

Iron deficiency in pregnancy

Oral and intravenous

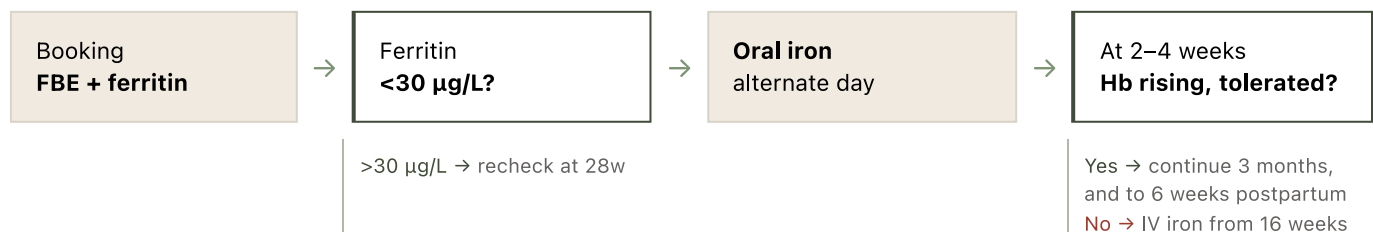
I welcome direct GP referrals and calls for advice.

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AT A GLANCE

- Iron deficiency is the commonest medical problem in pregnancy. Deficiency without anaemia matters and is worth treating.
- **Ferritin <30 µg/L = iron deficiency in pregnancy**, whatever the haemoglobin.
- Oral iron first. **Alternate-day dosing** absorbs better and is tolerated better than daily.
- IV iron is a second-line option **from 16 weeks**, not a first move.
- Aim to have iron replete **by 36 weeks** — it takes 2–4 weeks to see a response.

FIGURE 1 · THE IRON PATHWAY



After IV iron, recheck FBE at 4 weeks. Ferritin is unreliable for about 8 weeks.

Who and when to test

ALL WOMEN	FBE + ferritin at booking, repeat at 28 weeks and 34–36 weeks
MORE FREQUENT TESTING	Previous iron deficiency, multiple pregnancy, vegetarian or vegan diet, short interpregnancy interval, bariatric surgery, IBD or coeliac disease, heavy periods pre-pregnancy, Aboriginal and Torres Strait Islander women, previous PPH

Interpreting the numbers

ANAEMIA — HAEMOGLOBIN		IRON STATUS — FERRITIN	
First trimester	<110 g/L	<30 µg/L	Iron deficient — treat
Second and third trimester	<105 g/L	30–50 µg/L	Borderline; treat if anaemic, symptomatic, or risk factors for depletion
Postpartum	<100 g/L	>80 µg/L 1st trimester	Usually adequate stores for the pregnancy

Caveat. Ferritin is an acute phase reactant. With intercurrent infection or inflammation (check CRP) a “normal” ferritin can mask deficiency — a transferrin saturation <20% supports the diagnosis. **Consider a different cause** if the MCV or MCH is disproportionately low with a normal ferritin, if there is no response to adequate oral iron, or in women of Mediterranean, Middle Eastern, South-East Asian or African background. Request haemoglobinopathy screening, and do so **before** IV iron — a high ferritin afterwards clouds interpretation.

Oral iron

FIRST LINE

DOSE

Deficiency **with** anaemia — **100–200 mg** elemental iron daily-equivalent

Deficiency **without** anaemia — **~60 mg** elemental iron daily-equivalent

Pregnancy multivitamins contain far too little iron to treat deficiency — many contain 5–10 mg. Check the label rather than assuming.

GIVE IT ALTERNATE-DAY

A single dose raises hepcidin for around 24 hours, blunting absorption of the next. Alternate-day dosing — and single rather than divided daily doses — gives higher fractional and total absorption with fewer GI effects. The absorption data are strongest outside pregnancy and dedicated pregnancy trials are still reporting, but the tolerability advantage is not in doubt, and tolerability determines whether a course is actually taken.

COMMON AUSTRALIAN PREPARATIONS — ELEMENTAL IRON PER UNIT

Ferro-grad C (ferrous sulfate 325 mg)	105 mg
Maltofer tablet (iron polymaltose 370 mg)	100 mg
Ferro-F-Tab (ferrous fumarate 310 mg)	100 mg
Ferro-tab (ferrous fumarate 200 mg)	65.7 mg
Elevit	60 mg
Ferro-Liquid	30 mg / 5 mL
Spatone sachet	5 mg

FIGURE 2 · ABSORPTION ADVICE TO GIVE THE PATIENT



Empty stomach where tolerated, or with vitamin C — a glass of orange juice or a vitamin C tablet



Separate by 2 hours from tea, coffee, milk, calcium, antacids and PPIs, thyroxine



If it upsets the stomach, take with a little food or move it to bedtime — before abandoning it

MANAGING SIDE EFFECTS

Nausea, constipation and dark stools are dose-related. Alternate-day dosing, a lower elemental dose, or switching preparation (iron polymaltose or a liquid) usually works better than stopping. Add a stool softener early — constipation is what most often ends a course of iron.

