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OTHER NAMES	**CLASSIFICATION** pH 10.5 to 11.1	
Venofer, Iron saccharide, Iron hydroxide sucrose complex	Iron preparation - irritant	

INDICATIONS FOR IV USE

HEALTH CANADA APPROVED

- Treatment of iron deficiency anemia in chronic kidney disease [1]

NON HEALTH CANADA APPROVED INDICATION BUT SUBSTANTIATED IN THE LITERATURE:

- Treatment of iron deficiency in non-renal patients where oral iron is either not tolerated or not sufficiently absorbed [2]

CONTRAINDICATIONS[1]

- *Hypersensitivity to iron sucrose or any component of formulation*
- Iron overload, all anaemia other than iron deficiency anemia

CAUTIONS

- Patients with immune or inflammatory conditions (e.g. systemic lupus erythematosus, rheumatoid arthritis) or a history of severe asthma, eczema, or other atopic allergy; increased risk of hypersensitivity reactions [2]
- May be harmful in the presence of severe infection. Clinicians should consider the potential risk in patients with active systemic infections [2]

DRUG INTERACTIONS:

- Oral iron preparations should be discontinued if IV iron is started, as IV iron will reduce the absorption of the oral product. If oral therapy is subsequently required, start at least 5 days after last dose of IV iron [2]

PREGNANCY/BREAST FEEDING: Consult pharmacy or specialised on-line references for most recent information

ADMINISTRATION

In order to administer a medication in the Sask. Parenteral Manual-ADULT you must be able to meet the "REQUIREMENTS" and "MONITORING REQUIRED" sections within the monograph. If you are unable to meet these parameters, contact the Most Responsible Physician for further direction (e.g. higher level of care needed).

MODE	**DIRECT INTO IV TUBING**	**INTERMITTENT INFUSION**	**CONTINUOUS INFUSION**
	YES	YES	NO
ADULT	Undiluted, doses of 200 mg or less over 2 to 5 minutes [1] Doses greater than 200 mg by intermittent infusion	*Dilute 100 mg in 50 mL NS. Infuse over 15 minutes* *Dilute 200 mg in 100 mL NS. Infuse over 30 minutes* *Dilute 300 mg in 250 mL NS* ***Infuse 300mg over 90 minutes*** *Dilute 301 to 400 mg in 250 mL NS.* *******Infuse at 150 mg/hour*[4] *Dilute 500 mg in 500 mL NS.* *******Infuse at 150 mg/hour*[4] ****Max single dose 500 mg*** ***Consider no more than 300 mg/infusion to minimize adverse effects***	
REQUIREMENTS	Electronic infusion device		

MONITORING

REQUIRED

- Observe for signs of anaphylactoid reactions (i.e. diaphoresis, hypotension, collapse) for first 15 minutes after initiation of all doses and every 15 minutes during infusion and for 30 minutes after the end of infusion [1] Out patients may be moved to a suitable observation area after completion of infusion
- Monitor peripheral IV site for pain, redness or swelling prior to initiating infusion and every 15 to 30 minutes until completion of infusion

Obstetrical patients: in addition to above, assess uterine activity and fetal heart rate prior to initiating infusion and within 30 minutes post infusion **NOTE –** This monitoring is a minimum, if your specific site policy has more stringent monitoring please follow that policy.

MONITORING CONTINUED ON PAGE 2

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RECOMMENDED

- Advise patients to report burning/stinging/pain at IV site promptly
- Serum hemoglobin, ferritin and iron/transferrin saturation as required
- Chronic replacement therapy; ensure appropriate bloodwork is reviewed at least every 3 months or within 1 month of ordering next dose series to ensure appropriate dosing and avoid iron overload

RECONSTITUTION

- None required.

COMPATIBILITY/STABILITY

- Stable when diluted in NS at concentrations ranging from 1 to 2 mg/mL for at least 24 hours at room temperature [1,3]
- For drug-drug compatibility, consult pharmacy or specialised on-line references for most recent information

ADVERSE EFFECTS

HYPERSENSITIVITY [5]

- Mild: itching, flushing, sensation of heat, slight chest tightness, back/joint pain: stop infusion for ~15 min, notify MRP
- Moderate: as above plus transient cough, chest tightness, nausea, shortness of breath, urticaria, tachycardia, hypotension: stop infusion, notify MRP. Consider volume load and IV corticosteroids
- Severe: sudden onset and rapid aggravation of symptoms plus wheezing/stridor, periorbital edema, cyanosis, loss of consciousness, cardiac/respiratory arrest; stop infusion, initiate emergency support measures, notify MRP

LOCAL REACTIONS

- Extravasation hazard: irritant - pH 10.5 to 11.1
- Pain, inflammation, tissue necrosis, brown discoloration of skin [2]

MISCELLANEOUS [1, 2]

- Taste perversion, metallic taste (common)
- Muscle cramps
- Colours serum brown; may interfere with serum bilirubin and calcium determinations

DOSE

ADULT

Iron deficiency anemia in non-chronic kidney disease patients:

