Aneurin Bevan University Health Board

Fluid Management and Hyponatraemia in Peripartum Period

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Policy on a Page: Key Messages

Aim:

To provide support for clinical decision making in the context of fluid management and hyponatraemia in the peripartum period.

Summary of key changes (for revised documents only)

- Updated concentration of hypertonic saline solution for managing acute severe symptomatic hyponatraemia.

Key Requirements:

- Drink to thirst; monitor intake/output 4-hourly.
- Record all fluids + urine via BadgerNet.
- Check sodium if fluid balance > +1500 ml.
- Escalate if sodium <130 mmol/L.

Monitor sodium if:

- On oxytocin infusion,
- On insulin/dextrose,
- Sodium <130 mmol/L,
- Fluid balance > +1500 ml,
- Baby's cord sodium <130 mmol/L.
- Stop monitoring when sodium ≥130 mmol/L unless concerns continue.

Target Audience:

This guideline applies to all clinicians working within maternity services.

Training:

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical/ educational supervision.

Contents

1. Introduction/Overview

This document is a clinical guideline designed to support safe, effective practice and multidisciplinary team working.

2. Scope

This guideline applies to all clinicians working within maternity services.

3. Statement/Background

Peripartum dilutional hyponatraemia, also known as water intoxication, is an under-recognised problem affecting mothers and babies. Contemporary data collected through survey of obstetricians, anaesthetists and midwives across Aneurin Bevan University Health Board suggests that uncertainty exists regarding the recognition and subsequent management of peripartum hyponatraemia. This guideline aims to improve understanding around fluid management in labour, whilst outlining the appropriate diagnosis and treatment of hyponatraemia during the peripartum period.

This document applies to all people who are pregnancy and may use the term 'woman' but recognises that not all people having babies within Aneurin Bevan University Health Board identify as women.

If you have difficulty understanding any part of this guideline- including due to learning, sensory, or communication needs- please speak with your Line Manager or contact the authors of this guideline for support or clarification.

4. Aim

To provide support for clinical decision making in the context of fluid management and hyponatraemia in the peripartum period.

5. Main Body

Physiology

The non-pregnant female body has the capacity to excrete a water load of approximately 900 ml per hour under normal resting conditions. The physiological changes of late pregnancy result in a one third reduction of this ability. When a woman's consumption of hypotonic fluid exceeds her body's ability to excrete it, her blood, and that of the foetus, becomes diluted leading to a decrease in sodium concentration. This can be life threatening for both leading to cerebral oedema, seizures and even death. Hyponatraemic parturients are often asymptomatic or may have mild non-specific symptoms despite very low sodium levels; staff caring for these patients must therefore be vigilant in recognising the predisposing factors and subsequent symptoms.

Risk Factors

Several factors predispose pregnant women to hyponatraemia.

Physiological Risk Factors

- A lower baseline plasma sodium compared to non-pregnant women.
- Limited ability to excrete water during the third trimester.

Women in Labour are under greater risk of fluid retention due to endogenous oxytocin (which is structurally similar to antidiuretic hormone) but at greater risk if in addition are on synthetic oxytocin for augmentation of Labour.

Iatrogenic Risk Factors

- A positive fluid balance of greater than 1500ml.
- Excessive hypotonic oral fluid consumption.
- Augmentation of labour with synthetic oxytocin.
- Insulin/dextrose infusion

- Medications such as antidepressants, diuretics, anti-epileptics and antipsychotics

Symptoms

Patients with hyponatraemia may be asymptomatic. When symptoms (Table 1) are present, they are often nonspecific and are related both to the severity of the hyponatraemia and its speed of onset.

Early manifestations of hyponatraemia include-	**More advanced symptoms include-**
Anorexia (loss of appetite)	Disorientation
Nausea	Agitation
Lethargy	Seizures
Headache	Vomiting
	Drowsiness
	Coma

Table 1 Hyponatraemia Symptoms

Presence of urinary ketones in labour

The presence of urinary ketones in labour is a common occurrence due to the physiological stress of labour and is part of the body's response to starvation. The effect of ketosis on the mother and baby during this period is unclear and it is uncertain if this is a normal physiological response or whether women with ketosis require intervention for maternal and infant wellbeing.

