A clinical guideline for Bladder care and Fluid Balance, Antenatal, Intrapartum and Postnatal

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V5	23/04/2021	Charles Bircher, Thomas Gray, Laura Allen	Fluid balance charts for all women. Recommend 2-3 hourly voiding. All women with an epidural to have a SRC. To void within 4 hours from last void in labour or removal of SRC.
V5.1	26/05/2021	Charles Bircher, Thomas Gray, Laura Allen	Amendments to wording in flowchart
V5.2	15/09/2021	Charles Bircher, Thomas Gray, Laura Allen	Fluid balanced added to title
V6		C Bircher; Thomas	New template Change in timings

		Gray;G Richards;R Goodsell	when to remove SRC after anaesthesia and LSCS ; re reformatting ; added section on transfer to community and management of incontinence of urine

Previous Titles for this Document:

Previous Title/Amalgamated Titles	Date Revised
None	Not applicable

Distribution Control

Printed copies of this document should be considered out of date. The most up to date version is available from the Trust Intranet.

Consultation

The following were consulted during the development of this document:

- Consultant Urogynaecologist;
- Consultant Obstetrician Labour Ward Lead
- Blakeney Team leader
- Maternity and Gynaecology Governance and Risk facilitator
- Clinical Effectiveness Midwife
- Legacy Midwife
- Practice development Midwife

Monitoring and Review of Procedural Document

The document owner is responsible for monitoring and reviewing the effectiveness of this Procedural Document. This review is continuous however as a minimum will be achieved at the point this procedural document requires a review e.g. changes in legislation, findings from incidents or document expiry.

Relationship of this document to other procedural documents

This document is a clinical guideline applicable to the Norfolk and Norwich University Hospitals Trust please refer to local Trust's procedural documents for further guidance, as noted in Section 5.

Inclusivity

Within this document we use the terms pregnant women, her/she. However, it is important to acknowledge that it is not only people who identify as women for whom it is necessary to access care. This guideline is also relevant to under and over 18's, even though the term woman is used throughout. Maternity services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals who do not identity with the sex they were assigned at birth.

Clinical guideline for Bladder care and Fluid Balance, Antenatal, Intrapartum and Postnatal

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1. Introduction

1.1. Rationale

All women are at risk of postpartum urinary retention. Postpartum urinary retention is associated with prolonged voiding dysfunction, urinary infection and long-term bladder dysfunction. It is associated with prolonged hospital stays.

Peripartum dilutional hyponatraemia has been identified in a number of cases at the Norfolk and Norwich. It has the potential to cause severe harm to labouring women and their babies and it is likely that it is under recognised. Physiological factors predispose pregnant women to hyponatraemia, especially where additional risk factors such as excessive oral intake, intravenous fluids and exogenous oxytocin are present.

1.2. Objective

The objective of this guideline is

- To standardise practice for management of bladder cares during Induction of labour (IOL), intrapartum and postnatally.
- To diagnose poor bladder emptying intrapartum and postnatally in a timely manner to avoid large volume urinary retention and prolonged voiding dysfunction.
- To recognise and act on oliguria
- To accurately calculate and manage fluid balance
- To promote the timely review of postpartum women after delivery or removal of catheters and appropriate assessment of post void residual volumes.
- To encourage the use of simple measures to promote voiding postnatally and assist women in achieving voiding.

1.3. Scope

This document covers all maternity patients being cared for within the maternity department , in the community, and the urogynaecology department

1.4. Glossary

The following terms and abbreviations have been used within this document:

Term	Definition
NNUHT	Norfolk and Norwich University Hospitals Trust
IOL	Induction of Labour
PUR	postpartum urinary retention
IVF	Intravenous Fluids
TWOC	Trial Without Catheter- refers to any removal of catheter and monitoring of voiding
SRC	Self Retaining Catheter
CISC	clean intermittent self-catheterisation

