

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: 2.2 - 2.7mmol/L

Normal range ionized: 1.1 - 1.3mmol/L - reported on ABG

SIGNS AND SYMPTOMS

MILD  
1.9-2.2 mmol/L

- Asymptomatic / Mild:
- Perioral numbness
  - Digital paresthesia
  - Muscle cramps
  - Irritability

SEVERE / LIFE THREATENING  
< 1.9 mmol/L or symptomatic

- Arrhythmias:
  - Long QT
- Acute heart failure
- Hypotension
- Seizures
- Laryngospasm
- Tetany

< 1.9mmol/L or Symptoms at any level < 2.2 is a  
MEDICAL EMERGENCY - CONTACT SENIOR IMMEDIATELY

CAUSES

ENDOCRINE

- Parathyroidectomy  
Hypoparathyroidism:
- Commonly post thyroidectomy
- Increased Calcitonin:
- Medullary thyroid carcinoma
- Magnesium Deficiency  
Vitamin D Deficiency

REDISTRIBUTION

- Alkalosis  
Hyperphosphataemia:
- Chronic renal failure
  - Rhabdomyolysis
- Pancreatitis  
Overhydration
- Medications:
- Bisphosphonates
  - PPI (Hypomagnesia)

REDUCED INTAKE

- Low calcium in diet  
Low Vitamin D  
Re-feeding syndrome  
Medications:
- Phenytoin (increases metabolism of Vit D)

INCREASED LOSSES

- Renal loss:
- Loop Diuretics
- Large volume loss  
transfusions

GENERAL MANAGEMENT

>1.9mmol/L  
-and-  
Asymptomatic

SANDOCAL 1000  
2 Tablets BD PO/NG

- Alternatives:
- ADCAL 3 Tablets BD
  - CACIT 4 Tablets BD
  - CALCICHEW 2 Tablets BD

Always check Vitamin D level and replace as required: Load  
with 300,000 units total COLECALCIFEROL over 6-8 weeks

Always check Mg level and replace as required

MEDICAL EMERGENCY - CONTACT SENIOR IMMEDIATELY

<1.9mmol/L  
-or-  
Symptomatic at  
any level

IV CALCIUM GLUCONATE

10-20ml 10% in 50-100ml 5% Dex  
over 10 minutes

- Monitoring
- Cardiac telemetry during IV infusion

Repeat until asymptomatic

IV CALCIUM GLUCONATE

100ml 10% in 1000ml NaCl 0.9% or  
5% Dextrose at rate 50-100ml/hour

- Monitoring
- Telemetry during IV infusion

Titrate until normocalcaemia

Always check Mg level and replace as required

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