# NEONATAL Medication Monograph

## MAGNESIUM SULFATE

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**

| Presentation | **Ampoule:** 2.47g (49.3% w/v) in 5mL contains 10mmol magnesium in 5mL = 2mmol/mL  
**Oral solution:** 400mg/mL (Auspman) |
| Classification | Electrolyte supplement  
Pulmonary vasodilator |
| Indication | Magnesium deficiency  
Persistent pulmonary hypertension of the newborn (PPHN) |
| Contraindications | Hypermagnesaemia  
Contraindicated in patients with heart block |
| Precautions | Patients with colostomy/ileostomy, intestinal obstruction, impaction, perforation, appendicitis and abdominal pain |
| **Dose** | **IV Doses expressed as ‘mmol’/kg**  

**Magnesium deficiency**  
**IV:**  
0.1 to 0.2mmol/kg dose every 12 hours  

**Oral:**  
30mg daily – monitor serum magnesium closely  

**Persistent pulmonary hypertension of the newborn**  
**IV:**  
**Loading dose:** 0.8 mmol/kg (200 mg/kg) over 30 minutes  

**Maintenance dose:** 0.08 - 0.3 mmol/kg/hour (20 – 75 mg/kg/hour) to maintain plasma magnesium concentration between 3.5 – 5.5mmol/L. May be used for up to 5 days. |
| Monitoring | ECG and continuous or frequent blood pressure.  
|           | Serum magnesium levels  
|           | **Monitor magnesium concentrations:**  
|           | Magnesium Range = 0.75-1.2 mmol/L  
|           | PPHN Magnesium Range : 3.5 – 5.5 mmol/L  
| Dose Adjustment | Adjust Dose according to serum magnesium levels  
|           | Caution in Patients with Renal Impairment  
| Guidelines & Resources | [High Risk Medicines List](#)  
|           | [Arrhythmias](#)  
| Compatible Fluids | Sodium chloride 0.9%, Glucose 5%  
| Preparation | **IV Infusion:**  
|           | **0.1mmol/mL concentration**  
|           | Take 2.5 mL (5 mmol) and dilute to 50mL with compatible fluid  
|           | Concentration is 5mmol/50mL  
|           | Final concentration is 0.1mmol/mL  
|           | **0.4mmol/mL Concentration**  
|           | Take 1mL (10mmol) and dilute to a final volume of 4mL with a compatible fluid  
|           | Concentration is 10mmol/4mL  
|           | Final concentration is 0.4 mmol/mL  
| Administration | **IV Infusion:** Administer via Infusion pump  
| Adverse Reactions | Hypotension, bradycardia and circulatory collapse with rapid infusion. ECG changes (prolonged AV conduction time, sino-atrial block, AV block). **Calcium chloride/calcium gluconate should be available to reverse adverse effects.**  
|           | Flushing, sweating, respiratory depression (particularly with higher plasma concentrations), abdominal distension, diarrhoea, urinary retention, CNS depression, muscle relaxation, hyporeflexia.  
| Storage | Store at room temperature - below 25°C
Interactions
Concurrent use with paralysing agents may enhance neuromuscular blockade (e.g. vecuronium, etc).
Concomitant use with aminoglycosides may cause neuromuscular weakness (respiratory arrest).

References