PVR	Post Void Residual
AKI	Acute Kidney Injury
USS	Ultra sound scan
NICE	National Institute for Health and Care Excellence
RCOG	Royal College of Obstetricians and Gynaecologists
MSU	Mid stream specimen of urine
CSU	Catheter specimen of urine
MROP	Manual Removal of Placenta
SVD	Spontaneous Vertex Delivery
PP	Post partum
MCA	Maternity Care Assistant

2. Responsibilities

All staff within the maternity unit and urogynaecology department should adhere to this guideline

2.1. Background

2.1.1. Urinary retention

The reported incidence of postpartum urinary retention (PUR) ranges from 0.05 – 14.1%.[1,2,3] The rate of prolonged voiding dysfunction in one series was 0.07%.[1] There are no conclusions regarding the long-term implications of PUR.[4] Studies report rates of 30-75% of long term frequency and urgency following an episode of PUR.[1] If there is large volume retention (>700mLs) a woman is more likely to need ongoing catheterisation.[1,3]

In pregnancy the bladder has reduced tone, secondary to hormonal changes, allowing for increased storage capacity for increased urine production.[1,5] The length of the intra-abdominal urethra also lengthens to reduce stress urinary incontinence during pregnancy. These changes usually resolve postpartum without any long-term effect. However in the immediate postpartum period the bladder's tone remains reduced and therefore prone to over distension, compounded by a physiological postpartum diuresis.

During labour and delivery pressure of the presenting part causes compression of soft tissues of pelvis and pelvic nerves. Oedema of tissues surrounding the lower urinary tract and trauma are a cause of potential urethral obstruction. Perineal pain is also associated with urinary retention.

Covert urinary retention appears to resolve spontaneously, however the long term evidence of harm/harmlessness lacking.[7]

There is no evidence to suggest screening asymptomatic women is necessary.[7-9] However confirmation of normal voiding within four hours of delivery or removal of catheter for ALL women is advocated by RCOG and NICE.[9-11]

For these reasons ALL women are at risk of postpartum retention and voiding dysfunction.
Additional risk factors include[1,3,6]

- Primiparity
- Instrumental delivery
- Caesarean section
- Long labour -more than 12 hours
- Regional anaesthesia/analgesia
- Extensive perineal trauma including 3rd/4th degree tear and vaginal injury
- birth weight >90th centile or >4kg
- Previous voiding dysfunction
- Constipation

2.2. Accepted Definitions[4]

Oliguria
A urine output of <0.5ml/kg/hr for 6 hours, less than 400ml/day

Acute Kidney Injury (AKI)
A loss to the kidney function;
AKI can be caused by dehydration and urinary retention. A urine output of <0.5mls/kg/hour for 6 hours or more would be a diagnosis of stage 1 AKI as per the Trusts guidance and management of AKI. These definitions are for outside of pregnancy however they are commonly used in obstetrics. Therefore it is important to be aware of the maternal fluid balance throughout labour and refer to the obstetric team if oliguria is recognised. AKI can also be caused by haemorrhage, sepsis and excessive vomiting.

Hyponatremia
This is when the level of sodium in the blood is lower than 130mmolL.
Maternal dilutional hyponatraemia during labour can be prevented by keeping a neutral fluid balance and can be recognised by fluid balance monitoring Trustdocs Id: 16197 and clear documentation with blood sodium testing when necessary. Healthy women in labour who are in a neutral fluid balance are at low risk of developing hyponatraemia. As fluid intake in labour increases so too does the risk of hyponatraemia. Women who have a fluid intake of up to 1 litre in labour will have a 1% incidence of hyponatraemia at delivery, between 1 to 2.5 litres intake increases this to 5% and above 2.5 litres 26% will be hyponatraemic. For this reason ALL women are at risk of becoming hyponatraemic in labour. The management of hyponatraemia is summarised in Appendix C.

Overt urinary retention – inability to void spontaneously within 4 hours of vaginal delivery or removal of catheter requiring catheterisation.

Covert urinary retention Post Void Residual (PVR) ≥150mLs after spontaneous

void, verified by USS or catheterisation.

2.3. Further General information

Fluid Balance

Maternity Daily Fluid Chart Trust Docs ID 16197

These are an essential component of monitoring voiding function therefore should be completed for all women in established labour and as deemed necessary as stated below.

