

SODIUM DIHYDROGEN PHOSPHATE (also known as Phosphate Sodium Monobasic Dihydrate)

Trade Name	Sodium Dihydrogen Phosphate Injection 1mmol/mL (Biomed)																		
Class	Electrolyte supplement (sodium and phosphate)																		
Mechanism of Action	<p>Phosphates participate in bone deposition, calcium metabolism and utilisation of B complex vitamins.</p> <p>Sodium dihydrogen phosphate may also be used in combination with sodium chloride for maintenance of serum sodium which is the principal extracellular cation, important for osmotic pressure control and water distribution and to buffer in acid-base balance.</p>																		
Indications	<p>Hypophosphatemia <1.5mmol/L (including rickets and osteomalacia)</p> <p>Refeeding syndrome in extremely preterm infants (low phosphate/potassium/magnesium and high calcium/glucose/sodium)</p> <p>Hyponatraemia – oral supplement when the phosphate is also low, the ALP is elevated and HMF is contraindicated</p>																		
Contraindications	<p>Hyperphosphataemia, hyperkalemia, hypocalcaemia, hypomagnesaemia, hypernatraemia.</p> <p>Caution in impaired renal function, cardiac disease, and adrenal insufficiency.</p> <p>Dehydration.</p>																		
Supplied As	<p>Oral: 1mmol/mL IV solution repacked by pharmacy for oral use</p> <p>IV: 1mmol/mL, 20mL ampoules</p>																		
Dilution	<p>Oral: No need to dilute</p> <p>IV: Solution must be diluted into a 10% dextrose sideline for continuous intravenous administration.</p> <p>Peripheral IV Infusion:</p> <table border="1"> <thead> <tr> <th>Drug</th> <th>10% Dextrose</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>1mmol (1mL)</td> <td>19mL</td> <td>20mL</td> <td>0.05 mmol/mL</td> </tr> </tbody> </table> <p>Central IV Infusion:</p> <table border="1"> <thead> <tr> <th>Drug</th> <th>10% Dextrose</th> <th>Final Volume</th> <th>Concentration</th> </tr> </thead> <tbody> <tr> <td>2 mmol (2mL)</td> <td>18mL</td> <td>20mL</td> <td>0.1 mmol/mL</td> </tr> </tbody> </table>			Drug	10% Dextrose	Final Volume	Concentration	1mmol (1mL)	19mL	20mL	0.05 mmol/mL	Drug	10% Dextrose	Final Volume	Concentration	2 mmol (2mL)	18mL	20mL	0.1 mmol/mL
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Dosage...	<p>If level is 1-1.4 mmol/L start with 1mmol/kg/day</p> <p>If level is <1 mmol/L start with 2mmol/kg/day</p> <p>Maximum oral dose daily routinely not to exceed 2mmol/kg</p> <p>If on milk feeds - give with the feeds</p> <p>If not on milk feeds - make the volume up to 0.5mL with sterile water</p> <p>Target levels are at least >1.5mmol/L and ≥ 2mmol/L in those <28 weeks as they transition on to milk feeds</p>																		

<p>... Dosage</p>	<p>IV replacement if Phosphate is <1.0mmol/L and unable to replace orally which is the preferred, more effective method</p> <ul style="list-style-type: none"> • Increase the daily TPN rate • Requesting an individual TPN bag will with higher phosphate will usually not substantially increase what is already being given • IV infusion - 0.5mmol/kg/day of NaH₂PO₄ as a 24 hour infusion and repeat until the phosphate is >1.0mmol/L. <p>Eg: 800g baby to be given 0.5mmol/kg NaH₂PO₄ = 0.4mmol NaH₂PO₄ Peripheral Make up a 0.05mmol/mL solution Give 8mls over 24hrs = 0.33ml/hr</p> <p>Eg: 1.2kg baby to be given 0.5mmol/kg NaH₂PO₄ = 0.6mmol NaH₂PO₄ Central Make up a 0.1mmol/mL solution Give 6 mls over 24hrs = 0.25ml/hr</p>
<p>Interval</p>	<p>Oral: usually 6 hourly IV: Infuse over at least 6 hours</p>
<p>Administration</p>	<p>Oral: injection solution repacked by pharmacy, 1mmol/ml Must not be given IM or IV bolus</p>
<p>Compatible With</p>	<p>Solution: Sodium chloride 0.9%, Dextrose 5%,</p> <p>Terminal Y-site*: Dexmedetomidine, metronidazole, milrinone, octreotide, ondansetron, pamidronate, pancuronium, piperacillin tazobactam, vasopressin, voriconazole</p> <p>*Data on IV compatibility of sodium dihydrogen phosphate is very limited, use a separate line whenever possible.</p>
<p>Incompatible With</p>	<p>Amiodarone, amphotericin, calcium chloride, calcium gluconate, ciprofloxacin, magnesium, meropenem.</p> <p>If given IV then the infusion needs to be run through a separate IV line from the TPN as they are not compatible Avoid giving at the same time of day as oral ciprofloxacin Dextrose 10% in sodium chloride 0.9% (dextrose saline) Any Ca or Mg containing drugs</p>
<p>Monitoring</p>	<p>Serum calcium, phosphate, potassium, sodium, magnesium and urine output should be monitored</p> <p>If HMF and sodium dihydrogen phosphate are used concurrently or if on ≥ 2mmol/kg/day phosphate, the baby needs monitoring of the phosphate and calcium levels twice a week and a change to monotherapy should occur as soon as able.</p> <p>Otherwise weekly levels should be sufficient</p>
<p>Stability</p>	<p>Oral solution : 7 days in the fridge IV: 24 hours – do not use cloudy solutions</p>

Storage	Oral solutions should be stored in the fridge.
Adverse Reactions	Oral: nausea and diarrhoea.
Metabolism	Oral: excreted in faeces. IV: excreted in the urine with over 80% dose reabsorbed by the kidney
Comments	<p>Infusing sodium dihydrogen phosphate (NaH_2PO_4) for hypophosphataemia is preferred over potassium dihydrogen phosphate (KH_2PO_4) as it removes the risks of infusing potassium.</p> <p>If a blood sample is haemolysed then an accurate phosphate result is not able to be obtained. The lab will not give a definite value but will give the highest value it may be with the true value likely to be lower. For example result may be <1.2. If a true level is needed then repeat with a non-haemolysed sample.</p>
References	<ol style="list-style-type: none"> 1. Medicines for children.1999 2. Trissel Handbook of injectable drugs 10th edition 3. Neonatal Formulary 3rd Edition 2000 4. Medsafe Datasheet 1/03/2008 5. Taketemo et al eds Paediatric and Neonatal Dosage Handbook 19th edition, Lexicomp 2012
Updated By	<p>B Robertshawe March 2007, A Lynn, B Robertshawe Sept 2008, Nov 2008, July 2009</p> <p>A Lynn, B Robertshawe Dec 2012 (re-order profile) May 2018 (NZULM name change)</p> <p>A Lynn, N Austin, B Robertshawe, N Clark Aug 2020 (replace iv if <1.0)</p> <p>A Lynn, B Robertshawe Nov 2020 (oral replacement if <1.0 is easier)</p> <p>A Lynn Oct 2021 (advice on doses and monitoring after audit)</p> <p>A Lynn, B Robertshawe Feb 2022</p>