Fundamentals of Catheter Care

Session Contents

Catheter Assessment and Selection

- *Patient Assessment*
- *Catheter Selection*
- *Catheter drainage & securement devices*

- **Catheter Care and maintenance**
- **Communication & record keeping**

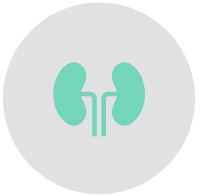
Why is Good Catheter Care Important ?

Increased Risks of Adverse events -sepsis, antibiotics, Length of stay, life expectancy (Kunin et al 1992, Landi et al 2004)

Urethral trauma & pressure damage allowing bacteria to colonise more readily (Aggarwal et al 2009)

Catheter Blockages or Bypassing

Provides a surface for bacteria to adhere (Jacobsen et al 2008)



Catheter Associated Urinary Tract Infection (CAUTI)

Antibiotic Resistance

A Catheter is a valuable, sometimes essential tool, but when used incorrectly can be a considerable source of complications.

Patient Assessment

Clinical Indications for Catheterisation:

- Management of urinary retention or bladder outlet obstruction
- Monitoring of Input/Output
- Measurement/drainage of post void residual volumes
- Perioperative – for selected surgical procedures
- Intra/postnatal
- Administering medications/treatments for the bladder
- Irrigation - haematuria
- Immobility – eg unstable fractures, traumatic injuries
- Investigations – Urodynamics, cystogram
- Palliative care to promote comfort and dignity
- Tissue Viability to assist wound healing (RCN 2023, EPIC 2014, NICE 2014)

Catheterisation for incontinence should only be used as a last resort when all other methods have been exhausted

HOUDINI offers a useful pneumonic to guide decision making (Adams et al 2012)

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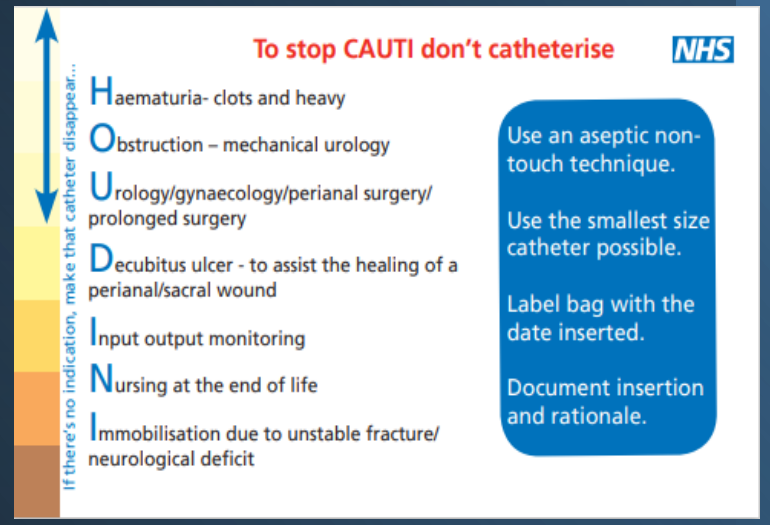

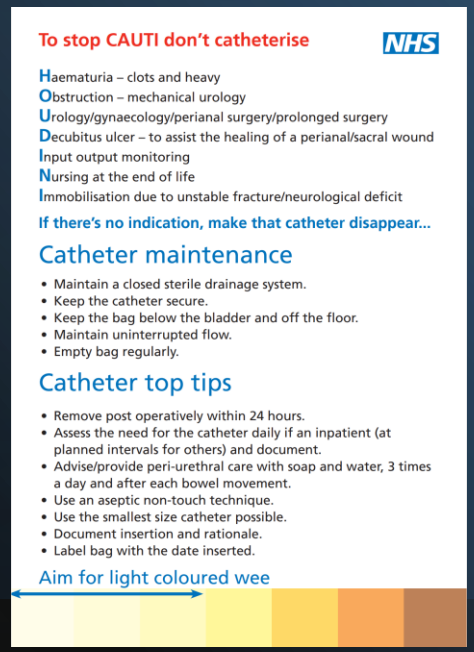

NHS England Urinary Catheter Tools

Individual Patient Assessment

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- Have all other methods of managing symptoms been exhausted
- Have underlying causes of bladder symptoms or incomplete emptying been Identified & treated
- History – are there any factors which will increase patients' risks associated with catheterisation
- Allergies - latex, chlorhexidine, lidocaine, products used for cleansing, adhesives
- Any previous catheter history - difficult catheterisation, complications associated with catheterisation eg infection, frequent blockages, expulsion or pain

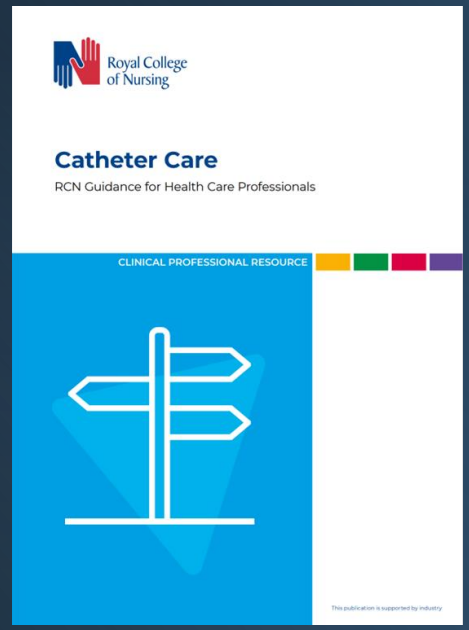
Potential impact on the patient of catheterisation:

