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Version	Date	Summary of changes since the previous version
Version 1.6	**September 2019**	• Full review of policy • Policy condensed and re-formatted • NEWS score criteria changed for UTI indications • Addition of Appendix 2 • Addition of Appendix 3 • Addition of Appendix 4 • Addition of Appendix 5

1. Introduction

Urinary catheterisation is an invasive procedure and should not be undertaken without full consideration of the benefits and risks. The presence of a catheter can be a traumatic experience for patients and have huge implications for body image, mobility, pain, and comfort. Indwelling catheters are a key source of urinary tract infections. It is essential that they are only used if clinically necessary.

Intermittent catheterisation should be used in preference to an indwelling catheter if it is clinically appropriate and a practical option for the patient.

Where a post-void residual volume of urine is identified, the patient's symptoms and renal function must be considered prior to catheterisation. If the patient is asymptomatic, do not catheterise. The ongoing need for the urinary catheter must be reviewed at regular intervals.

2. Procedure

Procedures will follow those set out in the Royal Marsden Manual.

Important notes:

- This document provides overarching guidance on the choice, insertion, removal, and care of urinary catheters. Throughout the document, all these elements are included under the umbrella term of catheter management. It should be used in conjunction with the underlying standard operating procedures.
- Incontinence is not an indication for catheterisation; treat underlying medical conditions.
- Informed consent (verbal) must always be obtained and recorded at the time of catheterisation.
- Remove catheters at the earliest point to reduce the risk of morbidity and mortality.
- Do not dipstick urine for patients with the urinary catheter as the results are unreliable, assessment of patients symptoms are required before antibiotics recommended.
- Catheterisation can increase the risk of pressure ulcer development, as there is a tendency to reduce patient interactions such as toileting and pad changes.
- Where chronic wounds are present, catheterisation presents greater risk due to the colonisation with multi-resistant bacteria and the likely risk of cross-infection to the urinary tract.
- For male patients, who are incontinent (obstruction has been excluded), consider a trial of a urosheath, incontinence pouches, or pad and pants
- Catheterisation should be avoided in agitated or cognitively impaired patients as they may remove the catheter and cause trauma.
- Patients should be encouraged to have a good fluid intake of at least 1.5-2 litres per day to prevent infection and constipation.
- Balloons should be filled only with sterile water. Tap water in the balloon may introduce bacteria to the bladder. Saline may cause crystal formation in the inflation channels.
- It is not best practice to deflate and re-inflate the balloon for troubleshooting.
- Removal of the catheter - Passive deflation of the catheter balloon is recommended to prevent balloon cuffing and trauma on removal.
- It is preferable that catheter bags are changed using a sterile procedure as it breaks the 'closed system', however, a clean 'non-touch' procedure can be used if a sterile procedure is not possible. The connection should be cleaned with 2% chlorhexidine in 70% isopropyl (blue clinell wipe) before disconnection.

Obstetrics & Gynaecology

For urinary catheterisation in Obstetrics and Gynaecology patients follow: Postpartum Bladder

Scanning by Trained Midwife Practitioners, or Bladder catheterisation and post-operative catheter management procedures for Gynaecological patients (this policy is under review).

3. Competence and Training

All NHS Borders staff involved in urinary catheterisation should undertake urinary catheterisation training (NES: under CPD on LearnPro). There is also a formal course available; *Catheterisation and Trouble Shooting* – (see the Course Booking System (CBS) accessed via LearnPro).

- Complete 2 yearly peer reviews in order to demonstrate competence.
- Bladder scanner training may be accessed via the company rep for the machine in use.
- Staff joining the organisation or moving between areas must have their competency checked before carrying out any catheter management (transferability of skills form available from Clinical Practice and Development (CP&D)).

4. Urinary Catheter Care Passport

All patients with an indwelling urethral or suprapubic catheter must have a Urinary Catheter Care Passport completed *(excluding maternity and paediatrics).* Elective urological patients do not need to be issued with a catheter passport. The duration of catheterisation will be defined by the operating surgeon and documented in the discharge summary.

