Frimley Health NHS Foundation Trust

Intrapartum and Postpartum Bladder Care

Key Points

- The reported incidence of postpartum urinary retention (PUR) ranges from 0.05 – 14.1%.
- Post partum urinary retention is associated with prolonged voiding dysfunction, urinary infection and up to 5% of women may have permanent bladder damage.
- Many women with voiding dysfunction during labour and postpartum may have no risk factors, so high index of suspicion must be maintained in all women regardless of mode of delivery and analgesia used.
- Volume of urine passed spontaneously or from catheterisation should be recorded on a fluid balance chart.
- Bladder care flowchart should be followed for all women post birth or post removal of catheter.

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Abbreviations

CISC	Clean Intermittent Self-Catheterisation
PUR	Postpartum Urinary Retention
TWOC	Trial Without Catheter
UTI	Urinary Tract Infection

Contents

1. Purpose of the Guideline

To provide guidance to midwives and obstetricians on the management of bladder care during labour and in the immediate post-partum period.

2. Introduction

Good intrapartum bladder care and prevention of postpartum urinary retention are of great clinical importance. The reported incidence of postpartum urinary retention (PUR) ranges from 0.05 – 14.1%[1,2,3]. If voiding dysfunction goes unrecognised the bladder will over distend leading to permanent damage to the detrusor muscle and bladder denervation, increased risk of UTI's, and up to 5% of women may have permanent bladder damage[4,5]. There is considerable variation in practice of bladder care in the UK[6].

In pregnancy, the bladder has reduced tone secondary to hormonal changes allowing for increased storage capacity for increased urine production. The length of the intra-abdominal urethra also lengthens to reduce stress urinary incontinence during pregnancy.

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.

These changes usually resolve postpartum without any long-term effect. However, in the immediate postpartum period bladder tone remains reduced and therefore prone to over distension compounded by a physiological postpartum diuresis.

3. Risk Factors

There is a wide range of contributing factors and it is difficult to predict who will develop urinary retention and **all women should be regarded as at risk** regardless of mode of delivery and analgesia used.

Women at highest risk[1,3]

- Primigravida women
- Prolonged labour, especially second stage of labour
- Epidural for labour/delivery, irrespective of mode of delivery
- Spinal anaesthesia
- Need to catheterise in labour
- Macrosomia
- Assisted vaginal delivery
- Caesarean section
- Extensive vaginal and perineal/lacerations
- Previous voiding dysfunction
- Significant immobility

4. Clinical presentation

Normal maximum bladder volume is between 400 and 600mls.

Overt urinary retention – inability to void spontaneously within 6 hours of vaginal delivery or removal of catheter requiring catheterisation. The volume of urine obtained is typically more than 400-600ml.

Covert urinary retention – Some postnatal women report voiding of 'reasonable amounts' but with urinary frequency. If post void residual ≥150mls after a spontaneous void verified by US scan or catheterisation, the woman may have covert urinary retention. Covert urinary retention appears to resolve spontaneously; however, the long-term evidence of harm/harmlessness is lacking[7].

5. Prevention of acute bladder distension in labour

- Obtain a urine sample and dipstick test at start of active labour. Record the volume and urinalysis in the notes.
- Encourage the woman to void every 2-3 hours. Record the time and volume passed on her Epic input/output chart.
- Prolonged use of IV oxytocin (Syntocinon®) is associated with fluid retention and reduced urinary output.
- If she is unable to pass urine after 3-4 hours, the threshold for catheterisation should be low especially if IV fluids are in progress – if the bladder is palpable and the woman cannot void at any point, catheterise using an indwelling catheter with consent.
- All women having an epidural analgesia should have an indwelling catheter inserted when comfortable. This can be deferred to the next VE if that is within 1-2 hours.
- Instillagel® should be used at each catheter insertion. 11ml syringes are available. No more than 4 full syringes to be given in a 24-hour period.
- Document the catheterisation, the reason, type, size and amount of water inserted into balloon. Complete Avatar in Epic.
- Record volumes of urine obtained on her Epic input/output chart.
- The catheter balloon should be fully deflated at the onset of pushing to reduce the risk of urethral damage. The deflated catheter should be secured to the woman's leg with tape to reduce the risk of it being pushed out. If the catheter does fall out, it is important to be aware of bladder filling during the second stage.
- If the catheter falls out in the second stage, a new catheter should then be inserted after birth and left in for the time period specified below.

