

# Anemia Testing

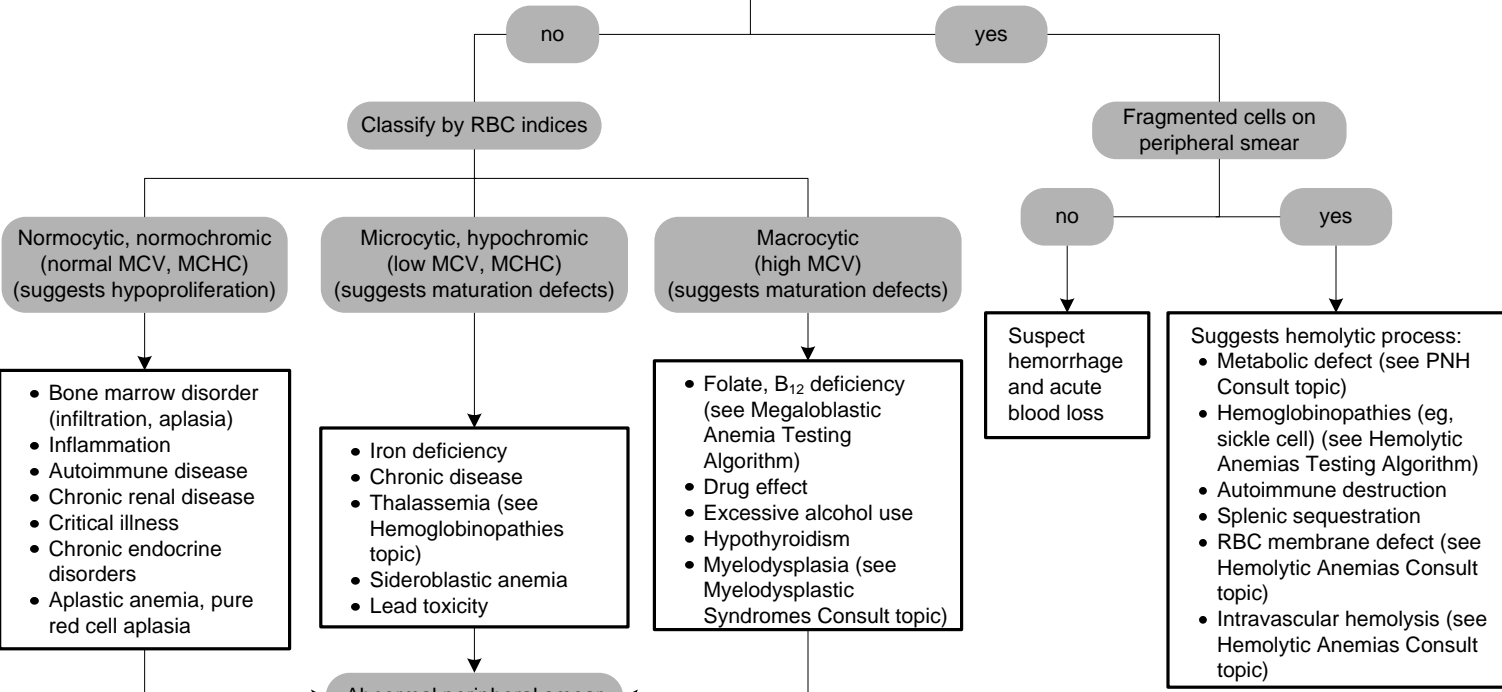
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**INDICATIONS FOR TESTING**  
Fatigue, weakness, pallor, dizziness, fainting

**ORDER**

- CBC with Platelet Count and Automated Differential (including RBC indices and morphology on manual differential)
- Reticulocytes, Percent & Number

Anemia present on CBC (males Hgb <13g/dL, females Hgb <12g/dL)  
**AND**  
Corrected reticulocyte index ≥2.5



- Bone marrow disorder (infiltration, aplasia)
- Inflammation
- Autoimmune disease
- Chronic renal disease
- Critical illness
- Chronic endocrine disorders
- Aplastic anemia, pure red cell aplasia

- Iron deficiency
- Chronic disease
- Thalassemia (see Hemoglobinopathies topic)
- Sideroblastic anemia
- Lead toxicity

- Folate, B<sub>12</sub> deficiency (see Megaloblastic Anemia Testing Algorithm)
- Drug effect
- Excessive alcohol use
- Hypothyroidism
- Myelodysplasia (see Myelodysplastic Syndromes Consult topic)

- Suggests hemolytic process:
- Metabolic defect (see PNH Consult topic)
  - Hemoglobinopathies (eg, sickle cell) (see Hemolytic Anemias Testing Algorithm)
  - Autoimmune destruction
  - Splenic sequestration
  - RBC membrane defect (see Hemolytic Anemias Consult topic)
  - Intravascular hemolysis (see Hemolytic Anemias Consult topic)

Abnormal peripheral smear

**ORDER**

- Iron and Iron Binding Capacity
- Ferritin

Low/normal TIBC  
Normal/high ferritin  
Low/normal iron

High TIBC  
Low iron  
Low ferritin

Workup based on smear characteristics

- Suggests:
- Inflammation
  - Chronic disease

Iron deficiency

Bone marrow biopsy may be necessary

If no obvious chronic disease present, consider bone marrow biopsy

**Abbreviations and Formula**

MCV = mean cell volume  
MCHC = mean cell hemoglobin concentration  
TIBC = total iron binding capacity

Reticulocyte correction for anemia:

$$\text{ReticCount}\% \times \frac{\text{Hgb}}{\text{Htc}} \times \frac{1}{\text{Maturation time correction (use 2 for most patients)}}$$