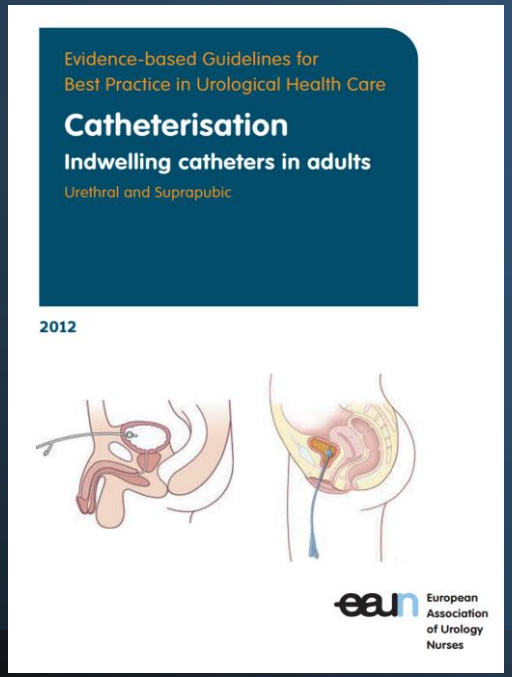
- Can they manage the catheter independently
- Sexuality and body image
- Most appropriate method for the patient
  - Urethral Catheterisation – Indwelling/Intermittent Self Catheterisation
  - Suprapubic

(RCN 2019)

RCN Catheter Care Guidance offers a comprehensive overview of patient assessment

EAUN Guidance offers an in-depth discussion of Risk factors and

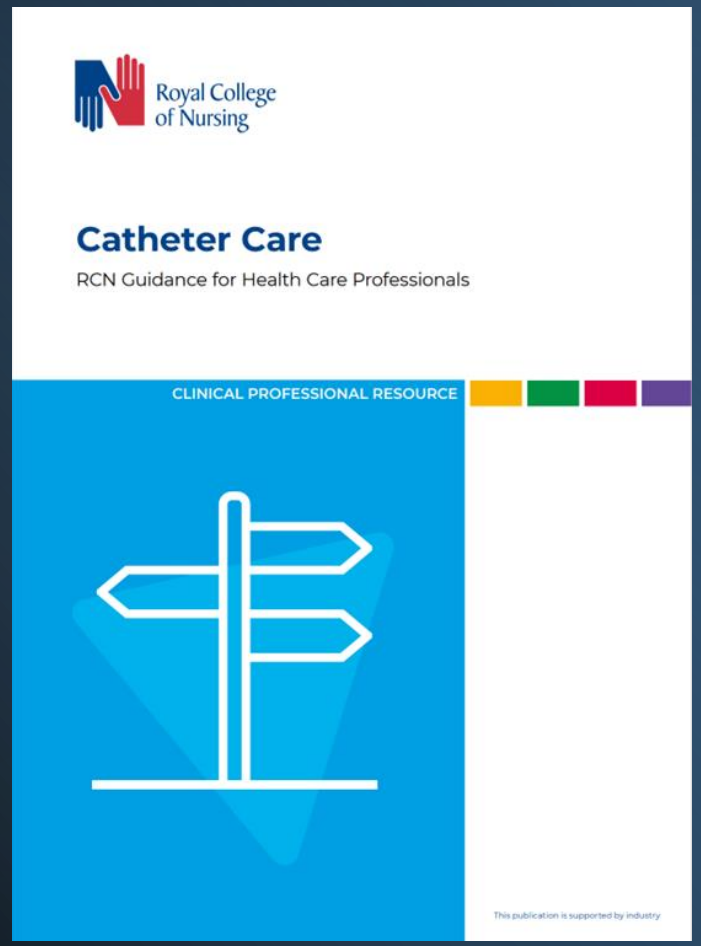




Does the patient have capacity and do they consent to catheterisation?

- Essential that valid consent obtained and documented
- If the patient is unable to give consent you must follow the principles of the Mental Capacity Act (2005) and your Local policy
- There must be a valid clinical indication for using a catheter and it must be clear that it is in the best interests of the patient. (RCN 2023)
- Decisions should be made within a wider MDT with family members or persons engaged in caring for the patient (RCN 2023)
- For consent to be valid the patient, relative or carer should expect:
- To understand the rationale, alternatives and consequences of not being catheterised
- That it is in their best interests and safety
- The common risks associated with catheterisation
- That their catheter care reflects up to date, evidence-based practice & the HCW is competent in the procedure (RCN 2019)

RCN Catheter Care guidance provides Further information around



Catheter Selection

Catheters are Medical Devices and as such HCP must have a clear understanding of the benefits and disadvantages of catheter equipment and must be familiar with the types of catheters and equipment available (RCN 2019)

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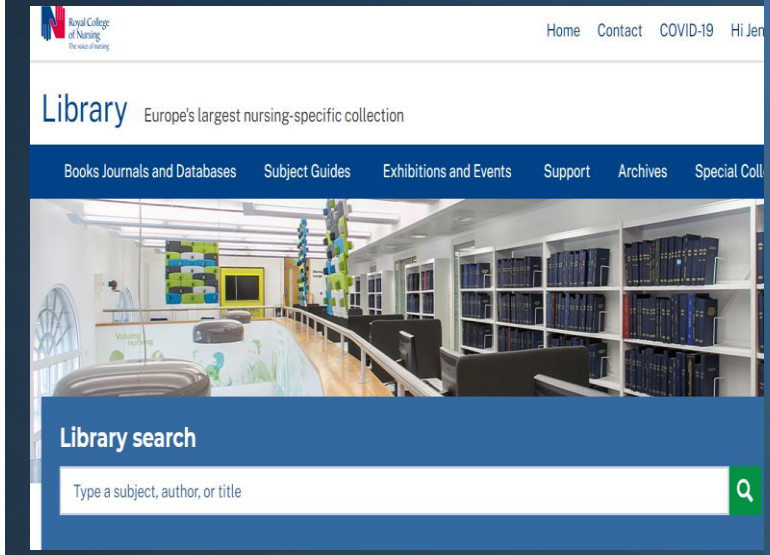
Intermittent Self Catheterisation

- I.S.C should always be considered the first option (EPIC 2014, NICE 2010, NICE 2015)
- Maintains bladder function allowing the bladder to fill and empty
- Able to monitor bladder function more readily
- Reduced incidence of UTI (Hunt et al, 1984; Wydaele, 1988)
- Maintains sexual function
- Enables patient to self manage
- Patients should be given a choice of Cath
- Potentially requires motivation and a degree of dexterity.



