AETIOLOGY
Anaemia is a condition in which the blood has an abnormally low oxygen-carrying capacity. There are three general causes of anaemia:

**Insufficient red blood cells:**
- Haemorrhagic anaemia results from blood loss, either acute (stab wound) or chronic (bleeding ulcer);
- In haemolytic anaemia red blood cells are ruptured prematurely;
- Aplastic anaemia results from the destruction or inhibition of the blood cell producing components in the red bone marrow by certain toxins, drugs, or ionising radiation.

**Decreased haemoglobin content:**
- Nutritional anaemia is suspected when haemoglobin (Hb) molecules are normal, but erythrocytes contain fewer than usual Hb molecules;
- Iron deficiency anaemia is usually a result of haemorrhagic anaemias, but also results from inadequate intake of iron-containing foods or impaired iron absorption;
- Pernicious anaemia is due to a deficiency of vitamin B12.

**Abnormal haemoglobin:**
Production of abnormal Hb is normally genetically based, such as thalassaemia and sickle cell anaemia.

CAUSES OF IRON DEFICIENCY ANAEMIA
- Heavy menstrual periods.
- Pregnancy.
- Poor absorption of iron.
- Intestinal bleeding.
- Some medicines such as aspirin, ibuprofen, naproxen, and diclofenac.
- Bleeding from the kidneys.
- Poor diet.
- Hookworm infection.

**CAUSES OF IRON DEFICIENCY ANAEMIA**

**SIGNs AND SYMPTOMs**
- General tiredness or weakness.
- Loss of breath on exertion.
- Dizziness and/or fainting.
- Irritability.
- Pale face.
- Pulling down the lower eyelid can indicate anaemia if the colour is pale.
- Sore mouth or tongue (may mean deficiencies in vitamin B group).
- Tinnitus.

**DIAGNOSIS**
- Medical history.
- Physical examination.
- Full blood count and iron studies.
- Iron deficiency anaemia is characterised by low ferritin, low serum iron, raised total iron-binding capacity, low Hb and low mean corpuscular volume (MCV).
- Gastrointestinal (GI) investigations should be considered in all patients with confirmed iron deficiency, unless there is a history of significant non-GI blood loss.

**TREATMENT**
- Treatment of an underlying cause should prevent further iron loss.
- All patients should have iron supplementation to correct anaemia and to replenish body stores: 200mg of ferrous sulphate three times daily, although ferrous gluconate or ferrous fumarate are as effective.
- Continue supplementation for three months after correction of anaemia to replenish iron stores.
- Once normal, the Hb concentration and red cell indices should be monitored on a three-monthly basis for one year and again after a further year. Further investigation is only necessary if the Hb and MCV cannot be maintained in this way.

**NURSING IMPLICATIONS**
- Education regarding the nature of the condition.
- The elements of a good diet, with advice on foods containing iron.
- The dose, route, duration and side effects of ferrous sulphate.
- Details of further investigations, date and times.
- All symptoms should be reported.

**RESEARCH**
There is research into the importance of stratifying for the risk of significant disease according to Hb level and the value of computerised tomography colonography in investigating iron deficiency anaemia.

**WEBSITES**
British Society of Gastroenterology: www.bsg.org.uk
Net Doctor: www.netdoctor.co.uk/diseases/facts/anaemiairon.htm

**FURTHER READING**