

**STANDARD NURSE PROTOCOL FOR
IRON-DEFICIENCY ANEMIA
IN NON-PREGNANT AND NON-LACTATING
WOMEN 18 AND OVER**

DEFINITION **Anemia is a condition in which the body does not have enough healthy red blood cells. Red blood cells provide oxygen to the body. Iron deficiency anemia develops due to low iron levels.**

ETIOLOGY **Iron-deficiency anemia, the most common type of anemia, is present in 20% of all premenopausal women in the United States.** The primary cause of iron-deficiency anemia in premenopausal women is loss of blood through menstruation. In postmenopausal women, bleeding is usually from the GI tract (chronically bleeding lesions, reflux esophagitis, peptic ulcers, gastric or colorectal adenocarcinomas). Iron-deficiency anemia also commonly occurs during pregnancy. **Iron-deficiency anemia can usually be corrected with iron supplementation.**

- SUBJECTIVE**
1. **Client provides a detailed health history (includes menstrual, sexual, contraception, personal health and family history).**
 2. **Client may be asymptomatic if anemia is mild.**
 3. **Client** may report history which includes the following:
 - a. Pallor, **fatigue**, malaise, and/or anorexia
 - b. History of GI bleeding
 - c. Changes in stool color or bleeding from hemorrhoids
 - d. Excessive blood loss during menses or history of fibroid tumors
 - e. Poor dietary intake of iron rich foods, and pica
 - f. History of drug/medication use, especially aspirin and other nonsteroidal anti-inflammatory drugs
 - g. Nonspecific complaints of headache, poor concentration, and/or palpitations
 - h. **Uncomfortable tingling or crawling feeling in the legs (restless leg syndrome)**
 - i. **Frequent blood donations**
 4. With severe anemia, the **client** may also present with:
 - a. Weakness and faintness
 - b. Increased heart rate
 - c. Shortness of breath

- d. Dizziness **or lightheadedness**
 - e. Symptoms of heart failure
 - f. Confusion and dementia
 - g. Nausea and loss of appetite
 - h. Headaches
 - i. Bleeding gums
 - j. Sore tongue
5. No history of major hemoglobinopathies (e.g., sickle cell anemia, sickle C disease, sickle beta thalassemia, hemoglobin c disease).

OBJECTIVE

1. **Client** may have **the following**:
 - a. Pallor, best seen in conjunctivae.
 - b. Atrophy of the surface or edges of the tongue.
 - c. Inflammation/cracking of the lips.
 - d. Spoon nails (thin and concave from side to side).
 - e. Tachycardia, flow murmur.
2. Hemoglobin below 12 gm/dL for a non-smoker and below 12.3 gm/dL for smoker or hematocrit below **35.7%** for non-smoker and below 36.9% for smoker.

ASSESSMENT

- Iron-deficiency anemia, presumptive if:
- **no suggestion of sickle cell or other hemoglobin variants**
 - **negative stool occult blood x 3, if clinically indicated**

PLAN

DIAGNOSTIC STUDIES

Stool occult blood x 3, if clinically indicated or **client** is age 35 years or older.

THERAPEUTIC

PHARMACOLOGIC

1. **Treatment of iron deficiency anemia:**
 - a. **Ferrous Sulfate 325mg PO bid up to 325mg qid or 250 mg (extended release) PO 1-2 times daily.**

OR
 - b. **Ferrous fumarate 150-200 mg elemental iron PO daily in divided doses; 60-100 mg elemental iron PO twice daily, up to 60 mg elemental iron PO qid.**

2. **Prophylaxis of iron deficiency:**
 - a. **Ferrous Sulfate 325 mg PO daily.**
 - b. **Ferrous fumarate 60-100 mg elemental iron PO daily.**

Note: To avoid GI upset, start with a single daily dose and increase by 1 tablet per day each week or as tolerated until desired daily dose is achieved. Do not give if client has sickle cell or hemoglobin variants.

CLIENT EDUCATION/COUNSELING

1. **For best absorption, take iron supplements on an empty stomach.** If the iron upsets the stomach, take iron with a small amount of food, but not with dairy products, coffee or tea.
2. Introduce iron gradually to minimize stomach upset. Take one tablet once a day x 1 week and then increase to twice daily if needed.
3. Beverages consumed with meals or supplements have a dramatic effect on iron absorption.
 - a. **Vitamin C** (Orange juice ~ 1 cup) doubles the absorption of iron.
 - b. Tea, coffee or milk can reduce absorption to less than one half and should be consumed in moderation between meals or supplements.
4. Antacids, tetracycline, cimetidine and pancrelipase interfere with iron absorption. Do not take iron within 3 hours of taking these medications. Iron affects other medications and a pharmacist or health care provider should be consulted before starting another medication.
5. Iron supplements may cause black or dark green bowel movements, diarrhea, or constipation.
6. Counsel **client** on other common side effects of iron therapy.
7. Too much iron is dangerous. Iron tablets may look like candy and a package of iron tablets can poison a child. Keep iron supplements out of the reach of children.

FOLLOW-UP

Recheck hemoglobin/hematocrit at the end of 4-6 weeks of initial treatment.

1. If the hemoglobin has increased **by 1 gm/dL or more**, or hematocrit by **3% or more**, continue treatment for 2-3 months to replenish iron stores, **then recheck hemoglobin/hematocrit.**
2. If the hemoglobin is not increased **at least 1 gm/dL** or hematocrit by **at least 3%**:
 - a. Assess for compliance with therapy, diet, enteric parasites and other possible anemia-causing conditions.
 - b. Refer to a physician for further evaluation.

CONSULTATION/REFERRAL

1. **Refer to physician** if hemoglobin less than 9 gm/dL or hematocrit less than 27%.
2. If after 4-6 weeks, the hemoglobin does not increase **at least 1 gm/dL** or hematocrit by **at least 3%**, despite compliance with iron supplementation regimen and the absence of acute illness, refer to physician.
3. **Refer any client** with sickle cell anemia or **other** hemoglobin variants **to physician.**
4. **Refer client to physician** if there is evidence of other medical problems.

REFERENCES

1. Constance Uphold and Virginia Graham, *Clinical Guidelines in Family Practice*, 4th ed., Barmarrae Books, Inc., Gainesville, FL, 2003. (Current)
2. CDC, "*Recommendations to Prevent and Control Iron Deficiency in the United States*," MMWR, Vol. 47, No. RR-3, April 3, 1998. (Current)
3. **Mayo Clinic, "Iron Deficiency Anemia," <<http://mayoclinic.com/health/iron-deficiency-anemia/DS00323>> (May 16, 2011)**
4. **"Iron Deficiency Anemia", *MedlinePlus*, U.S. National Library of Medicine, <www.nlm.nih.gov/medlineplus/ency/article/000584.htm> (May 16, 2011)**
5. ***Handouts: Iron Deficiency Anemia*, National Anemia Action Council, <www.anemia.org/patients/information-handouts/iron-deficiency> (May 16, 2011)**

6. “Lexi-Drugs Online,” *Lexi-Comp Database*, Lexi-Comp, Inc., Hudson, Ohio
<<http://online.lexi.com>> (July 5, 2011)