National Institute for Health and Care Excellence

Draft for consultation

Intrapartum care

[P] Supporting document for the recommendations on fluid balance and peripartum hyponatraemia

NICE guideline NG235

Evidence underpinning recommendations 1.8.25 to 1.8.31 in the NICE guideline

March 2025

Draft for consultation

This evidence review was developed by NICE

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Fluid balance and peripartum hyponatraemia

Objective

The objective of this update is to make recommendations on fluid balance and peripartum hyponatraemia.

Introduction

Peripartum hyponatraemia is a form of hyponatraemia that occurs during labour and birth when the sodium levels in the blood drop below normal (<130 mmol/L). Women/people in labour are more susceptible to developing hyponatraemia compared to non-pregnant women/people due to their lower baseline plasma sodium levels (normal levels in general population are 135-145mmol/L compared to 130-140mmol/L in pregnancy), reduced capacity to excrete water during the third trimester, and antidiuretic properties of both endogenous and exogenous oxytocin in labour. These factors contribute to water retention, dilution of serum sodium, and subsequent hyponatraemia. Maternal hyponatraemia impacts the unborn baby because water crosses the placenta freely, which can lead to hyponatraemia in the newborn. Mild cases may present with symptoms such as fatigue, headache, and nausea, while severe cases can lead to confusion, seizures, life-threatening complications such as cerebral oedema, and death.

Peripartum hyponatraemia can have significant consequences for maternal and neonatal outcomes if not promptly diagnosed and managed but prevention of hyponatraemia during labour and birth is key. Concerns highlighted in a Prevention of Future Deaths report[5] and, for example, a case study produced by NHS Resolution[6], emphasise the under-recognition of this condition in clinical practice. This lack of recognition, has, in some cases, led to severe morbidity or even mortality for both mothers and neonates. As a response to these concerns, the committee was tasked with developing recommendations to prevent, monitor and improve the management of peripartum hyponatraemia, while addressing the associated risks of hyponatraemia in this context.

Methods and process

No evidence review was conducted for this topic. The committee were asked to develop recommendations through consensus, drawing on their collective expertise.

The committee were aware of guidelines developed by other developers which have had an influence in clinical practice and clinical consensus. In particular, a guideline from Northern Ireland: Guidelines and Audit Implementation Network (GAIN)/Regulation and Quality Improvement Authority (RQIA) guideline for the prevention, diagnosis and management of hyponatraemia in labour and the immediate postpartum period (GAIN/RQIA 2017)[1]. Other regional or local guidelines, such as guideline from Wales: Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period (NHS Wales 2023)[2], have used the GAIN/RQIA guideline as a basis for their recommendations. The Royal College of Obstetricians & Gynaecologists also refer to the GAIN guideline on their website.[3] However, the GAIN/RQIA guideline is archived and no longer maintained following the closure of the GAIN/RQIA clinical guidelines programme. Despite this, the guideline has been widely supported and accepted within the clinical community, demonstrating continued relevance in clinical practice, including its influence on the development of many local guidelines on maternal hyponatremia. Recognising its

impact, the committee sought to evaluate the quality of the external guidance despite it being archived.

The archived GAIN/RQIA guideline was critically appraised by 2 reviewers using the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument. The AGREE II instrument is an internationally validated tool that is used to assess the methodological rigour and transparency of clinical practice guidelines. For summary of the criteria for assessing guidelines using the AGREE II tool see Appendix A, summary of the external guideline and AGREE II tool assessment, see Appendix B and reviewer scoring of the GAIN/RQIA guideline using AGREE II tool, see Appendix C.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

The committee's discussion and rationale for recommendations

This document discusses recommendations on fluid balance and peripartum hyponatraemia, which the committee made based on their expertise and experience.

Benefits and harms

Fluid balance and hyponatraemia

The committee highlighted that women/people in labour are at risk of hyponatraemia because of physiological changes in pregnancy and in labour, including a lower blood osmolality, a lower sodium level, a reduced capacity to excrete water in the third trimester and the antidiuretic effect of both endogenous and exogenous oxytocin in labour. Excessive fluid intake and liberal use of intravenous fluids during labour heightens the risk of peripartum hyponatraemia, defined as a sodium level of <130 mmol/L in pregnant woman/person. The committee were aware from their experience that there can be a tendency to drink excessively during labour and discussed the general trend of excessive oral hydration. They agreed that this can lead to hyponatraemia. Therefore, the committee emphasised the importance of advising to drink fluids when thirsty during labour and avoiding excessive drinking because it can be harmful. Additionally, they recommended discussing that fluid balance monitoring in labour may be needed to minimise the risks of both hyponatraemia and dehydration.

