



## NEONATAL Medication Monograph

# MAGNESIUM

This document should be read in conjunction with this [DISCLAIMER](#)

**IV - Restricted:** Requires Neonatologist review within 24 hours of initiation

**Oral - Unrestricted:** Any prescriber may initiate treatment as per guideline




 **HIGH RISK Medication**

<b>Presentation</b>	<b>Ampoule:</b> Magnesium Sulfate 2.47g (49.3% w/v) in 5mL contains 10mmol magnesium in 5mL = 2mmol/mL <b>Oral solution :</b> Magnesium Chloride 1mmol/mL (Auspman)
<b>Classification</b>	Electrolyte supplement Pulmonary vasodilator
<b>Indication</b>	Magnesium deficiency Persistent pulmonary hypertension of the newborn (PPHN)
<b>Contraindications</b>	Hypermagnesaemia Contraindicated in patients with heart block
<b>Precautions</b>	Patients with colostomy/ileostomy, intestinal obstruction, impaction, perforation, appendicitis and abdominal pain
<b>Dose</b>	<b>Doses expressed as 'mmol'/kg</b> <a href="#">Magnesium deficiency</a> <b>IV:</b> 0.1 to 0.2mmol/ kg/ dose every 12 hours  <b>Oral:</b> 0.2mmol to 0.6mmol every 12 hours Start with lower dose and then titrate based on serum magnesium level.  <a href="#">Persistent pulmonary hypertension of the newborn</a> <b>IV:</b> <b>Loading dose:</b> 0.8 mmol / kg over 60 minutes  <b>Maintenance dose:</b> 0.08 - 0.3 mmol / kg / hour to maintain plasma magnesium concentration between 3.5 – 5.5mmol/L. May be used for up to 5 days.

	<p><b>Note:</b> Consider prescribing on the front page of the medication chart if required for &lt;24 hours. If prescribed as a regular medication, indicate timing of magnesium level, and wait for level prior to administering next dose.</p>
<b>Monitoring</b>	<p>Serum magnesium levels every 24 hours.</p> <p>ECG and continuous or frequent blood pressure.</p> <p>If prescribed as a regular medication, indicate timing of magnesium level, and wait for level prior to administering next dose.</p> <p><b>Monitor magnesium concentrations:</b> Magnesium Range = 0.75-1.2 mmol/L PPHN Magnesium Range : 3.5 – 5.5 mmol/L</p>
<b>Dose Adjustment</b>	<p>Adjust Dose according to serum magnesium levels Caution in Patients with Renal Impairment</p>
<b>Guidelines &amp; Resources</b>	<p><a href="#">High Risk Medicines List</a> <a href="#">Arrhythmias</a></p>
<b>Compatible Fluids</b>	<p>Sodium chloride 0.9%, Glucose 5%</p>
<b>Preparation</b>	<p><b>IV Infusion:</b> <a href="#">0.1mmol/mL concentration</a> Take 2.5 mL (5 mmol) and dilute to 50mL with compatible fluid Concentration is 5mmol/50mL <u>Final concentration is 0.1mmol/mL</u></p> <p><a href="#">0.4mmol/mL Concentration</a> Take 5mL (10mmol) and dilute to a final volume of 25mL with a compatible fluid Concentration is 10mmol in 25mL <u>Final concentration is 0.4 mmol/mL</u></p>
<b>Administration</b>	<p><b>IV Infusion:</b> Administer via Infusion pump over a minimum of 1 hour</p>

<b>Adverse Reactions</b>	<p>Hypotension, bradycardia and circulatory collapse with rapid infusion. ECG changes (prolonged AV conduction time, sino-atrial block, AV block). <b>Calcium chloride/calcium gluconate should be available to reverse adverse effects.</b></p> <p>Flushing, sweating, respiratory depression (particularly with higher plasma concentrations), abdominal distension, diarrhoea, urinary retention, CNS depression, muscle relaxation, hyporeflexia.</p>
<b>Storage</b>	Store at room temperature - below 25°C
<b>Interactions</b>	<p>Concurrent use with paralyzing agents may enhance neuromuscular blockade (e.g. vecuronium, etc).</p> <p>Concomitant use with aminoglycosides may cause neuromuscular weakness (respiratory arrest).</p>
<b>References</b>	<p>Truven Health Analytics. Magnesium sulfate. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2020 [cited 2020Feb 24]. Available from: <a href="https://neofax.micromedexsolutions.com/">https://neofax.micromedexsolutions.com/</a></p> <p>Society of Hospital Pharmacists of Australia. Magnesium Sulfate. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2020 [cited 2020 Feb 24]. Available from: <a href="http://aidh.hcn.com.au">http://aidh.hcn.com.au</a></p> <p>Takemoto CK, Hodding JH, Kraus DM. Pediatric &amp; neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; 2019.</p> <p>British National Formulary. BNF for Children. 2018-19 ed. London, UK: BMJ Group and Pharmaceutical Press; 2018.</p> <p>Clinical Pharmacology [Online database]. Elsevier. Cited 21 July 2020. Available from <a href="http://www-clinicalkey-com.pklibresources.health.wa.gov.au/pharmacology/">www-clinicalkey-com.pklibresources.health.wa.gov.au/pharmacology/</a></p>

Keywords:	Magnesium sulfate, Magnesium chloride, Magnesium, magnesium deficiency, electrolyte deficiency, PPHN, pulmonary hypertension of the newborn		
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Standards Applicable:	NSQHS Standards: 1  Governance 3  Infection Control 4  Medication Safety;
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