The voided volume must be continuously evaluated in relation to intake and reviewed at least 6 hourly to ensure a neutral balance is maintained.

A large volume intake and small output suggests a risk of voiding dysfunction.

Normal oral intake should be encouraged; excessive fluid intake may rapidly distend an atonic bladder.

After removal of a Self Retaining Catheter (SRC) women must be encouraged to document the timing and volume of all oral intake using the Self monitoring Fluid chart ID 23649

Women must be asked if the void was normal for them, with normal sensation and perceived complete emptying.

2.4. Signs and Symptoms of urinary dysfunction

There can be one or more of the following

- Pain on micturition
- Urgency of micturition
- Poor urinary stream,
- Feeling of incomplete emptying, of the bladder
- Frequency of micturition

Basic measures to aid voiding

- Ensure adequate analgesia
- Encourage mobilization,
- Ensure privacy
- Turn on the taps hearing running water may help
- A warm shower/bath
- Ensure adequate fluid intake

2.5. Information for women

The patient information leaflet – Bladder care during delivery and after pregnancy should be given to all women Trustdocs Id: 12600

Encourage women to monitor their own fluid intake Self monitoring Fluid chart ID 23649

3. Processes to be followed

3.1. Antenatal bladder care

Bladder care begins on admission for Induction of Labour, or when admitted during the latent phase.

Bladder care must be explained to women on admission, providing woman with the patient information leaflet - Bladder care during delivery and after pregnancy Trustdocs Id: 12600

Patient information leaflet states drinking to thirst and voiding every 2-3 hours.

The use of fluid balance charts during induction of labour is only required if the induction is for pregnancy induced hypertension, pre-eclampsia, sepsis or conditions where there are other concerns about fluid balance and this requires monitoring.

If there are concerns about either excessive or limited oral intake for a patient, or concerns about frequency (less or excessive) of voiding, a urine dipstick should be assessed and a fluid balance chart started.

Women should be encouraged to complete their own fluid charts Self monitoring Fluid chart ID 23649

3.2. Bladder care during labour (See Quick reference a. Intrapartum Bladder care)

- Fluid balance is an essential part of care in both high and low risk women, it is important that this commences as soon as the woman is in established labour whether on Delivery suite, MLBU or at home.
- If admitted from home, gain a history of the woman's fluid balance and commence a fluid balance chart Trustdocs Id: 16197, for **ALL** women
- Women must be encouraged to pass urine at least every 2-3 hours during labour.
- Accurate urine output should be recorded on the partogram.
- Fluid balance should be recorded, totalled and reviewed every 6 hours on the fluid balance chart.
- On transfer to another clinical area the fluid balance chart should be complete and clearly handed over.

- **ALL** women with regional analgesia (epidural) during labour should have a SRC.

3.3. Bladder care for second stage of labour and birth

3.3.1. If no SRC in situ

Women who are fully dilated may not be able to void spontaneously due to urethral compression, in and out catheters should be used to empty the bladder.

If a woman is pushing and passing urine spontaneously this indicates a very full bladder, and the bladder should be emptied with an in and out catheter and volume measured and recorded.

Prior to instrumental delivery the bladder must be emptied, and volume measured and recorded.

3.3.2. If SRC in situ

Prior to the delivery the SRC must be removed completely the volume measured and recorded on the fluid balance chart. The SRC must be re inserted post delivery.

Bladder care post partum (Immediate Postpartum Quick reference b. Post partum Quick reference c.)

The fluid balance chart should be maintained in all women until normal voiding.

If no SRC in labour women should void within 4 hours of the last void in labour recording the amount and if there was normal sensation and perceived complete emptying.

If a SRC was in situ for labour, a new SRC must be re-inserted following delivery.

If there is extensive perineal tear or lacerations close to the urethra offer SRC for 12-24 hours

Removal of SRC post partum

Early removal of the catheter reduces the risk of urinary retention and promotes mobilisation, recovery and discharge planning. It should not be delayed once the patient is mobile and the six or twelve hour time period after the anaesthetic has elapsed.