A Cochrane review of the subject found no information on which to base treatment practice of ketosis in labour. However, given the association between ketosis and starvation urinary ketones should not be treated with fluid alone but with sugary food and drinks.

Summary

A growing awareness of the incidence and impact of peripartum hyponatraemia has resulted in a period of national data collection led by the United Kingdom Obstetric Surveillance System (UKOSS). Prior to the publication of their recommendations no local or national policy currently exists with which to guide best practice. These guidelines reflect current recommendations from the Society of Endocrinology and the Regulation and Quality Improvement Authority and will be updated to reflect UKOSS standards when published.

Guidance on peripartum fluid balance and sodium monitoring

Guidance for the care of women undergoing induction of labour

**Please also refer to Maternity Bladder Care Guideline (Aneurin Bevan University Health Board, 2024).*

- Educate women regarding drinking to thirst and the importance of fluid balance monitoring.
- Awareness of fluid balance from the start of the woman's admission enables appropriate monitoring and calculation when established in labour.
- Women should be encouraged to monitor their own fluid intake. The consumption of still (non-fizzy) isotonic sports drinks is both allowed and encouraged.
- Women must be encouraged to pass urine regularly and inform ward staff if they have any concerns (i.e., inability to void, voiding small amounts of urine etc).
- Any women who are vomiting regularly, unable to maintain oral hydration, have any concerns passing urine or any clinical concerns with fluid balance should have;

- All fluid input and output recorded on the Fluid Balance Chart via the Badgernet system at least 4-hourly,
- Women must be encouraged to pass urine regularly. These voids should be measured and recorded on the Fluid Balance Chart via the Badgernet system.
- On each transfer of care, fluid balance should be communicated and concerns raised.
- If a woman's fluid balance exceeds positive 1500 ml, blood sodium (Na) levels should be checked via Urea and Electrolyte (U+E) blood sampling.
- Obstetric registrar review must be requested if a woman's blood sodium (Na) level on U+E blood sampling is less than 130 mmol/L, and transfer of care to the labour ward should be arranged.
- The peripartum sodium monitoring pathway (Appendix 1) should be followed.

** For all women on midwifery led birthing unit please follow the All- Wales Midwifery-Led Care Guideline (Wales Maternity and Neonatal Network, 2022).*

Guidance for the care of women on labour ward

- Educate women regarding drinking to thirst and the importance of fluid balance monitoring.
- All fluid balance observations (input and output) including oral and intravenous (IV) fluids should be recorded on the Fluid Balance Chart via the Badgernet system (*Enter new note> Fluid Intake Setup/ Fluid Intake Update/ Fluid Outputs*).
- The indication for administering IV fluids should be clearly documented and the prescribed rate should be in millilitres per hour (ml/hr).

- IV fluids should ideally be given via a volumetric pump whenever possible (with the exception of resuscitation situations).
- IV fluids are not routinely required with epidural analgesia
- Urinary ketones in a non-diabetic pregnant women should not be treated with IV fluids.
- Women should be encouraged to void at least every 4-hourly and have urine output volume measured and recorded on the Fluid Balance Chart via the Badgernet system.
- Any additional losses e.g., vomiting, should be recorded on the Fluid Balance Chart via the Badgernet system.

Sodium Monitoring

Peripartum

If a woman is suspected to be hyponatraemic, venous blood should be taken from a limb that does not have IV fluid infusing (due to the risk of inaccurate results) and sent for formal laboratory testing, and a point of care test (POCT) using the blood gas analyser on the labour ward should be undertaken.

Women require sodium monitoring as per the Peripartum Sodium Monitoring Pathway (Appendix 1) if any of the following criteria are fulfilled;

- Are on an oxytocin infusion for any indication (except in the context of an elective caesarean section). **Please note, it is not necessary to await the sodium result prior to commencing the infusion.*
- Are in labour and require IV insulin and dextrose. Monitoring should be undertaken on a 4-hourly basis in these circumstances**.**
- Have a blood sodium below 130 mmol/L,
- Have a positive fluid balance of greater than 1500 ml,

- If the sodium level on a baby's cord gas is less than 130 mmol/L. **Please note, low sodium levels noted on a baby's cord gas should be escalated to the neonatal team for ongoing review and management. In addition, any baby born with a mother with a sodium level of less than 130 mmol/L should be escalated to the neonatal team for ongoing review and management.*

Results should be considered in reference to the Peripartum Sodium Monitoring Pathway (Appendix 1) to guide frequency of repeat testing and further management.

