Iron Polymaltose Infusions – Adult
Parenteral iron

Unique Id **MED01-ADU-078 - v04.00**

Presentation

Elemental iron (as polymaltose) injection 100 mg/2 mL ampoule, Ferrosig®

Indications

Iron deficiency anaemia.

Dosing Information

The appropriate dose of intravenous (IV) iron must be calculated for each patient individually, based on the target haemoglobin (Hb) required, patient's actual Hb and their body weight. Use ideal body weight in overweight patients. If underweight, use actual body weight.

See Appendices for method to calculate the dose using the Ganzoni formula or the simplified dosing table.

Note: Prescriber should clearly specify the administration protocol to be used (i.e. slow administration, rapid administration or fluid restricted/renal administration).

Administration

Doses of iron polymaltose prescribed will be expressed as elemental iron (100 mg per ampoule).

Iron polymaltose should be given as an intermittent IV infusion via an Alaris GP (volumetric) pump using Guardrails as per one of the following protocols:

1. ***Slow Administration***: up to 2500 mg elemental iron as a single dose.
2. ***Rapid Administration***: up to 2000 mg elemental iron as a single dose.
3. ***Fluid Restricted /Renal Administration***: up to 1000 mg elemental iron as a single dose.

The infusion should be commenced at a **slow rate initially** to determine if any adverse reaction will occur.

Dilution	Administration
1. Slow Administration Dilute the dose (up to 2500 mg elemental iron, see appendix) in **500 mL** sodium chloride 0.9%	Via an Alaris GP (volumetric) pump: • Start the infusion at a rate of **40** mL/h for 15 minutes. • If tolerated, increase infusion rate to **120** mL/h for remainder of infusion. The infusion time is approximately three to five hours. See Appendix 2: Slow Administration Dosing Table

2. Rapid Administration
Dilute the dose (up to 2000 mg elemental iron, see appendix) in **250 mL** sodium chloride 0.9%
	Via an Alaris GP (volumetric) pump:
	• Start the infusion at a rate of **40** mL/h for 15 minutes.
	• If tolerated, increase infusion rate to:
	  ○ **250** mL/h for doses up to 1500 mg
	  ○ **166** mL/h for doses over 1500 mg
	
	The infusion time is approximately 75 minutes for doses up to 1500 mg and 105 minutes for doses up to 2000 mg.

	See Appendix 3: Rapid Administration Dosing Table

(See monitoring notes).

Dilution	Administration
3. Fluid Restricted/Renal Administration Dilute dose (1000 mg elemental iron) in **250 mL** sodium chloride 0.9% bag	Via an Alaris GP (volumetric) pump: • Start the infusion at a slow rate of **20** mL/h for 30 minutes. • If tolerated, increase infusion rate to **80** mL/h for remainder of infusion. The infusion time is approximately 3.5-hours.

- Guardrails profile name: Iron polymaltose
  - Drug profile available in the following libraries:
    - Adult Emergency Department
    - Adult Cardiology
    - Adult Haematology (day stay)
    - Adult Medicine
    - Adult Neuro
    - Adult Surgery
    - Cardiothoracic Surgical Unit
    - Department Critical Care Medicine
    - Women's Health

Compatibility

Fluids: Sodium chloride 0.9%
Do not mix with other medication.

Observation and documentation

- An anaphylactoid reaction is a life threatening reaction that occurs most frequently within the **first several minutes** of IV iron administration and are generally characterised by sudden onset of respiratory difficulties, tachycardia and hypotension.
- If any of the above symptoms occur, STOP the infusion immediately and contact the prescriber.
- Infusion reactions include nausea, headache, arthralgia, chest pain, fever, cough, faintness, rash and injection site reactions. If these occur then reduce the rate of the infusion to 60 mL/h. If symptoms persist, stop infusion and consult prescriber. If symptoms resolve, the infusion rate may be increased slowly.
- Monitor patients for signs and symptoms of hypersensitivity and record vital signs, including heart rate, blood pressure, respiratory rate, temperature and oxygen saturation:
  - Every 5 minutes for the first 15 minutes
  - Every 15 minutes for the first hour of the infusion
  - Every 30 minutes thereafter
  - 30 minutes after the infusion.

Special considerations

- Intravenous iron is contraindicated in the first trimester of pregnancy.
- Ensure that the underlying cause of anaemia is established. Iron polymaltose is not useful for the sole treatment of macrocytic or haemolytic anaemia.
- Repeat Hb and iron studies 4 weeks post infusion to monitor effect of iron.

Storage

- **Ampoule**: Store at or below 25°C, protect from light, do not freeze.

- **Diluted solution**: Diluted solution with final concentration of 5 mg/mL or less can be stored at or below 25°C for 12 hours. Protect from light. More concentrated solutions should be used immediately.

