**Alert**

Dexamethasone is available as Dexamethasone phosphate or dexamethasone sodium phosphate.

The conversion factor for dexamethasone:
1.2 mg dexamethasone phosphate = 1 mg dexamethasone
1.3 mg dexamethasone sodium phosphate = 1 mg dexamethasone

There is a non TGA registered commercial product, Dexsol® oral syrup. However, a SAS form is required for supply.

**Indication**
To facilitate weaning from assisted ventilation and improve lung function in infants at risk of chronic lung disease.
To facilitate extubation.

**Action**
Long-acting glucocorticoid with potent anti-inflammatory action.
No significant mineralocorticoid activity.

**Drug type**
Adrenal steroid hormone.

**Trade name**
IV: (1) DBL Dexamethasone sodium phosphate Pfizer, (2) DBL dexamethasone phosphate Hospira, (3) dexamethasone phosphate Alphapharm, (4) dexamethasone phosphate Mylan.

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.

**Presentation**
**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: 0.05 mg/mL, 0.1 mg/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.

**Dose**

**Low dose (DART) protocol**
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.

**High dose protocol – e.g., for term neonates with chronic lung disease**
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.

**Extubation protocol**
0.25 mg/kg 8 hourly for up to 3 doses.
Commence 4 hours before extubation.

**Dose adjustment**

<table>
<thead>
<tr>
<th>Therapeutic hypothermia</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECMO</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Renal impairment</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hepatic impairment</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Maximum dose**
0.75 mg/kg/day

**Total cumulative dose**

| Low dose (DART) protocol | 0.89 mg/kg |
| High dose protocol       | 3.6 mg/kg |
| Extubation protocol      | 0.75 mg/kg |

**Route**
IV, oral.

**Preparation**
IV:
Note: 4.4 mg/mL of dexamethasone sodium phosphate = 4 mg/mL of dexamethasone phosphate equivalent to 3.4 mg/mL Dexamethasone.
**Dexamethasone**  
*Newborn use only*

| Administration | IV: Administer over 3–5 minutes.  
Oral: Administer with feeds to minimise gastric irritation.  
Oral Suspension: Shake the bottle well before drawing up required dose. |
| Monitoring | 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. |
| Contraindications | Untreated systemic infections. |
| Precautions | Use preservative free drug where possible.  
Avoid early (<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. |
| Drug interactions | Barbiturates, phenytoin and rifampicin may increase the metabolism of dexamethasone.  
Antithyroid agents may decrease the metabolism of dexamethasone. |
| Adverse reactions | Early (<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:  
Hypertriglyceridaemia 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 >0.2 mg/kg/day) longer courses (>14 days) of dexamethasone.  
Myocardial hypertrophy and outflow obstruction may occur with higher doses and prolonged courses of dexamethasone.  
May increase risk of infection. |
| Compatibility | Fluids: Glucose 5%, sodium chloride 0.9% |

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 (0.2 mg of dexamethasone) and add 9 mL of sodium chloride 0.9% to make a final volume of 10 mL with a concentration of 0.02 mg/mL.  

**Oral:** Prepared by pharmacy in-house (check which strength is stocked with Pharmacy Department).  
Strengths available:  
0.05 mg/mL oral solution or suspension  
0.1 mg/mL oral solution or suspension  
0.5 mg/mL oral solution or suspension (if volume is too small, further dilute: Draw up 1 mL of solution or suspension (0.5 mg dexamethasone) and add 9 mL WFI to make a final volume of 10 mL with a concentration of 0.05 mg/mL).  
1 mg/mL oral solution or suspension (if volume is too small, further dilute: Draw up 1 mL of solution or suspension (1 mg dexamethasone) and add 9 mL WFI to make a final volume of 10 mL with a concentration of 0.1 mg/mL).  

