, GI bleeding, intermenstrual or heavy menstrual bleeding, IUD use).</li> <li>7. Inadequate nutrition or deficiency of folate, Vitamin B12, Vitamin B6, or iron.</li> <li>8. Frequent pregnancies, short intervals between pregnancies.</li> <li>9. Excessive alcohol ingestion.</li> <li>10. History of drug ingestion (e.g. aspirin, NSAIDS, dilantin, sulfa).</li> <li>11. History of gastric or intestinal surgery.</li> <li>12. Family history of anemia or hemolytic disorder.</li> <li>13. Ethnic or racial origin: Black or Mediterranean.</li> <li>14. History of liver disease, gallstones before age 30, lupus erythematosus, rheumatoid arthritis, cancer and treatment, renal disease, hypothyroidism, hypopituitarism, or intestinal absorption disorder (Such as Crohn’s or Celiac disease or history of gastric bypass surgery).</li> <li>15. History of pica (clay, dirt, ice, paint).</li> <li>16. Increased number of infections.</li> <li>17. History of regular/recent blood donation.</li> <li>18. Athletes: Dilutional increased plasma volume, GI bleeding from high intensity exercise, intravascular hemolysis. Assess for past anemia or known hemoglobinopathies (sickle cell trait, thalassemia trait).</li> </ol>
OBJECTIVE:	<p><b>May Include:</b></p> <ol style="list-style-type: none"> <li>1. Pallor (conjunctivae, nail beds, mucous membranes). Plethora of face, hands, and feet.</li> <li>2. Nails (flattened, brittle or concave).</li> <li>3. Jaundice.</li> <li>4. Heart murmur (systolic flow murmur).</li> <li>5. Tachycardia, bounding pulse, SOB.</li> <li>6. Petechiae, purpura, or ecchymosis.</li> <li>7. Heavy vaginal bleeding or cervical polyp.</li> <li>8. Hemorrhoids, melena, rectal carcinoma.</li> <li>9. Abdominal mass, hepatomegaly, splenomegaly.</li> </ol>

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	10. Paresthesias, numbness in hands and feet, unsteady gait and weakness of legs, bone tenderness. 11. Glossitis (inflammation of the tongue) and cheilitis (inflammation of the lips).
LABORATORY:	<p><b>Should Include:</b></p> <ol style="list-style-type: none"> <li>1. Hgb venous or capillary.</li> <li>2. Excessive squeezing with the finger stick method could alter results. May recheck via venipuncture method for enhanced accuracy.</li> </ol> <p><b>May Include:</b></p> <ol style="list-style-type: none"> <li>1. CBC with indices.</li> <li>2. Serum Ferritin, iron, B12, folate, transferrin, reticulocytes count, TIBC.</li> <li>3. Peripheral smear.</li> </ol>
ASSESSMENT:	Abnormal Hemoglobin.
PLAN:	<p><b>Mild Anemia</b> - Hgb 10.1 - 12.0 g/dl</p> <ol style="list-style-type: none"> <li>1. Nutrition counseling on dietary iron (meat, beans, dark green leafy vegetables, prune juice, dried fruit, and iron fortified breads and cereals).</li> <li>2. Encourage the use of a combined contraceptives or progestin-only method such as progestin only pills Depo Provera or Mirena IUD to decrease the number of days of bleeding and the amount of blood loss. The menstrual flow can decrease by 60% or more.</li> <li>3. Recheck Hgb in one month, if no improvement, consider oral iron therapy. A therapeutic trial of oral iron therapy is justified for menstruating women with low hemoglobin levels. (Always keep in mind the multifactorial causes of anemia.)</li> <li>4. Oral Iron therapy. All should be given on an empty stomach with either juice or vitamin C supplement. Avoid dairy products, calcium supplements, caffeine products, high fiber foods, and antacids within 2 hours of administration. Simple ferrous salts absorbed most efficiently would include the use of one of the following:             <ol style="list-style-type: none"> <li>a. For adults: Recommendations for dosing for adults varies widely and should be individualized.                 <ol style="list-style-type: none"> <li>i) Ferrous sulfate – 325 mg (65 mg elemental iron) one to three tablets PO QD.</li> </ol> </li> <li>b. For adolescents:                 <ol style="list-style-type: none"> <li>i) Ferrous sulfate – 325 mg (65 mg elemental iron) one to two tablets PO QD for 3 months.</li> </ol> </li> <li>c. For individuals who report poor tolerance of daily iron therapy, it is reasonable to adjust the dosing regimen to every other day or three times per week (eg, Monday, Wednesday, and Friday).</li> <li>d. Iron tablets taken at the same time of day.</li> <li>e. Review for any drug interaction with iron pills.</li> </ol> </li> <li>5. RTC in one month for repeat Hgb. Expect increase in Hgb of 1 g/dl.             <ol style="list-style-type: none"> <li>a. Continue iron therapy 4-6 months if Hgb is normalized.</li> <li>b. Women with large menstrual blood losses may benefit with continued, intermittent therapy (one week per month) or one tablet a day for maintenance.</li> </ol> </li> </ol>

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	<p>*If no improvement on iron therapy, see plan for severe anemia.</p> <p><b>Severe Anemia</b> - Hgb 10 g/dl or below</p> <ol style="list-style-type: none"> <li>1. Consult / refer with Physician. Follow-up may include:               <ol style="list-style-type: none"> <li>a. CBC with indices, differential count, reticulocyte count, peripheral blood smear, serum ferritin.</li> <li>b. Sickle Cell test if applicable.</li> <li>c. Test stool for occult blood.</li> </ol> </li> <li>2. Emergency referral for any of the following:               <ol style="list-style-type: none"> <li>a. Hgb 7 g/dl.</li> <li>b. Active uncontrollable bleeding.</li> <li>c. Client acutely symptomatic.</li> <li>d. Suspicions of ectopic pregnancy or internal hemorrhage.</li> </ol> </li> </ol>
EDUCATION:	<ol style="list-style-type: none"> <li>1. Discuss the underlying etiology of anemia and the importance of participation in the treatment plan and follow-up.</li> <li>2. Provide nutritional counseling.</li> <li>3. Discuss iron replacement medication including regimes, side-effects, if indicated.</li> <li>4. Recommend client RTC as appropriate per plan.</li> </ol>
REFERRAL TO MEDICAL PROVIDER:	<ol style="list-style-type: none"> <li>1. Any pathology found on exam which does not require immediate ER referral.</li> <li>2. Those not responding to a therapeutic trial of iron.</li> </ol>
REFERENCES:	<ol style="list-style-type: none"> <li>1. Hatcher RA, et al (2018). <i>Contraceptive Technology, 21<sup>st</sup> Ed.</i> New York, NY: Ayer Company Publishers, Inc. pp 36-41.</li> <li>2. Connor, R.F, MD. (2011). <a href="http://online.epocrates.com/noFrame/showPage.do?method=diseases&amp;MonographId=94">Iron Deficiency Anemia</a>. (Retrieved 2/8/17).</li> <li>3. Gersten, T., MD (2012) <a href="http://nlm.nih.gov/medlineplus/ency/article/003645.htm">Hemoglobin</a>. (Retrieved 2/8/17).</li> <li>4. Killip, S., Bennett, J., Chambers, M. (2013). <a href="http://aafp.org/afp/2013/0115/p98.html">Iron Deficiency Anemia</a>. (Retrieved 2/8/17).</li> </ol>