- For hospital patients, keep the passport in bedside notes.
- Maintenance must be checked daily and recorded weekly.
- If no passport present, initiate new passport.
- When a patient is discharged, the passport MUST be given to them.
- Staff should teach the patient to manage their catheter passport.
- When a Catheter Passport is complete and no longer in use, it should be filed in the medical records.

This is a patient held document which should remain with the patient at all times and be taken to all hospital appointments and hospital admissions.

5. Catheterisation

5.1. Urethral Catheterisation

Urethral catheterisation is a sterile procedure that facilitates direct drainage of the urinary bladder.

Indications:

- Acute urinary retention (for males see Appendix 1)
- Symptomatic chronic urinary retention and/or renal impairment
- Debilitating disease involving skin ulceration
- Severe burns
- Monitoring of fluid balance in a severely ill patient (urosepsis policy)
- Neurological disorders
- Surgical procedures: intra-operative/following abdominal, gynecological or urological surgery
- Unfit for urology surgery
- For comfort and dignity in end of life care
- Patient requires prolonged immobilization
- Intractable urinary incontinence when alternative non-invasive approaches are unsatisfactory or unsuccessful

Contraindications:

- Pelvic fracture
- Severe burns
- Traumatic urethral injury
- Failed Trial Without Catheter (TWOC) following transurethral resection of Prostate (TURP) within four weeks
- Artificial urinary sphincter
- Suspected or known abdominal mass is not a contra-indication. A single attempt at catheterisation should be made based on clinical risk assessment

Indications for hospitalisation for insertion/change*:*

- Fresh haematuria
- Within 3 weeks of radical prostatectomy or bladder/urethral reconstructive surgery, consult the Urology Department if re-catheterisation is required
- Urethral obstruction

Catheter Selection:

- 'Standard' catheter lengths (40cm) are only available within BGH
- In Primary Care, a female length catheter may be prescribed on a named patient basis
- Smaller gauge catheters minimise the risk of urinary trauma which predisposes to Urinary Tract Infections
- If recurrent blockages due to sediment, consider larger bore catheter or open-ended catheters

Catheter diameter:

- Use smallest gauge catheter initially
- Size 12/14ch - Clear urine, no debris, no haematuria
- Size 16ch - Slightly cloudy urine, light haematuria with or without small clots, mild debris
- Size 18ch - Moderate to heavy debris, haematuria with moderate clots
- If latex allergy, use all silicone catheter

Lubricant:

The anesthetic-based gel must be used prior to catheterisation for both male and female patients as per the manufacturer's instructions. The gel has three properties; it provides a local anaesthetic, lubrication and acts as an antiseptic. 11ml syringe for male patients and 6ml syringe for female patients.

Securing Catheter:

All urethral catheters should be supported with a catheter retaining strap (G strap/Clinifix) to minimise trauma at the bladder neck, and external meatus. Unstabilised catheters can also lead to catheter movement, inflammation, and pain.

- Catheter bag leg straps or aquasleeves
- The leg bag strap **is not** a catheter retaining strap.

Basic principles	• Balloon size of 10mls/5mls must be used • Charrier size- choose the smallest size possible which provides adequate drainage • Patients should have a spare catheter within the home setting. A catheter valve may be used as an alternative to a drainage bag
Cleansing	• Ensure the peri-urethral area is socially clean using unperfumed soap and water prior to commencing urethral catheterisation