Associated Auckland DHB documents

- Iron Infusion for an Adult with Chronic Kidney Disease (CKD) or on Dialysis Guideline
- Iron in Pregnancy Guideline
- Medication Administration

Supporting evidence

- Garg, M., Morrison, G., Friedman, A., Lau, A., Lau, D., & Gibson, P. R. (2011). A rapid infusion protocol is safe for total dose iron polymaltose: time for change. *Internal medicine journal*, *41*(7), 548-554.
- Chan, P. T., Corallo, C. E., Dooley, M. J., Poole, S. G., & Gibson, P. R. (2016). Safety of rapid infusion of iron polymaltose: comparative study in 300 patients. *Journal of Pharmacy Practice and Research*, *46*(4), 324-330.
- Browning, R. M., Alakeson, N., & O'Loughlin, E. J. (2017). Efficacy and safety of ultra rapid iron polymaltose infusion during general anaesthesia. *Anaesthesia and intensive care*, *45*(3), 320-325.
- The Society of Hospital Pharmacists of Australia. (Revised February 2020). The Australian Injectable Drugs Handbook (8th ed). Iron Polymaltose.
- Iron injection (as polymaltose) – Ferrosig. [New Zealand data sheet]. Multichem NZ Ltd. [Updated 21/08/2018]. Available from URL: http://www.medsafe.govt.nz
- New Zealand Formulary (NZF). Iron Polymaltose (parenteral). Available from: www.nzf.org.nz [Accessed November, 2020]
- Sutherland, J., Ponen, S., Wilson, S. (Eds). (Revised 09 November 2020). Notes on Injectable Drugs, (8th ed). Iron polymaltose. New Zealand Hospital Pharmacists' Association Inc, Wellington.
- York, J., Sanford, M., (Reviewed November 2009). Iron Deficiency in Renal Disease Clinical Practice Guideline. Royal Perth Hospital Nurse Practitioner – Nephrology Department [internal document received via personal communication].

Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

Corrections and amendments

The next scheduled review of this document is as per the document classification table (below). However, if the reader notices any errors or believes that the document should be reviewed ***before*** the scheduled date, they should contact the owner or the Document Controller without delay.

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Appendices

- **Appendix 1 – Calculation of Iron Dose (Ganzoni formula)**

Use ideal body weight in overweight patients. If underweight, use actual body weight

Iron dose (mg) = Body weight in kg x (target Hb* - actual Hb in g/L) x 0.24 + iron depot**

*Target Hb = for patients >34 kg = 150 g/L
for patients ≤34 kg = 130 g/L
**Iron depot = for patients >34 kg = 500 mg
for patients ≤34 kg = 15 mg/kg

Example of calculation: *Patient weight = 60 kg, Target Hb = 150 g/L, Actual Hb = 60 g/L*
Iron dose (mg) = 60 kg x (150-60) x 0.24 + 500 mg
= 1296 mg + 500 mg
= 1800 mg (rounded to the nearest 100 mg)

Alternatively, the dose required can be estimated from the tables below in appendix 2 & 3.

- **Appendix 2 – Slow Administration Dosing Table**

Body Weight (kg)	Hb 60 g/L		Hb 75 g/L		Hb 90 g/L		Hb 105 g/L	
	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME
35	1200 mg	24 mL	1100 mg	22 mL	1000 mg	20 mL	900 mg	18 mL
40	1300 mg	26 mL	1200 mg	24 mL	1100 mg	22 mL	900 mg	18 mL
45	1500 mg	30 mL	1300 mg	26 mL	1100 mg	22 mL	1000 mg	20 mL
50	1600 mg	32 mL	1400 mg	28 mL	1200 mg	24 mL	1000 mg	20 mL
55	1700 mg	34 mL	1500 mg	30 mL	1300 mg	26 mL	1100 mg	22 mL
60	1800 mg	36 mL	1600 mg	32 mL	1300 mg	26 mL	1100 mg	22 mL
65	1900 mg	38 mL	1600 mg	32 mL	1400 mg	28 mL	1200 mg	24 mL
70	2000 mg	40 mL	1700 mg	34 mL	1500 mg	30 mL	1200 mg	24 mL
75	2100 mg	42 mL	1800 mg	36 mL	1600 mg	32 mL	1300 mg	26 mL
80	2200 mg	44 mL	1900 mg	38 mL	1600 mg	32 mL	1300 mg	26 mL
85	2300 mg	46 mL	2000 mg	40 mL	1700 mg	34 mL	1400 mg	28 mL
90 and over	2400 mg	48 mL	2100 mg	42 mL	1800 mg	36 mL	1400 mg	28 mL

***Dose expressed in elemental iron**

- **Appendix 3 – Rapid Administration Dosing Table**

Body weight (kg)	Hb 60 g/L		Hb 75 g/L		Hb 90 g/L		Hb 105 g/L	
	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME
35	1200 mg	24 mL	1100 mg	22 mL	1000 mg	20 mL	900 mg	18 mL
40	1300 mg	26 mL	1200 mg	24 mL	1100 mg	22 mL	900 mg	18 mL
45	1500 mg	30 mL	1300 mg	26 mL	1100 mg	22 mL	1000 mg	20 mL
50	1600 mg	32 mL	1400 mg	28 mL	1200 mg	24 mL	1000 mg	20 mL
55	1700 mg	34 mL	1500 mg	30 mL	1300 mg	26 mL	1100 mg	22 mL
60	1800 mg	36 mL	1600 mg	32 mL	1300 mg	26 mL	1100 mg	22 mL
65	1900 mg	38 mL	1600 mg	32 mL	1400 mg	28 mL	1200 mg	24 mL
70	2000 mg	40 mL	1700 mg	34 mL	1500 mg	30 mL	1200 mg	24 mL
75			1800 mg	36 mL	1600 mg	32 mL	1300 mg	26 mL
80			1900 mg	38 mL	1600 mg	32 mL	1300 mg	26 mL
85			2000 mg	40 mL	1700 mg	34 mL	1400 mg	28 mL

Body weight (kg)	Hb 60 g/L		Hb 75 g/L		Hb 90 g/L		Hb 105 g/L	
	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME	DOSE*	VOLUME
90 and over					1800 mg	36 mL	1400 mg	28 mL

***Dose expressed in elemental iron**