NICE guidelines

The NICE guidelines (NG192) on “Caesarean birth” states “Offer removal of the urinary bladder catheter once a woman is mobile after a regional anaesthetic for caesarean birth, but no sooner than 12 hours after the last ‘top-up’ dose. [2004, amended 2021]”. The wording in the previous guideline (2004) stated: “Removal of

the urinary bladder catheter should be carried out once a woman is mobile after a regional anaesthetic and not sooner than 12 hours after the last epidural 'top up' dose. [D] [2004]". The NICE guideline does not make a clear distinction in it's latest version between when catheters should be removed following spinal anaesthesia (single dose) versus epidurals which can be topped up. Spinal anaesthesia cannot be 'topped up'. This NICE guidelines appear to suggest the catheter should not be removed before 12 hours for patients with epidural anaesthesia but can be removed once the patient is mobile for spinal anaesthesia. There is limited evidence in this area and much of the evidence is from observational studies with lower levels of evidence and quality. Studies and guidelines for enhanced recovery following caesarean section suggest removing catheters 6 hours after spinal anaesthetic and 6-12 hours after epidural anaesthesia[4,5,6], but further details are needed and the current national guidelines suggest 12 hours for elective caesarean sections.

All women should measure first 2 voids following removal of SRC

1. For spontaneous vaginal births with epidural anaesthesia the SRC should be removed once the patient is mobile AND **6 hours** after the last epidural top up or initial dose
2. For catheters placed as part of care for elective (category 4) or scheduled (category 3) caesarean sections with spinal anaesthesia or general anaesthesia the catheter should be removed once the patient is mobile and after **12 hours.**
3. For category 1 or 2 caesarean sections, assisted delivery or theatre admission for any reason (e.g. MROP, perineal tear, assisted delivery) and have had intrapartum epidural anaesthesia or general anaesthesia the SRC should be removed once the patient is mobile AND **12 hours** after the spinal anaesthetic, last epidural top up or initial dose unless documented otherwise by the medical team.
4. For SRC placed intrapartum purely due to concerns about fluid balance and for monitoring of urine output, the SRC catheter should be removed at the instruction of the medical team.

Volume of retention mls	**SRC removal**	**Additional**	**TWOC in GOPD**
200-499	20-24 hours		
500-699	48 hours	high risk factors for post-partum (PP) voiding	
700-1499	1 week		Yes
≥1500	2 weeks		Yes

Post Void Residual (PVR)

A PVR should be checked as soon as possible after the void to ensure accuracy but

within 4 hours of removal of SRC. This may need to be sooner if symptomatic of urinary dysfunction.

Both in and out catheters and bladder scanners can be used to assess the PVR in postnatal patients. The body of evidence for bladder scanners is less developed but is now established and they are used in clinical practice for this purpose in many centres both in the UK and Internationally[12-15].

In the first instance, wherever possible, a bladder scanner should be used by a trained operator (this could include a Maternity Care Assistant (MCA), midwife or nurse) to assess the post void residual as soon as possible after a void-within 15 minutes.

If a bladder scanner is not available or not possible to use, then an in and out catheter should be used (this is the most accurate method of assessing PVR).

If this technique is used a 12 or 14F female SRC with 10mL balloon should be used, to avoid re-catheterisation of women with a large residual identified.

Monitoring for urinary tract infection

Urinary tract infection contributes to voiding dysfunction and should be sought in all women requiring catheterisation due to **retention**.[1]

At the time of insertion a catheter specimen urine must by dip sticked and sent for Microscopy, Culture and Sensitivity. (MC&S).

If a SRC is inserted antibiotics should be prescribed for the length of catheterisation using trimethoprim or cefradine as first line options.

Medical Input

All women with postpartum voiding dysfunction must have a medical review.
Women requiring catheterisation for large volume retention and need prolonged catheterisation they must be discussed and reviewed by a named urogynaecology senior registrar or consultant if senior registrar not available.