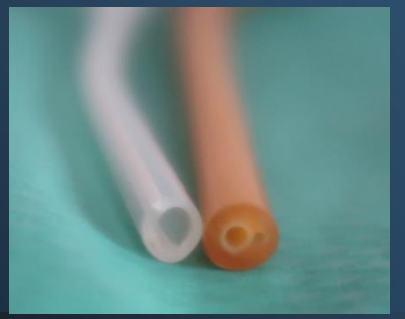
RCN Library offers access to a range of articles for further reading

Indwelling Catheters

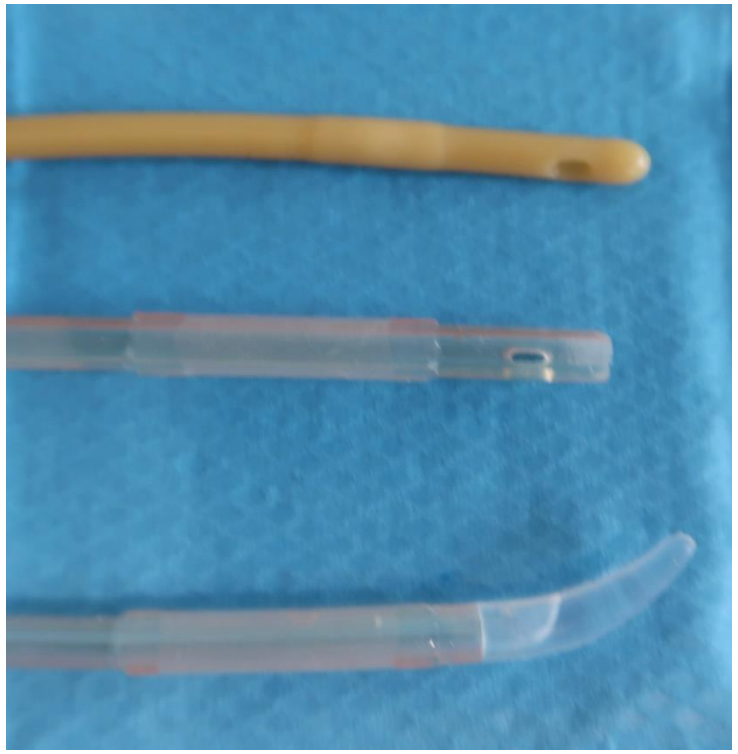
The choice of indwelling catheters should be based upon the purpose and duration of catheterisation
(Loveday et al 2014)

Short Term Use – up to 28 days
PVC, PTFE coated catheters (Polytetrafluorethylene)

Long Term Use – up to 12 weeks
Hydrogel coated latex
100% silicone
Hydrogel coated silicone



Tip Types

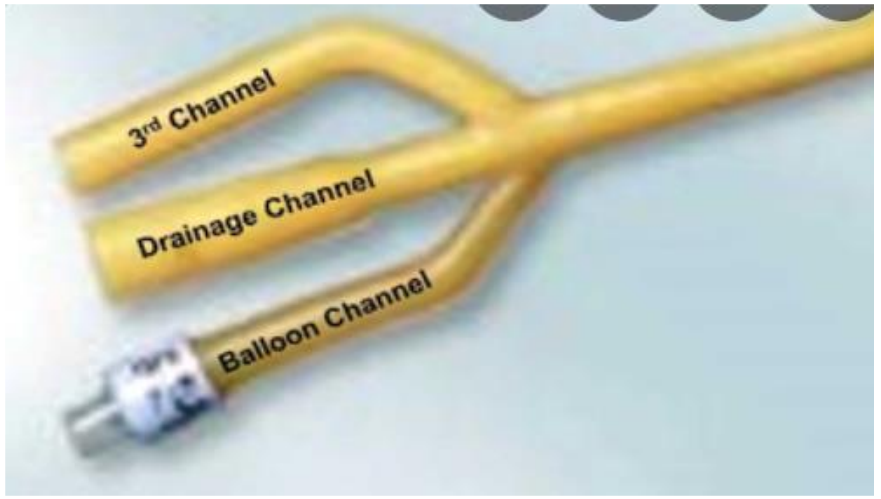


Rounded Tip

Open Tip

Tiemann Tip

3 Way Catheters



There is a risk of harm from wrong connection of bladder irrigation to an incorrect port on a 3 way catheter.

If irrigation fluids or spigots are attached to the wrong port, the patient is at risk from the bladder being over-distended /and the bladder being unable to drain safely

Catheter Size

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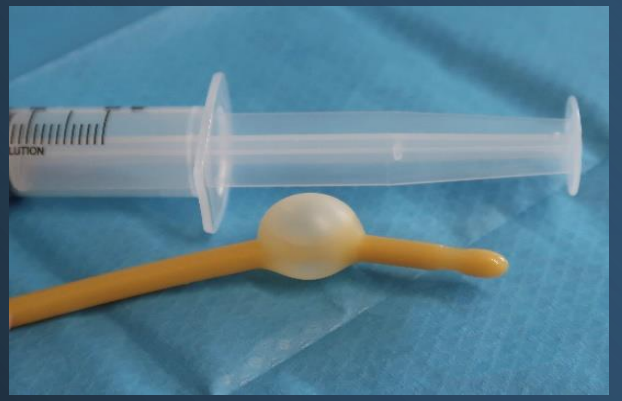
- *System of measurement to express catheter diameter is the Charriere (ch) or French Gauge (fg)*
- *The correct size is the smallest size possible to ensure adequate drainage (Loveday et al 2014, Lo et al 2014)*

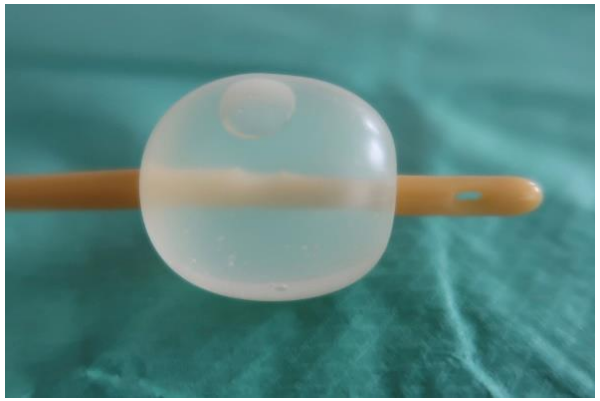
For Routine drainage

- *Female 10 – 14ch*
- *Male 12 – 16ch*
- *S/P 16 - 18ch*
- *Balloon Size – always use the volume advised by the manufacturer!*
- *Urology patients may require larger Gauge and balloon sizes (Loveday et al 2014)*