The committee also discussed the liberal use of intravenous fluids during labour. For example, administering intravenous fluids to treat ketosis in non-diabetic women/people in labour was common practice. Ketosis in non-diabetic women is often a physiological response to factors such as fasting, low-carbohydrate diets, illness, or exercise. Unlike diabetic ketoacidosis, ketosis in these cases is usually self-limiting and resolves with dietary carbohydrate intake, without the need for routine intravenous fluid administration, which can be unnecessary and potentially harmful because of the increased risk of hyponatraemia. Therefore, based on their clinical expertise and experience, the committee recommended that intravenous fluids should not be routinely administered for the treatment of ketosis in non-diabetic women. This recommendation aligns with the recommendations outlined in the archived GAIN/RQIA guideline[1], which has been instrumental in influencing clinical practice, informing clinical consensus and guiding the development of many local protocols. The committee were aware of the quality assessment of the GAIN guidance, please see Appendices B and C for further details.

The committee agreed that accurate monitoring of fluid intake and output was the best way to manage and reduce the risk of hyponatraemia. They discussed several clinical scenarios where monitoring fluid balance is critical for the early detection and management of

hyponatraemia. Some of these were already captured by the NICE intrapartum care guideline. They agreed that fluid balance monitoring is essential in cases where the woman or pregnant person is receiving intravenous fluids, as this can increase the risk of fluid overload, which may contribute to hyponatraemia, particularly if fluid intake exceeds the body's ability to excrete it. This was already recommended in the guideline. Additionally, if the woman or pregnant person is receiving an oxytocin infusion there is an increased risk of water retention and hyponatraemia, especially when administered in high doses or over prolonged periods. Again, this was already recommended in the guideline. In situations where there is an inability to pass urine, the committee emphasised the importance of monitoring fluid balance, as this may indicate renal impairment or excessive fluid retention, both of which can contribute to hyponatraemia. This was also already recommended in the guideline.

In addition, the committee discussed that fluid balance monitoring is important when there is any concern about fluid intake (both oral and intravenous) or output (urine or vomit). The committee particularly emphasised recognising any concern that the woman or pregnant person is drinking excessive amounts of fluid, particularly in the absence of thirst, because this can lead to dilutional hyponatraemia. The committee acknowledged that it may be difficult to judge what is excessive drinking of fluids, as people have different baseline habits. However, based on their experience of reviewing clinical cases of peripartum hyponatraemia, there was often a recognition afterwards that the woman/person in labour had been drinking excessively. The committee also highlighted the need for careful fluid balance monitoring if nausea or vomiting is present, as these conditions can cause fluid and electrolyte imbalances, potentially leading to dehydration or fluid overload in the case of excessive fluid intake in response to vomiting. Finally, the committee agreed that in the presence of certain medical conditions, such as pre-eclampsia, fluid balance monitoring is an important part of management of the condition.

The committee agreed that a positive fluid balance of 1500 mL or more in a pregnant woman or person could indicate risk of hyponatraemia. In such cases, they recommended conducting a blood test to assess sodium levels. For people in community settings, for example at home, this may require hospital transfer because a blood test may not be possible in these settings. This 1500 mL fluid balance threshold is consistent with the committee's clinical expertise, current practice, and the recommendations outlined in the archived GAIN/RQIA guideline[1] and other local protocols.

The committee did not make specific recommendations on the management of peripartum hyponatraemia. However, they agreed that confirmed peripartum hyponatraemia should be managed in accordance with established local protocols. The committee also noted that most local protocols were based on the now archived GAIN/RQIA guidance[1].The committee were aware of Quick Reference Handbook for Obstetric Emergencies[7] from the Obstetrics Anaesthetists Association in partnership with British Association of Perinatal Medicine, which includes guidance on emergency management of hyponatraemia (severe and not severe).

The committee emphasised the importance of promptly recognising peripartum hyponatraemia and ensuring timely communication with key multidisciplinary teams, including the consultant obstetrician, consultant anaesthetist, neonatal team and delivery suite coordinator, to facilitate appropriate planning and management. Based on their clinical experience, the committee agreed that these teams should be informed immediately if the person is symptomatic or if serum sodium levels fall below 125 mmol/L. This threshold was selected as it indicates severe hyponatremia, requiring urgent management. A multidisciplinary approach is essential to mitigate potential complications for both the mother and neonate. The committee's recommendation was informed by their clinical experience and expertise.