6. Postnatal bladder care

All women should be asked if they have emptied their bladder as normal or have any incontinence symptoms. The timing and volume of the first two voids of urine should be monitored and documented regardless of method of birth. Follow the attached summary of bladder care flowchart for all women post birth or post removal of catheter.

- The first void should be no longer than 6 hours post-delivery or removal of catheter. This void should be at least 150ml. Void volumes up to 600mls should be considered normal.

- This should be highlighted on handover to postnatal ward and recorded in the postnatal maternal record. Normal oral intake should be encouraged as excessive fluid intake may rapidly distend an atonic bladder.

- If the first void is between 600-800mls, an in and out catheter should be passed to measure urine residual. If residual is >150mls follow TWOC pathway.

- If the first void is >800mls, an indwelling catheter should be inserted due to bladder overdistension. If residual is <150mls leave in situ for 24 hours. If >150mls then follow TWOC pathway.

- If urine has not been passed by 6 hours after the birth and measures to encourage micturition such as taking a warm bath or shower are not immediately successful, urine volume should be assessed with catheterisation[8].

- The accuracy of bladder scanners in the postnatal period does not appear to be reliable due to the enlarged postpartum uterus and bladder oedema. A physical examination should include abdominal palpation for a palpable bladder and perineal examination to exclude haematoma.

- **Women who have had an operative vaginal delivery** should have their urinary output monitored on her Epic input/output chart for at least 24 hours[8].

- **Women who have required an indwelling catheter in labour (without regional anaesthesia)** are at increased risk of urinary retention. An indwelling catheter should remain in situ for at least 6 hours after delivery.

- **Women who have had regional anaesthesia** are at increased risk of urinary retention. An indwelling catheter should remain in situ for at least 6 hours following removal of a low dose epidural catheter and for at least 12 hours after an epidural top up or spinal anaesthetic[9].

- **Women who have had Caesarean Section under spinal anaesthesia on the enhanced recovery pathway** should have their catheter removed after 6 hours if the spinal has worn off enough for the woman to get up and walk to the toilet. See ‘Caesarean Section (including Enhanced Recovery)’ guideline.

- Removal of a catheter should not be influenced by the time of day/night as catheters can be removed safely at any time in a 24 period.

- **All women** should be encouraged to discuss any bladder or bowel concerns. Concerns should be clearly documented. Bladder care posters should be on display in all postnatal patient toilet areas to aid women.
  If any of the bladder care poster questions/answers suggest retention, then an in/out

catheter should be inserted to assess post-void residual after they have passed urine (see flowchart).

Below are answers to the bladder care questions which may indicate retention:

Did Passing Urine Feel Normal?

Did you have a sensation that you needed to pass urine? **(NO)**
Did you pass the expected amount of urine? **(NO)**
Was the flow as expected? **(NO)**
Did your bladder feel empty at the end? **(NO)**

Please let your midwife know if you answered **NO** to any of these questions

Are you able to control your urine? **(NO)**
If not, or you are only passing small amounts of urine, please tell your midwife immediately.

- **Women with urinary incontinence** should not be routinely re-catheterised. Overflow incontinence should be excluded via a post-void residual measurement and if the residual is <150mls, a referral to Pelvic Health Physiotherapy should be made prior to discharge. If residual is >150mls, follow TWOC pathway. The woman can go home if she wishes and can be seen as an outpatient; ensure all women have the postnatal pelvic floor exercise leaflet[10].

- **Women requesting early discharge** should be assessed and advised on an individual basis. Under these circumstances, if the catheter is removed earlier than recommended the woman should be advised to be aware of the symptoms of urinary retention including frequent voiding and urinary incontinence and this should be documented in the notes.

- Women can be discharged home with the catheter in situ on free drainage. A leg bag can be used in the day, but a 2-litre bag should be used overnight. There is a pack for women being discharged home with indwelling catheter.

- Women should have an arranged time to return to the postnatal ward for trial without catheter (TWOC) as per the TWOC pathways (see pp 11-12, below).

- If the woman is still unable to pass urine or has residuals of >150mls, after the 3rd TWOC, the catheter should be removed and clean intermittent self-catheterisation (CISC) should be considered. The woman's consultant must be informed if TWOC pathway (2) is unsuccessful, and a referral sent to Pelvic Health Physiotherapy.

7. Post Operative Haematuria

Introduction:
Post-operative haematuria means visualisation of blood in the urine after any operative procedure.

Why post operative haematuria is important:
Haematuria may be a sign of urinary tract injury and therefore this must be considered. However, clear urine does not exclude injury.

