Management of BGL less than 1.5 mmol/L or baby symptomatic

Initial management of hypoglycaemia in newborn baby–symptomatic or BGL < 1.5 mmol/L (first 48 hours of life)

- Do not delay treatment
- Urgent medical review/consider neonatologist consultation
- Confirm BGL in blood gas machine, PoC analyser or laboratory
- Admit to neonatal unit–contact RSQ as required
- Collect diagnostic samples for hypoglycaemia screen

**Urgent treatment**

- Commence 10% glucose infusion at 60 mL/kg/day
  - If symptomatic or BGL not improving commence at 80 mL/kg/day
- Give 10% glucose 1–2 mL/kg IV bolus
  - Consider glucose gel 40% and breastfeeding
  - Recheck BGL after 30 minutes
  - If BGL improving continue 10% glucose IV adjust as needed
- If symptomatic or BGL not improving
  - Give glucagon IV
  - Repeat BGL after 30 minutes and if required, repeat glucose bolus and glucagon
- If IV access delayed > 15 minutes give glucagon IM or subcut

**As required**

- Increase IV glucose rate in 20 mL/kg/day increments (e.g. 60 to 80 mL/kg/day)
  - Risk of fluid overload—100 mL/kg/day maximum on day 1 of life (monitor serum sodium levels)
- Increase IV glucose concentration to 12% or step-wise to higher concentration—i.e. > 12% glucose give by UVC/CVL
- If GIR > 8 mg/kg/min in 1st 24 hours or baby hyponaetraemic consider glucagon infusion
- BGL
  - Repeat 30 minutes after:
    - Commencing or any changes to glucose concentration
    - Medication administration (for hypoglycaemia)
  - Repeat hourly until ≥ 3 mmol/L then, 4–6 hourly
- Feeds—continue if not contraindicated

**Confirm any BGL < 2.6 mmol/L in blood gas machine, PoC analyser or laboratory**

- BGL ≥ 3.0 mmol/L
  - for
  - > 12 hours?

  **Yes**

  - IV glucose > 8 mg/kg/min or
  - Baby > 48 hours of age or
  - BGL refractory or requires medication to control?

  **Yes**

  - Consult with neonatologist via RSQ
  - Discuss pharmacological intervention
    - Refer to NeoMedQ for doses and other information

  **No**

**Glucose mg/kg/minute**

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<th>%</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>120</th>
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<tbody>
<tr>
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<td>4.2</td>
<td>5.6</td>
<td>6.9</td>
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<td>12%</td>
<td>5</td>
<td>6.7</td>
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<tr>
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<tr>
<td>20%</td>
<td>8.3</td>
<td>11</td>
<td>13.9</td>
<td>16.7</td>
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</tbody>
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**Diagnostic samples**

**Blood**—during hypoglycaemic episode

- Blood gas—including electrolytes, glucose, haemoglobin, haematocrit and lactate
- Metabolic screen
  - Priority 1 Insulin Cortisol Acyl-carnitine profile
  - Priority 2 Growth hormone
  - Priority 3 Plasma amino acids Ammonium Pyruvate Beta hydroxybutyrate

**Urine**—post-hypoglycaemic episode

- Metabolic screen

**Discharge and follow-up**

- Gradually reduce IV therapy while full enteral feeds being established
- When baby is on full oral feeds wean glucagon (if used) and then hydrocortisone (if used)
- Check BGL before feeds
- Discontinue monitoring:
  - When IV glucose and glucagon, and hydrocortisone (if used) ceased and
  - Prior to 3 consecutive feeds BGL is ≥ 2.6 mmol/L in 1st 48 hours or ≥ 3.3 mmol/L after 48 hours

**BGL** blood glucose level, **CVL** central venous line, **GIR** glucose infusion rate, **IM** intramuscular, **IV** intravenous, **NNP** neonatal nurse practitioner, **PoC** point of care, **RSQ** Retrieval Services Queensland, **subcut** subcutaneous, **UVC** umbilical venous catheter, > greater than, ≤ less than or equal to


Queensland Clinical Guidelines