Postpartum

Once sodium levels are equal to or greater than 130 mmol/L, no further sodium monitoring is required unless clinically indicated.

Sodium levels that persist below <130 mmol/L may warrant further investigation as per Appendix 2 and discussion with the Medical or Endocrinology team depending on availability.

Management of severe hyponatraemia

The severity of clinical symptoms may not match the degree of hyponatraemia; profound hyponatraemia may be symptom free in some cases whilst others with moderate biochemistry (blood sodium of 125- 129 mmol/L) may have significant neurological symptoms.

The decision to treat hyponatraemia should be based on the clinical symptoms present rather than the absolute value of the sodium.

The following symptoms in the context of acute hyponatraemia (most commonly occurring with blood sodium less than 125 mmol/L) warrant treatment with hypertonic saline;

- Central Nervous System (CNS) disturbance,
- Confusion,
- Memory loss,
- Chronic headache,
- Drowsiness,
- Motor dysfunction,
- Coma/ altered Glasgow Coma Scale (GCS),
- Seizures,
- Encephalopathy.

The aim of treatment is to improve symptoms and not to correct the sodium level to normal; this reduces the immediate danger of cerebral oedema whilst minimising the risk of over rapid correction and osmotic demyelination. Blood sodium increases should be limited to no more than 10 mmol/L in the first 24-hours and a further 8 mmol/L in the next 24-hours.

150 ml of 2.7% hypertonic saline should be administered over 15-minutes, with a second dose given after 20 minutes if there is no clinical improvement (Appendix 3). Senior members of the obstetric and anaesthetic team should be involved in the care of the patient and discussion should take place with Critical Care about the most appropriate place for ongoing care (Maternity Critical Care Unit (MCCU) versus Intensive Care Unit (ICU)). In cases of severe hyponatraemia, sodium levels should be repeated 2-hourly.

6. Roles and Responsibilities

Obstetric, Maternity and Anaesthetic teams have roles and/ or responsibilities in ensuring this policy is applied within clinical practice for the purpose of safe and effective care.

7. Consultation

All new or significantly revised policies will be subject to consultation within the division via the Clinical Effectiveness Forum (CEF) and with relevant professional groups and/ or individuals present.

Individuals with expertise in obstetrics, midwifery, pharmacy and anaesthetics have been consulted with in the development of this policy.

8. Equality Impact Assessment

An Equality Impact Assessment was completed for the purpose of this policy update. The overall negative impact assessment risk score was noted as low.

9. Training Requirements

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical/ educational supervision.

10. Audit and Review

This policy will be reviewed on a 3-yearly basis, unless significant changes to clinical practice/ national policy arise.

Maternal/ neonatal outcomes will be monitored via the local maternity dashboard. Adverse maternal/ neonatal outcomes will be reviewed on an individual basis via local governance arrangements.

11. References

Moen, V., Brudin, L., Rundgren, M. & Irestedt, L. (2009) 'Hyponatraemia complicating labour—rare or unrecognised? A prospective observational study', *BJOG: An International Journal of Obstetrics and Gynaecology*, 116(4), pp. 552–561.

Regulation and Quality Improvement Authority (RQIA) (2017) *Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period*. Available at: https://rqia.org.uk (Accessed 26/02/2026).

Toohill, J., Soong, B. & Flenady, V. (2008) 'Interventions for ketosis during labour', *Cochrane Database of Systematic Reviews*, (3), CD004230.

