

ANY CHILD RECEIVING PRESCRIBED FLUIDS IS AT RISK OF HYPONATRAEMIA

INTRODUCTION

- Every child on IV fluids or oral rehydration is potentially at risk of hyponatraemia.
- Hyponatraemia is potentially extremely serious, a rapid fall in sodium leading to cerebral oedema, seizures and death. Warning signs of hyponatraemia may be non-specific and include nausea, malaise and headache.
- Hyponatraemia most often reflects failure to excrete water. Stress, pain and nausea are all potent stimulators of anti-diuretic hormone (ADH), which inhibits water excretion.
- Complications of hyponatraemia most often occur due to the administration of excess or inappropriate fluid to a sick child, usually intravenously.
- Hyponatraemia may also occur in a child receiving excess or inappropriate oral rehydration fluids.
- Hyponatraemia can occur in a variety of clinical situations, even in a child who is not overtly "sick". Particular risks include:
 - Post-operative patients.
 - CNS injuries
 - Bronchiolitis
 - Burns
 - Vomiting

BASELINE ASSESSMENT :

Before starting IV fluids, the following must be measured and recorded:

- **Weight:** accurately in kg. [In a bed-bound child use best estimate.] Plot on centile chart or refer to normal range.
- **U&E:** take serum sodium into consideration.
- **Fluid needs:** should be assessed by a doctor competent in determining a child's fluid requirement. Accurate calculation is essential and includes:

<u>Maintenance Fluid</u>	100mls/kg for first 10kg body weight plus 50mls/kg for the next 10kg body weight plus 20mls/kg for each kg thereafter, up to max of 70kg [This provides the total 24 hr calculation; divide by 24 to get the mls/hr].
<u>Replacement Fluid</u>	Must always be considered and prescribed separately. Must reflect fluid loss in both volume and composition (lab analysis of the Na content of fluid loss may be helpful).

DHSSPS

Do not take samples from the same limb as the IV infusion.

Capillary samples are adequate if venous sampling is not practical.

Urine osmolarity/Na: Very useful in hyponatraemia. Compare to plasma osmolarity and consult a senior paediatrician or a chemical pathologist in interpreting results.

SEEK ADVICE

Advice and clinical input should be obtained from a senior member of medical staff including:

Consultant Paediatrician
Consultant Anaesthetist
Consultant Chemical Pathologist

- In the event of problems that cannot be resolved locally, help should be sought from consultant paediatricians/anaesthetists at the PICU, RBHSC.

DHSSPS