

## ERYTHROPOEITIN (Epoetin alfa)

<b>Trade Name</b>	Eprex® (Jansen-Cilag) or Binocrit® (Novartis)
<b>Class</b>	Haematopoietic agent (recombinant DNA glycoprotein)
<b>Mechanism of Action</b>	Stimulates erythropoiesis and decreases the need for erythrocyte (red blood cell) transfusions in VLBW prems. Reticulocyte response in 72-96 hours; haematocrit response from day 5.
<b>Indications</b>	<p><b>Indication 1:</b> Anaemia of prematurity in a neonate expected to require a blood transfusion in the next two weeks in a situation where blood replacement is not acceptable or possible. (Not appropriate where acute blood is required).</p> <p><b>Indication 2:</b> Symptomatic anaemia associated with chronic renal failure</p>
<b>Contraindications</b>	<p>Uncontrolled hypertension</p> <p>History of red cell aplasia associated with erythropoietin.</p> <p>Use with caution in patients with known cardiovascular disease or seizures.</p> <p>Use of epoetin is associated with an increased risk of thromboembolic events</p>
<b>Supplied As</b>	4000 international units / 0.4mL (33.6milligram/0.4mL)
<b>Dilution</b>	<p><b>Subcut:</b> no dilution.</p> <p><b>IV:</b> made up with 1-2ml of 4% albumin</p>
<b>Dosage/Interval</b>	<p><b>Indication 1: Subcut:</b> 250units/kg/dose Three times a week for 6 weeks (Max dose of 1,200 unit/kg/week)</p> <p><b>Indication 2: Subcut:</b> 20 units/kg/dose Three times a week for 4 weeks then review response and increase if required in steps of 20units/kg/dose (Max dose of 720units/kg/week)</p> <p><b>IV:</b> 40 units/kg/dose Three times a week for 4 weeks then Review response and increase if Required in steps of 20units/kg/dose (Max dose of 720units/kg/week)</p> <p><b>See comments section re Fe, Micelle E supplementation</b></p>
<b>Administration</b>	<p><b>Subcut:</b> single injection over lateral thigh alternating sides.</p> <p><b>IV:</b> injection over 2 minutes</p>

<b>Compatible With</b>	<b>Y-site</b> compatibility with adrenaline, benzyl penicillin, buprenorphine, bumetanide, calcium chloride, calcium gluconate, dextrose, cefazolin, cefotaxime, ceftazidime, cefuroxime, digoxin, dopamine, dobutamine, erythromycin, fentanyl, fluconazole, gentamicin, heparin, hydrocortisone, insulin, lactated ringers solution, lidocaine, magnesium sulphate, morphine, noradrenaline, phenobarbital, potassium chloride, sodium chloride, ranitidine, TPN, vasopressin. <b>(no data available on compatibility with lipid)</b>
<b>Incompatible With</b>	Diazoxide, midazolam, phenytoin, vancomycin
<b>Interactions</b>	ACE inhibitors and angiotensin II inhibitors may reduce the effectiveness of epoetin alfa and increase the risk of hyperkalaemia.  Epoetin alfa may reduce the antihypertensive effectiveness of ACE and angiotensin II inhibitors.
<b>Monitoring</b>	FBC for neutropenia and reticulocytes after 7 days of treatment , Serum ferritin, Daily BP
<b>Stability</b>	DO NOT SHAKE.
<b>Storage</b>	Store in the fridge, protect from light
<b>Adverse Reactions</b>	Diarrhoea, nausea, vomiting, dose dependent increase in blood pressure, flu-like symptoms, very rare loss of efficacy due to red blood cell aplasia, hyperkalaemia, hypersensitivity reactions, skin rash, injection site reactions, peripheral oedema
<b>Metabolism</b>	Onset of action; several days Peak effect 2-3 weeks  Hepatic metabolism. Excreted mainly in faeces
<b>Comments</b>	<b>Must receive concurrent supplemental iron and vitamin E</b>  Start Micelle E 30IU when feeds are 60mL/kg/day Start 3mg/kg/day elemental iron when feeds are 60mL/kg/day Increase to 6mg/kg/day elemental iron when 150mL/kg/day Alternatively: 3-5mg/kg once/week of iron dextran IV Commence as soon as possible (may be from birth if adequate iron intake ensured)  Discontinue usually 35 weeks corrected age (but may break for 1-2 weeks from 30 weeks corrected age if Hct > 30).  PAEAN Study researchers recommend that epoetin alfa should not be given through a filter due to lack of evidence about compatibility.

<b>References</b>	<ol style="list-style-type: none"> <li>1. Ohls Robin K. (Personal communications) 2001 Mar.</li> <li>2. Young T.E. et al. Neofax 2000; 70.</li> <li>3. Ohls RK "Erythropoietin to prevent and treat the anaemia of prematurity." Curr Opinion in Pediatr 1999 Apr; 11(2): 108-114.</li> <li>4. <a href="http://www.medsafe.govt.nz">www.medsafe.govt.nz</a></li> <li>5. BNF for Children</li> <li>6. <a href="http://www.NZFchildren.org.nz">www.NZFchildren.org.nz</a></li> <li>7. Lacy et al Drug Information Handbook LexiComp 2002-2003</li> <li>8. Ridley et al. Arch Dis Child. 2006 Dec; 91(12): 1036–1038. doi: 10.1136/adc.2006.105205</li> <li>9. Reiter PD et al Journal of Perinatology (2005) 25, 125–129. doi:10.1038/sj.jp.7211220</li> <li>10. <a href="http://www.micromedex.com">www.micromedex.com</a></li> <li>11. Paeon Study Frequently asked Questions Information Sheet 2016.</li> </ol>
<b>Updated By</b>	<p>Jan Klimek July 2001  P Schmidt, B Robertshawe May 2005  A Lynn, B Robertshawe June 2012 (re-order), Nov 2015 product  A Lynn, B Robertshawe March 2018 (compatibility data update)  A Lynn, M Wallenstein, B Robertshawe. Jan 2021 (review/update)</p>