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, paresthesia's, listlessness, memory loss or concentration difficulties 3. Palpitations, dyspnea, headaches, angina pectoris 4. Weight loss, anorexia, bone and joint pain**,** restless legs, leg cramps, exercise intolerance 5. Unusual blood loss – hematemesis, melena, hematuria 6. Chronic blood loss (i.e., hemorrhoids, GI bleeding, intermenstrual or heavy menstrual bleeding, copper IUD use) 7. Inadequate nutrition or deficiency of folate, Vitamin B12 or Vitamin B6 8. Frequent pregnancies, short intervals between pregnancies 9. Excessive alcohol ingestion 10. History of drug ingestion (e.g., aspirin, NSAIDS, Dilantin, sulfa) 11. History of gastric or intestinal surgery 12. Personal or family history of anemia or hemolytic disorder 13. History of liver disease, gallstones before age 30, lupus erythematosus, rheumatoid arthritis, cancer and treatment, renal disease, hypothyroidism, hypopituitarism, intestinal absorption disorder (Such as Crohn's or Celiac disease) 14. History of pica (clay, dirt, ice, paint) 15. Increased number of infections 16. History of regular/recent blood donation 17. In polycythemia: history of smoking, complaints of headaches, epistaxis, spontaneous bruising, burning pain in extremities, tinnitus, vertigo, plethora of face, hands and feet. The cause can be dehydration, bone marrow disease, birth defects, L sided heart failure, exposure to high altitudes, lung disorders, severe COPD, or pulmonary fibrosis 18. Athletes: Dilutional increased plasma volume, GI bleeding from high intensity exercise, intravascular hemolysis
OBJECTIVE	May include: 1. Pallor (conjunctivae, nail beds, mucous membranes). Plethora of face, hands and feet 2. Nails (flattened, brittle or concave) 3. Jaundice 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. Paresthesia's, 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), both seen in very severe anemia. 12. Ethnic or racial origin may increase risk: Black or Mediterranean
LABORATORY	Should 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, iron, B12, folate, transferrin, reticulocytes count, TIBC 3. Peripheral smear
ASSESSMENT	Abnormal Hemoglobin
PLAN	Mild Anemia - Hgb 10.1 - 12.0 g/dl 2. Nutrition counseling on dietary iron (meat, beans, dark green leafy vegetables, prune juice, dried fruit and iron fortified breads and cereals). 3. 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 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.) 5. 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, 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: a. Ferrous gluconate –325mg 300mg (38 36mg elemental iron) one tablet PO TID b. Ferrous sulfate – 325mg (65mg elemental iron) one tablet PO TID (5mg ferrous sulfate = 1mg elemental iron) c. Iron tablets taken at the same time of day d. May affect the following medications: doxycycline, penicillin, ciprofloxacin, and drugs used for Parkinson's and seizures 6. RTC in one month for repeat Hgb. Expect increase in Hgb of 1 g/dl. a. Continue iron therapy 4-6 months if Hgb is normalized. 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. Severe Anemia - 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 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 in 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	1. Any pathology found on exam which does not require immediate ER referral. 2. Those not responding to a therapeutic trial of iron.

References:

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