

# MAGNESIUM SULFATE

EMSAC JUNE 2026

## ACTION: Electrolyte/Antiarrhythmic

- Magnesium provides electrical stability in the myocardium
- Affects impulse formation and conduction time in myocardium reducing incidence of dysrhythmias associated with hypomagnesemia or prolonged QT interval
- Magnesium is effective in the prevention and management of seizures associated with eclampsia in pregnant people

## INDICATIONS:

- Treatment of Polymorphic Ventricular Tachycardia (Torsade's de Pointes)
- ~~• V-Fib/V-Tach cardiac arrest patients with poor dietary intake or at risk for hypomagnesemia (i.e., alcohol use, renal failure, or use of diuretics)~~
- ~~• Refractory V-Fib/V-Tach after use of cardioversion and amiodarone~~
- ~~• Ischemic chest pain presenting with significant ventricular ectopy AND who have poor dietary intake or at risk for hypomagnesemia (i.e., alcohol use, renal failure, or use of diuretics)~~
- Severe respiratory distress with suspected acute asthma exacerbation
- Pre-eclampsia with severe features: Elevated blood pressure in greater than 20 weeks gestational age or up to 6 weeks postpartum, (systolic blood pressure greater than 160 and diastolic greater than 110) **AND** at least **one** of the following **severe features**:
  - Altered Mental Status
  - Floaters or blurred vision
  - Pulmonary edema
  - Severe new-onset headache
- Eclampsia: pre-eclampsia with new onset seizures

## CONTRAINDICATIONS

- Known history of Myasthenia gravis

## CAUTION:

- ~~• In renal patients, use caution if giving additional doses of Magnesium sulfate.~~ Severe renal impairment

## POTENTIAL SIDE EFFECTS:

- Flushing and sweating
- Bradycardia
- Hypotension
- Respiratory and CNS depression

## ADULT DOSE/ROUTE:

- ~~Arrest due to~~ Polymorphic Ventricular Tachycardia (Torsade's de Pointes)
  - Pulseless:** 2 grams IV/IO push
  - WITH a pulse:** 2 grams in 100 ml D5W **or NS** slowly IV/IO with target goal of infusing 100 ml over 10 minutes
- **Severe Acute Asthma:** 2 grams in 100 ml D5W or NS slowly IV/IO with target goal of infusing

100 ml over 10 minutes

- **Preeclampsia with severe features:**

- 4-6 grams in 100 ml in D5W or NS slowly IV over 20 minutes (preferred).
- 10 grams IM (5 grams in each buttock) if no IV access ~~for seizure/eclampsia and 15 minutes for pre-eclampsia with severe features~~
- ~~10 grams IM (5 grams in each buttock) if no IV access~~

- **Eclampsia:**

- 4-6 grams in 100 ml in D5W or NS slowly IV/IO over 20 minutes. ~~for seizure/eclampsia and 15 minutes for pre-eclampsia with severe features~~
- 10 grams IM (5 grams in each buttock) if no IV access

**PEDIATRIC DOSE/ROUTE:**

- **Arrest due to Torsades de Pointes (polymorphic V-Tach):**

- Pulseless:** 50 mg/kg IV/IO push.
- WITH a pulse:** 50 mg/kg in 100ml D5W slowly IV/IO with a target goal of infusing 100ml over 10 minutes. Maximum single dose 2g.

- **Severe Acute Asthma:** 50 mg/kg in 100ml D5W slowly IV/IO with a target goal of infusing 100ml over 10 minutes. Maximum single dose 2g.

**NOTES:**

- For patients receiving larger doses of magnesium (e.g. eclampsia) assess respiratory status and mental status after administration
- ~~• To reduce pain with 10mg IM injection, consider adding 1ml of 2% lidocaine solution in each 10mL syringe. To mix withdraw 10mL of 50% Magnesium MgSO3 (5g) in a 10-20mL syringe, add 1mL 2% lidocaine to syringe and mix prior to injection.~~
- Contact Base Hospital Physician for additional orders.