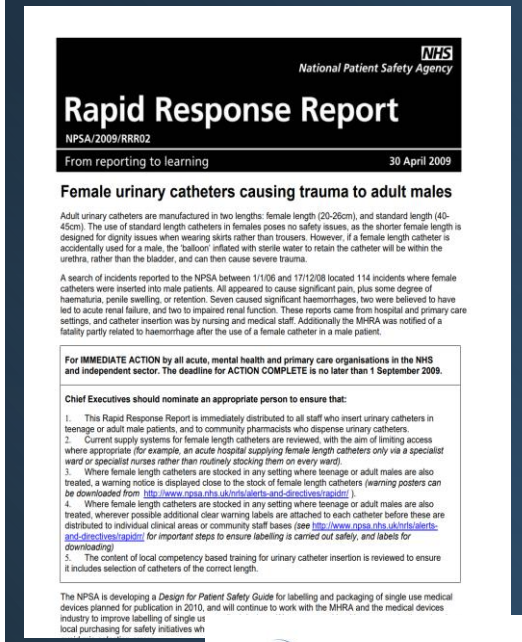
Choosing Correct Catheter Lengths

- **Catheters are available in 3 lengths**
- *Standard 40 - 43cm*
- *Female 23 - 26cm*
- *Paediatric 30cm*



- ***Female length catheters should not to be used in males*** *(NPSA 2009)*
- *Check your local Policy regarding Female length catheters*

See RCN Library for further reading around Types of catheters and materials



NHS National Patient Safety Agency

Rapid Response Report

NPSA/2009/RRR02

From reporting to learning 30 April 2009

Female urinary catheters causing trauma to adult males

Adult urinary catheters are manufactured in two lengths: female length (20-26cm), and standard length (40-45cm). The use of standard length catheters in females poses no safety issues, as the shorter female length is designed for dignity issues when wearing skirts rather than trousers. However, if a female length catheter is accidentally used for a male, the 'balloon' inflated with sterile water to retain the catheter will be within the urethra, rather than the bladder, and can then cause severe trauma.

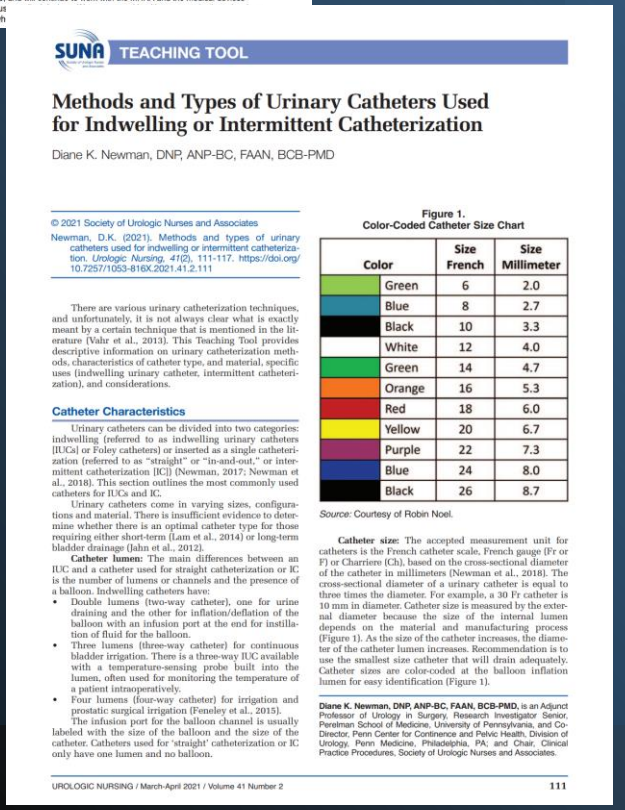
A search of incidents reported to the NPSA between 1/1/06 and 17/12/08 located 114 incidents where female catheters were inserted into male patients. All appeared to cause significant pain, plus some degree of haematuria, penile swelling, or retention. Seven caused significant haemorrhages, two were believed to have led to acute renal failure, and two to impaired renal function. These reports came from hospital and primary care settings, and catheter insertion was by nursing and medical staff. Additionally the MHRA was notified of a fatality partly related to haemorrhage after the use of a female catheter in a male patient.

For IMMEDIATE ACTION by all acute, mental health and primary care organisations in the NHS and independent sector. The deadline for ACTION COMPLETE is no later than 1 September 2009.

Chief Executives should nominate an appropriate person to ensure that:

1. This Rapid Response Report is immediately distributed to all staff who insert urinary catheters in teenage or adult male patients, and to community pharmacists who dispense urinary catheters.
2. Current supply systems for female length catheters are reviewed, with the aim of limiting access where appropriate *(for example, an acute hospital supplying female length catheters only via a specialist ward or specialist nurses rather than routinely stocking them on every ward).*
3. Where female length catheters are stocked in any setting where teenage or adult males are also treated, a warning notice is displayed close to the stock of female length catheters *(warning posters can be downloaded from* http://www.npsa.nhs.uk/nrls/alerts-and-directives/rapidrr/ *)*
4. Where female length catheters are stocked in any setting where teenage or adult males are also treated, wherever possible additional clear warning labels are attached to each catheter before these are distributed to individual clinical areas or community staff bases *(see* http://www.npsa.nhs.uk/nrls/alerts-and-directives/rapidrr/ *for important steps to ensure labelling is carried out safely, and labels for downloading)*
5. The content of local competency based training for urinary catheter insertion is reviewed to ensure it includes selection of catheters of the correct length.

The NPSA is developing a *Design for Patient Safety Guide* for labelling and packaging of single use medical devices planned for publication in 2010, and will continue to work with the MHRA and the medical devices industry to improve labelling of single us
local purchasing for safety initiatives wh



SUNA TEACHING TOOL

Methods and Types of Urinary Catheters Used for Indwelling or Intermittent Catheterization

Diane K. Newman, DNP, ANP-BC, FAAN, BCB-PMD

Newman, D.K. (2021). Methods and types of urinary catheters used for indwelling or intermittent catheterization. *Urologic Nursing, 41*(2), 111-117. https://doi.org/10.7257/1053-816X.2021.41.2.111

There are various urinary catheterization techniques, and unfortunately, it is not always clear what is exactly meant by a certain technique that is mentioned in the literature (Vahr et al., 2013). This Teaching Tool provides descriptive information on urinary catheterization methods, characteristics of catheter type, and material, specific uses (indwelling urinary catheter, intermittent catheterization), and considerations.