	• Use sterile saline for cleansing the meatus prior to insertion of a urethral catheter • (Note: there is a lack of rigorous evidence to inform the use of antiseptics or non-antiseptics such as tap water for meatal cleansing prior to catheter insertion. Furthermore, there is a significant risk of contaminating the sterile field when using tap water)
Changing urinary drainage systems	• Leg bags or catheter valves must be changed every 5-7 days as per manufacturers guidelines. Leg bags available in 350, 500 and 750ml sizes. Urinary catheters should be connected to a sterile closed drainage system, incorporating a link system for overnight drainage to keep the day system intact • Ensure patient and carer is taught how to change leg drainage bags using a clean technique. The overnight bag is a single-use item only; it is a non drainable 2-liter bag. Maintaining a closed system is vital to reduce the risk of infection • Manual dexterity is extremely important when choosing the correct leg bag tap for the patient • Short tubing leg bag (6cm) to be used for female patients and long tubing (25cm) for male patients, unless patient preference
Bag position and support	The Health Care Professional must ensure: • Patient/carer understands the need to keep the urine bag below the level of the bladder • The leg bag is drained when 2/3 full • The urine bag tap must not touch the floor
Catheter Valves	• The valve allows urine to be stored back inside the bladder, giving the patient more freedom to move and more discreet drainage. The catheter valve may increase bladder tone. The valve should be opened every 2 to 3 hours or earlier if need be to ensure that the bladder does not overdistend. An overnight 2-liter drainage bag may be attached to the valve to promote drainage if this is the patient preference • Catheter valves are only suitable for patients who have a good cognitive function, sufficient manual dexterity to manipulate the valve and adequate bladder capacity. It is important that catheter valves are not used with patients that have uncontrolled detrusor overactivity, ureteric reflux or renal impairment • Catheter valves must not be used on patients following surgical procedures to the prostate or bladder, as pressure caused by the distending bladder may cause perforation or rupture • Catheter valves are recommended to remain in situ for 5–7 days, as per manufacturers' recommendations
Immobile Acute Patients	Should have a standard 2 litre drainable urine bag attached to the hospital bed. Changed every 5 to 7 days. (A disposable stand should be used where the bed hook is not accessible). The patient's bed should be lowered to the lowest possible height to enable the catheter bag to be free from the floor. Where there is a requirement to lower the bed further a catheter stand should be used
Patient discharge from hospital	• The hospital is responsible for notification of a patient being discharged with a urinary catheter to the district nurse and GP • Before leaving the hospital, patients should be taught catheter care • Urinary Catheter Care Passport must be completed, see section 3 • Patients are to be discharged with one week's supply of- night bags, leg

	bag x1 and a replacement catheter of the appropriate size, and information booklet • Subsequent catheters are obtained on prescription via the GP
Responsibility of the Health Care Professional	Once the changing of catheter regime is established, the ongoing review must be assessed and agreed by the clinician
Non-registered nurse urinary catheter insertion	Non-registered staff may only undertake urinary catheterisation following formal training and specific departmental agreement. The registered Health Care Professional responsible for the patient remains accountable for all non-registered staff practice
Documentation	The Health Care Professional undertaking catheterisation must document all details of the catheterisation within the patients' Catheter Care Passport in accordance with the NMC Standards for Records and Record Keeping and give to the patient/carer on discharge

There is no policy or legal position regarding male practitioners catheterising female patients or female practitioners catheterising male patients. Patients should be offered a chaperone or be invited to request the presence of a chaperone. Nurses and other health care professionals should consider being accompanied by a chaperone (irrespective of organisational constraints or settings in which this is carried out) when undertaking intimate examinations and procedures to avoid misunderstanding and, in rare cases, false accusations of abuse (RCN 2006).

5.2. Suprapubic Catheterisation

Suprapubic catheterisation is a surgically created connection between the urinary bladder and the anterior abdominal wall to drain urine from the bladder.

Indications:

- Following elective abdominal or urological surgery
- Inability to pass a urethral catheter due to obstruction
- Acute urinary retention or chronic retention
- Advanced neurological disease
- Disorders of the genitalia or urethral trauma
- Patient preference, particularly if sexually active or to maintain the ability to self-care
- Less urethral trauma
- Persistent expulsion of the urethral catheter
- More comfortable to wear
- Intractable incontinence, where other options have failed

Contraindications:

- There is a known or suspected carcinoma of the bladder
- Undiagnosed haematuria
- Femoral-femoral crossover vascular grafts
- Previous lower abdominal surgery
- Blood clotting disorders
- Ascites
- Suspected/diagnosed ovarian cyst
- Severe obesity

Indications for hospitalisation for change:

- Previous problematic insertions by the clinician

Catheter Selection:

