



NEWBORN EMERGENCY TRANSPORT SERVICE MEDICAL GUIDELINES

CLINICAL GUIDELINES

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Newborn Emergency Transport Service Medical Guidelines
King Edward Memorial/Princess Margaret Hospitals
Perth Western Australia
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Hypoglycaemia

Definition: Blood glucose level $<2.5\text{mmol/l}$

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 $4\text{-}6\text{mg/kg/min}$; preterm infants need $6\text{-}8\text{mg/kg/min}$.
- Recurrent hypoglycaemia (2 or more episodes of hypoglycaemia): take blood for hypoglycaemia screen: blood gas (lactate) insulin, growth hormone, cortisol, β -hydroxybutyrate. (1mL green top + 1mL red top tubes)

Mild, asymptomatic, stable babies (BGL $\geq 1.5\text{ mmol/L}$)

- If enterally fed, feed volume can be increased to 15ml/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 90ml/kg/day
- Repeat glucose level after 30 minutes. If response inadequate, increase glucose concentration or infusion rate.

Severe (BGL $< 1.5\text{mmol/L}$) or symptomatic babies

- Hypoglycaemia screen
- Consider IM Glucagon $100\text{-}200\text{mcg/kg}$ as interim measure if symptomatic or difficult IV access
- If BGL $< 1\text{mmol/L}$, give bolus of 2mL/kg of 10% dextrose and commence 10% dextrose at 100mL/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:

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

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

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

To increase concentration of glucose:

$$\frac{\text{Vol} \times (\text{req}\% - \text{avail}\%)}{(\text{add}\% - \text{avail}\%)} = \text{amt of additive glucose required (mL)}$$

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

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

to 46.25mL 10% glucose