Principles and Practical Considerations for IV iron prescriptions

This guidance document applies specifically to Intravenous Iron Dextran (Cosmofer®). For information relating to other intravenous iron formulations, consult the current Standard Treatment Guidelines (STGs) and the relevant manufacturer package inserts.

A comprehensive protocol for the management of iron deficiency anaemia in pregnancy is currently (September 2026) under development. Until the formal protocol is approved and implemented, this Interim Guidance Document serves as a clinical reference and operational framework to support the safe, effective, and standardized prescribing, preparation, administration, and monitoring of intravenous Iron Dextran (Cosmofer®) within Tygerberg O&G. This document is intended to promote consistency in clinical practice

Out-Patient IV Iron Dextran Infusion:

Indications:

- Confirmed Iron deficiency anaemia with no response to oral iron +/- oral iron intolerance
- Clinical need to deliver iron rapidly, e.g. anticipated delivery within the next four weeks

Absolute Contra-indications:

- Previous anaphylactic reaction to the specific IV iron formulation
- First trimester of pregnancy
- Anaemia not due to iron deficiency
- Evidence of iron overload (ferritin >500ug/L without inflammation)

Relative Contra-indications:

- Active or localized infection (decide benefit-risk, risk of iron in infection is disputed in recent studies)
- Severe hepatic impairment
- Decompensated cardiac failure
- Rheumatoid arthritis with active joint inflammation
- History of severe atopy (asthma, eczema)
- Acute renal failure
- Maternal age <14yr

Dose Calculation Principles in Pregnancy:	
Principle	***Detail***
Choose weight category	BMI ≤25 – use pre-pregnancy or booking weight BMI >25 - use ideal weight (W = 25 x (height in m^2) or see table XX
Maximum single dose	Iron Dextran maximum = 20mg/kg (see table 1) Iron Sucrose maximum = 200mg/dose
Split dose if needed	If total dose exceeds single-infusion maximum, split into two sessions ≥7days apart.

Table 1: Milligram IV Iron Dextran (total dose infusion)

using target Hb 13g/dl (rounded to nearest 500mg)

		Formal Haemoblobin (g/dl) Value (rounded to nearest 0.5g/dl)							
Height (cm)	**Ideal weight (BMI=25)**	**9.5**	**9**	**8.5**	**8**	**7.5**	**7**	**6.5**	**5.5**
1,34	**45**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**	**1500**
1,41	**50**	1000	1000	1000	1000	1000	1000	**1500**	**1500**
1,48	**55**	1000	1000	1000	1000	1000	**1500**	**1500**	**1500**
1,55	**60**	1000	1000	1000	1000	1000	**1500**	**1500**	**1500**
1,61	**65**	1000	1000	1000	**1500**	**1500**	**1500**	**1500**	**1500**
1,67	**70**	1000	1000	1000	**1500**	**1500**	**1500**	**1500**	**2000**
1,73	**75**	1000	1000	1500	1500	1500	1500	1500	**2000**

How to use this suggested DOSING TABLE:

Before using this table, refer to the prescribing principles regarding actual versus ideal body weight, maximum single dose, and split dosing.

1. Select the patient's body weight (or ideal body weight where applicable) from the left-hand column.
2. Move across to the column corresponding to the patient's current haemoglobin (rounded to the nearest 0.5 g/dL).
3. The value at the intersection is the recommended total iron dose (mg).

Note: Doses shown in white (with black shading) exceed the maximum recommended single dose of 20 mg/kg and should be administered as two infusions at least 7 days apart.

Pragmatic dosing approach:		
Weight	**Dose for first infusion**	**Follow-up Infusion**
<50kg	500mg	500mg 7days later = 1000mg total
50-75kg	1000mg	14d later If indicated by initial dose calculation
>75kg	1500mg	14d later If indicated by initial dose calculation
Based on international protocols, a pragmatic interval of approximately one week per 600mg administered in the first infusion (typically 1-3 weeks) is advised before the second infusion, to reduce delayed hypersensitivity reactions.		