Catheter Characteristics

Urinary catheters can be divided into two categories: indwelling (referred to as indwelling urinary catheters [IUCs] or Foley catheters) or inserted as a single catheterization (referred to as "straight" or "in-and-out," or intermittent catheterization [IC]) (Newman, 2017; Newman et al., 2018). This section outlines the most commonly used catheters for IUCs and IC.

Urinary catheters come in varying sizes, configurations and material. There is insufficient evidence to determine whether there is an optimal catheter type for those requiring either short-term (Lam et al., 2014) or long-term bladder drainage (Jahn et al., 2012).

Catheter lumen: The main differences between an IUC and a catheter used for straight catheterization or IC is the number of lumens or channels and the presence of a balloon. Indwelling catheters have:

- Double lumens (two-way catheter), one for urine draining and the other for inflation/deflation of the balloon with an infusion port at the end for instillation of fluid for the balloon.
- Three lumens (three-way catheter) for continuous bladder irrigation. There is a three-way IUC available with a temperature-sensing probe built into the lumen, often used for monitoring the temperature of a patient intraoperatively.
- Four lumens (four-way catheter) for irrigation and prostatic surgical irrigation (Feneley et al., 2015).

The infusion port for the balloon channel is usually labeled with the size of the balloon and the size of the catheter. Catheters used for 'straight' catheterization or IC only have one lumen and no balloon.

Figure 1.
Color-Coded Catheter Size Chart

Color	Size French	Size Millimeter
Green	6	2.0
Blue	8	2.7
Black	10	3.3
White	12	4.0
Green	14	4.7
Orange	16	5.3
Red	18	6.0
Yellow	20	6.7
Purple	22	7.3
Blue	24	8.0
Black	26	8.7

Source: Courtesy of Robin Noel.

Catheter size: The accepted measurement unit for catheters is the French catheter scale, French gauge (Fr or F) or Charriere (Ch), based on the cross-sectional diameter of the catheter in millimeters (Newman et al., 2018). The cross-sectional diameter of a urinary catheter is equal to three times the diameter. For example, a 30 Fr catheter is 10 mm in diameter. Catheter size is measured by the external diameter because the size of the internal lumen depends on the material and manufacturing process (Figure 1). As the size of the catheter increases, the diameter of the catheter lumen increases. Recommendation is to use the smallest size catheter that will drain adequately. Catheter sizes are color-coded at the balloon inflation lumen for easy identification (Figure 1).

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Drainage Bags

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Available in variety of sizes

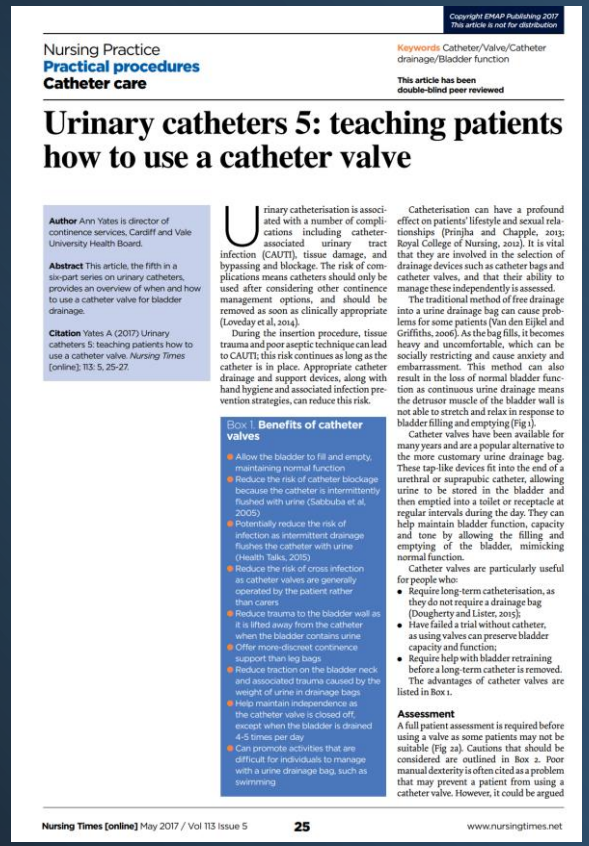
Factors to consider:

Tube length

Capacity required

Tap - Ease of Opening & Closing

Catheter Valve



Nursing Practice
Practical procedures
Catheter care

Keywords Catheter/Valve/Catheter drainage/Bladder function

This article has been double-blind peer reviewed

Urinary catheters 5: teaching patients how to use a catheter valve

Author Ann Yates is director of continence services, Cardiff and Vale University Health Board.

Abstract This article, the fifth in a six-part series on urinary catheters, provides an overview of when and how to use a catheter valve for bladder drainage.

Citation Yates A (2017) Urinary catheters 5: teaching patients how to use a catheter valve. *Nursing Times* [online]; 113: 5, 25-27.

Urinary catheterisation is associated with a number of complications including catheter-associated urinary tract infection (CAUTI), tissue damage, and bypassing and blockage. The risk of complications means catheters should only be used after considering other continence management options, and should be removed as soon as clinically appropriate (Loveday et al, 2014).

During the insertion procedure, tissue trauma and poor aseptic technique can lead to CAUTI; this risk continues as long as the catheter is in place. Appropriate catheter drainage and support devices, along with hand hygiene and associated infection prevention strategies, can reduce this risk.

Catheterisation can have a profound effect on patients' lifestyle and sexual relationships (Prinjha and Chapple, 2013; Royal College of Nursing, 2012). It is vital that they are involved in the selection of drainage devices such as catheter bags and catheter valves, and that their ability to manage these independently is assessed.

