GLUCAGON

Indication	• Treatment of refractory hypoglycaemia when liver glycogen is available[1] o Less effective if glycogen stores are likely to be low (e.g. growth restricted or preterm)

INTRAVENOUS

Presentation	• Vial: 1 mg (1 international unit) supplied with 1 mL diluent • Prefilled syringe (NOVO) brand
Dosage	• IV injection o 200 microgram/kg stat[1,2] o THEN commence IV infusion of glucagon
	• IV Infusion o Commence at 10–20 microgram/kg/hour[1] o Titrate according to response[1] up to 50 microgram/kg/hour[3,4]
Preparation	• IV injection o Add 1 mL supplied diluent to vial[5] o Agitate gently until powder dissolved o *Concentration now equal to 1000 microgram/mL*
	• IV Infusion o Add 1 mL supplied diluent into each vial[5] o Agitate gently until powder dissolved o *Concentration now equal to 1000 microgram/mL* o THEN method A OR method B according to weight • <u>More than 2 kg (method A)</u> o Draw up 500 microgram/kg from reconstituted vial/s, and make up to 50 mL total volume with 5% glucose o *If infused at 1 mL/hour, delivers 10 microgram/kg/hour* • <u>2 kg or less (method B)</u> o Draw up 1000 microgram/kg from reconstituted vial/s, and make up to 50 mL total volume with 5% glucose o *If infused at 0.5 mL/hour, delivers 10 microgram/kg/hour*
Administration	• IV injection o Draw up prescribed dose o IV injection over 1 minute[5]
	• IV infusion o Prime the infusion line o Via syringe driver pump at prescribed rate

IM

Presentation	• Vial: 1 mg (1 international unit) supplied with 1 mL diluent
Dosage	• 200 microgram/kg stat[1,2] o THEN commence IV infusion of glucagon[1]
Preparation	• Add 1 mL supplied diluent to 1 mg vial[5] • Agitate gently until the powder dissolved[5] o *Concentration now equal to 1000 microgram/mL*
Administration	• Draw up prescribed dose • Intramuscular injection into thickest part of the vastus lateralis in the anterolateral thigh (maximum 0.5 mL per site)[6]

SUBCUT		
	Presentation	• Vial: 1 mg (1 international unit) supplied with 1 mL diluent
	Dosage	• 200 microgram/kg stat[1,2] o THEN commence IV infusion of glucagon[1]
	Preparation	• Add 1 mL supplied diluent to 1 mg vial[5] • Agitate gently until the powder dissolved[5] o *Concentration now equal to 1000 microgram/mL*
	Administration	• Draw up prescribed dose • Subcutaneous injection into anterolateral thigh

Special considerations	• Refer to Queensland Clinical Guideline: *Newborn hypoglycaemia*[7] • Use the supplied diluent for preparation. If manufacturer diluent not available or insufficient, use water for injection[1] • Use of low stiction syringe recommended • Do not use concentrations greater than 1 mg/mL[1] • Use a dedicated IV line • Use IM and SC route only if IV route not available
Monitoring	• BGL
Compatibility	• Fluids[5] o 5% glucose, 0.9% sodium chloride o Insufficient information about 10% glucose • Y-site[5] o No information
Incompatibility	• Solutions containing calcium[3]
Interactions	• Indomethacin may cause paradoxical hypoglycaemia with glucagon[8]
Stability	• Vial o Store below 25ºC. Protect from light[5] • Reconstituted solution o Should be clear and colourless and particle free[5] • Infusion o Change every 24 hours
Side effects	• Blood pathology: rebound hypoglycaemia[1] • Digestive: vomiting (also an expected result of a hypoglycaemic state[8]), inhibits small bowel motility[1] • Circulatory (rare)[2]: hypertension, hypotension, tachycardia • Integumentary: (rare) necrolytic migratory erythema[9]
Actions	• Hyperglycaemic agent that mobilises the breakdown of liver glycogen, which is released into the blood as glucose[8]
Abbreviations	BGL: blood glucose level, IM: intramuscular, IV: intravenous, SC: subcutaneous
Keywords	Glucagon, hypoglycaemia, hyperglycaemic, hyperinsulinemia, blood glucose, newborn hypoglycaemia, neonatal hypoglycaemia

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

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Document history

ID number	Effective	Review	Summary of updates
NMedQ19.021-V1-R24	25/08/2019	25/08/2024	Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)
NMedQ19.021-V2-R24	10/12/2020	25/08/2024	Amendment to IV infusion administration instructions Addition of QR scan code

QR code