Dexamethasone 1 mg = Dexamethasone phosphate 1.2 mg = Dexamethasone sodium phosphate 1.3 mg approx.  
Molecular mass (Dexamethasone phosphate) = 472.4  
Molecular mass (Dexamethasone) = 392.5

**ANMF consensus group**  
**Dexamethasone**  
**Page 2 of 4**  
**JHCH_NICU_19.061**  
This is a printed copy. Refer to HNE PPG Intranet site for the most up to date version.
Dexamethasone
Newborn use only

Y-site: Amino acid solutions, aciclovir, amifostine, amikacin, anidulafungin, aztreonam, bivalirudin, cisatracurium, dexmedetomidine, fentanyl, filgrastim, fluconazole, foscarinet, granisetron, heparin sodium, hydrocortisone sodium succinate, hydromorphone, linezolid, methadone, morphine sulfate, pethidine, piperacillin-tazobactam, potassium chloride, remifentanil, zidovudine.

Incompatibility
Fluids: No information.
Y-site: Calcium chloride, calcium gluconate, caspofungin, chlorpromazine, ciprofloxacin, dobutamine, erythromycin, esmolol, gentamicin, glycopyrrolate, haloperidol lactate, labelatal, levomepromazine, magnesium sulfate, midazolam, mycophenolate mofetil, pentamidine, phenolamine, promethazine, protamine, rocuronium, tobramycin.

Stability
IV: Diluted solution is stable for 24 hours at 2–8°C
Oral: As per Pharmacy Department.

Storage
Ampoule: Store below 25°C. Protect from light.
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.

Excipients
IV injections are brand specific, please refer to manufacturer's information.
DBL Pfizer: Sodium citrate dihydrate, Creatinine, Hydrochloric acid, Sodium hydroxide
Mylan: Sodium citrate, creatinine and water for injections
DBL Hospira: Sodium citrate dihydrate; disodium edetate; hydrochloric acid; sodium hydroxide; sodium sulfite.
Alphapharm: Sodium citrate anhydrous and creatinine

Oral preparations: Many preparations exist, please consult pharmacy. An example is shown below in special comments.

Special comments
IV dexamethasone preparation as a straight oral administration
A small study in healthy adults showed an absolute bioavailability of around 76% when dexamethasone sodium phosphate injection was administrated orally undiluted and authors recommended a dose adjustment [13]. No studies have been reported in neonates.

Extemporaneous preparation

Example of an oral dexamethasone 0.5mg/mL extemporaneous preparation:[14]

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Brand</th>
<th>Form</th>
<th>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>

Dexamethasone 1mg = dexamethasone phosphate 1.2mg

Method:
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[15] and secure lid tightly. Label appropriately.
Shake the mixture before use.

Storage: Refrigerate (2–8°C), do not freeze. Protect from light.[14,15]
Expiry: 28 days after preparation.14

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Refer to full version.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice points</td>
<td>Refer to full version.</td>
</tr>
<tr>
<td>References</td>
<td>Refer to full version.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VERSION/NUMBER</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>4/11/2015</td>
</tr>
<tr>
<td>Revised 2.0</td>
<td>24/04/2017</td>
</tr>
<tr>
<td>Current 4.0</td>
<td>30/01/2020</td>
</tr>
<tr>
<td>REVIEW</td>
<td>30/01/2025</td>
</tr>
</tbody>
</table>

Authors Contribution

<table>
<thead>
<tr>
<th>Original author/s</th>
<th>David Osborn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence Review - original</td>
<td>David Osborn</td>
</tr>
<tr>
<td>Nursing Review</td>
<td>Eszter Jozsa</td>
</tr>
<tr>
<td>Pharmacy Review</td>
<td>Ushma Trivedi, Jing Xiao, Michelle Jenkins, Cindy Chen, Carmen Burman</td>
</tr>
<tr>
<td>ANMF Group contributors</td>
<td>Nilkant Phad, Himanshu Popat</td>
</tr>
<tr>
<td>Final editing and review of the original</td>
<td>Ian Whyte</td>
</tr>
<tr>
<td>Electronic version</td>
<td>Cindy Chen, Ian Callander</td>
</tr>
<tr>
<td>Facilitator</td>
<td>Srinivas Bolisetty</td>
</tr>
</tbody>
</table>