Devloped by Clinicians at Rarotonga Hospital
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Guidelines for the management of Hypoglycaemia

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- Also see Guideline on Investigation of Severe Hypoglycaemia

Hypoglycaemia is important because :

1. It is a common, readily diagnosed and readily treated problem
2. If untreated, it may cause permanent brain damage

Definition:

Serum glucose < 2.6mM. This is based on the following:

1. Glucose levels within the 'normal' range are not necessarily optimal.
2. There is no physiological reason why brain glucose requirements should differ between term and preterm infants, or between the first and subsequent days of life.
3. The aim is to define a level which is safe for all babies, rather than is adequate for most.
4. Altered electrophysiological measurements and poor long-term neurological outcome have been reported in infants with recurrent serum glucose levels <2.6mM.

Diagnosis

A. Monitor at-risk infants

1. All infants <10th centile or >95th centile
2. If centile charts are not available, all term infants with a birthweight < 2.8kg or >4.5kg.
3. Infants of diabetic mothers
4. Preterm infants (<37 weeks gestation)
5. Stressed infants - i.e. those with birth asphyxia, sepsis, haemolytic disease, respiratory distress or congenital heart disease
6. Infants with symptoms of hypoglycaemia e.g. jitteriness, poor feeding

B When to monitor

1. Measure blood glucose at 1-2 hours of age, 4 hours, and then 4 hourly, preferably before feeds.

3. How to monitor

1. All blood glucose measurements should be analysed by a glucose oxidase method e.g. iSTAT, gas machine or lab analysis. Point of care monitors e.g. Accucheck, are not sufficiently accurate to measure blood glucose concentrations in babies at risk of neonatal hypoglycaemia.

3. How long to monitor

If feeding well	- At least 12 hours
Any recorded hypoglycaemia	- At least 12 hours after last low level

ALGORITHM FOR THE SCREENING AND IMMEDIATE MANAGEMENT OF BABIES AT RISK FOR NEONATAL HYPOGLYCAEMIA

Delivery Suite, Post Natal Ward or PACU

1. All at risk infants (see above) should receive milk feedings (either breastfeed or formula - maternal preference) or intravenous dextrose as soon as feasible, and always within the first 2 hours of life.

2. If glucose between 1.2-2.5mM on first testing (1-2 hours)
1. rub 0.5 ml/kg of 40% dextrose gel into buccal mucosa
2. then feed the baby (breastfeed or formula; maternal preference)
3. recheck glucose within 30min.
3. If glucose between 1.2-2.5mM on subsequent testing
1. rub 0.5 ml/kg of 40% dextrose gel into buccal mucosa
2. then feed the baby (breastfeed or formula; maternal preference)
3. recheck glucose within 30min.

4. If glucose between 2.0-2.5mM on subsequent testing
0. feed the baby a bottle of formula or EBM 12 ml/kg (90 ml/kg/day)
1. recheck glucose in 1 hour

5. If glucose below 1.2mM at any stage; below 2.0mM despite two doses of oral dextrose gel; below 2.6mM despite two doses of oral dextrose gel and a bottle of formula/EBM; or if feeds not tolerated, admit the baby to NICU.

6. If the glucose is <2.0mM at any stage notify the neonatal paediatric service.

7. Dextrose gel must be prescribed on a medication chart either by a midwife, nurse specialist – neonatal advanced practice, or medical practitioner.

NICU

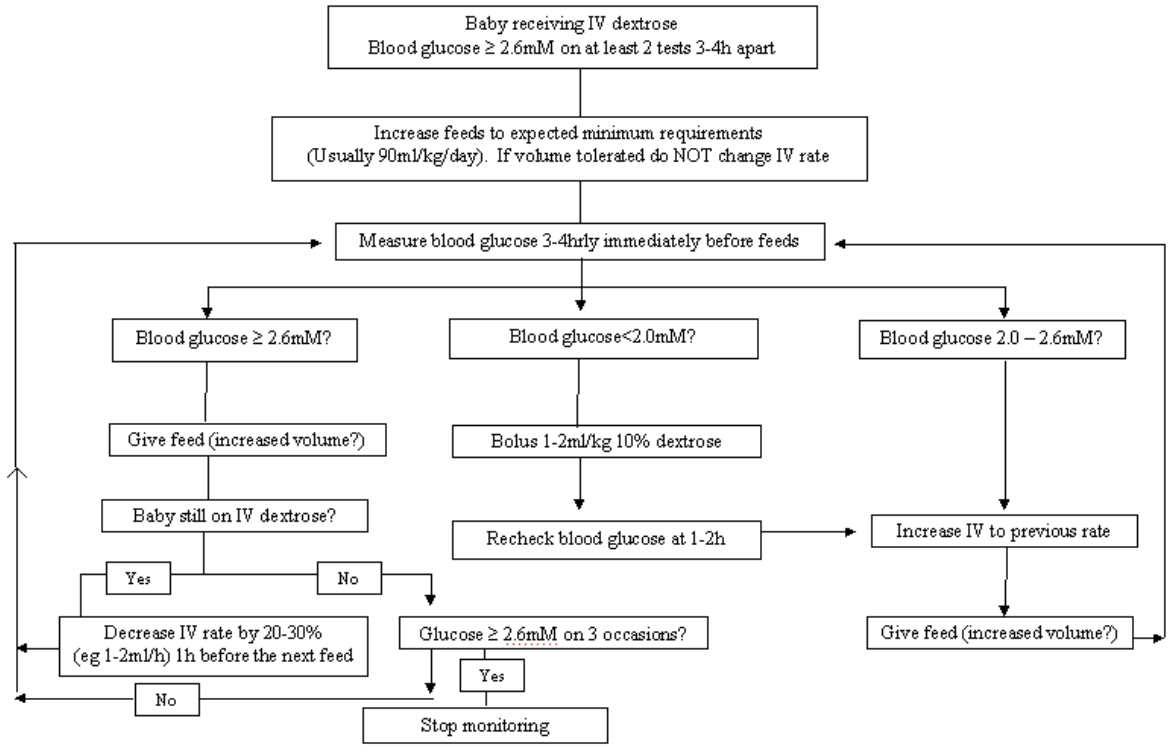
1. Start IV Dextrose 10% at 60ml/kg/day (=4.2mg/kg/min glucose)
2. Consider a bolus of 1-2ml/kg 10% Dextrose IV
3. Recheck glucose within 1 hour

Recurrent or persistent hypoglycaemia not responding to above measures - increase IV dextrose concentration or volume e.g. 12.5 or 15% dextrose and continue feeding if tolerated.

Continuing Therapy

Continue to monitor glucoses while IV dextrose is being gradually reduced. Rapid reductions in glucose infusion are likely to cause rebound hypoglycaemia.

Flow Chart for Weaning From IV Dextrose After Stabilisation of Hypoglycaemia



Persistent or severe hypoglycaemia (requiring more than 10mg/kg/min of glucose or lasting longer than 1 week) may require further investigation and management, e.g. with glucagon, diazoxide, steroids or surgery.

***Use Glucose Calculator**

In an emergency, particularly if there is difficulty in starting intravenous glucose infusion, glucagon 100 to 300ug/kg intramuscularly will stabilise blood glucose in most babies for one to two hours. The dose can be repeated, but subsequent doses are much less likely to be effective. (Glucagon mobilises glycogen stores. After the first dose, stores will probably be depleted).