- Maintain size at catheter change, unless otherwise clinically indicated
- Standard length is 1st choice
- Size 16 - 18ch catheter at the initial insertion
- For ongoing catheter changes use an all silicone 16ch/18ch catheter, unless instructed to upsize catheter for recurrent blockages (may upsize to size 20ch in total)
- First changes (after 4 weeks) may be performed within the community unless requested by the surgeon. Contact the Urology Department if catheter requires change within 4 weeks
- Exchange suprapubic catheter without delay (suprapubic tract can be closed within half an hour of removal of the existing catheter). Please refer to the Royal Marsden Manual for guidance

Securing Catheter:

- Suprapubic catheters should be secured by a suitable device to prevent tension to the catheter and site
- Avoid/use with care, dressings to the suprapubic site, as this can encourage infection

5.3. Intermittent Self Catheterisation (I.S.C.)

Intermittent self catheterisation is the insertion of a urinary catheter to drain urine or instil solution into the bladder which is immediately removed and not left in situ.

Frequency of Intermittent Catheterisation

Bladder residual volumes	**Frequency**
Unable to void	On average 4-5 possibly 6 times a day (depending on incontinence symptoms)
Over 500mls	More than 3 times a day
Between 300ml & 500ml	2-3 times a day
Between 150ml & 300ml	1-2 times a day
Less than 150ml	Daily
Less than 100mls	Stop and re-assess
On 3 consecutive occasions	Residual urine levels – may need to undertake ISC as little as once a week, or stop depending on symptoms

Indications:

- Management of chronic urinary retention or incomplete bladder emptying
- Reduce urine tract infections with draining residual urine
- Male or female patients who suffer from some form of neurogenic bladder dysfunction or voiding difficulty
- Management of a urinary pouch via a continent stoma
- Installation of drug therapy
- Self-dilation of urethral stricture disease

Catheter Selection:

- Ensure ISC performed in an acute or emergency situation is a sterile procedure
- Clinically clean procedure within the home setting
- Catheters are single use only
- ISC regime dependent upon individual patient needs and based on full clinical assessment

- Intermittent Self Catheterisation - check the patient understands how to order their supply of catheters. (GP prescription)

6. Community Urinary Catheter Management

The District/Community/Practice Nurse will become the clinician responsible for the ongoing management of the patient's urinary catheter and will assess the ongoing need for a urinary catheter, prior to each catheter change. If appropriate, a Trial without Catheter can be arranged

7. Catheter maintenance solutions

Catheter Maintenance Solution is a prescription only medication. Instilling Catheter Maintenance Solutions breaks the closed drainage system. Only perform if evidence of encrustation. pH management is required for this (see appendix 3).

Individuals with a pH above 6.8 are more likely to experience problems with an encrusted catheter, as encrustation develops due to alkaline urine.
Do not use solutions to unblock catheters, blocked catheters should always be removed and replaced.

Any catheter maintenance regime should be undertaken as infrequently as possible in order to achieve clinical improvement. Please note: best practise is to change catheter i.e. if catheter becomes blocked with encrustations at week 8, the catheter should be changed at week 7, and careful monitoring is required by the health care provider.

8. Male Acute Retention of Urine (See appendix 1)

Renal Assessment/Impairment:

- A blood sample must be taken at the time of catheterisation for urgent urea, electrolytes and creatinine and arrangements made to ensure a result is received and acted on within 4 hours. If this is not possible in the community then the patient should be referred urgently to the Emergency Department at BGH
- Patients with a creatinine rise of 20% or greater above their usual baseline level will require discussion with the on-call surgical registrar

Rationale: Patients with evidence of renal impairment as a result of acute urinary retention are at risk of life-threatening diuresis during the first 24 hours following catheterisation

9. Infection

9.1. Potential signs and symptoms of urine infection:

Important point: NEWS score of >5 or 1 parameter >3 = high risk of sepsis

- Suprapubic pain
- Loin pain (left or right)
- Urgency
- Bypassing of urine
- Rigors
- New onset delirium
- Fever greater than 37.9 or 1.5 C above baseline on 2 occasions during 12 hours (SIGN 88)
- Sepsis of unknown origin

NB: A patient does not need to have all of these signs or symptoms to have a CAUTI (catheter-associated urinary tract infection).

9.2. Urinalysis

Do not use dip stick testing for catheterised patients (bacteriuria is expected and samples will be inconclusive).

