**Is shock present?**
- **YES**
- **NO**

**Is there a fluid deficit?**
- **YES**
  - Prescribe Maintenance Fluids
  - On senior advice
- **NO**

**Can child be managed with enteral fluids?**
- **YES**
  - Prescribe ENTERAL REHYDRATION SOLUTION
- **NO**

**Resuscitation**
**ADMINISTER FLUID BOLUS OVER LESS THAN 10 MINUTES**
Give 10 - 20 ml/kg of glucose-free crystalloids that contain sodium in the range 131 - 154 mmol/L IV or Intraosseous
[10 ml/kg if history of trauma, haemorrhage]
Reassess. Repeat bolus if needed and get senior help.

**Replacement: Redistribution**
**ESTIMATE DEFICIT**
**FLUID DEFICIT = (% dehydration x kg x 10) as mls of:**
Isotonic crystalloids that contain sodium in the range 131 - 154 mmol/L
The volume of fluid to be prescribed is: fluid deficit MINUS volume of any fluid bolus received
Prescribe this residual volume of deficit separately from the maintenance prescription.
Give over 48 hours.
ONGOING LOSSES: calculate at least 4 hourly. Replace with an equal volume of:
- sodium chloride 0.9% (with pre-added potassium)
Change fluid type and volume according to clinical reassessment, electrolyte losses and test results

**Routine Maintenance**

**Fluid choices:**
Initially use isotonic crystalloids that contain sodium in the range of 131 - 154 mmol/L with 5 - 10% glucose.

**Fluid Rate:**
Alter fluid rate according to clinical reassessment (including changes in enteral intake). Adjust fluid type according to investigations. If sodium rises above 145 mmol/L change to sodium chloride 0.45% with pre-added glucose.

**Consequence of fluid imbalance**
- Patients particularly at risk from hyponatraemia
  - peri-operative patients
  - head injuries
  - gastric losses
  - CNS infection
  - severe sepsis
  - hypotension
  - intravascular volume depletion
  - bronchiolitis
  - gastroenteritis with dehydration
  - abnormal plasma sodium and also if less than 138 mmol/L
  - salt-wasting syndromes

**Symptomatic Hyponatraemia - potential symptoms:**
nausea, vomiting, irritability, altered level of consciousness, seizures or apnoea.

**Routine Maintenance**

**CALCULATION OF 100% RATE**
- Birth to day 1: 2.0 - 2.5 ml/kg/hr
- day 2: 3.0 - 3.3 ml/kg/hr
- day 3: 3.3 - 4.0 ml/kg/hr
- day 4: 4.0 - 5.0 ml/kg/hr
- day 5 - 28: 5.0 - 6.3 ml/kg/hr

**Surface Area Method**
- insensible losses (300 - 400ml/m²/24 hrs) plus urinary output

**Acute Symptomatic Hyponatraemia: raise Na⁺ by 5 - 6mmol/L in 1-2 hours using sodium chloride 2.7% IV bolus(es). Aim for max 10mmol/L rise in 5 hours**

<table>
<thead>
<tr>
<th>Bolus</th>
<th>Volume</th>
<th>Speed</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.1</td>
<td>2ml/kg</td>
<td>10 mins</td>
<td>Give bolus No.2 if still symptomatic</td>
</tr>
<tr>
<td>No.2</td>
<td>2ml/kg</td>
<td>10 mins</td>
<td>Check U&amp;E; Give No.3 if symptomatic</td>
</tr>
<tr>
<td>No.3</td>
<td>2ml/kg</td>
<td>10 mins</td>
<td>If symptomatic reconsider diagnosis</td>
</tr>
</tbody>
</table>

First 48 hours: 2 hourly U&E, max Na⁺ 135 mmol/L, max rise 20mmol/L

**Hypokalaemia (< 3.5 mmol/L): Check for initial deficit. Maintenance fluid with pre-added potassium required. For concentration > 40mmol/L get senior help.**

**Hypoglycaemia (< 3 mmol/L). Medical Emergency: give 2 ml/kg bolus of glucose 10%.** Review maintenance fluid, consult senior and recheck level after 15-30 mins. INTRA-OPERATIVE PATIENTS: consider monitoring glucose.