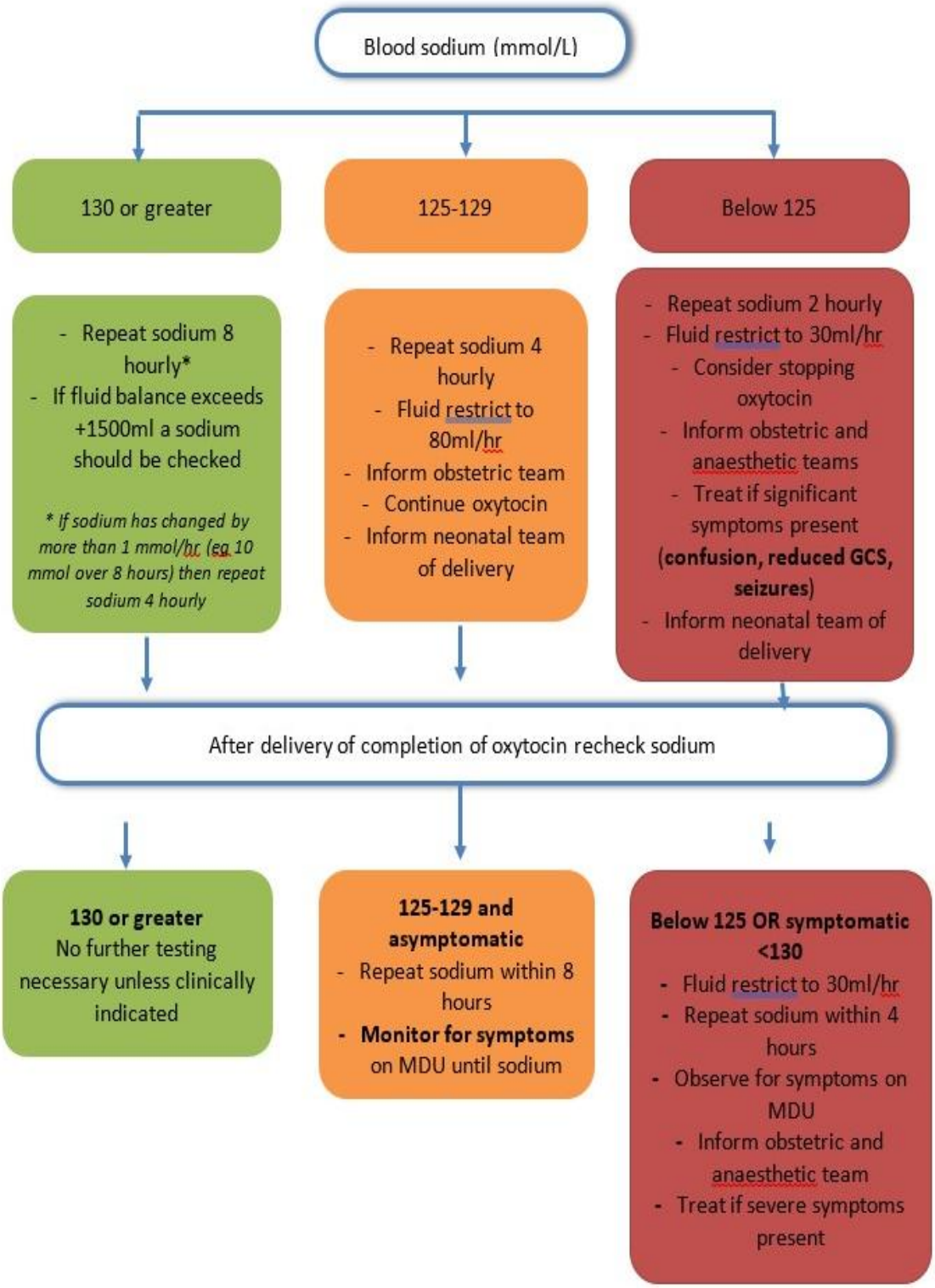
Ball, S., Barth, J., Levy, M. & Society for Endocrinology Clinical Committee (2016) 'Society for Endocrinology endocrine emergency guidance: Emergency management of severe symptomatic hyponatraemia in adult patients', *Endocrine Connections*, 5(5), pp. G4–G6.

Spasovski, G., Vanholder, R., Allolio, B., Annane, D., Ball, S., Bichet, D. *et al.* (2014) 'Clinical practice guideline on diagnosis and treatment of hyponatraemia', *European Journal of Endocrinology*, 170(3), pp. G1–G47.