Incidence of urinary tract injuries:
Injury of the urinary tract can result in significant morbidity. Urinary tract injury can occur during obstetric and gynaecological surgery. The reported incidence of obstetric bladder injuries is 0.14-0.94%, and obstetric ureteric injuries 0.013-0.09%[11-15], with most occurring at caesarean section.

The incidence of bladder injury is 1-2% and ureteric injury 0.5-2.5% for all gynaecological procedures.

Risk Factors for post operative haematuria:

- Pregnant uterus
- Obesity
- Fibroids
- Endometriosis
- Previous pelvic surgery / previous pelvic sepsis
- Hysterectomy
- Intra-abdominal adhesions
- Cancer
- Severe prolapse

Causes of post operative haematuria:

- Traumatic catheterisation / traction on catheter
- Instrumentation of the bladder or ureters (e.g. cystoscopy, ureteric stents, biopsy)
- Urinary tract infection
- Bladder or ureteric injury

Signs and symptoms of urinary tract injury:

- Haematuria
- Oliguria
- Suprapubic or flank pain
- Abdominal distension
- Ileus
- Difficulty in urinating
- Urinary incontinence
- Low grade pyrexia
- Raised inflammatory markers
- Deranged renal function
- Leakage of urine per vagina (may present later)
- “Bypassing” of urethral catheter – this may be a fistula
- Air in catheter bag at the end of a laparoscopic procedure

Management of Suspected Urinary Tract injury:

- Check vital signs
- Calculate urine output for last 24 hours
- Accurate input/output documentation
- Abdominal examination for signs of peritonitis, ascites, and the presence of bowel sounds
- Assess for renal angle tenderness
- Pelvic examination to rule out a pelvic mass or tenderness or leakage of urine from the vaginal incision(s)
- Urinalysis
- Urine culture
- Hydrate the patient
- Keep catheter on free drainage (ensure no blockage)

- Leave catheter in situ for a minimum of 12hrs after haematuria resolves or as instructed by consultant responsible for the patient's care

Laboratory evaluation:

- Serum renal function (U&Es)
- Peritoneal fluid (e.g. from a drain) urea and creatinine levels can be compared to serum levels to differentiate between urine and serous fluid

Imaging:

- CT Urogram is the investigation of choice for a suspected ureteric injury
- An isolated bladder injury may be best seen on a cystogram

Intra-operative Haematuria:
Ideally, an injury should be identified and repaired during the primary operation.
Ureteric injuries may not be identified intra-operatively or may present later due to thermal or ischaemic injury that was not evident at the time of operation.
In patients at high risk consider prophylactic pre-operative intervention such as insertion of ureteric stent/catheters prior to starting to facilitate dissection and identification of potential injury to ureters intra-operatively.
Intra-operative haematuria must be investigated before the patient leaves theatre. A cystoscopy may be required, and a Urological opinion may be helpful particularly if a ureteric injury is suspected as retrograde urethroscopy may be required.

Management of urinary tract injuries
Advice should be sought from the on call Urologist. They will likely attend the theatre for an intraoperative injury and MUST be called for any patient returning to theatre with a suspected urinary tract injury.
Following repair of any urinary tract injury, prolonged catheterisation is recommended as per instructions from the Consultant responsible for the patient's care or the Urology team.

8. Auditable Standards

The timing and volume of the first two voids is recorded for all women.

The use of a fluid balance chart for all women having operative vaginal delivery.

The consultant is informed of any woman who is unsuccessful at the TWOC pathway (2).

9. Monitoring compliance

This guideline will be subject to three-yearly audits. The audit midwife is responsible for coordinating the audit. Results will be presented to the department clinical audit meeting. Action plans will be monitored at the quarterly department clinical governance meeting.

10. Communication

If there are communication issues (e.g. English as a second language, learning difficulties, blindness/partial sightedness, deafness) staff will take appropriate measures to ensure the patient and her partner, if appropriate understand the actions and rationale behind them.