Bladder care

The committee also amended the 2023 consensus-based recommendations on bladder care. Recognising the importance of preventing bladder overdistension and related injuries, the committee emphasised the need for regular review of bladder care in pregnant women and people, at least every four hours. The committee recommended encouraging pregnant individuals to empty their bladder regularly every four hours to reduce the risk of overdistension. Additionally, monitoring the frequency of urination is essential to detect potential issues such as difficulty voiding. Pregnant women or people should be encouraged to promptly inform their midwife if they experience any difficulties with passing urine, enabling timely intervention. If voiding difficulties persist, catheterisation should be offered to prevent complications such as urinary retention or bladder damage.

The committee also discussed that routine catheterisation of women or people with an epidural is common practice, but it is not in fact always needed and should only be done when there is diminished bladder sensation, which can happen with an epidural in situ.

Cost effectiveness and resource use

No health economic evidence review was conducted for this topic. The committee made a qualitative assessment of the cost effectiveness of the recommendations. There may be a change in practice with fluid balance monitoring being more common during labour. Increased use of fluid balance monitoring will have a small impact on midwife's time and there may be a small increase in need for blood tests or hospital transfers, but the benefits of preventing hyponatraemia and associated outcomes would probably outweigh this as the costs of hyponatraemia are considerable, as demonstrated by the high compensation costs faced by the NHS for brain injury in the NHS Resolution case study[6]. The recommendations are unlikely to have any significant resource impact.

Other factors the committee took into account

The recommendations in this update are intended for women or people with low-risk pregnancy. For individuals with specific medical conditions, care will be provided by a relevant multidisciplinary team.

Recommendations supported by this evidence review

This supporting document supports recommendations 1.8.25 to 1.8.31.

References

1. Guidelines and Audit Implementation Network (GAIN)/Regulation and Quality Improvement Authority (RQIA) guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period March 2017. Available from: https://www.rqia.org.uk/RQIA/files/df/dfd57ddd-ceb3-4c0d-9719-8e33e179d0ff.pdf [ARCHIVED]
2. NHS Wales Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period. Available from: wisdom.nhs.wales/health-board-guidelines/hywel-dda-file/1163-guideline-for-the-prevention-diagnosis-and-management-of-hyponatraemia-in-labour-and-the-immediate-postpartum-period-v1-pdf/
3. Royal College of Obstetricians and Gynaecologists Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period. Available from: Layout 1Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period | RCOG

4. Guidelines and Audit Implementation Network (GAIN)/Regulation and Quality Improvement Authority (RQIA) guideline for Hyponatraemia in Adults (on or after 16th birthday). February 2010. Available from: Layout 1
5. Prevention of Future Deaths Report. May 2024. Available from: Orlando Davis: Prevention of future deaths report - Courts and Tribunals Judiciary
6. NHS resolution. Case Story. Recognising and avoiding significant maternal and neonatal hyponatraemia. August 2023. Available from: Recognising and avoiding significant maternal and neonatal hyponatraemia - NHS Resolution
7. Quick Reference Handbook for Obstetric Emergencies (Obs QRH). July 2024. Available from: Quick Reference Handbook - Obstetric Anaesthetists' Association

Appendices

Appendix A Criteria for assessing guidelines using the AGREE II tool

The Appraisal of Guidelines for Research & Evaluation (AGREE) Instrument was developed to address the issue of variability in guideline quality. To that end, the AGREE instrument is a tool that assesses the methodological rigour and transparency in which a guideline is developed. The original AGREE instrument has been refined, which has resulted in the new AGREE II.

AGREE II has six domains and an overall assessment. The domains are listed below:

- Domain 1. **Scope and Purpose** is concerned with the overall aim of the guideline, the specific health questions, and the target population.
- Domain 2. **Stakeholder Involvement** focuses on the extent to which the guideline was developed by the appropriate stakeholders and represents the views of its intended users.
- Domain 3. **Rigour of Development** relates to the process used to gather and synthesize the evidence, the methods to formulate the recommendations, and to update them.
- Domain 4. **Clarity of Presentation** deals with the language, structure, and format of the guideline.
- Domain 5. **Applicability** pertains to the likely barriers and facilitators to implementation, strategies to improve uptake, and resource implications of applying the guideline.
- Domain 6. **Editorial Independence** is concerned with the formulation of recommendations not being unduly biased with competing interests.
- Overall assessment includes the rating of the overall quality of the guideline and whether the guideline would be recommended for use in practice.

