



EPOETIN ALFA

Indication	<ul style="list-style-type: none"> Prophylactic administration to increase haemoglobin production and reduce need for blood transfusions¹⁻³ (commonly if parents decline blood transfusions) 	
INTRAVENOUS	Presentation <ul style="list-style-type: none"> Pre-filled syringe 2000 units in 0.5 mL 	
	Dosage <ul style="list-style-type: none"> Initially 100 units/kg 3 times per week⁴ Increase to maximum 400 units/kg 3 times per week for 2–6 weeks⁵ When Hb greater than 100 g/L, give 25–100 units/kg 3 times per week <ul style="list-style-type: none"> Or may be given as a single dose weekly 	
	Preparation <ul style="list-style-type: none"> Allow 15–30 minutes for syringe to reach room temperature⁶ before use and/or further preparation (to minimise contact time with diluent) Do not shake⁶ Draw up 2000 units (contents of 0.5 mL pre-filled syringe) Make up to 1 mL total volume with 0.9% sodium chloride <ul style="list-style-type: none"> Concentration now equal to 2000 units/mL 	
	Administration <ul style="list-style-type: none"> Draw up prescribed dose IV injection over 1–3 minutes⁵ 	
SUBCUT	Presentation <ul style="list-style-type: none"> Pre-filled syringe 2000 units in 0.5 mL 	
	Dosage <ul style="list-style-type: none"> Initially 100 units/kg 3 times per week⁴ Increase to maximum 400 units/kg 3 times per week for 2–6 weeks⁵ When Hb greater than 100 g/L, give 25–100 units/kg 3 times per week <ul style="list-style-type: none"> Or may be given as a single dose weekly 	
	Preparation <ul style="list-style-type: none"> Allow 15–30 minutes for syringe to reach room temperature before use⁶ and/or further preparation (to minimise contact time with diluent) Do not shake⁶ Draw up 2000 units (contents of 0.5 mL pre-filled syringe) Make up to 1 mL total volume with 0.9% sodium chloride <ul style="list-style-type: none"> Concentration now equal to 2000 units/mL 	
	Administration <ul style="list-style-type: none"> Draw up prescribed dose Subcutaneous injection 	
Special considerations	<ul style="list-style-type: none"> Administer the first dose under medical supervision as risk of anaphylaxis⁶ Administer concurrently with iron supplement 	
Monitoring	<ul style="list-style-type: none"> FBC and reticulocyte count weekly⁷ BP: baseline prior to commencement then daily 	
Compatibility	<ul style="list-style-type: none"> Do not mix with other drugs Dilution with 0.9% sodium chloride immediately prior to administration does not appear to significantly reduce potency⁸ Further limited dilution may be required for ELBW infants receiving very small dose volumes (refer to Stability) 	
Incompatibility	<ul style="list-style-type: none"> Do not mix with other drugs⁶ 	
Interactions	<ul style="list-style-type: none"> Cyclosporin is bound by red blood cells, therefore potential for drug interaction If administered concomitantly with cyclosporin, monitor blood levels of cyclosporin and adjust cyclosporin dose as haematocrit rises 	
Stability	<ul style="list-style-type: none"> Undiluted solution <ul style="list-style-type: none"> Store in refrigerator between 2–8 °C. Protect from light⁶ Discard unused solution after opening¹ Diluted solution <ul style="list-style-type: none"> Use immediately and discard unused remainder 	

Side effects	<ul style="list-style-type: none"> • Blood pathology: neutropenia⁷ • Circulatory; hypertension⁴, thrombotic events⁴ • Nervous: seizures, rash¹ • In preterm infants: may be associated with retinopathy of prematurity² and increased risk of infantile haemangiomas⁷
Actions	<ul style="list-style-type: none"> • An erythropoietin-stimulating agent⁹ • Increases reticulocyte count, haematocrit and haemoglobin concentration⁹ <ul style="list-style-type: none"> ◦ Clinically significant increase not usually observed for 2–10 weeks¹
Abbreviations	BP: blood pressure, ELBW: extremely low birth weight, FBC: full blood count, IV: intravenous, Hb: haemoglobin, PRCA: pure red cell aplasia, subcut: subcutaneous
Keywords	erythropoietin, recombinant human erythropoietin, EPO, anaemia, haemoglobin, reticulocyte,

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

References

1. MIMS Online. Epoetin alfa. [Internet]: MIMS Australia; March 2018 [cited 2018 August 14]. Available from: <https://www.mimsonline.com.au>.
2. Aher SM, Ohlsson A. Late erythropoiesis-stimulating agents to prevent red blood cell transfusion in preterm or low birth weight infants. . Cochrane Database of Systematic Reviews. [Internet]. 2019 [cited 2019 November 07]; Issue 2. Art. No.: CD004868 DOI:10.1002/14651858.CD004868.pub5.
3. Aher SM, Ohlsson A. Early erythropoiesis-stimulating agents in preterm or low birth weight infants. Cochrane Database of Systematic Reviews. [Internet]. 2017 [cited 2019 November 07]; Issue 2. Art. No.: CD004868 DOI:10.1002/14651858.CD004868.pub5.
4. British National Formulary for Children (BNFC) online. Epoetin. [Internet]: Royal Pharmaceutical Society; July 2017 [cited 2019 May 03]. Available from: <https://www.medicinescomplete.com>.
5. American Society of Health-System Pharmacists. Epoetin Alfa. In Pediatric Injectable Drugs (the teddy bear book). [Internet]: MedicinesComplete; November 2017 [cited 2019 November 07]. Available from: <https://www.medicinescomplete.com>.
6. Australian Injectable Drugs Handbook. Nicolette Burridge, Keli Symons, editors. Epoetin alfa. 7th ed. [Internet]. New South Wales: Society of Hospital Pharmacists of Australia (SHPA); June 2018 [cited 2018 August 14]. Available from: <https://aidh.hcn.com.au>.
7. IBM Micromedex® Neofax®. Epoetin alfa. In: IBM Micromedex® NeoFax®/Pediatrics (electronic version). IBM Watson Health, Greenwood Village, Colorado, USA. July 03 2018 [cited 2018 September 03]. Available from: <https://www.micromedexsolutions.com>.
8. Trissels™ 2 Clinical Pharmaceutics Database. IV Compatibility Module. [online database] 2019 [cited 2019 May 12]. Available from: <https://www.micromedexsolutions.com>.
9. Australian Medicines Handbook. Epoetin alfa. [Internet]. Adelaide: Australian Medicines Handbook Pty Ltd; July 2018 [cited 2018 August 14]. Available from: <https://amhonline.amh.net.au>.

Document history

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