

# Dexamethasone

## Newborn use only

2020

<b>Alert</b>	<p>Dexamethasone is available as Dexamethasone phosphate or dexamethasone sodium phosphate.</p> <p>The conversion factor for dexamethasone:            1.2 mg dexamethasone phosphate = 1 mg dexamethasone            1.3 mg dexamethasone sodium phosphate = 1 mg dexamethasone</p> <p>There is a non TGA registered commercial product, Dexsol® oral syrup. However, a SAS form is required for supply.</p>
<b>Indication</b>	<p>To facilitate weaning from assisted ventilation and improve lung function in infants at risk of chronic lung disease.            To facilitate extubation.</p>
<b>Action</b>	<p>Long acting glucocorticoid with potent anti-inflammatory action.            No significant mineralocorticoid activity.</p>
<b>Drug type</b>	Adrenal steroid hormone.
<b>Trade name</b>	<p>IV: (1) DBL Dexamethasone sodium phosphate Pfizer, (2) DBL dexamethasone phosphate Hospira, (3) dexamethasone phosphate Alphapharm, (4) dexamethasone phosphate Mylan.</p> <p>Oral: Compounded by pharmacy in-house. Refer to special comments section.            There is a non TGA registered commercial product, Dexsol® oral syrup. However, a SAS form is required for supply.</p>
<b>Presentation</b>	<p>IV preparations:            All 4 IV preparations: 1 mL contains 4.4 mg of dexamethasone sodium phosphate equivalent to 4 mg dexamethasone phosphate and 3.4 mg of dexamethasone base.            Oral: 0.05mg/mL, 0.1mg/mL, 0.5 mg/mL or 1 mg/mL solution or suspension – Prepared by pharmacy in-house. Refer to special comments section for further information.</p>
<b>Dose</b>	<p><b>Low dose (DART) protocol</b>            0.075 mg/kg/dose 12 hourly for 3 days then,            0.05 mg/kg/dose 12 hourly for 3 days then,            0.025 mg/kg/dose 12 hourly for 2 days then,            0.01 mg/kg/dose 12 hourly for 2 days then cease.</p> <p><b>High dose protocol – e.g., for term neonates with chronic lung disease</b>            0.25 mg/kg/dose 12 hourly for 3 days then,            0.15 mg/kg/dose 12 hourly for 3 days then,            0.1 mg/kg/dose 12 hourly for 3 days then,            0.05 mg/kg/dose 12 hourly for 3 days then,            0.025 mg/kg/dose 12 hourly for 6 days then cease.</p> <p><b>Extubation protocol</b>            0.25 mg/kg 8 hourly for up to 3 doses.            Commence 4 hours before extubation.</p>
<b>Dose adjustment</b> Therapeutic hypothermia ECMO Renal impairment Hepatic impairment	<p>Not applicable            Not applicable            Not applicable            Not applicable</p>
<b>Maximum dose</b>	0.75 mg/kg/day
<b>Total cumulative dose</b>	<p>Low dose (DART) protocol: 0.89 mg/kg            High dose protocol: 3.6 mg/kg            Extubation protocol: 0.75 mg/kg</p>
<b>Route</b>	IV, oral.
<b>Preparation</b>	<p>IV:            Note: 4.4mg/mL of dexamethasone sodium phosphate = 4mg/mL of dexamethasone phosphate equivalent to 3.4mg/mL Dexamethasone.</p>

	<p>Draw up 0.6 mL (equivalent to 2 mg dexamethasone) and add 9.4 mL of sodium chloride 0.9% to make a final volume of 10 mL with a concentration of 0.2 mg/mL. If volume is too small, further dilute: Draw up 1 mL of solution (0.2mg of dexamethasone) and add 9 mL of sodium chloride 0.9% to make a final volume of 10mL with a concentration of 0.02 mg/mL.</p> <p><b>Oral:</b> Prepared by pharmacy in-house (check which strength is stocked with Pharmacy Department). Strengths available: 0.05mg/mL oral solution or suspension 0.1mg/mL oral solution or suspension 0.5mg/mL oral solution or suspension (if volume is too small, further dilute: Draw up 1mL of solution or suspension (0.5mg dexamethasone) and add 9mL WFI to make a final volume of 10mL with a concentration of 0.05mg/mL). 1mg/mL oral solution or suspension (if volume is too small, further dilute: Draw up 1mL of solution or suspension (1mg dexamethasone) and add 9mL WFI to make a final volume of 10mL with a concentration of 0.1mg/mL).</p> <p>Dexamethasone 1mg = Dexamethasone phosphate 1.2mg = Dexamethasone sodium phosphate 1.3mg approx. Molecular mass (Dexamethasone phosphate) = 472.4 Molecular mass (Dexamethasone) = 392.5<sup>12</sup></p>
<b>Administration</b>	<p>IV: Administer over 3–5 minutes.</p> <p>Oral: Administer with feeds to minimise gastric irritation. Oral Suspension: Shake the bottle well before drawing up required dose.</p>
<b>Monitoring</b>	<p>Blood glucose levels (BGLs) at least daily. When on oral feeds measure BGL only if there is glucose in urine. Blood pressure at least daily. Electrolytes.</p>
<b>Contraindications</b>	<p>Untreated systemic infections.</p>
<b>Precautions</b>	<p>Use preservative free drug where possible. Avoid early (&lt;8 days) treatment, higher dose and longer courses where possible to reduce side effects. Avoid concurrent use with NSAIDs for PDA treatment. Corticosteroids may increase susceptibility to or mask the symptoms of infection.</p>
<b>Drug interactions</b>	<p>Barbiturates, phenytoin and rifampicin may increase the metabolism of dexamethasone. Antithyroid agents may decrease the metabolism of dexamethasone.</p>
<b>Adverse reactions</b>	<p>Early (&lt; 8 days) postnatal corticosteroids cause short-term adverse effects including gastrointestinal bleeding, intestinal perforation, hyperglycaemia, hypertension, hypertrophic cardiomyopathy and growth failure. Late (after seven days) postnatal corticosteroids in high doses in particular are associated with short-term side effects including gastrointestinal bleeding, higher blood pressure, glucose intolerance, severe retinopathy of prematurity and hypertrophic cardiomyopathy. Other effects include: Hypertriglyceridemia in association with hyperinsulinism and raised free fatty acids. Increase in total and immature neutrophil counts; increase in platelet count. Adrenal insufficiency is associated with higher doses (initial &gt;0.2 mg/kg/day) longer courses (&gt;14 days) of dexamethasone. Myocardial hypertrophy and outflow obstruction may occur with higher doses and prolonged courses of dexamethasone. May increase risk of infection.</p>
<b>Compatibility</b>	<p>Fluids: Glucose 5%, sodium chloride 0.9%</p>