Consider obstetric complications as cause for retention.
This may necessitate: -

- perineal/vaginal/pelvic exam
- +/- USS for pelvic haematoma.
- MSU/CSU results must be reviewed.

Transfer to the community with a SRC in situ.

Ensure patient has the Bladder care passport Catheter-passport-v8- Nov-2023.pdf
Which includes contact details.

Ensure they have enough urinary drainage bags (night/day) until they are reviewed in the Gynaecological Outpatients Department (GOPD)

Ensure they have medication to take home, and any equipment needed.

48hour TWOC on Blakeney or Cley Obstetrics

- Follow Flow Chart (Appendix A)
- Inform Urogynaecology admin team – urogynae@nnuh.nhs.uk.
- Antibiotics to continue while catheter in situ

TWOC in Gynaecology Outpatients

Follow Flow Chart (Appendix B)

Women requiring catheterisation for voiding dysfunction will be discussed and reviewed by a named urogynaecology senior registrar or consultant in their absence.

This doctor will maintain continuity of care for the women regarding ongoing bladder care, supported by the urogynaecology consultants and specialist urogynaecology nurse.

Intermittent self-catheterisation may be preferred vs. self-retaining catheter with lower risk of infection.[13] In the immediate postpartum period perineal pain may preclude this. This should be considered in liaison with urogynaecology team after a failed 1-week TWOC, or if not possible a flip-flow valve with timed bladder emptying.

Care of women with prolonged voiding dysfunction

If the first 1week TWOC is failed further bladder management will be coordinated by the urogynaecology team in gynaecology outpatients, with a named urogynaecology consultant.

Intermittent self-catheterisation should be offered in this situation. If it is not possible a flip-flow valve with timed bladder emptying is preferred.

4. Training & Competencies

All staff must complete the relevant training and competencies relating to bladder scanning.

5. Related Documents

Maternity Daily Fluid Chart	Trust Docs ID 16197
PIL Bladder care during delivery and after pregnancy	Trustdocs ID 12600
Joint Trust Guideline for the Prevention, Recognition and Management of Acute Kidney Injury in Adults	Trustdocs ID 1345
Patient monitoring fluid chart	Self monitoring Fluid chart ID 23649

6. References

1) Abdel-Aleem H, Aboelnasr MF, Jayousi TM, Habib FA. Indwelling bladder catheterisation as part of intraoperative and postoperative care for caesarean section. Cochrane Database of Systematic Reviews. 2014(4)
2) Blomstrand M, Boij R, Christensson L, Blomstrand P. Systematic bladder scanning identifies more women with postpartum urinary retention than diagnosis by clinical signs and symptoms. International Journal of Nursing and Midwifery. 2015 Jun 30;7(6):108-15.
3) Bollag L, Lim G, Sultan P, Habib AS, Landau R, Zakowski M, Tiouririne M, Bhambhani S, Carvalho B. Society for obstetric anesthesia and perinatology: consensus statement and recommendations for enhanced recovery after cesarean. Anesthesia & Analgesia. 2021 May 1;132(5):1362-77.
4) Ching-Chung L et al. Postpartum urinary retention: an assessment of contributing factors and long-term clinical impact. Aust NZ J Obstet Gynaecol 2002; 42(4):367-370
5) Cutner A, Cardozo LD. The lower urinary tract in pregnancy and the puerperium. Int Urogynecol J 1992; 3:317-323
6) Daly O, Coffey K, Liberatore R, Mendoza C, Comeadow M, Pohatu H, Dibella V. Better postpartum bladder care through standardised documentation, screening voids, trial of void protocol and the use of automated bladder scanners. Australian & New Zealand Continence Journal. 2016 Dec 1;22(4)
7) GAIN. Guideline for the Prevention, Diagnosis and Management of Hyponatraemia in Labour and the Immediate Postpartum Period. March 2017 Online:www.rqia.org.uk/GAI
8) Glavind K, Bjork J. Incidence and treatment of urinary retention post partum. Int Urogynaeco J Pelvic Floor Dysfunction 2003; 14:119-21
9) Hakvoort R, Thijs S, Bouwmeester F et al. Comparing clean intermittent catheterisation and transurethral indwelling catheterisation for incomplete voiding after vaginal prolapse surgery: a multicentre randomised trial. BJOG 2011;118:1055–1060.
10) Jensen JT, Klarskov N, Lauenborg J. Validity of bladder volume measurement by ultrasound in women postpartum. International Urogynecology Journal. 2020 Mar;31:643-9.
11) Kearney R, Cutner A. Review Postpartum voiding dysfunction. TOG 2008; 10:71-74
12) Lee JWS, Doumouchtsis SK, Fynes MM. Is Doppler planimetry a valid technique for the evaluation of postpartum urinary bladder volume? Int Urogynecol J 2008; 19:1019-1025

