

Always follow local guidelines and discuss with Senior if unsure  
Especially patients with significant fluid / electrolyte losses or  
those with co-morbidities such as Heart / Renal Failure

Normal range: 0.7 - 1.1mmol/L

## SIGNS AND SYMPTOMS

**MILD**  
0.5-0.7 mmol/L

**Usually Mild / Asymptomatic**

- Muscle weakness
- Paraesthesia
- No ECG changes

**MODERATE - SEVERE**  
<0.5 mmol/L

- Muscle weakness
- Ataxia
- Vertigo
- Seizures
- Depression / Psychosis

- ECG changes:
  - PR prolongation
  - QT prolongation
  - T wave inversion
  - P wave inversion

**Commonly cause secondary:**

- Hypokalaemia
- Hypocalcaemia

- Arrhythmias:
  - VT
  - VF
  - Torsades de Pointes

## CAUSES

### ABNORMAL LOSSES

**Medications:**

- Diuretics
- Gentamicin
- Digoxin
- PPI

**GI losses:**

- Acute pancreatitis
- Malabsorption
- Diarrhoea

**Renal losses:**

- Osmotic diuresis
- Acute tubular necrosis

### REDUCED INTAKE

**Starvation**  
**Malnutrition**  
**Re-feeding Syndrome**  
**Long term IV nutrition**  
**Chronic Alcoholism**

### METABOLIC / ENDOCRINE

**Hyperaldosteronism**  
**Hyperthyroid**  
**Hyperparathyroidism**  
**DKA**

## GENERAL MANAGEMENT

0.5-0.7mmol/L

**MAGNESIUM ASPARTATE**  
**1 sachet OD/BD PO/NG**

Can cause diarrhoea

<0.5mmol/L

**MgSO<sub>4</sub> 5g (20mmol) IV**

Over 5 hours in 500ml NaCl 0.9%

**Up to 5 days of oral treatment usually required as magnesium levels may be artificially high while equilibrating with intracellular compartment**

**Monitoring**

- Consider cardiac monitor during IV infusion (check with senior)
- Monitor BP / Heart rate / RR during IV infusion
- Monitor serum Magnesium daily during replacement

**Caution should be used in following patients:**

- Renal impairment
- Myasthenia gravis
- Hepatic impairment
- Heart block
- Concurrent medications:
  - Digoxin
  - Barbiturates / Opioids / Hypnotics

**Always consult BNF for dose / administration and contraindications for all above medications**

**If patient at risk / has RE-FEEDING SYNDROME - see linked document for further advice**