For further details on each domain see the agree reporting checklist at agreetrust.org

Each of the 23 AGREE II items were rated on a 7-point scale (1 indicating strong disagreement and 7 indicating strong agreement). An overall rating for each of the 6 AGREE II domains was then calculated by summing all the scores of the individual items in a domain and then calculating the total as a percentage of the maximum possible score for that domain, as follows:

$$\frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}} \times 100$$

An overall rating for all domains was then determined (score 1 to 7) and finally an overall percentage rating was calculated for each guidance document based on the following equation: (overall score – 1)/6.

The AGREE II also suggests an overall assessment which includes a rating of the overall quality of the guideline and whether the guideline would be recommended for use in practice. The overall assessment requires the user to make a judgment as to the quality of the guideline, taking into account the criteria considered in the assessment process.

Table 1: Interpretation of overall score

Assessment	**Score**
Not met	equivalent to an AGREE II score of approximately 3 or less
Partially met	equivalent to an AGREE II score of approximately 4-5
No major concerns / fully met	equivalent to an AGREE II score of approximately 6-7

Appendix B Summary of external guideline and its AGREE II assessment

Study	Population	Recommendations	Quality assessment with AGREE II
GAIN/RQIA 2017[1] (archived) Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period Northern Ireland March 2017 Study type: Guideline Aim: The remit of the guideline is to develop guidance on the prevention, diagnosis and management of hyponatraemia in labour	Labouring women over the age of 16.	This guideline summarises current evidence and offers a consensus view on the detection, prevention and management of dilutional hyponatraemia in labouring women over the age of 16. **Recommendations:** **Guidance on peripartum fluid balance and sodium monitoring** a) Guidance for the care of women undergoing the induction of labour process 1. The importance of accurate fluid balance monitoring during labour should be explained to all women. 2. Fluid balance observations should be commenced and recorded on the regional fluid balance chart. 3. Women should be encouraged to record their own oral fluid intake at least four hourly. 4. Women should be encouraged to void 2-4 hourly and should measure and record their own urine output. 5. Women should have other fluid losses measured and recorded e.g. vomit. 6. If a woman's fluid balance exceeds positive 1500 mls a blood sodium should be checked and the patient commenced on the Peripartum Sodium Monitoring Pathway.	**Scope and Purpose** **78%** The guideline clearly states that the remit of the guideline is to develop guidance on the prevention, diagnosis and management of hyponatraemia in labour and the immediate post-partum period although the health questions covered were not specifically described. The authors do provide a clear description of the target population however specific details on PICO is not reported in the document. **Stakeholder Involvement** **61%** Name, institution, location and description of role for each guideline development group (GDG) member is given, and the

Study	Population	Recommendations	Quality assessment with AGREE II
and the immediate post-partum period.		7. Before transfer from the induction area to another clinical area, a cumulative fluid balance total should be recorded on the regional fluid balance chart. **Guidance for the care of women on the Northern Ireland Normal Labour & Birth Care Pathway (suitable for midwifery led care)** 1. The importance of accurate fluid balance monitoring during labour should be explained to all women. 2. Once in established labour, fluid balance observations should be commenced and recorded in the comments section of the partogram. 3. Women should have oral intake recorded at least four hourly. 4. Women should be encouraged to void 2-4 hourly and should have urine output measured and recorded. 5. Women should have other fluid losses measured and recorded e.g. vomit. 6. A four hourly cumulative fluid balance should be recorded on the partogram. 7. Before transfer to another clinical area a cumulative fluid balance total should be recorded. 8. If a woman has greater than 1500 mls positive on her fluid balance, a blood sodium should be checked. If the result is within normal limits (equal to or greater than 130 mmolL-1) the woman may stay under midwifery led care, a regional fluid balance chart	members are an appropriate match for the topic. However, the only patient representative was also a consultant neonatologist, so although her patient experience is very valid, it comes from a different viewpoint to a lay member who did not have her medical background. No information was provided if patient views/interviews were considered during the development of the guidance. The guideline clearly sets the target users of the guideline, however it does not provide description of how the guideline may be used by its target audience (e.g., to inform clinical decisions, to inform policy, to inform standards of care). **Rigour of Development 34%** The guideline reports databases searched, search terms and time periods searched. However

