



a. *Definition of anemia (low blood level)*

Anemia (low blood level) is a medical condition characterized by a deficiency in the number or quality of red blood cells (RBCs) or hemoglobin, which is responsible for transporting oxygen throughout the body. This leads to reduced oxygen delivery to tissues, resulting in various health issues.

b. *Hemoglobin cutoffs to define anemia*

- ❖ Generally, anemia can be classified as
 - ✓ Mild anemia, Hb level between **9 to 10.5 g/dl**
 - ✓ Moderate anemia Hb level between **7 to 8.9 g/dl**
 - ✓ Severe anemia Hb level less than **7 g/dl**
 - ✓ Very severe anemia Hb level less than **4 g/dl**
- ❖ Pregnancy
 - ✓ First trimester <**11.0 g/dl**
 - ✓ Second trimester <**10.5 g/dl**
 - ✓ Third trimester <**11 g/dl**

c. *Causes of anemia (low blood level)*

- **Nutritional Deficiencies:** Lack of essential nutrients like iron, vitamin B12, folic acid and protein.
- **Infections** example malaria and Tuberculosis.
- **Chronic Diseases:** Conditions such as chronic kidney disease, cancer, or autoimmune disorders can interfere with red blood cell production.
- **Blood Loss:** Heavy menstrual periods, hookworm infestation, gastrointestinal bleeding, or injuries can lead to significant blood loss.
- **Bone Marrow Disorders:** Diseases affecting bone marrow function, such as aplastic anemia or leukemia.
- **Genetic Conditions:** Inherited disorders like sickle cell anemia or thalassemia.
- **Impaired iron intake or absorption** example due to nausea and vomiting during pregnancy or any illness.



d. People at Risk of developing anemia:

Certain groups are more susceptible to developing anemia:

- **Women:** Particularly during menstruation, pregnancy, and breastfeeding due to increased iron needs.
- **Infants and Young Children:** Higher risk due to rapid growth and dietary deficiencies.
- **Elderly Individuals:** Often have chronic diseases and dietary insufficiencies.
- **Vegetarians and Vegans:** May lack sufficient iron and vitamin B12 from their diets.
- **Individuals with Chronic Illnesses:** Such as cancer, kidney disease, or inflammatory disorders.

e. Symptoms and Signs:

Common symptoms of anemia include:

- Fatigue and weakness
- Pale skin and mucous membranes
- Shortness of breath and dizziness
- Eating non nutritious stuffs example eating soil in pregnancy.
- Cold hands and feet
- Irregular heartbeats (palpitations)
- Headaches
- Cognitive difficulties (in severe cases)

f. Treatment:

Treatment for anemia depends on its underlying cause:

- **Nutritional Supplements:** Iron supplements for iron-deficiency anemia; vitamin B12 or folate supplements for related deficiencies.



- **Dietary Changes:** Increasing intake of iron-rich foods (red meat, beans, lentils, leafy greens) and foods high in vitamin C such as lemon juice to enhance iron absorption. Avoid drinks which contain caffeine such as energy drink and black tea as caffeine prevents absorption of iron from the stomach.
- **Treating Underlying Conditions:** Managing chronic diseases or addressing sources of blood loss.
- **Blood Transfusion:** In severe cases of anemia or significant blood loss.

g. **Prevention of anemia:**

Preventive measures include:

- **Balanced Diet:** Consuming a diet rich in iron, vitamin B12, and folate.
- **Regular Health Check-ups:** Monitoring for signs of anemia, especially in high-risk groups.
- **Iron Supplementation:** For pregnant women and individuals with known deficiencies.
- **Education on Blood Loss Prevention:** Awareness of conditions that may lead to excessive bleeding.