RECHECK

FBE + ferritin at 2–4 weeks. Expect Hb to rise by roughly **10 g/L per 2 weeks**, or **≥20 g/L by four weeks**. Continue for three months after the Hb normalises, and through to at least six weeks postpartum.

Intravenous iron

SECOND LINE, FROM 16 WEEKS

CONSIDER WHEN

- Oral iron has failed after 2–4 weeks of a genuinely taken, adequate dose
- Oral iron is not tolerated despite adjusting dose, timing and preparation
- Malabsorption — coeliac disease, IBD, bariatric surgery — or ongoing blood loss
- There is not enough time before birth for oral iron to work
- Hb <100 g/L in the third trimester, or additional bleeding risk at birth
- The woman declines or cannot take oral iron

NOT APPROPRIATE FOR

- First trimester — no safety data before 16 weeks
- Active systemic infection or bacteraemia
- Known hypersensitivity to IV iron
- Anaemia not due to iron deficiency
- Iron overload

FOLLOW-UP

Recheck FBE at 4 weeks. Ferritin reads artificially high for about 8 weeks after an infusion — do not judge response on it before then.

POSTPARTUM

- Hb <100 g/L, well and not transfused — oral iron for at least six weeks
- Symptomatic anaemia, Hb <80–90 g/L or ongoing losses — IV iron avoids transfusion
- Breastfeeding is not a contraindication to any preparation

PRODUCTS AVAILABLE IN AUSTRALIA

PRODUCT	MAX SINGLE DOSE	INFUSION	NOTES
Ferric carboxymaltose (Ferinject)	20 mg/kg, to 1000 mg ; repeat no sooner than 7 days	≥15 min	Most widely used. TGA Category B3. Highest hypophosphataemia risk
Ferric derisomaltose (Monofer)	20 mg/kg, to 1500 mg in one sitting	20–30 min	Larger single dose; lower hypophosphataemia risk than ferinject
Iron polymaltose (Ferrosig)	Total deficit to 2500 mg in one infusion	Several hours	TGA Category A. Long infusion; higher rate of infusion reactions
Iron sucrose (Venofer)	100–200 mg per dose, repeated	≥15 min per 100 mg	Reserved for proven hypersensitivity to other IV iron

Total dose is calculated from body weight and haemoglobin (**Ganzoni formula**: total iron deficit (mg) = weight (kg) × (target Hb – actual Hb, g/dL) × 2.4 + 500 mg stores; target Hb usually 15 g/dL — or the manufacturer's simplified table). Most pregnant women with iron deficiency anaemia need 1000–1500 mg in total. **Local infusion services and hospital protocols differ — check the protocol of the service you are referring to.**

SAFETY POINTS WORTH SAYING OUT LOUD

Skin staining. Extravasation can cause brown discolouration that may be permanent. This is a consent issue. If the site stings, burns or swells, stop the infusion immediately.

Hypersensitivity. Serious reactions are rare but can be fatal. Infuse only where anaphylaxis can be managed, with 30 minutes of observation afterwards.

Hypophosphataemia. Common after ferric carboxymaltose and the subject of a TGA safety advisory. Usually asymptomatic, but check phosphate before a second or repeated dose, or if fatigue, bone pain or weakness persist. Vitamin D deficiency raises the risk.

Fishbane reaction — transient flushing, chest or back tightness without hypotension or wheeze — is not anaphylaxis. Stop, observe, and restart at a slower rate.

REFER TO / DISCUSS WITH THE OBSTETRICIAN

Hb <90 g/L at any gestation, or <100 g/L after 34 weeks
Deficiency with a cause needing investigation — GI symptoms, weight loss, family history of bowel cancer
Anaemia in a woman who declines blood products

No response to oral iron despite good adherence
Suspected haemoglobinopathy, or a partner needing testing
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Sources: SOMANZ and Australian state perinatal guidelines; RACGP; RANZCOG O&G Magazine; Ferinject and Monofer Product Information; TGA advisory on ferric carboxymaltose and hypophosphataemia.