Waikato District Health Board	Type: Drug Guideline	Document reference: 2936	Manual Classification: Waikato DHB Drug Guidelines
Title: **Magnesium for neonates**			Effective date: **28 February 2022**
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BRIEF ADMINISTRATION GUIDE

For detailed information refer to The Australasian Neonatal Medicines Formulary **magnesium** guideline

Critical Note: there are minor variations between the ANMF and Waikato DHB best practice within this drug guideline – see shaded text

Indications: Hypomagnesaemia (magnesium <0.7 mmol/L)
Note: magnesium can be used for many other conditions – refer to other guidelines

Route: Intravenous, intramuscular

- Injection supplied as magnesium sulfate (heptahydrate) 50% (500 mg/ml), 2 mmol/mL elemental magnesium, 5 ml glass ampoule
  - pH of magnesium is 5.5 – 7

Dose: 0.1 – 0.2 mmol/kg/dose elemental magnesium
Severe cases may require up to 0.4 mmol/kg/dose
Repeat dose as necessary every 6 to 12 hours
Reduce dose in renal impairment

Preparation and administration

Compatible fluids: glucose 5%, sodium chloride 0.9%, glucose 5% in sodium chloride, parenteral nutrition

Intermittent Intravenous Infusion

- Dilute 2 mL (4 mmol) of magnesium with 6 mL of compatible fluid to make 8 mL of a **0.5 mmol/mL** solution. Maximum concentration if fluid restricted is 0.8 mmol/mL (see under IM for preparation).
- Administer prescribed dose over 30 to 60 minutes
  Note: while magnesium can be give more rapidly in emergencies e.g. over 10-20 minutes, rapid infusions may cause hypotension and circulatory collapse and retention is also reduced

Intramuscular Injection

- Dilute 2 mL (4 mmol) of magnesium with 3 mL of compatible fluid to make 5 mL of a **0.8 mmol/mL** solution
- Administer prescribed dose by intramuscular injection into vastus lateralis muscle of the thigh

Monitoring

- Continuous cardiorespiratory monitoring
- Blood pressure, respiratory rate, heart rate, oxygen saturation, and fluid balance periodically during treatment
- Check magnesium levels and for signs of toxicity (e.g. nausea, vomiting, flushing, hypotension, muscle paralysis, CNS depression) at periodic intervals. Usual range 0.75 – 1 mmol/L.
- Monitor serum calcium, sodium, potassium and renal function regularly during treatment
- **Note:** if receiving concomitant aminoglycosides, monitor for neuromuscular weakness (e.g. respiratory compromise)

Storage and Stability

- Diluted solutions are stable at room temperature (below 25°C) for up to 24 hours

Competency for administration

This procedure is carried out by, or under, the direct supervision of a registered nurse/registered midwife who holds current Waikato DHB Generic Medicine Management and IV certification plus Guardrails competency as well as Neonatal specific competency NCV/NAC (if administering via CVAD).

Guardrails Information

Magnesium is not currently Guardrail profiled on the CC pump for NICU, but will be shortly

Guardrails Drug Name	Magnesium*
Concentration (mmol/mL)	
Minimum	0.01
Maximum	0.08
Dose rate (mmol/kg/hr)	
Default	0.1
Soft minimum	0.09
Soft maximum	0.8
Hard max	1.2

References

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