- Ensure there has been an adequate trial of oral iron
- 200 to 300 mg as a single dose, when a rapid rise in hemoglobin is required [6]
- Doses may be repeated as frequently as 2 to 3 days.[7-10] Dosing more frequently will not result in a faster rise in hemoglobin. For out-patients, in whom oral therapy is ineffective, repeat doses weekly to monthly depending on clinical indication
- 1 g is an adequate total dose for the majority of patients [6,11] For mild anemia (hemoglobin greater than 100 g/L) a lower total dose is appropriate
- Alternatively total iron deficit can be calculated using Ganzoni formula [2]

  Total iron deficit [mg] = (body weight [kg] x (target Hb - actual Hb) [g/L] x 0.24) + depot iron [mg]

  Target Hb = 150 g/L depot iron = 500 mg
- **Non-dialysis dependent chronic kidney disease patients**: usual max single dose tolerated: 300 mg over 3 hours [12]

ELDERLY

- Calculate dose as above. Begin at the low end of the dosing range[1]

RENAL IMPAIRMENT ADJUSTMENTS

- No adjustment required

HEPATIC IMPAIRMENT ADJUSTMENTS

- No information available at this time

HEMO/PERITONEAL DIALYSIS

- **Hemodialysis dependent-chronic kidney disease patients**: 100 mg per consecutive dialysis session for a total cumulative dose of 1000 mg. To maintain iron stores 100 mg once or twice a month [14]
- **Peritoneal dialysis dependent-chronic kidney disease patients:** usual max single dose tolerated: 300 mg over 3 h[15]

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MISCELLANEOUS

- Not suitable for IM or subcutaneous injection as solution is strongly alkaline (pH 10.5 to 11.1)
- Extravasation – irritant – stop IV, aspirate, elevate limb, cold intermittent compresses [1]
- One unit of red cells contains ~ 250 to 275 mg of iron, most in the form of hemoglobin

iron-sucrose complex - references

1. Venofer. [Product Monograph]. Manufactured by: Luitpold Pharmaceuticals, Inc.; Shirley, NY: Distributed by: Bellco Health Care, Inc.; Mississauga, ON: Jan 2013. Canadian Product Monograph.

2. Venofer (Summary of Product Characteristics) Vifor Pharma UK Limited. Surrey, UK. Sep 2015: Available at https://www.medicines.org.uk/emc/medicine/24168. [cited 2015 Oct]

3. Iron sucrose In: Lexi-Comp Online™ , Lexi-Drugs Online™, Hudson, Ohio: Lexi-Comp, Inc.; [cited 2015 Oct].

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10. Markova V, Norgaard A, Jørgensen KJ, Langhoff-Roos J. Treatment for women with postpartum iron deficiency anaemia. Cochrane Database Syst Rev. 2015 Aug 13;8:CD010861.

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12. BCPRA CKD Non-Dialysis Anemia Management Protocol. Updated Sept 2014 Vancouver, BC: BC Provincial Renal Agency; [cited 2015 Oct]. Available at http://www.bcrenalagency.ca/node/1306#anemia

13. Iron sucrose In: BC Children's and Women's Hospital (C&W) Online Formulary. Pediatric Drugs, Vancouver, BC: BC Children's and Women's Hospital; [cited 2015 Oct].

14. BCPRA Hemodialysis Anemia Management Protocol. Updated Sept 2014 Vancouver, BC: BC Provincial Renal Agency; [cited 2015 Oct]. Available at http://www.bcrenalagency.ca/node/1306#anemia

15. BCPRA Peritoneal Dialysis Anemia Management Protocol. Updated Sept 2014 Vancouver, BC: BC Provincial Renal Agency; [cited 2015 Oct]. Available at http://www.bcrenalagency.ca/node/1306#anemia

REVISION DATE:	REVISION SUMMARY:	REVISED BY:	Second Check By:
December 2015	Removed any references to pediatric or neonate. Added “Adult Syringe Dose” under Intermittent Infusion	??	
December 2015	Changed intermittent infusion values in Admin section.	??	
February 2016	Changed the 300mg – 500mg dose to be delivered at 150mg/hour.	BJ, 3SH	
February 2016	Added: **Disclaimer:** Official controlled document is the Sask Parenteral Manual - Adult online copy. The user should insure that any paper copy version is the same as the online version before use. Insert link	BJ, 3SH	
May 2017	Remove “insert link” from disclaimer. Add page numbers. Edit administration clause as per DLWG. Grammatical changes. Format changes to align with Sask manual template. Update monograph and reference list as per VIHA (January 2016) updates.	CS – Sask Smart Pump Program.	MM – Sask Smart Pump Program
June 2018	~~Corrected the ganzoni equation on page two to read “x 2.4”~~	~~JB – Sask Smart Pump Program~~	~~CS – SHA, CNE~~
January 2019	Monograph updated as per IVFMT (Dec. 2018) 1. ***Consider no more than 300 mg/infusion to minimize adverse effects*** 2. Removed statement in regard to Island Health under dose.	TB – Sask. Smart Pump Program	RC – Pharm. SHA
July 2019	Monograph updated as per VIHA update (01/19)	TB – Sask. Smart Pump Program	
August 2020	Monograph updated to include the following statement via IVFMT: **Obstetrical patients**: in addition to above, assess uterine activity and fetal heart rate prior to initiating infusion and within 30 minutes post infusion **NOTE** – This monitoring is a minimum, if your specific site policy has more stringent monitoring please follow that policy.	TB – Sask. Smart Pump Program	IVFMT