ABNORMAL HEMOGLOBIN

DEFINITION	Abnormal Hgb may be <12.1 or >15.1 gm/dL in females; <13.8 or > 17.2 gm/dL in males. Client with Hgb <12 may have a wide range of underlying causes from acute, life-threatening pathology to chronic diseases. Management depends upon correct diagnosis. Client with polycythemia Hgb >17 g/dl may be susceptible to early stroke. (Note: Normal value ranges may vary slightly among different laboratories.)
SUBJECTIVE	May include: 1. Asymptomatic, particularly initially. 2. Fatigue, weakness, pallor, paresthesias, listlessness, memory loss or concentration difficulties. 3. Palpitations, dyspnea, headaches. 4. Weight loss, anorexia, bone and joint pain**,** restless legs, exercise intolerance. 5. Unusual blood loss – hematemesis, melena, hematuria. 6. Chronic blood loss (i.e., hemorrhoids, GI bleeding, intermenstrual or heavy menstrual bleeding, IUD use). 7. Inadequate nutrition. 8. Frequent pregnancies, short intervals between pregnancies. 9. Excessive alcohol ingestion. 10. History of drug ingestion (e.g., aspirin, dilantin, sulfa). 11. History of gastric or intestinal surgery. 12. Family history of anemia or hemolytic disorder. 13. Ethnic or racial origin: Black or Mediterranean. 14. History of liver disease, gallstones before age 30, lupus erythematosus, rheumatoid arthritis, renal disease, hypothyroidism, hypopituitarism, intestinal absorption disorder. 15. History of pica (clay, dirt, ice, paint). 16. Increased number of infections. 17. History of regular/recent blood donation. 18. In polycythemia: history of smoking, complaints of headaches, epistaxis, spontaneous bruising, burning pain in extremities, tinnitus, vertigo, plethora of face, hands and feet.
OBJECTIVE	May include: 1. Pallor (conjunctivae, nail beds, mucous membranes). Plethora of face, hands and feet. 2. Nails (flattened or concave). 3. Jaundice.

OBJECTIVE (continued)	4. Heart murmur (systolic flow murmur). 5. Tachycardia, bounding pulse. 6. Petechiae, purpura or ecchymosis. 7. Heavy vaginal bleeding or cervical polyp. 8. Hemorrhoids, melena, rectal carcinoma. 9. Abdominal mass, hepatomegaly, splenomegaly. 10. Paresthesias, numbness in hands and feet, unsteady gait and weakness of legs, bone tenderness. 11. Glossitis (inflammation of the tongue) and cholitis (inflammation of the lips), both seen in very severe anemia.
LABORATORY	Must include: 1. Hgb venous or capillary. a. Excessive squeezing with the finger stick method could alter results. May recheck via venipuncture method for enhanced accuracy. May include: 1. CBC 2. Serum Ferritin
ASSESSMENT	Abnormal hemoglobin.
PLAN	<u>Severe Anemia</u> - Hgb 10 g/dl or below 1. Consult / refer with Physician. Follow-up may include: a. CBC with indices, differential count, reticulocyte count, peripheral blood smear, serum ferritin. b. Sickle Cell test if applicable. c. Test stool for occult blood. 2. Emergency referral for any of the following: a. Hgb 7 g/dl b. Active uncontrollable bleeding. c. Client acutely symptomatic. d. Suspicions of ectopic pregnancy or internal hemorrhage <u>Mild Anemia</u> - Hgb 10.1 - 12.0 g/dl 1. May include: CBC with indices, serum ferritin 2. Nutrition counseling on dietary iron (meat, beans, dark green leafy vegetables). 3. Encourage the use of combined contraceptives or Mirena IUD to decrease the number of days of bleeding and the amount of blood loss of menstrual flow. The menstrual flow can decrease by 60% or more 4. 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 these hemoglobin levels. (Always keep in mind the multifactorial causes of anemia.)

PLAN (continued)	4. Oral iron therapy. Begin ferrous iron replacement with a daily total of 150-200mg of elemental iron (or 2-3 mg/kg elemental iron in doses divided bid or tid). All should be given on an empty stomach with either juice or vitamin C supplement. Avoid dairy products, calcium supplements and antacids within 2 hours of administration. Simple ferrous salts absorbed most efficiently would include the use of one of the following: a. Ferrous gluconate –325mg (38mg elemental iron) one tablet po 3 times a day. b. Ferrous sulfate – 325mg (65mg elemental iron) one tablet po 3 times a day. c. Ferrous fumarate – 200mg (66mg elemental iron) one tablet po 3 times a day. 5. RTC in one month for repeat Hgb. Expect increase in hgb of 1 g/dl. a. Continue therapy 4-6 months if Hgb is normal. b. Women with large menstrual blood losses may benefit with continued, intermittent therapy (one week per month) or one tablet a day for maintenance. If no improvement on iron therapy, see plan for severe anemia. Polycythemia – Hgb 17 g/dl or above. 1. Refer to MD if Hgb 17 g/dl or above.
CLIENT EDUCATION	1. Discuss the underlying etiology of anemia or polycythemia and the importance of participation of the treatment plan and follow-up. 2. Provide nutritional counseling. 3. Discuss iron replacement medication including regimes, side-effects. 4. Recommend client RTC as appropriate per plan.
CONSULT / REFER TO PHYSICIAN	Any pathology found on exam which does not require immediate ER referral.

Revised: 09/11

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