9.3. Lab Specimens

When obtaining a urine specimen from a catheter, change urinary catheter and send CSU from a new catheter. It is important that an aseptic technique via the sampling port is used. Samples must not be taken from the drainage bag. If recurrent UTI, consider changing the catheter again 72 hours after commencing antibiotics and consider increasing frequency of catheter changes. Patients may be treated empirically with an antibiotic. Please refer to the Royal Marsden Manual for guidance.

9.4. Antibiotics

- Where the patient is asymptomatic, antibiotics should be avoided in order to prevent the selection of resistant strains of colonising organisms. Almost all patients with a long term indwelling catheter will develop bacteriuria
- Routine antibiotic therapy for patients with bacteriuria is not recommended unless the patient has symptoms of a urinary tract infection
- Seek microbiological advice where specific clinical concern exists

9.5. Antibiotic Prophylaxis

- "Routine use of antimicrobial prophylaxis during catheter change should be avoided" (SIGN 88)
- Assess the clinical need for antibiotic prophylaxis for a patient with a urinary tract infection and pyrexia who requires catheterisation
- If episodes of sepsis are related to changes of the catheter or the history of; consider antibiotic therapy in accordance with local guidelines and previous results

9.6. Treatment of CAUTI

Treatment of CAUTI must follow SIGN guidelines and NHS Borders Prescribing Formulary and NHS Borders Hospital Antimicrobial Precribing Guidelines for Adults.

9.7. Immunosuppression

Patients with conditions resulting in a low white cell count or who are undergoing chemotherapy or are on other immunosuppressant medication may require a course of antibiotics following catheterisation. Seek advice from the Microbiologist.

10. Nurse-Led Catheter Removal

What is Nurse Led Catheter Removal?

The catheter must be removed as soon as clinically possible following insertion. Any delay in removal creates a significant risk of serious infection.
Please use the simple Nurse Led Catheter Removal Tool (appendix 2) to assist and encourage early removal:

Is medical approval required?

For all routinely catheterised patients, medical approval is **NOT** required prior to removal by the Health Care Professional, subject to following this policy and indication for removal by assessment.

Where a medical or nursing concern exists, the discussion should be held with the multidisciplinary team prior to catheter removal.

11. Trial Without Catheter (TWOC)

Any patient with a catheter must be reviewed regularly (SIGN Guidelines 2012) and a planned TWOC must take place when an assessment indicates that it can be removed.

A TWOC procedure can be undertaken either in a clinical or home environment.

- Remove the catheter early morning, depending on clinical circumstances, to ensure that the patient receives full support and monitoring during the day and that the voided urine can be measured
- Encourage a good fluid intake (approx 6 cups of fluid in the morning)
- If the catheter is removed within the patient's home, the health professional must provide contact numbers in case problems occur and a follow-up visit within 4-6 hours may be planned with the patient to evaluate the trial
- Document TWOC in Catheter Care Passport

Bladder scanning is a useful tool; if this is not possible, patient assessment should include fluid input/output and patient symptoms. If TWOC unsuccessful, reinsert urethral catheter and document urine volume over 15 minutes (retention volume). Note any resistance during catheterisation and whether the patient felt 'relief' after the catheter was inserted, implying the patient has bladder sensation. If required arrange/discuss appropriate follow up with Urology.

11.1. Tamsulosin Prescribing Guidelines

For males catheterised for chronic/acute urinary retention, consider the use of Tamsulosin (400mcg od) prior to TWOC, for approximately 2 weeks (unless contraindicated). This will need to be initiated as a long term prescription if TWOC successful (there is good evidence that alpha-blockers increase the success of TWOCs).