The traditional method of free drainage into a urine drainage bag can cause problems for some patients (Van den Eijkel and Griffiths, 2006). As the bag fills, it becomes heavy and uncomfortable, which can be socially restricting and cause anxiety and embarrassment. This method can also result in the loss of normal bladder function as continuous urine drainage means the detrusor muscle of the bladder wall is not able to stretch and relax in response to bladder filling and emptying (Fig 1).

Catheter valves have been available for many years and are a popular alternative to the more customary urine drainage bag. These tap-like devices fit into the end of a urethral or suprapubic catheter, allowing urine to be stored in the bladder and then emptied into a toilet or receptacle at regular intervals during the day. They can help maintain bladder function, capacity and tone by allowing the filling and emptying of the bladder, mimicking normal function.

Catheter valves are particularly useful for people who:

- Require long-term catheterisation, as they do not require a drainage bag (Dougherty and Lister, 2015);
- Have failed a trial without catheter, as using valves can preserve bladder capacity and function;
- Require help with bladder retraining before a long-term catheter is removed.

The advantages of catheter valves are listed in Box 1.

Box 1. Benefits of catheter valves

- Allow the bladder to fill and empty, maintaining normal function
- Reduce the risk of catheter blockage because the catheter is intermittently flushed with urine (Sabbuba et al, 2005)
- Potentially reduce the risk of infection as intermittent drainage flushes the catheter with urine (Health Talks, 2015)
- Reduce the risk of cross infection as catheter valves are generally operated by the patient rather than carers
- Reduce trauma to the bladder wall as it is lifted away from the catheter when the bladder contains urine
- Offer more-discreet continence support than leg bags
- Reduce traction on the bladder neck and associated trauma caused by the weight of urine in drainage bags
- Help maintain independence as the catheter valve is closed off, except when the bladder is drained 4-5 times per day
- Can promote activities that are difficult for individuals to manage with a urine drainage bag, such as swimming

Assessment

A full patient assessment is required before using a valve as some patients may not be suitable (Fig 2a). Cautions that should be considered are outlined in Box 2. Poor manual dexterity is often cited as a problem that may prevent a patient from using a catheter valve. However, it could be argued

Securement Devices

Catheters should be well secured to reduce trauma

Leg bag Straps alone are not sufficient to secure the catheter

Prevent excessive traction and movement of the catheter

Decrease risk of obstruction of urine flow *(Lo et al 2014)*

Always ensure the catheter is not placed under the thigh as this will obstruct urine flow

Alternate the placement of the securement device *(IPC 2023)*

Catheter Insertion and Care

The main routes for bacteria are via the tip of the catheter on insertion, intraluminal, extraluminal, connection between the bag and catheter, tap, hands *(Barford & Coates 2008, Warren 2001 & Wilson 2006).*

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Hand Hygiene & Standard Precautions

Cornerstone of preventing Infections

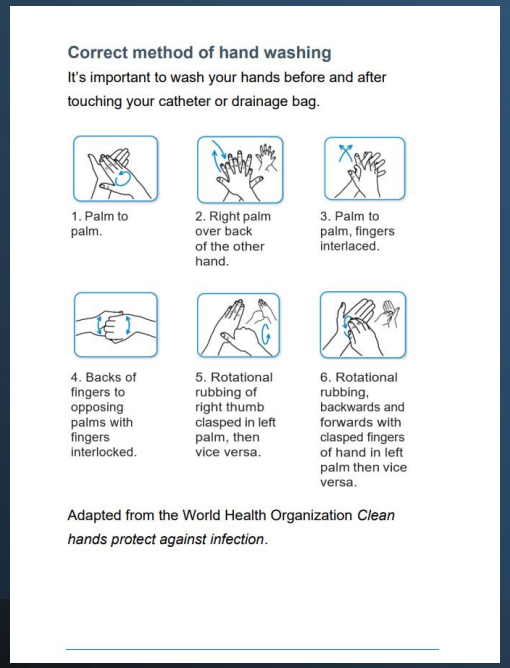
Hand hygiene performed before & after any contact with the catheter (IPC 2023, NICE 2012)

Apron & gloves should be worn when performing any catheter care

Use of gloves is not a replacement for hand hygiene

Patients & family should also be educated in the importance of hand hygiene (NICE 2012)

National Infection Prevention and Control Manual (2023) offers best practice guide to hand washing.
NHS England Catheter Passport contains a guide to handwashing for patients and carers



Catheter Insertion

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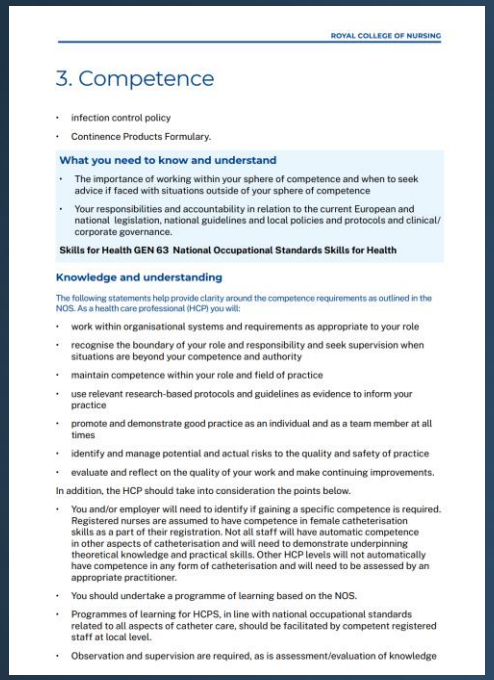
- Skilled practitioner whose competence has been assessed (NICE 2014, RCN 2019, Loveday et al 2014)
- Aseptic technique, using sterile equipment (NICE 2012, IPS 2017)
- Meatal cleansing prior to procedure
- Single use lubricating gel should be used for male, female & S/P catheterisation to minimise trauma on insertion (NICE 2014, EAUN 2012)
- Important to document the volume of urine drained to guide treatment decisions

RCN Catheter Care Guidelines offers a suggested structure for gaining competence and Procedures for Catheterisation



ROYAL COLLEGE OF NURSING

3. Competence

- infection control policy
- Continence Products Formulary.

What you need to know and understand

- The importance of working within your sphere of competence and when to seek advice if faced with situations outside of your sphere of competence
- Your responsibilities and accountability in relation to the current European and national legislation, national guidelines and local policies and protocols and clinical/ corporate governance.

