

GLUCAGON**This drug must be guardrailed**

Trade Name	Glucagen Hypokit Injection 1mg (Novo-Nordisk Pharmaceuticals)			
Class	Hormone			
Mechanism of Action	Rapid increase in blood glucose level by direct effect on gluconeogenesis, lipolysis and glycogenolysis, as well as indirect via catecholamine release. Decreased small bowel motility. Effect lasts \pm 2 hours ³ .			
Indications	Severe acute hypoglycaemia.			
Contraindications	<p>Phaeochromocytoma</p> <p>Glucagonoma</p> <p>Hypersensitivity to glucagon or any component of the formulation (Glucagon contains; lactose, hydrochloric acid and sodium hydroxide used for pH adjustment and water for injection)</p> <p>Avoid in premature or SGA babies (as there is insufficient substrate for glucagon to work on).</p> <p>Use with caution in patients with hypertension or insulinoma</p>			
Supplied As	<p>Gluca-gen Hypokit contains 1 vial of:</p> <p>Glucagon hydrochloride 1mg (=1 IU) + lactose 107mg, and a syringe containing 1mL of water for injection</p>			
Dilution	Vial	Water Added	Final Volume	Concentration
<p>*Two dilution steps required for IV infusion*</p>	1mg	1mL	1mL	1mg/mL
	<p>Dissolve the freeze-dried product in supplied water, then if for IV infusion further dilute as per the glucagon infusion sheet:</p> <p>Take 0.5 x wt(kg) in mL of 1mg/mL solution and make up to 50 mL with 10% dextrose</p> <p>1 mL/hr = 10 microgram/kg/hr</p> <p>Max concentration 50 microgram/mL</p>			
Dosage	<p>Stat dose: 200 microgram/kg Maximum single dose = 1 mg</p> <p>Infusion: 10 - 20 microgram/kg/hr²; titrate as per blood glucose. Doses up to 50 microgram/kg/hr¹ have been used.</p>			
Guardrails	<p>Conc: Min – 3microgram/mL Max – 70microgram/mL</p> <p>Soft Alert Min: 3microgram/kg/hr Hard Alert Max: 50microgram/kg/hr</p> <p>Soft Alert Max: 20microgram/kg/hr Default Setting: 5microgram/kg/hr</p>			
Interval	<p>Stat dose: Repeat same dose in 20 minutes if necessary.</p> <p>Infusion: Continuous</p>			

Administration	<p>Stat dose: Concentration 1mg/mL</p> <p>Single IV slow bolus over 3 minutes, or</p> <p>IM bolus - inject dose into a large muscle (buttock, thigh).</p> <p>IM dose volume should be kept between 0.5-1mL (max dose 1 mg) to decrease the pain for the baby</p> <p>See IM administration guideline in Drugs folder</p> <p>Infusion: IV continuous infusion</p>
Compatible With	<p>Dextrose infusions</p> <p>Y-site:naloxone</p>
Incompatible With	<p>Solutions containing calcium</p> <p>Avoid giving with electrolyte solutions or any other medication no compatibility information available.</p>
Monitoring	<p>Regular blood glucose levels, blood pressure, respiratory rate, electrolytes.</p>
Stability	<p>Single use only vial, discard after use.</p> <p>Continuous infusions must be changed after 24hrs</p>
Storage	<p>Store below 25°C.</p>
Adverse Reactions	<p>Vomiting; tachycardia; hyperglycaemia; rebound hypoglycaemia; ileus. Glucagon [Nova]: initial hyperkalaemia⁺ with subsequent prolonged mild hypokalaemia</p>
Metabolism	<p>Peak effect on blood glucose = 5-20 minutes</p> <p>Duration of effect ± 2 hours</p> <p>Metabolised mainly in liver (30%) & kidneys (30%)</p> <p>$t_{1/2}$ = 3 - 6 minutes</p>
Comments	<p>Rebound hypoglycaemia may occur: Adequate glucose delivery (IV or oral) is required following a bolus glucagon.</p> <p>Glucagon can only have an effect in babies who have adequate energy stores, thus unlikely to be effective in preterm and SGA babies.</p> <p>Not used for treatment of chronic hypoglycaemia.</p>
References	<ol style="list-style-type: none"> 1. Frank Shann: "Drug Doses" booklet; 1998 (10th Ed.):26. 2. John Spence Nursery Drug Database web site http://www.cs.nsw.gov.au/rpa/neonatal/ 3. Neofax in www.micromedexsolutions.com 4. www.Uptodate.com
Updated By	<p>Jan Klimek; November 2001</p> <p>A Lynn, B Robertshawe September 2009</p> <p>A Lynn, B Robertshawe October 2012 (re-order profile), Nov 2012 2 dilutions</p> <p>A Lynn May 2013 (increase max conc to fit 7kg baby)</p> <p>A Lynn Aug 2018 (stat dose clarified)</p> <p>A Lynn, M Wallenstein, B Robertshawe May 2021 (routine review)</p>