Study	Population	Recommendations	Quality assessment with AGREE II
		should be commenced and the Peripartum Sodium Monitoring Pathway should be followed. 9. If the sodium level is less than 130 mmolL-1 or if sodium testing is not readily available, the on call obstetric registrar should be contacted and clinical judgement used, particularly with regard to parity and progress in labour to decide whether transfer to labour ward is required. **Guidance for the care of women not on the Northern Ireland Normal Labour & Birth Care Pathway (requiring consultant led care)** 1. The importance of accurate fluid balance monitoring during labour should be explained to all women. 2. All fluid balance observations should be recorded on the regional fluid balance chart. 3. Women should have oral intake documented at least four hourly. 4. Women should have intravenous (IV) fluid intake documented hourly. 5. IV fluids must have a prescribed reason documented on the fluid balance chart. 6. IV fluids must be prescribed in millilitres (ml) per hour. 7. IV fluids must be administered via volumetric pumps (in exceptional circumstances such as fluid resuscitation during haemorrhage this can be waived).	full search strategy is not reported in the document. PICO, protocol, inclusion criteria, exclusion criteria have not been provided. General information on the relevant population is reported. No information on evidence is reported in the guideline document. The guideline does not provide any justification for the recommendations. It does not explicitly state if the recommendations were based on evidence or if it was consensus based. The link between the evidence and recommendations is unclear. The guideline reports external peer reviewers. However no further details on external review are reported in the guideline (purpose, methods, outcomes of external review, and how the information from external review was used to inform the guideline). The guideline document states that the guideline would be reviewed after one year in 2018. Methodology for updating the

Study	Population	Recommendations	Quality assessment with AGREE II
		8. IV fluids are not routinely required with epidural analgesia. 9. IV fluids should not routinely be prescribed for the treatment of ketosis in non-diabetic women. 10.Women should be encouraged to void 2-4 hourly and to have urine output volume measured and recorded. 11.Women should have other fluid losses measured and recorded e.g. vomit. 12.Women require sodium monitoring (Peripartum Sodium Monitoring Pathway if they are: a. On an oxytocin infusion (includes induction and augmentation of labour, treatment of postpartum haemorrhage) b. In labour and require IV insulin and dextrose. c. Noted to have a blood sodium below 130 mmolL-1 for any reason. d. Greater than 1500 mls positive on their fluid balance. **Sodium Monitoring** **Peripartum** When an oxytocin infusion is commenced a blood sodium level should be checked using point of care testing (POCT) where available. It is not necessary to await the result prior to starting the infusion.	procedure was not reported. New publication/update of this guideline since 2017 is not available online. **Clarity of Presentation** **75%** Most recommendations are clear, specific and unambiguous in the guideline. However, basis for the strength of recommendations is not clear in the guideline. Different options for clinical situations and settings have been provided in the recommendations. **Applicability** **15%** The guideline provides algorithm and an example of fluid balance recording on a partogram. The guideline does not report other resources or tools for application of the guidance. There is no discussion of potential resource impact in the guideline.

Study	Population	Recommendations	Quality assessment with AGREE II
		Where an oxytocin infusion is commenced as prophylaxis against uterine atony in the setting of elective Caesarean section sodium monitoring is not routinely required. It is essential that blood samples are not taken from a limb attached to an intravenous infusion as this may lead to inaccurate results. Results should be referenced against the Peripartum Sodium Monitoring Pathway to guide frequency of repeat testing and further management. All women requiring intravenous insulin and dextrose infusions during labour should have a blood sodium level checked at least four hourly. Where blood sodium is equal to or greater than 130 mmolL-1 further testing is necessary 8 hourly unless either of the following occurs: • the change in sodium concentration has been greater than 1 mmolL-1per hour (eg. 10mmolL-1 over 8 hours), this rapid fall in sodium increases the risk of developing symptoms and so 4 hourly testing is necessary. • a positive fluid balance of more than 1500 mls is achieved: this necessitates an immediate repeat sodium check.	The guideline states that due to the short timeframe of review, the implementation of this guideline should be audited after six months and thereafter compliance audited yearly. However, they do not define the criteria assess the guideline implementation or adherence to recommendations. It is not clear if the process was followed. **Editorial Independence** **88%** The GDG was commissioned by GAIN to develop this guideline. However, it does not explicitly state that funding body has not influenced the content of the guideline. The guideline states that no conflicts of interest were declared by any members of the GDG.