	<p>Y-site : Amino acid solutions, aciclovir, amifostine, amikacin, anidulafungin, aztreonam, bivalirudin, cisatracurium, dexmedetomidine, fentanyl, filgrastim, fluconazole, foscarnet, granisetron, heparin sodium, hydrocortisone sodium succinate, hydromorphone, linezolid, methadone, morphine sulfate, pethidine, piperacillin-tazobactam, potassium chloride, remifentanyl, zidovudine.</p>												
<b>Incompatibility</b>	<p>Fluids: No information.</p> <p>Y-site: Calcium chloride, calcium gluconate, caspofungin, chlorpromazine, ciprofloxacin, dobutamine, erythromycin, esmolol, gentamicin, glycopyrrolate, haloperidol lactate, labetalol, levomepromazine, magnesium sulfate, midazolam, mycophenolate mofetil, pentamidine, phentolamine, promethazine, protamine, rocuronium, tobramycin.</p>												
<b>Stability</b>	<p>IV: Diluted solution is stable for 24 hours at 2–8°C</p> <p>Oral: As per Pharmacy Department.</p>												
<b>Storage</b>	<p>Ampoule: Store below 25°C. Protect from light.</p> <p>Oral: As per Pharmacy Department – Some formulations are stored at room temperature (below 25°C) while others are stored refrigerated (2–8°C). Protect from light.</p>												
<b>Excipients</b>	<p>IV injections are brand specific, please refer to manufacturer’s information.</p> <p>DBL Pfizer: Sodium citrate dihydrate, Creatinine, Hydrochloric acid, Sodium hydroxide</p> <p>Mylan: Sodium citrate, creatinine and water for injections</p> <p>DBL Hospira: Sodium citrate dihydrate; disodium edetate; hydrochloric acid; sodium hydroxide; sodium sulfite.</p> <p>Alphapharm: Sodium citrate anhydrous and creatinine</p> <p>Oral preparations: Many preparations exist, please consult pharmacy. An example is shown below in special comments.</p>												
<b>Special comments</b>	<p><u>IV dexamethasone preparation as a straight oral administration</u></p> <p>A small study in healthy adults showed an absolute bioavailability of around 76% when dexamethasone sodium phosphate injection was administered orally undiluted and authors recommended a dose adjustment [13]. No studies have been reported in neonates.</p> <p><u>Extemporaneous preparation</u></p> <p>Example of an oral dexamethasone 0.5mg/mL extemporaneous preparation:<sup>14</sup></p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 30%;">Ingredients</th> <th style="width: 20%;">Brand</th> <th style="width: 20%;">Form</th> <th style="width: 30%;">Quantity</th> </tr> </thead> <tbody> <tr> <td>Dexamethasone phosphate injection 4mg/mL</td> <td>Mylan</td> <td>Ampoule</td> <td>3mL</td> </tr> <tr> <td>OraBlend</td> <td>Perrigo</td> <td>Liquid</td> <td>To 20mL</td> </tr> </tbody> </table> <p><b>Dexamethasone 1mg = dexamethasone phosphate 1.2mg</b></p> <p>Method:</p> <p>Withdraw 3mL of dexamethasone injection into a syringe using a filter needle.          Transfer the contents of the syringe into a graduated measure.          Make up to final volume with OraBlend and mix well.          Transfer the final mixture into a plastic amber bottle<sup>15</sup> and secure lid tightly. Label appropriately.          Shake the mixture before use.</p> <p>Storage: Refrigerate (2–8°C), do not freeze. Protect from light.<sup>14,15</sup></p>	Ingredients	Brand	Form	Quantity	Dexamethasone phosphate injection 4mg/mL	Mylan	Ampoule	3mL	OraBlend	Perrigo	Liquid	To 20mL
Ingredients	Brand	Form	Quantity										
Dexamethasone phosphate injection 4mg/mL	Mylan	Ampoule	3mL										
OraBlend	Perrigo	Liquid	To 20mL										

	Expiry: 28 days after preparation. <sup>14</sup>
<b>Evidence</b>	Refer to full version.
<b>Practice points</b>	Refer to full version.
<b>References</b>	Refer to full version.

<b>VERSION/NUMBER</b>	<b>DATE</b>
<b>Original</b>	4/11/2015
<b>Revised</b>	
<b>2.0</b>	24/04/2017
<b>3.0</b>	31/10/2019
<b>Current 4.0</b>	30/01/2020
<b>REVIEW</b>	30/01/2025
<b>Approval by: JHCHCQ&amp;PCC</b>	Approval date: 26/02/2020

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