

Magnesium Sulfate

<u>Adult Cardiac Arrest Eval and Treatment of H's and T's</u> <u>Adult Cardiac Wide Complex Tachycardia (Irregular Rhythm)- Unstable</u>		
P	Adult	2 gm IV/IO Push; can repeat x 1 to a total of 4 grams

<u>Adult Cardiac Wide Complex Tachycardia (Irregular Rhythm)- Stable</u>		
P	Adult	2 gm IV/IO over 10 minutes; can repeat x 1 to a total of 4 grams

<u>Pediatric Cardiac Arrest Eval and Treatment of H's and T's</u>		
P	Pediatric	25 mg/kg for patients under 50kg IVP; can repeat same dose with MCEP consult Weight Based Pediatric Dosing Chart Link

<u>Pediatric Cardiac Wide Complex Tachycardia</u>		
P	Pediatric	Stable: 25 mg/kg IV/IO over 10 minutes IVP; can repeat same dose with MCEP consult Unstable: 25 mg/kg for patients under 50kg IVP; can repeat with MCEP consult Weight Based Pediatric Dosing Chart Link

<u>Adult Airway Reactive Airway Disease</u> <u>Pediatric Airway Reactive Airway Disease</u>		
P	Adult	2 gm IV/IO over 10 minutes; repeat with MCEP consult
	Pediatric	25 mg/kg for patients under 50kg over 10 minutes IV/IO; can repeat with MCEP consult >50kg, give 2gm over 10 minutes IV/IO Weight Based Pediatric Dosing Chart Link

<u>Obstetrics Pre-Eclampsia and Eclampsia</u>		
P	Adult	Pre-Eclampsia: 2 gm IV/IO over 10 minutes; can repeat x 1 to a total of 4 grams Eclampsia: 4 gm IV/IO Push over 10 minutes

Magnesium Sulfate

KEY POINT

- If magnesium is administered too rapidly (i.e., faster than parameters listed above) severe hypotension, arrhythmia, and/or cardiac arrest may occur
- All patients receiving Magnesium Sulfate shall be placed on cardiac monitor as well as quantitative Capnography if available
- Renal Failure patient cannot receive Magnesium Sulfate

ALL DRIPS SHOULD BE RUN THROUGH A PUMP IF POSSIBLE

How to mix the 2 or 4 gms Magnesium Sulfate Drip:

- 2 Grams (option 1)
 - Draw 4 gms of Magnesium Sulfate from vial
 - Mix this volume into 250cc underfill with a 10 gtt/ml tubing
 - Run with a PUMP
 - If a pump is not available, use this formula to run the drip:
$$\frac{125\text{cc} \times 10\text{gtt/ml}}{\text{Time}}$$

- 2 Grams (option 2)
 - Draw up 2 Grams of Magnesium Sulfate from vial
 - Mix in a 100cc underfill
 - Run with a PUMP
 - If a pump is not available, use this formula to run the drip:
$$\frac{100\text{cc} \times 10\text{gtt/ml}}{\text{Time}}$$

- 2 Grams (option 3)
 - Draw up 2 Grams of Magnesium Sulfate from vial
 - Commit a Paramedic to push the volume consistent with 2 grams of Magnesium Sulfate over 10 minutes

Class:

- Anticonvulsant, Electrolyte, Smooth Muscle Relaxant

Description of Use:

- Blocks neuromuscular transmission and the amount of acetylcholine released at the motor end plate to control seizure activity

Pharmacokinetics: (Route: IV)

- Onset: Unknown
- Duration: Unknown
- Half-life: Unknown

Special Populations:

- Pregnancy Category: B
- Children: Continuous IV infusion increases risk of magnesium toxicity in neonate
- Safety in children younger than 6 years not known
- Elderly: At increased risk of developing magnesium deficiency

Contraindications:

- Hypersensitivity, Heart block, myocardial damage, renal failure
- Cautions: Severe renal impairment

Adverse reactions:

- Reduced respiratory rate, decreased reflexes, flushing, hypotension, decreased heart rate. Systemic use may produce prolonged PR interval, widening of the QRS
- Toxicity may cause loss of deep tendon reflexes, heart block, respiratory paralysis, cardiac arrest
- If administered too rapidly, severe hypotension, arrhythmia, and/or cardiac arrest may occur
- Antidote: 10-20 cc of 10 % Calcium Gluconate (equal to 5-10 mEq of Calcium)