Study	Population	Recommendations	Quality assessment with AGREE II
		The paediatric team should be made aware of babies born to hyponatraemic mothers. In cases where the maternal sodium is below 125 mmolL-1 oxytocin should be stopped while senior clinical advice is sought. The decision regarding further oxytocin administration should be made following assessment of the woman's clinical condition and circumstances after discussion with a consultant obstetrician. Following delivery if a woman remains on an oxytocin infusion, for example as treatment for postpartum haemorrhage, she should remain on the Peripartum Sodium Monitoring Pathway. **Postpartum** Once a woman has a blood sodium level equal to or greater than 130 mmolL-1 no further sodium checks are necessary unless clinically indicated. If a woman has a sodium level below 130 mmolL-1 she should be reviewed by the obstetric team and consideration given to alternative causes, the patient's clinical condition and the severity of the hyponatraemia, and a decision made as to whether she is suitable for discharge. **Point Of Care Testing**	

Study	Population	Recommendations	Quality assessment with AGREE II
		To facilitate monitoring of blood sodium levels point of care testing devices should be available to provide rapid, local, accurate analysis of blood sodium concentration. Laboratory analysis of samples will give accurate results but long turnaround times limit its usefulness in the dynamic clinical setting of labour where frequent sampling and changes in clinical management may be necessary. It is necessary that staff utilising point of care testing devices are appropriately trained in their use. Departments are responsible for the maintenance of any point of care testing devices to ensure they produce consistent and accurate analysis. **Management of Symptomatic Hyponatraemia** For more detailed guidance on the investigation, diagnosis and treatment of hyponatraemia refer to the 2010 GAIN/RQIA guideline Hyponatraemia in Adults[4] In a patient with significant clinical symptoms believed to be due to hyponatraemia (for instance, seizures or loss of consciousness), 200 mls of 2.7% saline should be given immediately as an IV bolus over 30 minutes. Consider co-administration of 20 mg IV furosemide if there is any evidence of fluid overload. This will raise serum sodium by approximately 2 – 4 mmolL-1	

Study	Population	Recommendations	Quality assessment with AGREE II
		and will reduce cerebral oedema. The assistance of an experienced clinician should be sought to guide further treatment. Senior members of obstetric and anaesthetic teams should be involved and the patient transferred to a critical care environment for ongoing management. Following administration of hypertonic saline it is necessary to monitor sodium levels 2 - 4 hourly. Rapid increases in blood sodium concentration can cause serious harm including central pontine myelinolysis. Therefore, the level should rise by no more than 12 mmolL-1 in a 24-hour period.	
Overall score			**Overall quality of the guideline: 4** (1 lowest possible quality and 7 highest possible quality)

Appendix C AGREE II tool reviewer scoring

Table 2: Reviewer scoring of GAIN/RQIA guideline on prevention, diagnosis and management of hyponatraemia in labour and the immediate postpartum period

	1. Scope and purpose				2. Stakeholder involvement				3. Rigour of development									4. Clarity of presentation				5. Applicability					6. Editorial independence			overall assessment
Reviewer & guideline	Objectives	Question	Population	Total	Group membership	Target population	Target users	Total	Search methods	Evidence selection criteria	Evidence strengths and limitations	Formulation of recs	Considerations of benefits / harms	Link between recommendations & evidence	External review	Updating procedure	Total	Specific & unambiguous recs	Management options	Identifyable key recs	Total	Facilitators & barriers to application	Implementation advice/tools	Resource implications	Monitoring/auditing criteria	Total	Funding body	Competing interests	Total	
R1 - GAIN guidance	6	5	6	**17**	6	2	5	**13**	6	2	2	4	2	1	6	6	**29**	5	5	6	**16**	2	3	1	2	**8**	7	7	**14**	**4**
R2 - GAIN guidance	7	3	7	**17**	6	3	6	**15**	5	2	1	1	4	1	3	3	**20**	4	7	6	**17**	1	3	1	2	**7**	4	7	**11**	**4**
Score - GAIN guidance				**78%**				**61%**									**34%**				**75%**					**15%**			**88%**	

R1- reviewer 1; R2- reviewer 2