

Essential Monitoring, Observations & Reassessment INITIALLY

Admission Weight.

U&E (unless child is well
& for elective surgery)

Each shift

Handover and review fluid
management plan.

12 Hourly -

Clinical assessment, fluid balance, glucose

24 Hourly -

Clinical reassessment.
U&E (more often if abnormal; 4-6hourly
if $\text{Na}^+ < 130 \text{ mmol/L}$).
Weight

ILL CHILDREN

Hourly - HR, RR, BP, GCS. Fluid balance
(urine osmolality if volume cannot be
assessed). **2 - 4 hourly** - glucose, U&E,
+/- blood gas.

Oral Intake and Medications:

Assess and record the volume and type
of oral fluids and IV medications.

**If plasma $\text{Na}^+ < 130 \text{ mmol/L}$ or
 $> 160 \text{ mmol/L}$ or plasma Na^+ changes
 $> 5 \text{ mmol/L}$ in 24 hours get senior help**

Routine Maintenance

CALCULATION OF 100% RATE

(a) for first 10 kg: 4ml/kg/hr

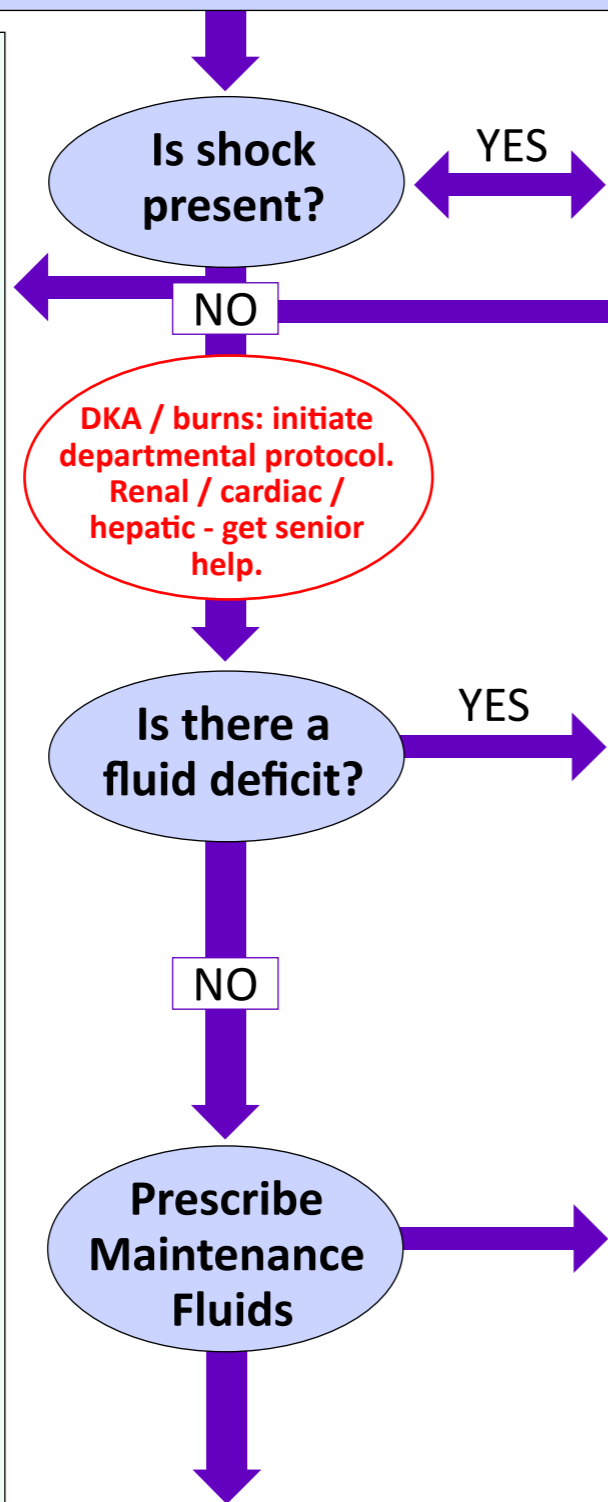
(b) for second 10 kg: 2ml/kg/hr

(c) for each kg over 20 kg: 1ml/kg/hr

[for 100% daily maintenance add together (a) + (b) + (c)]

MAXIMUM: females 80 mls per hour; males 100mls per hour.

If risk of hyponatraemia is high consider initially reducing maintenance
volume to two thirds of maintenance.



Resuscitation

ADMINISTER FLUID BOLUS OVER LESS THAN 15 MINUTES

Give 20 ml/kg sodium chloride 0.9% IV or Intraosseous
[10 ml/kg if history of trauma, haemorrhage or in diabetic ketoacidosis]
Reassess. Repeat bolus if needed. Get senior help.

Can child be managed with oral fluids?

YES

PRESCRIBE ORAL REHYDRATION SOLUTION

Replacement: Redistribution

ESTIMATE DEFICIT

FLUID DEFICIT = (% dehydration x kg x 10) as mls of:

sodium chloride 0.9%

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 or without pre-added potassium)

Change fluid type and volume according to clinical reassessment, electrolyte losses and test results

Routine Maintenance

PRESCRIBE INITIAL IV MAINTENANCE FLUID
(fluid sodium content 131 - 154 mmol/L)

Fluid choices:

glucose containing fluid required in infants and young
children. May also be required by older children

**sodium chloride 0.9% (with/ without
pre-added glucose, pre-added potassium)**

or

Hartmann's solution (with/ without pre-added glucose)

Fluid Rate:

Alter fluid rate according to clinical reassessment
(including changes in oral intake). Adjust fluid type
according to investigations.

COMMENCE ORAL FLUIDS & DISCONTINUE IV
FLUIDS AS SOON AS CLINICALLY APPROPRIATE

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, headache, irritability, altered
level of consciousness, seizures or apnoea.**

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

Bolus	Volume	Speed	Max	Comment
No.1	2ml/kg	10 mins	100ml	Give bolus No.2 if still symptomatic
No.2	2ml/kg	10 mins	100ml	Check U&E; Give No.3 if symptomatic
No.3	2ml/kg	10 mins	100ml	If symptomatic reconsider diagnosis

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

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

Hypoglycaemia ($< 3 \text{ mmol/L}$). 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.