Skills for Health GEN 63 National Occupational Standards Skills for Health

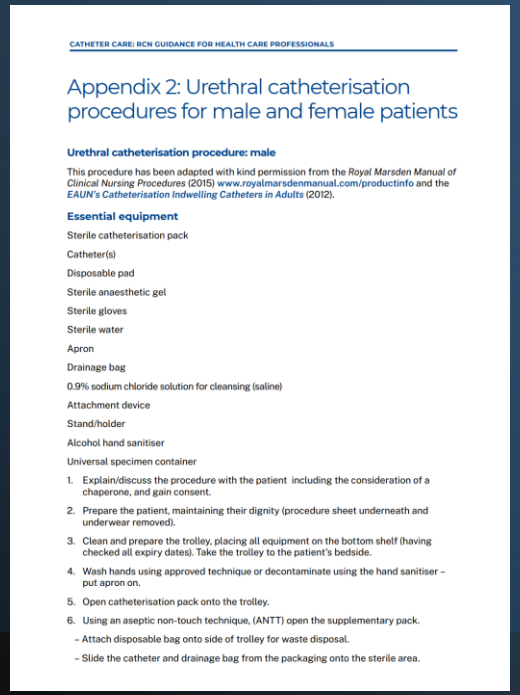
Knowledge and understanding

The following statements help provide clarity around the competence requirements as outlined in the NOS. As a health care professional (HCP) you will:

- work within organisational systems and requirements as appropriate to your role
- recognise the boundary of your role and responsibility and seek supervision when situations are beyond your competence and authority
- maintain competence within your role and field of practice
- use relevant research-based protocols and guidelines as evidence to inform your practice
- promote and demonstrate good practice as an individual and as a team member at all times
- identify and manage potential and actual risks to the quality and safety of practice
- evaluate and reflect on the quality of your work and make continuing improvements.

In addition, the HCP should take into consideration the points below.

- You and/or employer will need to identify if gaining a specific competence is required. Registered nurses are assumed to have competence in female catheterisation skills as a part of their registration. Not all staff will have automatic competence in other aspects of catheterisation and will need to demonstrate underpinning theoretical knowledge and practical skills. Other HCP levels will not automatically have competence in any form of catheterisation and will need to be assessed by an appropriate practitioner.
- You should undertake a programme of learning based on the NOS.
- Programmes of learning for HCPS, in line with national occupational standards related to all aspects of catheter care, should be facilitated by competent registered staff at local level.
- Observation and supervision are required, as is assessment/evaluation of knowledge



CATHETER CARE: RCN GUIDANCE FOR HEALTH CARE PROFESSIONALS

Appendix 2: Urethral catheterisation procedures for male and female patients

Urethral catheterisation procedure: male

This procedure has been adapted with kind permission from the *Royal Marsden Manual of Clinical Nursing Procedures* (2015) www.royalmarsdenmanual.com/productinfo and the *EAUN's Catheterisation Indwelling Catheters in Adults* (2012).

Essential equipment

Sterile catheterisation pack
Catheter(s)
Disposable pad
Sterile anaesthetic gel
Sterile gloves
Sterile water
Apron
Drainage bag
0.9% sodium chloride solution for cleansing (saline)
Attachment device
Stand/holder
Alcohol hand sanitiser
Universal specimen container

1. Explain/discuss the procedure with the patient including the consideration of a chaperone, and gain consent.
2. Prepare the patient, maintaining their dignity (procedure sheet underneath and underwear removed).
3. Clean and prepare the trolley, placing all equipment on the bottom shelf (having checked all expiry dates). Take the trolley to the patient's bedside.
4. Wash hands using approved technique or decontaminate using the hand sanitiser – put apron on.
5. Open catheterisation pack onto the trolley.
6. Using an aseptic non-touch technique, (ANTT) open the supplementary pack.
   - Attach disposable bag onto side of trolley for waste disposal.
   - Slide the catheter and drainage bag from the packaging onto the sterile area.

Emptying the Drainage Bag

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Hand Hygiene before & after emptying the bag (NICE 2014, Loveday et al 2014, IPS 2017)

Single Use non-sterile gloves and Apron

Empty frequently enough to maintain urine flow (NICE 2014)

Don't allow the bag to become too full (2/3 full) (NICE 2014, Loveday et al 2014, IPS 2017)

Clean the tap before & after opening in accordance with local policy (IPC 2023)

Avoid contact between the tap and jug when emptying (NICE 2014)

Use a Separate, clean container for each patient (NICE 2014)

Monitor urine concentration/output - if any concerns escalate

DRIPP Quick Reference guide (Device Related Infection Prevention Practice) Evidence based quick reference guide to catheter care

Changing the Drainage Bag

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A record should be kept of date of next bag change

Most drainage bags are licensed for use for up to 7 days

Hand Hygiene before & after

Gloves and apron should be worn (refer to local policy regarding sterile/non-sterile gloves)

Use a non-touch technique when changing the bag

Position the drainage bag below the level of the bladder (NICE 2014, Loveday et al 2014)

2L Drainage Bag should be secured on a stand not in contact with the floor (NICE 2012)

Assess is the type of drainage bag appropriate for the patient?

General Catheter Care Advice

Royal College of Nursing
Bladder and Bowel Forum

Encourage adequate hydration – maintains flow of urine, reduces risk of UTI, Encrustation (EAUN 2012)

Monitor for Constipation and escalate – may exert pressure on the catheter preventing it from draining adequately. May also cause bladder spasms (EAUN 2012).

