



MONOGRAPH

Glucose 50% (Intravenous)

Scope (Staff):	Medical, Pharmacy, Nursing, Anaesthetic Technicians
Scope (Area):	All Clinical Areas

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [DISCLAIMER](#)

QUICKLINKS

Dosage/Dosage Adjustments	Administration	Compatibility	Monitoring
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DRUG CLASS

Carbohydrate caloric agent^[1]

INDICATIONS AND RESTRICTIONS

- Blood glucose level (BGL) management within a critical care setting^[1]
- Concentrated provision of calories where other nutrition options are not appropriate within a critical care setting^[1]
 - Glucose contained in parenteral nutrition (PN) is outside the scope of this monograph. Refer to the [PCH Parenteral Nutrition Prescribing Guideline](#).
 - Glucose contained in intravenous fluids is outside the scope of this monograph. Refer to the [Intravenous Fluid Management Guideline](#).
 - Glucose management in patients with diabetes is outside the scope of this monograph. Refer to relevant guidelines.

CONTRAINDICATIONS

- Hypersensitivity to glucose, corn (maize), corn products or any component of the formulation.^[2]

PRECAUTIONS

- Patients at risk of developing a hyperosmolar hyperglycaemic state (HHS) including patients with underlying CNS disorders (e.g. stroke), renal impairment or a known carbohydrate intolerance.^[3]
- Patients with severe malnutrition, critical illness or electrolyte imbalances – increased risk of refeeding syndrome.^[3]
- Premature neonates and low birth weight infants – increased risk of aluminium toxicity (from immature renal function), intracerebral haemorrhages, significant changes in BGL and electrolyte disturbances.^[3, 4]
- Patients with concurrent electrolyte disturbances – increased risk of fluid / solute overload and the dilution of serum electrolytes.^[1]

FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- Glucose 50% (25 grams/50 mL) vial

Imprest location: [Formulary One](#)

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: [Refer to Neonatal Medication Protocols](#)

Dosing in Overweight and Obese Children: Dose based on measured body weight. Adjust according to BGL.

Renal impairment:

- No adjustment required^[3]

Hepatic impairment:

- No adjustment required^[3]

Intravenous Dosing (≥ 4 weeks – 18 years):

NOTE: Extravasation risk – administer via a central line

Recommended starting rate:

- Infants (up to 6 months): 4 – 6 mg/kg/minute^[5, 6]
- Older children (older than 6 months): 2 – 3 mg/kg/minute^[5, 6]
- Usual maximum infusion rate: 8 mg/kg/minute^[6]
- Higher doses may be required for hyperinsulinism and toxicology indications^[6]

Titration:

- The glucose infusion rate should be increased every 15 – 20 minutes, in increments of 0.5 – 1 mg/kg/minute until the desired BGL is achieved.^[5]

- The prescriber must specify the target BGL range on the prescription

ADMINISTRATION

- Administer undiluted (0.5 grams/mL) as a continuous intravenous infusion^[7]
 - Draw up an appropriate amount of undiluted glucose 50% into a 50 mL syringe.
 - The syringe driver may not be able to administer high infusion rates if a 30 mL syringe is used.
- Extravasation risk^[7]
 - Glucose 50% is hypertonic so intravenous administration may cause local pain, vein irritation, local phlebitis or venous thrombosis^[7]
 - Administer via a central line^[7]
- Do not abruptly withdraw infusion to avoid rebound hypoglycaemia.^[3] Consider changing to a glucose 5% or glucose 10% infusion prior to ceasing.^[3]
- Do not administer glucose solutions without electrolytes simultaneously with blood through the same infusion set due to the possibility of red blood cell agglutination.^[3]

COMPATIBILITY (LIST IS NOT EXHAUSTIVE)

Compatible fluids: No information^[7]

Compatible at Y-site: No information^[7]

Only commonly used drugs are listed below. This is not a complete list of incompatible drugs. [Compatibilities of IV drugs](#) must be checked when two or more drugs are given concurrently.

INCOMPATIBLE drugs: Folic Acid^[7]

MONITORING

- Blood glucose levels^[5]
 - Glucose levels should be monitored every 15 – 30 minutes until BGL have normalised.^[5]
 - Once stabilised, levels may be checked every 1 – 4 hours^[5]
- Electrolyte and urea levels^[3]
- Serum osmolality^[3]

ADVERSE EFFECTS

Frequency not known: Chills, electrolyte imbalance, fever, fluid imbalance, hypersensitivity, local reaction, localised pain, polyuria, rash, venous thrombosis^[6]

STORAGE

Vial: Store below 25°C^[7]

INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. [Clinical Pharmacology](#)), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

Please note: The information contained in this guideline is to assist with the preparation and administration of **Glucose 50%**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

References

1. AHFS Drug Information. Dextrose. American Society of Health-System Pharmacists. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
2. AusDI by Telstra Health. Glucose 50%: Product Information. Health Communication Network Pty Limited. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
3. Clinical Pharmacology. Dextrose (Glucose) Paediatric Monograph. Elsevier Inc. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
4. Micromedex. Dextrose. Merative US LP. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
5. UpToDate. Approach to hypoglycaemia in infants and children. UpToDate. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
6. British National Formulary for Children. Glucose (Dextrose Monohydrate). BMJ Publishing Group Ltd. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service
7. The Society of Hospital Pharmacists of Australia. Glucose 50%. Australian Injectable Drugs Handbook [Online]. Accessed June 9, 2026. Available from Home - CAHS Library - Library at Child and Adolescent Health Service

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