11. References

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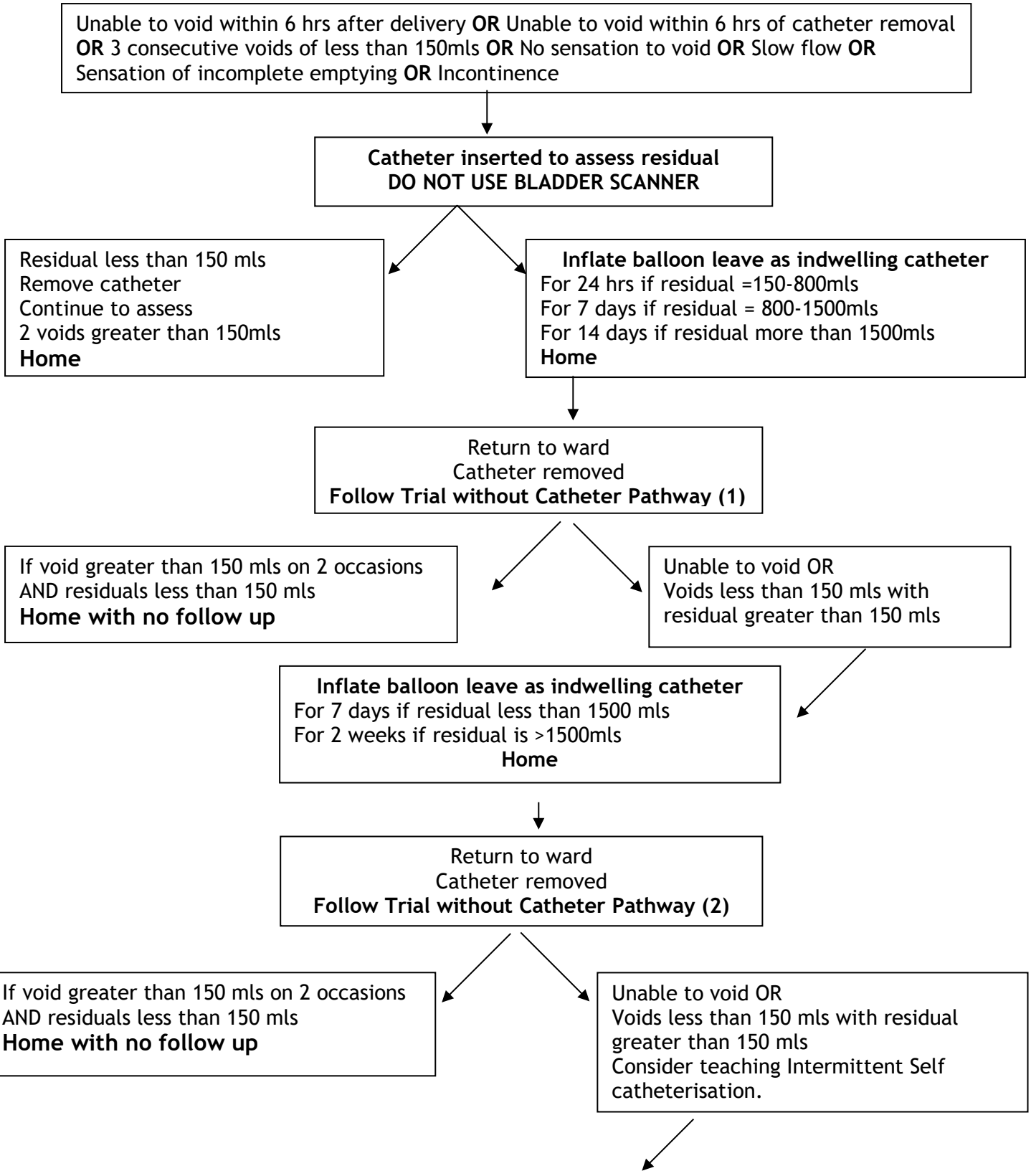
Appendix 1: SUMMARY OF BLADDER CARE FLOWCHART



Midwife to contact patient's consultant if Pathway (2) is not successful and refer to Pelvic Health Physiotherapy

Appendix 2: Trial without Catheter Pathway (TWOC-1)

