

Magnesium Sulfate

Formulary

Douglas County Kansas EMS System

March 2021

Approved Provider: Paramedic

Referenced Protocols: [Breathing Difficulty](#), [Dysrhythmias](#), [OB/Gyn Emergencies](#)

Dosing and Administration	
ADULT Medications: <ul style="list-style-type: none">• Torsades: 1-2 g IV/IO push☎ Refractory VT/VF: 1-2 g IV/IO push☎ Pre-Eclampsia: 4 g IV/IO over 20 minutes (60gtts/min in 100cc NS w/10gtt set)• Eclampsia: 4 g IV/IO over 20 minutes (50gtts/min in 100cc NS w/10gtt set)• Breathing Difficulty: 1 g IV/IO over 20 minutes (50gtts/min in 100cc NS w/10gtt set)	PEDIATRIC Medications: Refer to HandTevy <ul style="list-style-type: none">• Torsades: 25-50 mg/kg IV/IO push• Breathing Difficulty: 25-50 mg/kg IV/IO over 20 minutes (50gtts/min in 100cc NS w/10gtt set)

Pharmacology and Actions:

- Seizures, toxemia of pregnancy: Exact mechanism is not clearly understood. Magnesium may decrease the amount of acetylcholine released at the myoneuronal junction, resulting in depression of neuromuscular transmission. Magnesium also may have a direct depressant effect on smooth muscle and may CNS depression
- Antiarrhythmic effect: Magnesium may decrease myocardial cell excitability by contributing to the re-establishment of ionic equilibrium and stabilizing cell membranes. Magnesium also appears to modulate the sodium current, the slow inward calcium current, and at least one potassium current

Indications:

- S/S of severe pre-eclampsia and seizures associated with eclampsia
- Torsades de pointes
- Status Asthmaticus
- ☎ Refractory VF/VT

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Contraindications:

- Heart block

Precautions:

- Monitor for signs of magnesium toxicity (absent patellar reflexes, respirations < 12/min, chest tightness, dyspnea, ECG changes.)

Administration:

- Acceptable routes include IV/IO

Side Effects:

- Respiratory depression and paralysis of respiratory muscles
- Depress reflexes
- Hypotension
- Heart block
- Hypocalcemia