11.2. Suprapubic TWOC

- If performing a supra-pubic trial without a catheter, please attach a catheter valve for 24 – 48 hours before removing supra-pubic catheter (please discuss with Urology)
- Patient voids per urethra and measures the volume, followed by immediately opening the catheter valve and measures the urine volume via the catheter. If volumes drained via the valve are below 100mls, please remove the catheter (please discuss with Urology)

Appendix 1: Protocol for Males with Acute Retention of Urine

Acute Urinary Retention (male) Initial Action

- Complete Patient Catheter Passport.
- Follow advice on pyrexia prior to catheterisation.
- Relieve retention by urinary catheterisation using a size 14 all silicone catheter. If there is difficulty with catheterisation contact the surgical registrar on call.
- Check and record observations. If the temperature is 38°C or above arrange admission.
- Record time of catheterisation. Measure and document the volume of urine drained up to 15 minutes post catheterisation (retention volume).
- Check urea, creatinine and electrolytes. Results available on TrakCare.
- Test the urine with a multistick. If positive for nitrites or leucocytes send a CSU, document 'acute retention' and empirically treat with Trimethoprim.
- Neither PSA or DRE necessary at this time.

A retention volume of less than 500mls may indicate something other than acute urinary retention.

Consider other diagnoses. (E.g. neurological bladder dysfunction, UTI) and discuss with Surgical Registrar.

If retention volume between 500ml and 1000mls and: -

1. Renal chemistry is within normal range.
2. Patient is over 40 years old
3. Catheter Care can be managed at home.

Admission is not required.

Discharge and supply with: -

1. 2 week supply of Tamsulosin 400mcg
2. Discharge pack /supplies/catheter passport/**inform district nurse** –by phone/e-mail
3. TWOC in community in 2 weeks, unless difficult insertion or recent urethral surgery.

If any of the following:

- Retention volume is over 1000mls
- Renal chemistry is impaired.
- Patient is unable to manage at home
- Patient is under 40yrs
- Temperature 38°C or above.

Discuss with Surgical Registrar on call to discuss admission. Follow up will be decided on discharge. (See below)

FOLLOW UP PLAN (E.D & OOH)

1. Send patient details, brief summary to the generic **UROLOGY MAILBOX**. **2.** Urology nurse specialist will forward details to the appropriate district nurse teams, requesting the **outcome** of the TWOC in the community. **3.** DN's will inform Urology through the **UROLOGY MAILBOX** the outcome of the TWOC.

- If TWOC is successful the alpha-blocker should be continued and a prostate assessment clinic appointment arranged with the Nurse Specialist where uroflometry, IPSS, DRE and PSA will be monitored and further management decided.
- If TWOC is unsuccessful then a consultant clinic appointment will be arranged within the next 6 weeks where PSA and DRE will be monitored and further decision made
- For patients under 40 years old, a Urology Consultant review appointment within 4 – 6 weeks is required whatever the outcome of the TWOC.

Appendix 2: Nurse-Led Catheter Removal Tool

Nurse Led Catheter Removal Tool

[Affix Addressograph Label Here]	Reason catheter inserted:		Ward:
	Supplies for patient with long term catheter (Y/N)		Comments:
	National Catheter Passport & Patient Information Booklet (Y/N)		
	District Nurse Referral (Y/N)		

If the answer is NO to all of the following questions, REMOVE CATHETER

Follow TWoC guidance in NHS Borders catheterisation policy.

DO NOT TWoC if patient has HPCR (high pressure chronic retention).

Date (dd/mm/yy)	Visible Haematuria Y/N	Urinary Obstruction Y/N	Urology Surgery Y/N	Decubitus ulcer (pressure sore) Y/N	Input/output fluid monitoring Y/N	End of life palliative care/ medically prescribed Y/N	Immobility (eg unstable fracture) Y/N	Bowel obstruction Y/N	Catheter removed Y/N	CAUTI/ Treatment Y/N	Signed

NB: For males catheterised for urinary retention, consider the use of tamsulosin prior to TWOC (unless contraindicated), this will need to be initiated as a long term prescription (there is good evidence that alpha-blockers increase the success of TWOCs).

Appendix 3: Catheter Maintenance- pH record

Do not use maintenance solutions to manage blockages. Only perform if evidence of encrustation.

Individuals with a pH above 6.8 are more likely to experience problems with an encrusted catheter.

Test and record urine specimens from the catheter port **twice a day** for 7-10days. If the pH is >7 the urine is alkaline.

Date										
pH										
pH										

Appendix 4: Troubleshooting

Blocked catheter
Do not flush: Change the catheter.
Recurrent blockages: Consider changing catheter more frequently and upsizing to a larger diameter catheter or an 'open-ended' catheter.