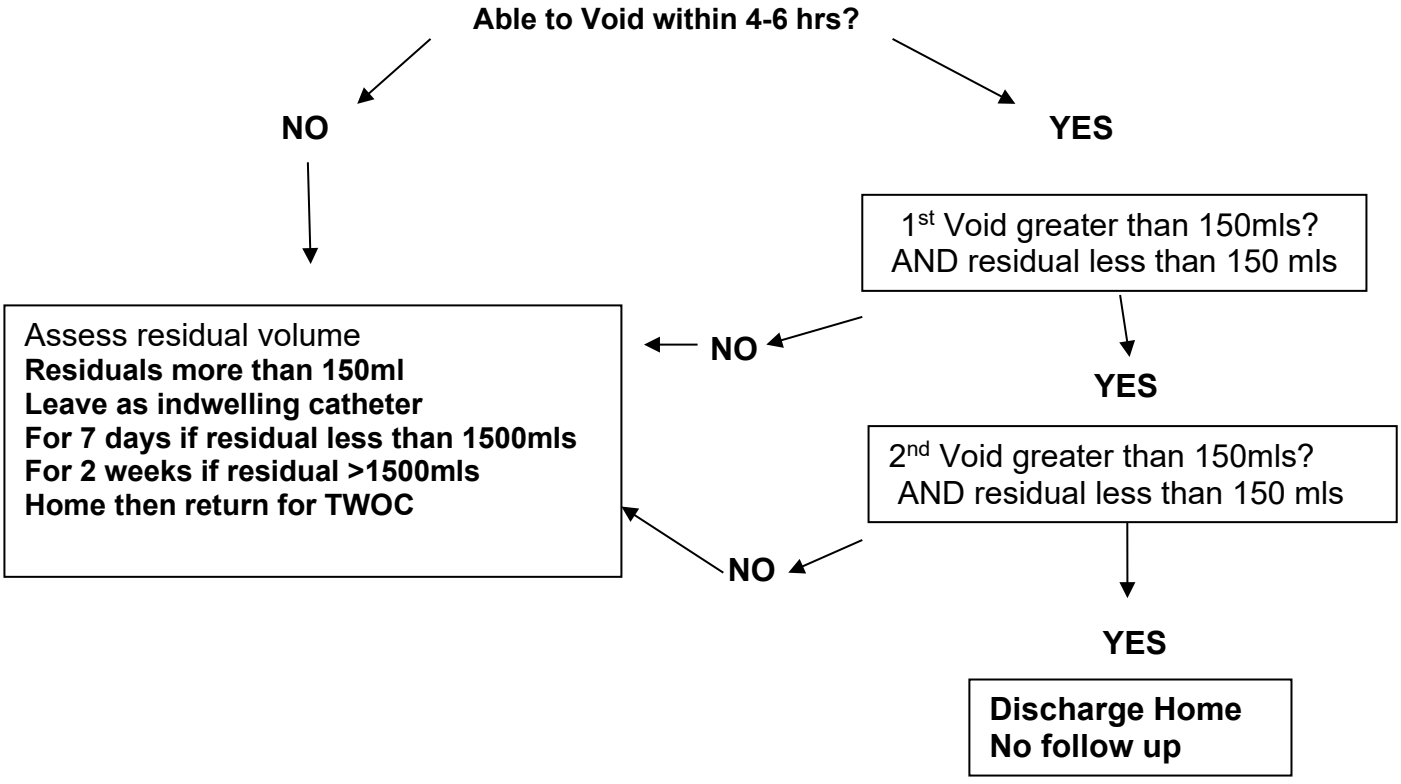
For women returning to the ward for the FIRST time with a catheter in situ due to a previous inability to void following birth or following initial removal of catheter after delivery

- **Encourage NORMAL (i.e., 2litres in 24 hrs) NOT excessive fluid intake**
- **She should attempt to void every 3-4 hours.**
- **Document time and volume of all voids**
- **Immediately following void measure residual urine**
- **Less than 10 days postpartum use an in/out catheter to assess residual volumes**
- **Over 10 days bladder scanner may be used**
- **Consider CSU if symptomatic**

Name _____ Hosp No_____ DOB_____

Time of catheter removal_____ volume in bag_____
Colour of urine _____

Hour	Time	Input	Output
1			
2			
3			
4			
5			
6			



Follow up TWOC on ward on following date_____

Trial without Catheter Pathway (TWOC-2)

