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

No
Yes

Classify by RBC indices
Normocytic, normochromic (normal MCV, MCHC) (suggests hypoproliferation)
- Bone marrow disorder (eg, infiltration, aplasia)
- Inflammation
- Autoimmune disease
- Chronic renal disease
- Critical illness
- Chronic endocrine disorders
- Aplastic anemia, pure red cell aplasia

Microcytic, hypochromic (low MCV, MCHC) (suggests maturation defects)
- Iron deficiency
- Chronic disease
- Thalassemia – see Hemoglobinopathies topic
- Sideroblastic anemia
- Lead toxicity

Macrocytic (high MCV) (suggests maturation defects)
- B12 deficiency (rarely folate deficiency) – see Megaloblastic Anemia Testing Algorithm
- Drugs
- Excessive alcohol use
- Hypothyroidism
- Myelodysplasia – see Myelodysplastic Syndromes Consult topic

ORDER
- Vitamin B12 & Folate

- Acute blood loss
- Consider other workup based on smear findings (eg, bone marrow biopsy)

Yes

Peripheral smear
- Fragmented cells on peripheral smear

No

ORDER
- Peripheral smear

- Consider hemoglobin electrophoresis if suspicious for hemoglobinopathy
- Consider peripheral smear, bone marrow biopsy if no chronic disease present

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

Reticulocyte correction for anemia:
\[
\text{ReticCount} = \frac{Hgb}{MCHC} \times \frac{1}{\text{Maturation time correction}}
\]

(Use 2% for most patients)