

Variable Rate Intravenous Insulin Infusion (VRIII)

This chart is for **adult medical** patients only

(For Critical Care, Obstetrics & Gynaecology, Surgical and Neurosurgical patients, see respective charts)



Section A - General Principles

1. Initiating VRIII

- 1.1 VRIII is indicated in patients with insulin-treated diabetes without ketoacidosis and are/have the following:
 - a. Vomiting
 - b. Nil by mouth (and missing more than 1 meal, for example, if fasting for any procedures)
 - c. Reduced oral intake and it is challenging to adjust usual insulin regimen
 - d. Acutely unwell and need to achieve normal glucose level
- 1.2 In cases of systemic steroid use, end stage renal failure, pregnancy, VRIII needed for more than 24 hours, insulin pump use or total parenteral nutrition, please contact diabetes specialist team for advice
- 1.3 Target capillary blood glucose (CBG) levels throughout admission are **6-12 mmol/L**
- 1.4 Ensure there is a recent HbA1c, and that any usual insulin regime is documented when starting VRIII

2. Insulin Prescription

- 2.1 Prescribe the insulin as directed in Page 2
- 2.2 **Continue** usual basal long-acting insulin (e.g. Lantus/Tresiba/Insulatard/Levemir) at 80% of the usual dose on the insulin prescription chart and on HEPMA
- 2.3 **Withhold** rapid-acting or biphasic insulin (e.g. NovoRapid/Humalog/Fiasp/Apidra/NovoMix/Humulin M3). Withhold/suspend other diabetes treatments on HEPMA

3. Substrate Fluid

- 3.1 **Do not run VRIII without substrate fluid (i.e. glucose containing)** unless advised by a specialist
- 3.2 Prescribe the substrate fluid on a fluid prescription chart
- 3.3 Fluid choice will depend on fluid status, serum potassium (K⁺) and sodium (Na⁺) levels
- 3.4 Assess fluid status alongside urea and electrolytes at least daily

Potassium	Substrate Fluid	Volume (mL)	Rate (mL/hr)
<3.5 mmol/L	Seek senior or specialist support		
3.5-5.5 mmol/L	0.18% sodium chloride and 4% glucose with 40 mmol potassium chloride	1000	100
>5.5 mmol/L	0.18% sodium chloride and 4% glucose	1000	100

4. Special circumstances to consider (for twice daily review):

Patient group	Substrate	Second Fluid
Hypovolaemia/ need fluid resuscitation	Continue 0.18% sodium chloride / 4% glucose +/- potassium chloride	0.9% sodium chloride or Plasmalyte as required
Risk of overload/ frailty	Switch to 10% glucose at 40 mL/hr alongside VRIII	None
Na⁺ <130 mmol/L or falling by >3 mmol/L/day	Switch to 10% glucose at 40 mL/hr alongside VRIII	0.9% sodium chloride at 50 mL/hr +/- potassium chloride
Na⁺ >143 mmol/L	Consider Hyperosmolar Hyperglycaemic State	

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