



CLINICAL PRACTICE GUIDELINE  
NEWBORN EMERGENCY TRANSPORT SERVICE (NETS WA)

## Hypoglycaemia

This document should be read in conjunction with the [Disclaimer](#)

Definition: Blood glucose level < 2.6 mmol/L.

### At-Risk Neonates

- Poor stores: Small for gestational age, preterm, placental insufficiency.
- Metabolic derangement: Infant of diabetic mother.
- Increased consumption: Stressed, septic, asphyxiated infants.

### Management

- Calculate glucose-delivery rate.
- Term infants need 4-6 mg/kg/min; preterm infants need 6-8 mg/kg/min.
- Recurrent hypoglycaemia (2 or more episodes of hypoglycaemia): take blood for hypoglycaemia screen: blood gas (lactate), growth hormone, cortisol, ketones,  $\beta$ -hydroxybutyrate (1 mL green top + 1 mL red top tubes). Urine metabolic screen (5mls of urine).
- Insulin levels should ideally be taken prior to the administration of dextrose. However appropriate management should not be delayed by the acquisition of the insulin level.

### Mild, Asymptomatic, Stable Babies (BGL $\geq$ 1.5 mmol/L):

- If enterally fed, feed volume can be increased to 15 mL/kg/feed (provides 7mg/kg/min of glucose). Feeds can be increased in frequency to continuous milk feeds, or fortified (if no contraindications).
- Recheck glucose level after 30 minutes. If response to feed is inadequate, insert IV and commence 10% Glucose at 80-100mL/kg/day (5.6-7mg/kg/hr).
- Repeat glucose level after 30 minutes. If response inadequate, increase glucose concentration or infusion rate.

### Severe (BGL < 1.5mmol/L) or Symptomatic Babies:

- Hypoglycaemia screen.
- Consider IM Glucagon 100-200 mcg/kg as interim measure if symptomatic or difficult IV access.
- If BGL < 2.6mmol/L, give bolus of 2 mL/kg of 10% dextrose and commence 10% dextrose at 100 mL/kg/day. Repeat BGL in 30 minutes.
- If unable to site IV or if baby requires glucose concentrations > 12.5%, insert UVC.

**Note:** Beware of causing hyponatraemia with higher infusion rates. It may be preferable to increase glucose concentration rather than increase the rate. Early referral for advice is recommended.

## Calculations

### To Calculate Glucose Delivery Rate:

$$\frac{\text{Rate x \% glucose x 1000}}{100} = \text{mg/hr}$$

$$\frac{\text{mg/hr}}{\text{Weight (kg)}} = \text{mg/kg/hr}$$

$$\frac{\text{mg/kg/hr}}{60} = \text{mg/kg/min}$$

### To Increase Concentration of Glucose:

$$\frac{\text{Vol x (reg\% - avail\%)}}{(\text{add\% - avail\%})} = \text{Amount of additive glucose required (mL)}$$

Example: To make 50 ml of 13% glucose, using 50% glucose ampoules and 10% glucose bags:

$$\frac{50 \times (13-10)}{(50-10)} = \frac{50 \times 3}{40} = \begin{matrix} 3.75 \text{ mL of 50\% glucose to} \\ 46.25 \text{ mL 10\% glucose} \end{matrix}$$

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