Practical Logistics between HRC and F2:	
Process	**Arrangement**
Infusions should be booked	HRC Nursing to liaise with F2 Sister-in Charge to book patients. A dedicated diary will be kept and statistics submitted to the operational manager.
Patient Capacity	Max 3 patients per day
Operating Hours for Infusions	07h30-16h00
Patient arrival time F2	07h00-10h00
IV Cannulas	Same-day HRC patients: insert at HRC Booked F2 patients: insert in F2
Medical Responsibility	*HRC medical staff:* Identifies patients, calculates and prescribes dose, books patient for infusion.
	F2 Registrar: Be available to manage infusion reactions. If leaving the ward while infusions are in progress, provide the nurse in charge with a contact cell phone number. **Labour Ward Team:** Provide emergency support if the F2 registrar is unavailable.

Iron Dextran stock	Until available as ward stock, the patient should collect Iron dextran vials at pharmacy prior to infusion.

Intravenous Iron Dextran (Cosmofer®) Infusion Protocol: **General Instructions**	
Diluent	500 mL 0.9% Sodium Chloride (regardless of total iron dextran dose)
Test dose	A formal test dose is **not required** (Cosmofer® 2025 PI).
Initial infusion	The first 25 mg of iron must be infused slowly over 15 minutes for every administration.
Assessment after initial infusion	Confirm stable vital signs and absence of adverse reactions before increasing the infusion rate.
Observations	Record observations every 30 minutes during the infusion and continue for 1 hour after completion.

IV Iron Dextran (Cosmofer®) Infusion Protocol				
Total Iron Dose	**Preparation**	**Initial Infusion (first 15 min)**	**Maintenance Infusion**	**Approximate Total Infusion Time**
1000 mg	1000 mg iron dextran in 500 mL 0.9% NaCl	50 mL/hour (12.5 mL delivered)	125 mL/hour	~4 hours 15 minutes
1500 mg	1500 mg iron dextran in 500 mL 0.9% NaCl	33 mL/hour (8.25 mL delivered)	125 mL/hour	~4 hours 15 minutes

Preparation of the Infusion

1. Obtain a 1000 mL bag of 0.9% sodium chloride and aseptically remove 500 mL (e.g. using a 15G needle through the medication port and decanting into a measuring jug). *(note: although this seems wasteful, this is more cost-effective than using a combination of smaller volume bags).*
2. Add the prescribed total dose of iron dextran (Cosmofer®) to the remaining 500 mL of 0.9% sodium chloride and mix gently.

3. Only after the iron has been added, attach the infusion set and prime the line. Do not prime the giving set before adding the iron.
4. Administer the infusion according to the prescribed infusion rate for the total iron dose.

Compatibility and IV-Line Care

- Do not mix IV iron with any other medication in the same infusion bag or intravenous line.
- Flush the IV line with 0.9% sodium chloride after completion of the iron infusion.

Patient Safety and Adverse Reactions: General

- Confirm indication for infusion and lack of contra-indications.
- Document verbal consent.
- Avoid Skin Staining:
    - It is important to confirm good flow and to avoid extravasation which might lead to skin staining. The median cubital vein (in the cubital fossa) should be avoided if better veins are available.

Patient Safety and Adverse Reactions: Observation during transfusion	
Baseline	BP, HR, SpO_2, temperature, inform patient to report any concerning symptoms immediately
At 15min (after Slow Phase Infusion	BP, HR, SpO_2 , Check IV line, Check patient symptoms
Every 30min (during Maintenance Phase)	BP, HR, SpO_2 every 30 minutes, Check IV line, Check patient symptoms
At 60min After Infusion	BP, HR, SpO_2 and confirm patient asymptomatic before discharge.
Post-discharge Advice:	DO NOT use concomitant oral iron therapy for 7 days after infusion.

Patient Safety - Infusion Reactions:

Infusion reactions are uncommon.

