Glucagon for hypoglycaemia when oral intake is not possible

SESLHDPR/480

POLICY STATEMENT

The Registered Nurse (RN) / Registered Midwife (RM) is authorised to instigate nurse/midwife-initiated medication without an authorised prescriber's order under the specific circumstances set out in the **INDICATIONS** section and provided there are no contraindications present.

***NOTE**: ECAT trained RNs working in the Emergency Department will follow ECAT protocols - refer to the ECAT protocols directly for management of hypoglycemia in ED*

It is important for nursing and midwifery staff to remain aware that:

- Minor ailments may be symptoms of other more serious diseases or may be adverse reactions to medication already prescribed
- Nurse-initiated medication may interact with the patient's prescribed medication
- The maximum daily recommended dose of the medication must not be exceeded.[1]

The administering nurse/midwife must record the administration on an approved paper or electronic medication chart, clearly indicating that the medicine was nurse initiated.

If the patient requires the medication on a repeated basis, then a medical officer (MO) must be consulted for review of the patient and a PRN order obtained.

All hypoglycaemic episodes must be escalated immediately via the clinical emergency response system and a medical officer must review the patient.

INDICATIONS

- **Treatment of severe hypoglycaemic reactions which may occur in the management of patients with diabetes receiving insulin or oral hypoglycaemic agents**
- Administer when the blood glucose level (BGL) is less than 4 mmol/L, and patient has an altered or deceased level of consciousness or is unable to take treatment orally, (or in a child that does not have intravenous (IV) access)

CONTRAINDICATIONS[2]

- Phaeochromocytoma
- Insulinoma
- Glucagonoma
- Hypersensitivity to glucagon or any of the excipients
- Chronic hypoglycaemia, adrenal insufficiency, starvation, alcohol-induced hypoglycaemia[3]

PRECAUTIONS

- The tip cap of the syringe included in the GlucaGen HypoKit contains natural rubber latex which may cause allergic reactions in latex sensitive individuals[2].
- Safe to use in pregnancy and breastfeeding[3].

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HISTORY/ASSESSMENT

- Please refer to and follow the local hospital guidelines for the assessment and management of hypoglycaemia.
- Determine the blood glucose level (BGL) using a blood glucose meter
- Treat immediately if hypoglycaemia is confirmed
- Escalate immediately via clinical emergency response system

PROTOCOL/ADMINISTRATION GUIDELINES

Caution: CHECK for allergies and/or contraindications

Drug	Dose	Route	Frequency
Glucagon	**under 25 kg: 0.5 mg**	**IM (preferred) or subcut**	**Once**
	25 kg and over: 1 mg		

- Before reconstitution, the powder should be a white powder (which may appear like a powdery tablet upon settling), the diluent should be clear, colourless and without particles.

- Dissolve the freeze-dried glucagon in the accompanying diluent. Inject the diluent (water for injection 1.1 mL) into the vial containing the freeze-dried glucagon. Gently shake the vial until completely dissolved and the solution is clear. Withdraw the solution back into the syringe. The reconstituted solution appears clear and colourless, and forms an injection of 1 mg (1 International Unit) per mL

- GlucaGen HypoKit® should be used immediately after reconstitution

- DO NOT administer intravenously.

MONITORING - POTENTIAL ADVERSE EFFECTS/INTERACTIONS

Monitoring:

- Stay with patient until they regain consciousness
- Response to glucagon should occur within 6 -10 minutes[2-4],
- Repeat BGL every 15 minutes until blood glucose level ≥ 4 mmol/L, or earlier if clinically indicated
- Once BGL is ≥ 4mmol/L and the patient is conscious and able to swallow follow up with oral carbohydrate or IV glucose according to local hospital protocol
- Recheck BGL hourly until stable[6]

Adverse effects:

- nausea, vomiting, hypokalaemia (large doses), allergic reactions[3]

Drug interactions[2]:

- Beta-blockers: Patients taking beta-blockers might be expected to have a greater increase in both pulse and blood pressure.
- Insulin: Reacts antagonistically towards glucagon.
- Indomethacin: Be aware, glucagon may lose its ability to raise blood glucose or paradoxically may even produce hypoglycaemia.

PRACTICE POINTS

- Response to glucagon should occur within 6 -10 minutes[2-4], if there is no response, the patient should be prescribed IV glucose as per local hospital policy guidelines
- The period of monitoring may need to be extended if the cause of hypoglycaemia is not immediately reversible[4].
- The cause of the hypoglycaemia should be determined and acted upon to prevent reoccurrence[4].

DOCUMENTATION

A record of the administration must be made on the approved paper or electronic medication chart noting that the medication was nurse initiated.

A further record of the medication administered including indication, dose and effect must be included in the patient's health care record.

REFERENCES/FURTHER READING

1. NSW Health Policy Directive Medication Handling PD2022_032
2. Australian Medicines Handbook. Glucagon (endocrine). South Australia: Australian Medicines Handbook Pty Ltd, January 2023.
3. MIMSOnline. GlucaGen® Hypo Kit ®. 01 November 2021.
4. eTG complete. Hypoglycaemia in patients with diabetes. Melbourne: Therapeutic Guidelines Ltd. August 2022.

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REVISION and APPROVAL HISTORY

Date	Version Number	Author and Approval
July 2015	DRAFT	Pharmacy Department, Prince of Wales Hospital
September 2015	1	Stream consultation and revision Approved by SESLHD Drug &QUM Committee
May 2018	DRAFT 2	Reviewed by nursing and pharmacy staff. Minor wording updates made. References updated.
July 2018	2	Approved by SESLHD Quality Use of Medicines Committee
August 2021	DRAFT 3	Reviewed by nursing and pharmacy staff. Minor wording updates made. References updated.
September 2021	3	Approved by SESLHD Quality Use of Medicines Committee
June 2023	DRAFT 4	NSW Medicines Formulary reviewed. Reviewed by nursing and pharmacy staff.
September 2023	4	Approved by SESLHD Drug and Therapeutics Committee
16 December 2024	4.1	Minor amendment to include reference to ECAT protocols for trained RNs working in the ED.