



Anemia is a lab finding of reduced hemoglobin concentration, to <2.5%ile for age and sex


Etiology can be broadly classified into three categories:

1. Decreased production of RBC
2. Destruction of RBC
3. Loss/sequestration of RBC

PRESENTATION

History

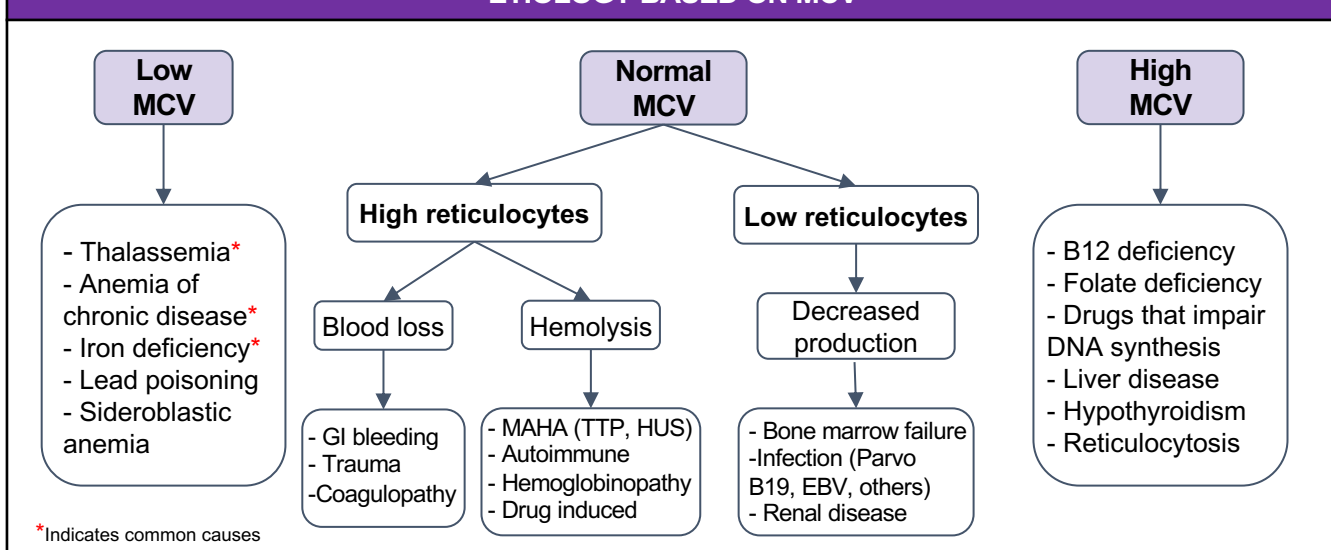
- Fatigue and lethargy
- Exercise intolerance, weakness
- Changes in school performance
- Bleeding (GI, dark urine, menstrual)

Red flag symptoms 
Decreased LOC, change in urine colour, jaundice, multiple cell lines affected

PHYSICAL EXAM

- Tachycardia
- Pallor: mucous membranes, conjunctiva, nails, palms
- Fatigue
- Petechiae, purpura
- Jaundice
- Scleral icterus
- Early systolic flow murmur
- Splenomegaly
- Hepatomegaly

ETIOLOGY BASED ON MCV



INVESTIGATIONS

Initial labs:

- CBC differential → to rule out other cytopenias
- Reticulocytes
- +/- Peripheral blood smear

Confirmatory testing, based on MCV/reticulocytes and history

- if low MCV & hx requires further work-up: ferritin (+/- iron studies), hemoglobinopathy workup
- If considering hemolysis:
 - LDH, bilirubin, haptoglobin, DAT, smear
- if high MCV: liver enzymes TSH, B12, folate
- Other testing based on history/exam

MANAGEMENT

A) Hemodynamically stable

- Treat underlying cause

B) Hemodynamically unstable or severely symptomatic

- Consider transfusion - no specific Hgb cut off value, decision is made based on **acuity, etiology, signs/symptoms**

Iron Deficiency Anemia*

- 1st line: increase dietary iron intake + oral iron therapy at 4-6 mg/kg/day of elemental iron
- 2nd line: above + IV iron therapy