Anaphylaxis is extremely rare (approximately 1:10 000 to 1:200 000 infusions).

- Resuscitation equipment essential.
- Oxygen supply
- Suction equipment
- Doctor available within 5 minutes while infusions in session

IV Iron Infusion Reactions		
Reaction	**Symptoms**	**Treatment**
Minor Allergic Reaction	Gastrointestinal upset, Urticaria	Pre-warn patients that symptoms are possible. Offer non-sedating antihistamine (e.g. cetirizine).
"Fishbane Reaction" **(~1:200 infusions)**	Arthralgia, myalgia, slight chest tightness, facial/skin flushing (WITHOUT hypotension, tachycardia, wheezing, stridor, periorbital oedema)	Reassure patient – symptoms should be transient and easily reversed by stopping infusion. No intervention needed. Restart infusion at a slower rate, 15min after symptoms clear.
Anaphylaxis **(~1:10000 – 1:200000 infusions)**	Hypotension, tachycardia, angioedema, wheeze, stridor	Stop Infusion. Call for Help. Activate Anaphylaxis Protocol.

Checklist for Ward

Available as ward stock:

- Oral Cetirizine 10mg
- Pulse oximeter
- Automated BP monitor or sphygmomanometer at each station
- Thermometer
- Glucometer with strips
- Extra IV fluid stands / infusion poles

Resuscitation Trolley

Adrenaline 1:1000 ampoules — minimum 4 ampoules stocked

Hydrocortisone 200 mg IV — minimum 4 ampoules stocked

IV crystalloid fluid (0.9% Sodium Chloride 200 ml and 1000 ml bags) — minimum 4 bags

Salbutamol inhaler (for bronchospasm) +/- nebules

Oxygen masks (non-rebreather), nasal cannulas — various sizes

Bag-valve-mask resuscitator

Defibrillator / AED accessible (staff be aware where nearest available)

Intravenous cannulae: 18G, 20G, 22G

IV giving sets

IV extension sets

3-way stopcocks

Syringes: 2 ml, 5 ml, 10 ml, 20 ml

Needles: various gauges

Laryngoscope and various sized ET tubes

Tourniquet

Adhesive dressings and transparent IV dressings

Alcohol swabs, Sterile gauze, Glove (multiple sizes)

Further reading:

1. Zamparini J, Barrett C, Burke J, de Waard L, Govender K, Khaliq O, et al. Iron deficiency in pregnancy and the puerperium: South African expert recommendations (in press).
2. Cosmofer® Professional Information 2025
3. "IV Iron Clinic – Setup Guide & Checklists" – EMGuidance Iron Course – Prof Vernon J Louw Inc
4. Wesström, J. Safety of intravenous iron isomaltoside for iron deficiency and iron deficiency anemia in pregnancy. Arch Gynecol Obstet 301, 1127–1131 (2020). https://doi.org/10.1007/s00404-020-05509-2
5. Morgan M, Lou J, McLeod A, Shehata N, Ladhani NNN, Noronha M, Matusiak K, Lin Y, VanderMeulen H. Ferric Derisomaltose Versus Iron Sucrose in Pregnancy (FLIP): A Retrospective Observational Study on Outpatient Intravenous Iron Infusion Capacity. J Obstet Gynaecol Can. 2025 Aug;47(8):102953. https://doi.org/10.1016/j.jogc.2025.102953
6. Tarancon-Diez, L., Iriarte-Gahete, M., Sanchez-Mingo, P. et al. Impact of obesity on iron metabolism and the effect of intravenous iron supplementation in obese patients with absolute iron deficiency. Sci Rep 15, 1343 (2025). https://doi.org/10.1038/s41598-024-84498-7
7. Standard Treatment Guidelines- Adult Hospital, Chapter 2 (BBFO) available at https://www.health.gov.za/wp-content/uploads/2026/04/Adult-Hospital-Chapter-2-Blood-and-Blood-Forming-Organs-with-supporting-NEMLC-report-reviews-Version-1.0-30-March-2026.pdf

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