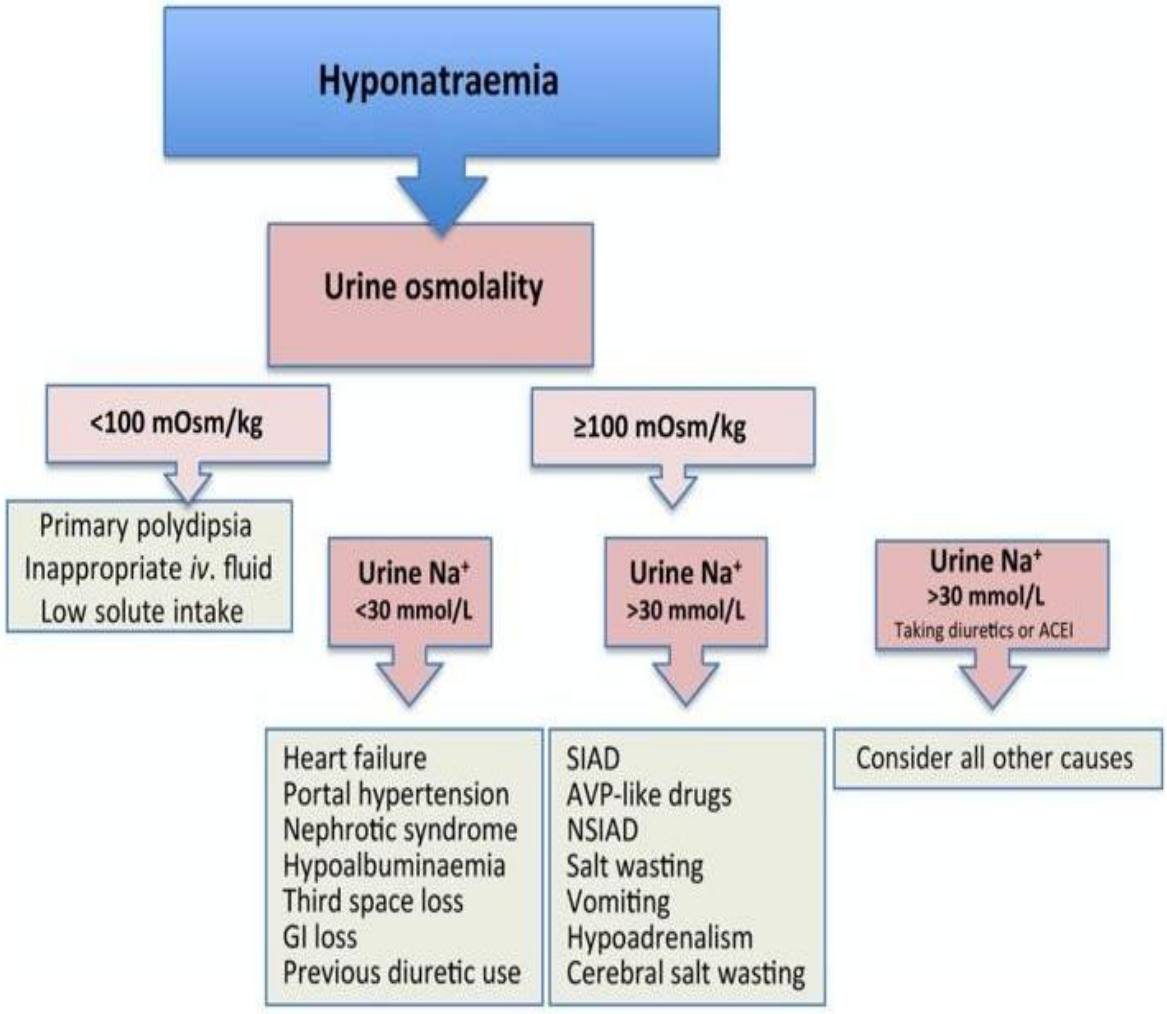
NICE (2025) *Hyponatraemia- Clinical Knowledge Summary*. National Institute for Health and Care Excellence (NICE). Available at: https://cks.nice.org.uk/topics/hyponatraemia/ (Accessed 26/02/2026).

12. Appendices

Appendix 1- Peripartum Sodium Monitoring Pathway



Appendix 2- Management of hyponatraemia persistently below 130 mmol/L



Screening bloods

If the underlying cause of the hyponatraemia is not felt to be dilutional/water intoxication consider performing the following investigations and discussing the patient with the medical registrar on call:

- Glucose,
- Lipids,
- Random cortisol,
- Thyroid function tests,
- Liver function tests,

- Plasma osmolality,
- Urine osmolality,
- Urine electrolytes.

Appendix 3- Management of acute severe symptomatic hyponatraemia