

# Calcium gluconate

## 0.22mmol/mL injection elemental calcium

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**Note:**

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

**This is a High Risk Medication** 

An overdose can be rapidly fatal.

For information on oral calcium, see calcium carbonate (oral) guideline

### Synonyms

Calcium gluconate monohydrate

### Dose and Indications

Doses should be expressed in millimole (mmol) of elemental calcium. An ampoule of calcium gluconate 10% (10mL) contains 0.22mmol/mL of elemental calcium.

### Correcting Acute Symptomatic Hypocalcaemia

#### Intravenous

0.22mmol/kg to 0.44mmol/kg elemental calcium as a single dose

### Maintenance Treatment for Hypocalcaemia

Use oral treatment with calcium carbonate where possible (see calcium carbonate (oral) guideline).

#### Intravenous

0.11 mmol/kg elemental calcium per dose, 4 times a day



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### Exchange Transfusion

#### Intravenous

0.22mmol/kg elemental calcium may be used if hypocalcaemia is documented

*For the above indications, these are initial doses only and should be adjusted according to calcium and phosphate levels.*

### Severe Hyperkalaemia with electrocardiogram (ECG) changes

#### Intravenous

0.11mmol/kg of calcium gluconate 10% per dose

### Preparation and Administration

#### Intravenous

The intravenous preparation is formulated as calcium gluconate (equivalent to 0.22mmol elemental calcium in 1mL).

Calcium gluconate may precipitate in the vial. Inspect the vial before using and discard if it is cloudy or contains particles.

Dilute 5mL of the 0.22mmol/mL elemental calcium solution with 5mL of compatible fluid (to a total of 10mL). The resulting solution contains 0.11mmol/mL.

Dose	0.11mmol	0.22mmol	0.33mmol	0.44mmol	0.55mmol	0.66mmol
Volume	1mL	2mL	3mL	4mL	5mL	6mL

Infuse over one hour using a central line where possible.

For rapid administration in severe hyperkalaemia with ECG changes, give as a slow push over 2 to 5 minutes.

Do not administer by intra-muscular or subcutaneous route as tissue necrosis may occur.

### Compatible Fluids

Glucose 5%, glucose 10%, sodium chloride 0.9%

### Adverse Effects

Side effects specifically associated with intravenous administration include calcium deposition (extravasation), skin necrosis (extravasation), and irritation.

Peripheral vasodilation, bradycardia, cardiac asystole, hypotension and arrhythmia are related to rapid intravenous administration.

#### Infrequent

Hypercalcaemia, alkalosis, hypophosphataemia

#### Rare

Renal calculi



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### Monitoring

- > Cardiac monitoring during administration. The electrocardiogram (ECG) should be monitored for evidence of hypercalcaemia, bradycardia and other arrhythmias (stop infusion if heart rate is less than 100 beats per minute).
- > Monitor serum calcium, ionised calcium and phosphate.
- > Observe injection site closely for extravasation.
- > Observe IV tubing for precipitates.

### Practice Points

- > Intramuscular magnesium sulphate may be preferable for the treatment of transient late neonatal hypocalcaemia.
- > Do not add to any solution containing bicarbonate, sulphate or phosphate.
- > Calcium gluconate should not be co-infused with Parenteral Nutrition Solution (PNS), due to the potential formation of calcium phosphate precipitants, which may not be visible (refer to your pharmacy department for more information).
- > Calcium gluconate is incompatible with a range of medications, forming insoluble precipitates when mixed; please check with your local pharmacy department for specific advice.
- > Improves ECG manifestations of hyperkalaemia without changing plasma potassium level.
- > Rapid intravenous injection may cause sinus bradycardia.
- > Use with CAUTION in patients with renal or cardiac impairment.
- > Highly irritant - avoid extravasation by administering slowly into a central vein.
- > Calcium gluconate in glass vials should not be used for repeated or prolonged treatment due to high aluminium content.



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### Document Ownership & History

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Approval Date	Version	Who approved New/Revised Version	Reason for Change
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09/03/2018	V3.1	SA Health Safety and Quality Strategic Governance Committee	Review date extended to 5 years following risk assessment. New template
12/08/2014	V3	SA Health Safety and Quality Strategic Governance Committee	Update
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06/08/2013	V1	SA Maternal & Neonatal Clinical Network	Original SA Maternal & Neonatal Clinical Network approved version

