



Refer to KIDSNTS for advice - 0300 200 1100

Principles of management:

Fluid therapy comprises 3 main elements:

1. Restoring deficits (e.g. volume resuscitation / dehydration correction)
2. Maintenance therapy (i.e. routine replacement of physiological losses)
3. Replacement of non-physiological losses (e.g. diarrhoea)

Restoring deficits:

Volume resuscitation:

- Use isotonic fluid e.g. 0.9% Sodium Chloride, Hartmann's, Plasmalyte 148
- Use aliquots of 5-10 ml/kg of crystalloids (exceptions: trauma, DKA, neurosurgical emergencies - see separate guidance)
- **Be aware of**
 - fluid overload
 - raised intracranial pressure
 - congestive cardiac failure
 - Call KIDS if requiring > 40-60ml/kg volume - may need inotropes

Correcting dehydration:

- Replace estimated deficit in addition to maintenance replacement.
- Correct dehydration over 48 hrs.
- Use isotonic fluid as default fluid.

Maintenance fluid (excluding neonates):

First 10kg	100ml/kg/day	4ml/kg/hr
Second 10kg	50ml/kg/day	2ml/kg/hr
Every further kg	20ml/kg/day	1ml/kg/hr

Maximum 2400ml/day in males and 2000ml/day in females

- In most cases, maintenance fluid should be restricted to 60-80% of calculated requirement.
- Use 0.9% sodium chloride + glucose 5% (with potassium chloride 20mmol/1000ml) as first choice maintenance IV fluid
- Isotonic crystalloids can be used alternatively
- *Glucose content:* 5% in infants and small children, 10% in neonates
- Monitor glucose and electrolyte levels daily
- Adjust potassium content as needed
- Daily weights should be performed and recorded where possible.

Replacement of losses:

- Anticipate, measure (if possible) and replace non-physiological losses such as diarrhoea, vomiting, large diuresis, burns-related fluid loss.
- Use isotonic fluid (e.g. 0.9% Sodium chloride +/- potassium chloride 10mmol/500ml) depending on nature of losses.
- Keep an accurate fluid balance chart.



Hyperkalaemia ([K⁺] > 5.5mmol/l):

- Monitor ECG (long PR interval or tall T waves).
- Ensure external potassium delivery (ie. maintenance) stopped



Symptomatic hyponatraemia [Na⁺] < 125 mmol/L:

- With associated CNS symptoms (seizures, coma or respiratory depression).

Emergency Management (Discuss with KIDS team): see Hyperkalaemia guidelines for more information

- **Salbutamol nebulised** (2.5mg for 10Kg, 5 mg for >10kg)
- **Calcium Gluconate 10%**, 0.5-1ml/kg over 5-10 min. (Max 20ml) Use 5-fold dilution for peripheral use. See BCH monograph
- **Insulin and Glucose:** Infuse 0.1Units/kg Actrapid with 1g/kg of Glucose (10ml/kg 10% or 5ml/kg 20% or 2ml/kg 50%) over 10 minutes. Monitor Blood glucose for hypoglycaemia. See BCH monograph
- **Salbutamol IV** 4 micrograms / kg over 10 min (maximum 250 microgram)
- **Forced diuresis** - Furosemide 1mg/kg i.v. (Maximum 20mg)
- **Calcium resonium** 125-250 mg/kg orally or rectally
- **Sodium Bicarbonate** 8.4% 1-2mmol/kg over 20 min
 - Use 4-fold dilution (i.e. 2.1%) for peripheral use - Only in Metabolic acidosis

Emergency management (discuss with KIDS team):

- Give 3% Sodium chloride: 3 ml/kg over 10-15 minutes
- Measure plasma sodium at end of bolus, repeat bolus if necessary
- If still seizing, consider IV anticonvulsants and intubation and give further 2ml/kg 3% sodium chloride over 10-15 minutes.
- Aim to raise plasma sodium by no more than 0.5 mmol/L/hour, measure sodium at least hourly initially.
- Review therapy when symptoms resolve, or when [Na⁺] > 125 mmol/L