Insulin & Glucose 10% for Hyperkalaemia

Special note: Special care with calculating doses and administration volumes in neonates - frequently involved in medication errors.

Neonatal

BRAND NAME Insulin = Actrapid®

FORM
INSULIN: Vial containing insulin 1000units in10ml
GLUCOSE: Solution containing 10g glucose in 100ml

INDICATION Management of life threatening hyperkalaemia

DOSE RANGE

AGE	DOSE	FREQUENCY	ROUTE
<1month	5ml/kg/hour glucose 10% PLUS 0.3 – 0.6units/kg/hour of soluble insulin	Continuous infusions	Via same IV line as 2 separate infusions
1 – 6months	5ml/kg/hour glucose 10% PLUS 0.05 – 0.2units/kg/hour of soluble insulin	Continuous infusions	Via same IV line as 2 separate infusions

PRESCRIPTION OF BOTH CONTINUOUS INFUSIONS WHICH SHOULD BE RUN CONCURRENTLY VIA THE SAME IV LINE AS TWO SEPARATE INFUSIONS

GLUCOSE 10% Prescribe at 5ml/kg/hour
ie 5 x wt (kg) = rate in ml/hr

INSULIN - HIGH CONCENTRATION
25units/kg in 50ml of 0.45% sodium chloride

This gives:- 0.05 unit/kg/hr at 0.1ml/hour
0.1 unit/kg/hr at 0.2ml/hour
0.2 unit/kg/hr at 0.4ml/hour

RECONSTITUTION Already in solution

DILUTION FOR INSULIN

For all doses of insulin by IV infusion, dilution of the insulin 100 units/ml injection will be required to produce a suitable solution of insulin for further dilution.

Initial Dilution:

Insulin soluble (human actrapid) injection (100units/ml)	1ml
Water for injection	up to 10ml total

Gives a 10 unit in 1ml solution. Use the required volume.

Final Dilution:

Using the 10unit in 1ml solution

2.5 x weight (kg) = Number of ml of **diluted** human actrapid insulin **10units in 1ml** solution to be diluted up to 50ml total with sodium chloride 0.45% (equivalent to **25units/kg in 50ml**)

METHOD OF ADMINISTRATION	The glucose and the insulin infusions should be run concomitantly via the same IV line as two separate continuous infusions. **NB: Line priming is not recommended given the urgent nature of this treatment.**

COMPATIBILITY

Solution compatibility	Glucose 10%, Sodium Chloride 0.9%, Sodium Chloride 0.45%
Solution incompatibility	
IV Line compatibility	Aciclovir, Adrenaline (NaCl 0.9% only), Calcium Gluconate, Dobutamine, Gentamicin, Heparin, Midazolam (glucose only), Milrinone, Morphine, Noradrenaline (NaCl 0.9% only), potassium chloride, Sodium Bicarbonate, TPN, Vancomycin, vecuronium,
IV Line incompatibility	Aminophylline, Dopamine, labetalol, phenytoin, rocuronium

THIS LIST IS NOT EXHAUSTIVE PLEASE CONTACT PHARMACY FOR FURTHER INFORMATION ON COMPATIBILITY WITH ANY MEDICINES NOT INCLUDED

CAUTIONS, CONTRA-INDICATIONS AND SIDE EFFECTS

See Summary of Product Characteristics and most recent edition of BNF for Children (links below)

.

FURTHER INFORMATION

- Hyperglycaemia can be enhanced by the following drugs; levothyroxine, steroids, diuretics, including thiazides.
- Concentrations <1 unit/ml may cause significant line adherence
- Once opened, vial has 4 week expiry if stored in the fridge.
- Warning: do not flush through a line containing insulin once connected to the patient.

PH 7.2-7.4

LICENSED STATUS Licensed for use in all ages.

LINKS BNF for Children / Electronic Medicines Compendium:

APPLICABLE POLICIES West of Scotland Neonatal Guidelines:
Consult local policy if applicable

Document Number:	001	Supersedes:	nil
Prepared by:	Anisa Patel	Checked by	WoS Neo Pharm Group
Date prepared	November 2022	Date updated	
Updated by		Review Date	November 2025

Administer reconstituted solutions immediately.
All vials, ampoules and infusion bags are for single use only unless otherwise stated.
Dose may vary depending on indication, age, renal function, hepatic function, and concomitant medications.
This monograph should be used in conjunction with the package insert, BNF for Children, and Summary of Product Characteristics. For further advice contact your clinical pharmacist or pharmacy department.