13) Mulder FEM, et al. Postpartum urinary retention: a systematic review of adverse effects and management. Int Urogynecol J 2014; 25:1605-1612

14) NICE guidelines CG190 Intrapartum care: care of healthy women and their babies during childbirth. 2014

15) NICE guidelines [CG37] Postpartum Care. 2006

16) Peahl AF, Kountanis JA, Smith RD. Postoperative urinary catheter removal for enhanced recovery after cesarean protocols. American Journal of Obstetrics & Gynecology. 2020 Jun 1;222(6):634

17) Teo R, Punter J, Abrams K et al. Clinically overt postpartum urinary retention after vaginal delivery: a retrospective case-control study. Int Urogynecol J 2007; 18:521–524

7. Audit of the process /service to be delivered

Compliance with the process will be monitored through the following:

Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
Compliance with Intrapartum guidance	Formal audit – Maternity Audit plan	Consultant Urogynaecologist	Maternity Clinical governance	Yearly
Compliance with post partum guidance	Formal audit- Maternity Audit plan	Consultant Urogynaecologist	Maternity Clinical Governance	Yearly
No of TWOC referred to GOPD	Reported monthly monitored on Life QI platform	Clinical Effectiveness Midwife	Maternity Clinical Governance	Bi monthly
Retention of urine >700mls	Incident reporting	Maternity Risk and Governance facilitator	Maternity Clinical Governance	As occurs
PN Readmissions with urinary retention	Incident reporting	Maternity Risk and Governance facilitator	Maternity Clinical Governance	As occurs

The audit results are to be discussed at the maternity Clinical governance meetings to review the results and recommendations for further action. Then sent to (Clinical Safety Sub Board who will ensure that the actions and recommendations are suitable and sufficient.

8. Appendices

8.1. Appendix A - 48 Hour Trial Without Catheter on Blakeney and Cley Obstetrics

8.2. Appendix B Trial Without Catheter In GOPD

For use by Urogynaecology specialist nurses in GOPD only

8.3. Appendix C - Hyponatremia Flowchart

9. Equality Impact Assessment (EIA)

Type of function or policy	Existing

Division	Women and Children's	**Department**	Maternity
Name of person completing form	Sue Holland	**Date**	

Equality Area	Potential Negative Impact	Impact Positive Impact	Which groups are affected	Full Impact Assessment Required YES/NO
Race	No	No		No
Pregnancy & Maternity	No	yes		No
Disability	No	No		No
Religion and beliefs	No	No		No
Sex	No	No		No
Gender reassignment	No	No		No
Sexual Orientation	No	No		No
Age	No	No		No
Marriage & Civil Partnership	No	No		No
EDS2 – How does this change impact the Equality and Diversity Strategic plan (contact HR or see EDS2 plan)?		NA		

- **A full assessment will only be required if: The impact is potentially discriminatory under the general equality duty**
- **Any groups of patients/staff/visitors or communities could be potentially disadvantaged by the policy or function/service**
- **The policy or function/service is assessed to be of high significance**

IF IN DOUBT A FULL IMPACT ASSESSMENT FORM IS REQUIRED

The review of the existing policy re-affirms the rights of all groups and clarifies the individual, managerial and organisational responsibilities in line with statutory and best practice guidance.