

**Iron deficiency anaemia during pregnancy**

**Iron deficiency is the main cause of microcytic hypochromic anaemia. It is very common during pregnancy<sup>1</sup>.**

Last revised in January 2005

**How do I make the diagnosis?**

- Full blood count:
  - Low haemoglobin (Hb) concentration, less than 11 g/dl
  - Low MCV, MCH, and MCHC (mean cell volume, mean cell Hb, mean cell Hb concentration). Note that MCV increases by approximately 4 femtolitres in pregnancy (whether iron-deficient or not).
- Other tests are not usually necessary, and their interpretation is difficult in pregnancy<sup>2</sup>.

**Which treatment is recommended?**

- Treat with oral iron.
- Standard treatment is with ferrous sulphate 200 mg three times daily taken an hour before food or on an empty stomach.
- If oral iron is not well tolerated consider<sup>3</sup>:
  - Taking with or immediately after food
  - Reducing the daily dose e.g. ferrous sulphate 200mg once or twice daily
- Oral iron should be taken until the Hb concentration returns to normal, and then for a further 3 months (to replenish body stores).

Refer to [Prescription details](#) for further information.

**What follow up is recommended?**

- Check the full blood count 2–4 weeks after starting iron (earlier if symptoms are severe) in order to assess response to treatment<sup>4</sup>.
- Recheck the full blood count thereafter using clinical judgement.

**What other advice should I give?**

- Oral iron frequently causes stools to become black.
- The absorption of oral iron is reduced by zinc, magnesium salts (e.g. in antacids), calcium (e.g. in milk and dairy products), tannins (e.g. in tea, coffee, and cocoa), and phytates (present in cereal grains, legumes, nuts, and seeds).

**When is referral indicated?**

- Referral is always indicated if the Hb concentration is less than 7 g/dl<sup>5</sup>.
- If the Hb concentration is between 7 and 10 g/dl, consider discussing with the woman's obstetrician.
- If the Hb concentration is not rising as expected<sup>6</sup>, consider discussing with the woman's obstetrician.

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## Prescription details

**Oral iron replacement**

*For the purpose of this QRG all prescriptions are indicated from 12 years of age onwards.*

Drug	Dose	Quantity
Ferrous sulphate 200 mg tablets	Take one tablet three times a day	84 tablets

**Low-dose oral iron replacement (use if adverse effects are troublesome)**

*For the purpose of this QRG all prescriptions are indicated from 12 years of age onwards.*

Drug	Dose	Quantity
Ferrous sulphate 200 mg tablets	Take one tablet twice a day	56 tablets
	Take one tablet once a day	28 tablets

For information on contraindications, cautions, drug interactions and adverse effects see the British National Formulary ([www.bnf.org](http://www.bnf.org)) or the Medicines Compendium ([www.medicines.org.uk](http://www.medicines.org.uk)).

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## Supporting information

1. Iron deficiency anaemia occurs during pregnancy in 23% of pregnant women in developed countries, and 52% of pregnant women in developing countries [WHO et al, 2001].
2. Tests to confirm iron deficiency during pregnancy are difficult to interpret:
  - Serum ferritin level is considered a reliable indicator of iron deficiency in the first trimester (in the absence of infection, inflammation or excessive alcohol consumption); however, serum ferritin level falls in the second and third trimester, independent of iron stores.
  - Erythrocyte protoporphyrin fluctuates less than ferritin throughout pregnancy, and may be more useful than ferritin in the second and third trimester.
  - Serum iron and transferrin (total iron-binding capacity [TIBC]) have a low sensitivity for the diagnosis of iron deficiency during pregnancy; in addition, normal ranges for pregnancy have not been firmly established.
  - Serum transferrin receptors: this test has potential use, as it not affected by pregnancy; however, it is not yet widely available.
3. Oral iron is usually well tolerated, but in some people may cause epigastric discomfort, nausea, diarrhoea, or constipation. Adverse effects of oral iron are a common cause of non-compliance. If oral iron is not well tolerated consider:
  - Taking iron with meals. This reduces adverse effects, but absorption is also reduced by about 40%.
  - Giving a lower daily dosage e.g. ferrous sulphate 200 mg once or twice a day — one tablet taken consistently is better than total rejection of a higher dose because of unacceptable adverse effects.
  - Using an alternative iron salt. However any improvement in tolerance may be due to a lower content of elemental iron.
4. Haemoglobin concentration should rise by about 0.1–0.2 g/dl per day (about 2 g/dl every 3 weeks). The risk of maternal heart failure is increased at Hb levels less than 7 g/dl, and discussion with the woman's obstetrician is strongly recommended if the level is this low.
5. Failure to respond to treatment is usually due to poor compliance. It can also be due to malabsorption, a combined deficiency state, or another cause of hypochromic anaemia such as sideroblastic anaemia or thalassaemia trait.