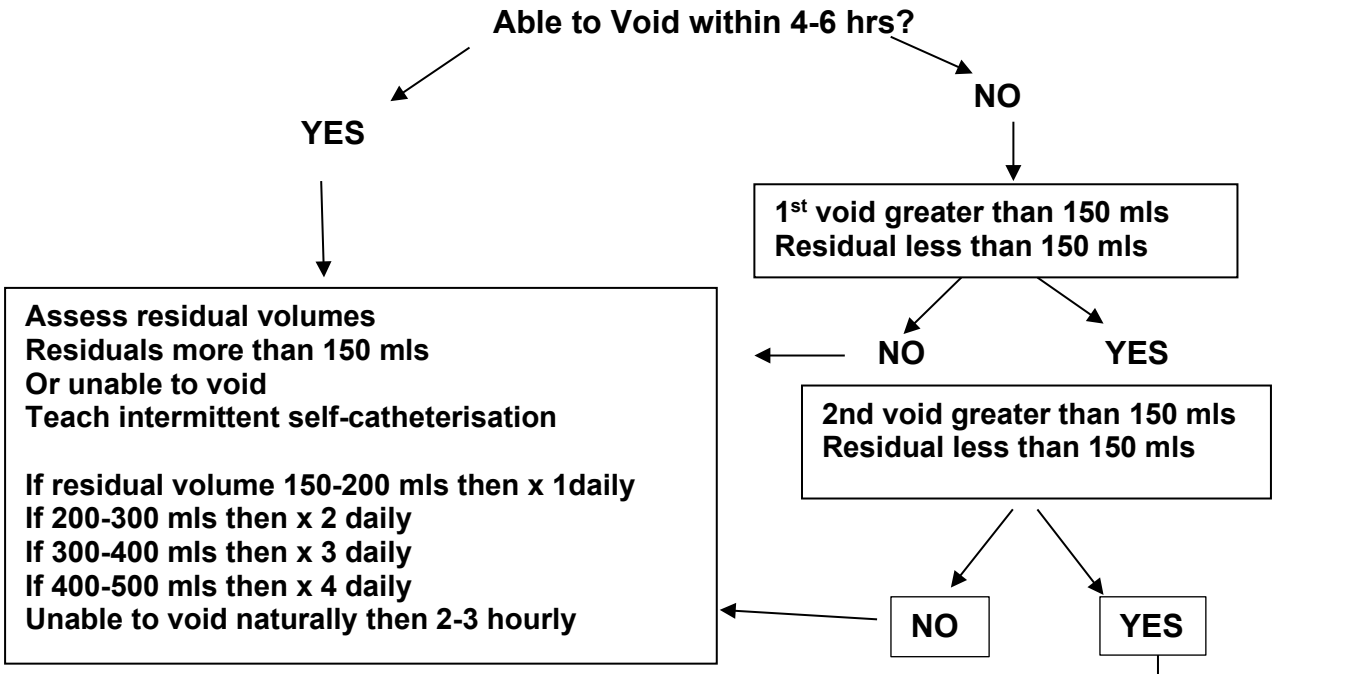
For women returning to the ward with a catheter in situ due to a previous inability to void and when an earlier Trial without Catheter has failed

- **Encourage NORMAL (i.e., 2litres in 24 hrs) NOT excessive fluid intake**
- **She should attempt to void every 3-4 hours.**
- **Document time and volume of all voids**
- **Immediately following void measure residual urine**
- **Less than 10 days postpartum use an in/out catheter to assess residual volumes**
- **Over 10 days bladder scanner may be used**
- **Consider CSU if symptomatic**

Name _____ Hosp No_____ DOB_____

Time of catheter removal_____ volume in bag_____
Colour of urine _____

Hour	Time	Input	Output
1			
2			
3			
4			
5			
6			



Midwife to contact patient's consultant if Pathway (2) is not successful.
Refer to Pelvic Health Physiotherapy.

Midwife's Name _____ signature_____

Appendix 3: Poster to display at postnatal ward toilets.

Did Passing Urine Feel Normal?

- Did you have a sensation that you needed to pass urine?
- Did you pass the expected amount of urine?
- Was the flow as expected?
- Did your bladder feel empty at the end?

Please let your midwife know if you answered **NO** to any of these questions.

Are you able to control your urine?

If not, or you are only passing small amounts of urine, please tell your midwife immediately.

Did you know that resting your feet on a footstool can help you go for a poo?

Try to eat a healthy diet and drink water steadily throughout the day (1½ – 2 litres).
Your urine should be pale yellow and your poo soft and formed, not hard.

Full version control record

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Contributor(s):	Kostis Nikolopoulos, Consultant obstetrician WPH
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This guideline has been registered with the Trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health NHS Foundation Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version Control Sheet

Version	Date	Guideline Lead(s)	Status	Comment
1.0	11.04.17	Miss Helen Walker (Consultant Obs and Gynae, FPH)	Final	
2.0	September 2020	Miss Shaila Banu, Post CCT Speciality Doctor, Obs and Gynae, WPH	Final	
2.1	January 2023	Miss Helen Walker (Consultant Obs and Gynae, FPH)	Draft	Scheduled review
3.0	January 2024	Miss Helen Walker (Consultant Obs and Gynae, FPH)	Final	Scheduled review, Ratified at Cross Site Obstetrics Clinical Governance Meeting 17th January 2024

Related Documents

Document Type	Document Name
Guideline	Caesarean Section (including Enhanced Recovery)