Debris present
Encourage good fluid intake.

Encrustations
During removal: Examine catheter and eyelets and roll catheter between fingers to feel the presence of 'grit' in the lumen of the catheter. Encourage citric fluids as this may acidify the urine.

Observe when catheter becomes blocked and arrange to change the catheter on a more regular basis.

Catheter maintenance solutions are recommended, however, a catheter can be changed more frequently to avoid the use of solutions if considered appropriate (refer to Appendix 3).

Mucosal occlusion
This occurs when the bladder mucosa blocks the eyes of the catheter. It is very important to identify this cause as the treatment is very different from encrustation. The best way to determine the cause of the blockage is to examine the catheter visually on removal both internally and externally. If there is no visible evidence of encrustation, and the catheter, when rolled between fingers does not feel gritty, then it is safe to assume that mucosal occlusion has taken place. It may be beneficial where appropriate to use a catheter valve for patients suffering from repeated mucosal occlusion. The presence of the urine may prevent the mucosa from entering the eyes of the catheter.

Hydrostatic suction results from the vacuum effect of urine in the drainage tubing. There is suction of the mucosa into the eyes of the catheter and prevents drainage. This is most often found in drainage bags that are positioned more than 30 cm below the bladder and a slight temporary rising will often help.

Occlusion will also occur when the bladder mucosa closes around the catheter due to bladder spasm. This may be due to detrusor spasm or the catheter itself may irritate the bladder lining and trigger a spasm. Anticholinergic medication may help but patients should be made aware of the side effects in order to help with compliance. It should be discontinued if no positive effect is found. It is also possible that the spasm may occur as a reaction to the catheter material: a different catheter type should be trialled in the first instance.

Bypassing
Leakage of urine around the catheter may be caused by a blocked catheter or bladder spasm. The sensitive trigone area of the bladder may be stimulated by the balloon, which in turn increases the spasm.

A smaller catheter may overcome this problem. Ensure no more than 10 ml of water is used in the balloon. N.B. A larger catheter or over-inflated balloon may exacerbate the problem. Also, consider anticholinergic medication.

No urine flow
Check there is no kink in the catheter or drainage conduit. Ensure patient is drinking enough fluid.

Constipation is a common cause of blocked catheters. Encourage good fluid intake of 1.5 to 2 litres per day.

The tubing of the catheter may be kinked or flattened, particularly if the patient is obese.

Recurrent urine tract infection
Encourage an increase in fluid intake and increase the frequency of catheter changes.

Cramping pain
It is fairly common for some patients to experience abdominal cramps when a catheter is first inserted/changed. These will usually subside after 24/48 hours. If insufficient water was introduced into the balloon, then it is possible that the catheter can become dislodged causing pain. Persistent detrusor muscle contractions can also cause pain and may respond to antimuscarinic drugs but these drugs should be used with caution in the over 65's; due to antimuscarinic overload discuss with GP. It is also possible that the tip of the catheter could be irritating the bladder wall. A catheter valve may solve this problem.

Urethral discomfort
This may be caused by distension of the urethra by too large a catheter, or occlusion of the paraurethral glands. This may lead to infection, urethritis and an offensive discharge around the catheter. Ensure appropriate catheter selection, ? smaller catheter, ensure adequate support with catheter strap and leg bag straps. Ensure the catheter is within the bladder.

Catheter Expulsion
If a patient's catheters are being expelled frequently with balloon intact, consider the addition of anticholinergic medication as this may be related to bladder spasms. The option of a suprapubic catheter may be considered: refer to Urology or email Urology Mailbox.

Recurrent catheter expulsion with ruptured balloons may be due to the presence of bladder calcification; discuss with GP/Urology or email Urology Mailbox.

Haematuria
Small amounts of blood are quite commonly found in the urine of catheterised patients as a result of trauma or infection. Encourage good fluid intake (1.5 to 2 litres).

Purple bag syndrome
Older patients who are immobile may develop purple urinary bag syndrome. This condition is harmless and is brought about by the bacterial decomposition of tryptophan, an essential amino acid that can turn the colour of the bag purple. Some patients may be suffering from constipation - encourage good fluid intake.