

## Iron (ferrous sulfate) for neonates

### BRIEF ADMINISTRATION GUIDE

For detailed information refer to [The Australasian Neonatal Medicines Formulary \(ANMF\) iron guideline](#)

### 1. Medicine

#### 1.1. Indications

- Prophylaxis of iron deficiency anaemia
  - <37/40 weeks and/or <2.5 kg at birth  
Starting at 2 weeks postnatal age and ONLY when 120mL/kg of enteral feeds achieved
- Treatment of iron deficiency anaemia
  - For demonstrated iron deficiency e.g. ferritin <70 nanogram/mL measured 2 weeks after starting prophylactic iron

#### 1.2. Route and Presentation

Oral, nasogastric or transpyloric (not suitable for jejunal tubes)  
(Note: enteral absorption occurs in duodenum and upper jejunum)

- Supplied as ferrous sulfate 30 mg/mL (equivalent to 6 mg/mL of elemental iron) oral liquid (Ferrodan®)

#### 1.3. Dose

##### Prophylaxis:


0.33 mL/kg daily (=2 mg/kg/day of elemental iron)  
Do NOT exceed 3 mg/kg elemental iron (from all sources – see appendix)  
Continue until 6-12 months of age

##### Treatment of iron store depletion:

0.5 – 1 mL/kg daily (= 3 - 6 mg/kg/day of elemental iron), either administered once or twice daily

##### Notes:

- Iron therapy can be from medicinal ferrous sulfate supplementation and/or from dietary sources.
- Consider delaying/temporarily ceasing iron with (1) multiple transfusions, (2) serum ferritin > 350 nanog/mL, or (3) transfusion in previous 7 days.
- Prescribe in mL (dose calculation mL/kg) to prevent any confusion e.g.

Medicine					
FERROUS SULFATE 30 mg/mL					
Dose	Units	Route	Frequency	Dose calculation (eg. mg/kg per dose)	Prescriber's signature
0.4	mL	PO	DAILY	0.33 mL/kg	
Pharmacy & special instructions			Pharm	Sign, date and time to cancel	

### 2. Preparation and Administration

#### 2.1. Compatible fluids

Sterile water for dilution

#### 2.2. Administration Method

Draw up prescribed dose in an oral syringe.  
Ideally administer undiluted 30 minutes before a feed, however if causing feed intolerance, can be given with feeds or a small amount of milk (Note: milk decreases absorption of iron).

Avoid giving at the same time as other medications and especially calcium, levothyroxine, Gaviscon

#### 2.3. Monitoring

Haemoglobin, reticulocyte counts and serum ferritin periodically

#### 2.4. Storage and Stability

- Store at room temperature, below 25°C
- Discard according to expiry date on the bottle

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### 2.5. Competency for Administration

This procedure is carried out by, or under, the direct supervision of a registered nurse/registered midwife who holds current Health NZ Waikato Generic Medicine skills verification.

### 3. Associated Documents

- Vitamin and Mineral Supplementation for Neonates, # 6485
- Medicines for Children information for parents and carers: Ferrous sulfate for iron-deficiency anaemia. Accessed via [www.nzfchildren.org.nz/nzf/resource/MFC/Ferrous%20sulphate%20for%20anaemia\\_Final.pdf](http://www.nzfchildren.org.nz/nzf/resource/MFC/Ferrous%20sulphate%20for%20anaemia_Final.pdf)
- Kids Health patient information on Iron for premature and small babies, accessed via <https://kidshealth.org.nz/iron-ferrous-sulphate-premature-small-babies>

### 4. References

- Australasian Neonatal Medication Formulary, Iron monograph 2022. Accessed via [www.anmfonline.org/wp-content/uploads/2023/08/Iron\\_ANMFv6.0\\_20230817.pdf](http://www.anmfonline.org/wp-content/uploads/2023/08/Iron_ANMFv6.0_20230817.pdf)
- NZ Formulary for Children, v 144. Ferrous sulfate monograph. Accessed via [www.nzfchildren.org.nz/nzf\\_4915](http://www.nzfchildren.org.nz/nzf_4915)
- [Nutrient Reference Values for Australia and NZ including recommended dietary intakes.](#)
- Perth Children's Hospital Neonatology Ferrous Sulfate protocol, 2020. Accessed via [www.kemh.health.wa.gov.au/~media/HSPs/NMHS/Hospitals/WNHS/Documents/Clinical-guidelines/Neonatal-MPs/Ferrous-Sulfate.pdf?thn=0](http://www.kemh.health.wa.gov.au/~media/HSPs/NMHS/Hospitals/WNHS/Documents/Clinical-guidelines/Neonatal-MPs/Ferrous-Sulfate.pdf?thn=0)
- Health NZ Canterbury Neonatal Ferrous sulphate guideline, 2023. Accessed via <https://edu.cdhb.health.nz/Hospitals-Services/Health-Professionals/Neonatal-Clinical-Resources/Neonatal-Drug-Information-Sheets/Documents/Ferrous-Sulphate.pdf>
- Health NZ Auckland Neonatal guideline Ferrous Sulphate, 2018. Accessed via <https://starship.org.nz/guidelines/ferrous-sulphate/>
- Royal Children's Hospital Melbourne, Iron Deficiency clinical practice guideline, 2023. Accessed via [https://www.rch.org.au/clinicalguide/guideline\\_index/iron\\_deficiency/](https://www.rch.org.au/clinicalguide/guideline_index/iron_deficiency/)
- ESPGHAN position paper 2022. Enteral Nutrition in Preterm Infants. Accessed via <https://www.espgan.org/knowledge-center/publications/Nutrition/2022-enteral-nutrition>
- UpToDate. Iron deficiency in infants and children <12 years: screening, prevention, clinical manifestations and diagnosis. Accessed via [www.uptodate.com](http://www.uptodate.com)
- Neonatal and Paediatric Nutrition Handbook 2022, 5<sup>th</sup> edition, revised by Barbara Cormack
- Joy R et al. Early versus late enteral prophylactic iron supplementation in preterm very low birth weight infants: a randomised controlled trial. Arch Dis Child Fetal Neonatal Ed 2014; 99:F105-109.

### 5. Appendix

#### Iron content in dietary food, as mg/kg/day:

	120 ml/kg/day	140 mL/kg/day	160 ml/kg/day	180 ml/kg/day
Expressed breast milk	0.1	0.1	0.2	0.2
PreNAN Fortifier	2.2	2.5	2.9	3.2
PreNAN Preterm formula	2.2	2.5	2.9	3.2
S26 Gold Term formula	1	1.1	1.3	1.4
Pepti-Junior	0.9	1	1.2	1.4

Note: iron in breast milk is more bioavailable than iron in formula

#### Document Ownership

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