Alert

Multiple forms of calcium exist with varying amounts of elemental calcium expressed in varying units. Therefore careful attention is required in prescription and administration of calcium to avoid over- or under-dosing. Conversion factor for elemental Ca: 1 mg = 0.02 mmol = 0.05 mEq.
Do not give calcium solutions and sodium bicarbonate simultaneously by the same route to avoid precipitation.
Do not mix with any medication that contains phosphates, carbonates, sulfates or tartrates. Separate doses of the following by at least 2 hours: phosphate, iron, thyroxine and phenytoin.

Indication

Oral calcium supplement to prevent / treat calcium deficiency.
Asymptomatic hypocalcaemia.

Action

Calcium is essential for the functional integrity of the nervous, muscular, skeletal and cardiac systems and for clotting function.

Drug Type

Mineral.

Trade Name

CalSource Ca1000 effervescent tablets (Novartis).
If required:
Calcium Gluconate Injection (Phebra) (calcium 0.22 mmol/mL).
Calcium Chloride Injection (Phebra) 10% (calcium 0.68 mmol/mL).

Maximum Dose

Oral – 5.5 mmol/kg

Presentation

Calcium carbonate, calcium lactate gluconate (CalSource Ca1000) effervescent tablets contain calcium carbonate 1.8 g, calcium lactate gluconate 2.3 g (equivalent to 1 g or 25 mmol of elemental calcium) and sodium 136.9 mg (5.95 mmol).
If required:
Calcium gluconate 10% 10 mL vial contains 0.22 mmol/mL of elemental calcium.
Calcium chloride 10% 10 mL vial contains 0.68 mmol/mL of elemental calcium.

Dosage/Interval

Dose can vary.
Estimate the calcium intake from all sources before prescribing oral calcium.
Recommended total daily intake of elemental calcium from all sources: 120–200 mg/kg/day (3–5 mmol/kg/day).
Usual starting oral calcium dose: 20 mg/kg/day. Can increase up to 80 mg/kg/day. Divide the daily dose into 2-4 doses mixed with feeds (Do not mix with Phosphate – See Drug Interactions).

Route

Oral

Preparation/Dilution

Calcium – oral
Dissolve one calcium 1000 mg effervescent tablet in 10 mL of sterile water to make a 2.5 mmol/mL solution.

Administration

Calcium – oral
Administer with feeds.
If required, calcium IV vials may be given orally (must be diluted at least 1:4 with sterile water).

Monitoring

Monitor calcium, phosphate and magnesium. Measurement of ionised calcium preferred over total calcium.
Correct hypomagnesaemia if present.

Contraindications

Caution in patients with renal or cardiac impairment

Precautions

Do not mix with any medication that contains phosphates, carbonates, sulfates or tartrates.

Drug Interactions

Do not mix with any medication that contains phosphates, carbonates, sulfates or tartrates. Separate doses of the following by at least 2 hours: Phosphate, iron,\(^{31}\) thyroxine and phenytoin.
Digoxin (serious risk of arrhythmia and cardiovascular collapse), thiazide diuretics (increased risk of hypercalcaemia), ketoconazole (decreased ketoconazole effect).
### Calcium – ORAL
**Newborn Use Only**

<table>
<thead>
<tr>
<th><strong>Adverse Reactions</strong></th>
<th>Nephrolithiasis with long term use. Gastric irritation, diarrhoea and NEC have occurred during oral therapy with hyperosmolar preparations (must dilute with water)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatibility</strong></td>
<td></td>
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<tr>
<td><strong>Incompatibility</strong></td>
<td>Do not mix with any medication that contains phosphates, carbonates, sulfates or tartrates.</td>
</tr>
<tr>
<td><strong>Stability</strong></td>
<td>Oral solution: Discard remaining after use. Calcium gluconate is a supersaturated solution and may precipitate in the vial at room temperature. Inspect the vial before use.</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>Hypocalcaemia defined as a serum total calcium concentration below 1.875 mol/L [7.5 mg/dL] or ionized calcium less than 1.2 mmol/L.[1] Blood gas machines measure ionised calcium directly and are more accurate than the main pathology laboratory which calculates the ionised calcium from a complex formula. Corrected calcium is calculated (when albumin &lt; 40 or &gt; 45) by the formula: Measured Ca (mmol/L) + (40 – albumin (g/L) x 0.025)</td>
</tr>
</tbody>
</table>

### Evidence summary
Refer to full version.

### References
Refer to full version.

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<table>
<thead>
<tr>
<th><strong>Original version Date:</strong> 24/8/2016</th>
<th><strong>Author:</strong> NMF Consensus Group</th>
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<tbody>
<tr>
<td><strong>Current Version number:</strong> 1.4</td>
<td><strong>Version Date:</strong> 12/04/2018</td>
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<tr>
<td><strong>Risk Rating:</strong> Medium</td>
<td><strong>Due for Review:</strong> 12/04/2021</td>
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<tr>
<td><strong>Approval by:</strong> JHCH CQ&amp;PCC</td>
<td><strong>Approval Date:</strong> 24/07/2018</td>
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