

Anemia Testing

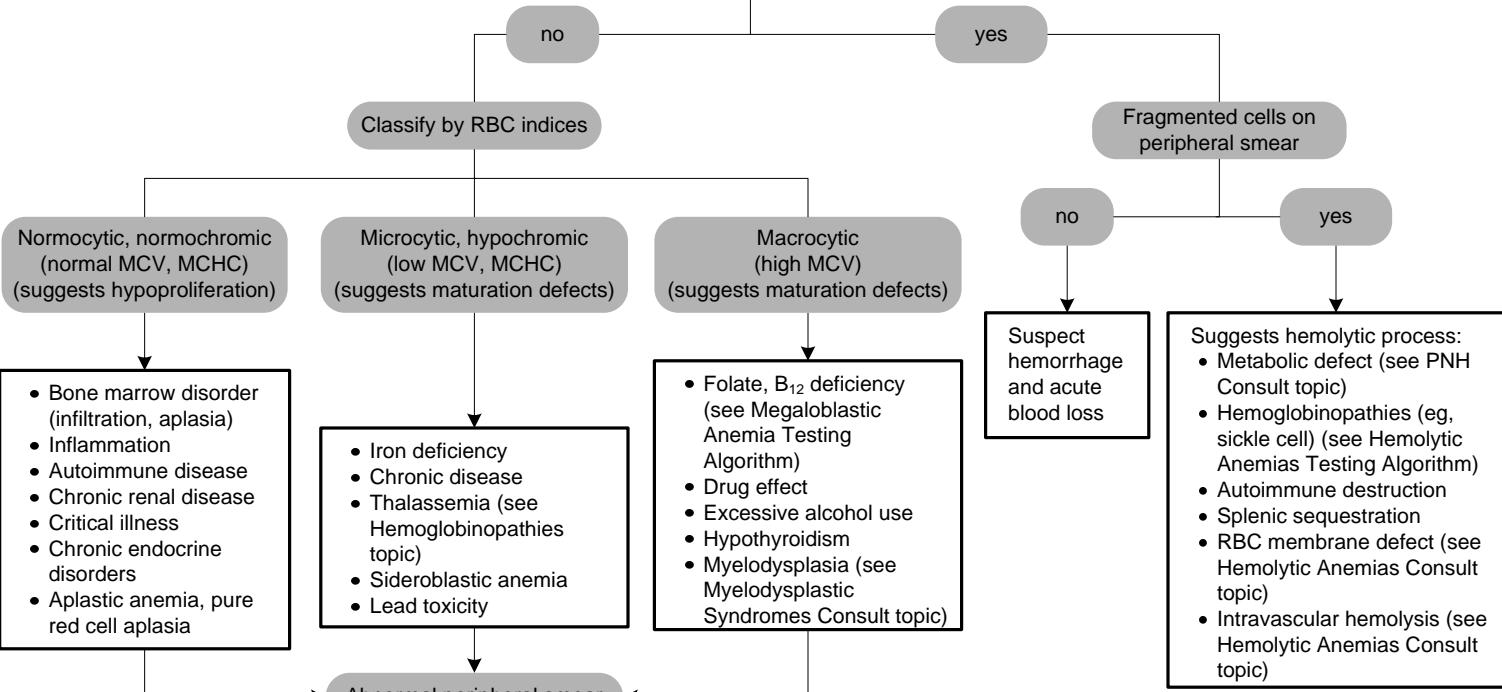
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INDICATIONS FOR TESTING
Fatigue, weakness, pallor, dizziness, fainting

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, B₁₂ 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:

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