

From:

Sent:

To:

Cc:

Subject:

[REDACTED]
17 May 2004 11:30

Fee Eugene

Hamilton Donna; McIntyre Siobhan; Harkin Patricia; Kilgallen Anne; Stewart Carole;
McLaughlin Linus; [REDACTED]

PREVENTION AND MANAGEMENT OF HYPONATRAEMIA

Eugene, you will have received a letter from Dr. Henrietta Campbell on the above dated 4 March 2004. Could you please let me have a copy of your response to the Department giving assurance that both of the guidelines have been implemented.

Many thanks.

Margaret

From the Chief Medical Officer
Dr Henrietta Campbell CB

... of the guidelines have been implemented
Kantley,
cc Anne
Lenny,
Sibhan



Department of
**Health, Social Services
and Public Safety**

An Roinn
**Sláinte, Seirbhísí Sóisialta
agus Sábháilteachta Poiblí**

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Chief Executives of Acute / Acute & Community Trusts

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11 MAR 2004

Your Ref:

Our Ref:

Date: 4 March 2004

Dear Colleague

PREVENTION AND MANAGEMENT OF HYPONATRAEMIA

In March 2002, guidance on the prevention of hyponatraemia in children was issued to all Trusts. The guidance emphasised that every child receiving intravenous fluids should have a thorough baseline assessment and monitoring to prevent the development of hyponatraemia. An A4 sized black and white copy of the guidance is attached and it may also be accessed on the Departmental website www.dhsspsni.gov.uk. Large laminated posters were distributed to all Trusts which should now be displayed in appropriate clinical areas.

When the guidance was issued, Trusts were encouraged to develop local protocols to complement the guidance and to provide specific direction to junior staff. Emphasis was given to the need to ensure implementation of the guidance in clinical practice. It was also noted that the guidance should be supplemented locally in each Trust with more detailed fluid protocols relevant to specific specialty areas.

Following the development of guidelines for fluid replacement in children the Clinical Resource Efficiency Support Team (CREST) drew up guidance on The Management of Hyponatraemia in Adults. These guidelines focussed on the diagnosis and treatment of hyponatraemia in adults and included infusion guidelines. This was made available in the form of wall charts which were circulated widely last year. [Further copies are available if required from the CREST Secretariat]. The purpose of this letter is to ask you to assure me that both of these guidelines have been incorporated into clinical practice in your Trust and that their implementation has been monitored. I would welcome this assurance and ask you to respond in writing before 16 April.

Yours sincerely

Dr Henrietta Campbell

Medical Directors of Acute Trusts
Directors of Nursing, Acute Trusts
Directors of Public Health

*cc Wickley
D. Wick* } to attention

CHILDREN WITH HYPONATRAEMIA

INTRODUCTION

- Any child on IV fluids or oral rehydration is potentially at risk of hyponatraemia.
- Hyponatraemia is potentially extremely serious, a major risk in children 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 exercise caution. Serious hyponatraemia is a common complication of intravenous rehydration (AD) which exhibits water restriction.

• 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 nasogastric or enteral feeds or oral rehydration fluids.
- Hyponatraemia can occur in a variety of clinical situations, even in a child who is not overly sick. Particular risks include:

- Post-operative patients
- Burns
- Vomiting

WHAT TO ASSESS

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

- Weight accurately (kg) in a non-bearing clinic scale estimate (kg) on a table chart or refer to normal range.
- U&E take serum sodium into consideration

FLUID REQUIREMENTS

- Fluid needs should be assessed by a doctor, competent in determining a child's fluid requirements. Accurate calculation is essential and includes:
- Maintenance fluid
- Formulae for fluid (kg body wt plus 50ml/kg for the next 10kg plus 20ml/kg for each kg thereafter, up to max of 75kg. [This provides the total 24 hr calculation, divide by 24 to give ml/hr].

Replacement fluid

- Must always be considered and prescribed separately
- Must reflect fluid loss in both volume and composition
- Full analysis of the sodium content of fluid lost may be helpful.

CHOICE OF FLUID

- Maintenance fluids must in all instances be given by the prescribed sodium and potassium requirements. The glucose requirements, particularly in very young children, must also be met.
- Replacement fluids must reflect fluid lost in most instances this implies a minimum sodium content of 140mmol/l.

• When rehydrating a child with cerebral signs of severe dehydration it is made to administer a crystalloid normal (0.9%) saline an appropriate choice, whilst avoiding the serum sodium.

- The composition of oral rehydration fluids should also be carefully considered in light of the U&E analysis.

Hyponatraemia may occur in any child receiving any IV fluids or oral rehydration. Vigilance is needed for all children receiving fluids.

MONITOR

- Clinical state including hydration status. Particular attention to general well-being should be given.
- Fluid balance must be assessed at least every 4 hours by an experienced member of clinical staff.

• Urine. All oral fluids, including medication, must be recorded and IV intake recorded by experienced staff.

• Output. Measure and record all losses per hour, including vomit, diarrhoea, etc. An accuracy of 5% is acceptable.

• A child still needs prescribed fluids after 24 hours of starting, their requirements should be reassessed by a senior member of medical staff.

- Biochemistry. Blood sampling for U&E is essential. At least once a day - more often if there are significant losses or if clinical course is not as expected.

The rate at which sodium falls is as important as the plasma level. A sodium that falls quickly may be accompanied by rapid fluid shifts with significant consequences.

• Consider using an ion-selective electrode for the measurement of sodium in the laboratory (type 066).

• Do not take samples from the same arm as a previous capillary samples are adequate if previous satisfactory in practice.

• Urine creatinine/sodium. Very useful in hypotonic states. Compare to plasma creatinine and correct a water deficit. Referral to a Chemist, Pathologist in every case, results.

• Advice and clinical input should be obtained from a senior member of medical staff, for example a Consultant Paediatrician, Consultant Anaesthetist or Consultant Chemist, Pathologist.

• In the event of problems that cannot be resolved, help should be sought from Consultant Paediatricians, Anaesthetists at the PICU, ABSC.