Only break the sterile closed system for valid clinical reasons – "*If it's closed, leave it alone*" (NICE 2014, Loveday et al 2014, Lo et al 2014, IPS 2017)

Hygiene – Routine daily hygiene and after any bowel incontinence/soiling (IPS 2017, IPC 2023)

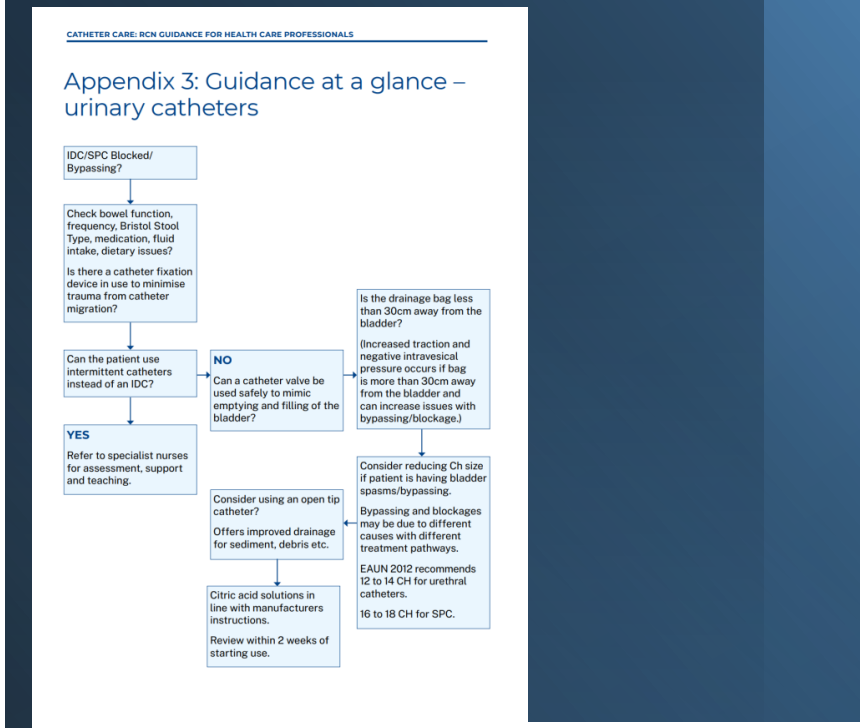
In males ensure the foreskin is replaced.

~~Females care should be taken to wash front to back~~

Use this opportunity to check for any signs of trauma caused by the catheter - including the urethral opening, scrotum, labia and thighs.

Equipment - sufficient amount should be available when needed and within a reasonable time without posing a risk (CQC 2009)

RCN Catheter care guidance and EAUN offers some troubleshooting guidance



CATHETER CARE: RCN GUIDANCE FOR HEALTH CARE PROFESSIONALS

Appendix 3: Guidance at a glance – urinary catheters

IDC/SPC Blocked/ Bypassing?

Check bowel function, frequency, Bristol Stool Type, medication, fluid intake, dietary issues?

Is there a catheter fixation device in use to minimise trauma from catheter migration?

Can the patient use intermittent catheters instead of an IDC?

YES
Refer to specialist nurses for assessment, support and teaching.

NO
Can a catheter valve be used safely to mimic emptying and filling of the bladder?

Is the drainage bag less than 30cm away from the bladder?

(Increased traction and negative intravesical pressure occurs if bag is more than 30cm away from the bladder and can increase issues with bypassing/blockage.)

Consider reducing Ch size if patient is having bladder spasms/bypassing.

Bypassing and blockages may be due to different causes with different treatment pathways.

EAUN 2012 recommends 12 to 14 CH for urethral catheters.

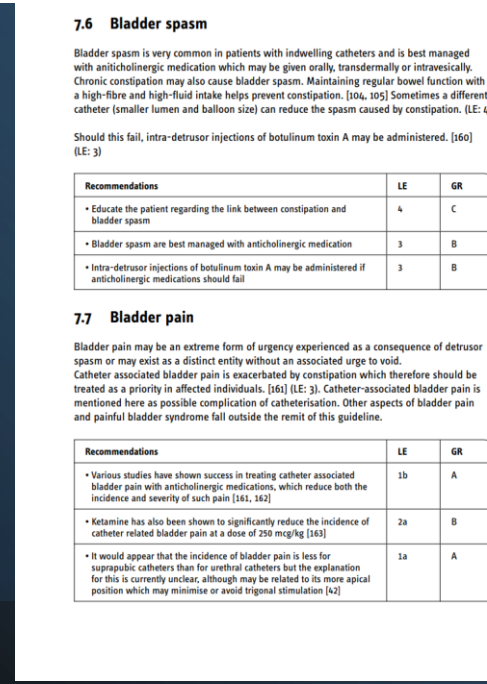
16 to 18 CH for SPC.

Consider using an open tip catheter?

Offers improved drainage for sediment, debris etc.

Citric acid solutions in line with manufacturers instructions.

Review within 2 weeks of starting use.



7.6 Bladder spasm

Bladder spasm is very common in patients with indwelling catheters and is best managed with anticholinergic medication which may be given orally, transdermally or intravesically. Chronic constipation may also cause bladder spasm. Maintaining regular bowel function with a high-fibre and high-fluid intake helps prevent constipation. [104, 105] Sometimes a different catheter (smaller lumen and balloon size) can reduce the spasm caused by constipation. (LE:

Should this fail, intra-detrusor injections of botulinum toxin A may be administered. [160] (LE: 3)

Recommendations	LE	GR
• Educate the patient regarding the link between constipation and bladder spasm	4	C
• Bladder spasm are best managed with anticholinergic medication	3	B
• Intra-detrusor injections of botulinum toxin A may be administered if anticholinergic medications should fail	3	B

7.7 Bladder pain

Bladder pain may be an extreme form of urgency experienced as a consequence of detrusor spasm or may exist as a distinct entity without an associated urge to void.
Catheter associated bladder pain is exacerbated by constipation which therefore should be treated as a priority in affected individuals. [161] (LE: 3). Catheter-associated bladder pain is mentioned here as possible complication of catheterisation. Other aspects of bladder pain and painful bladder syndrome fall outside the remit of this guideline.

Recommendations	LE	GR
• Various studies have shown success in treating catheter associated bladder pain with anticholinergic medications, which reduce both the incidence and severity of such pain [161, 162]	1b	A
• Ketamine has also been shown to significantly reduce the incidence of catheter related bladder pain at a dose of 250 mcg/kg [163]	2a	B
• It would appear that the incidence of bladder pain is less for suprapubic catheters than for urethral catheters but the explanation for this is currently unclear, although may be related to its more apical position which may minimise or avoid trigonal stimulation [42]	1a	A

Urine Sampling & CAUTI

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Nearly all people with a catheter will develop bacteria in their urine within 1 month of catheterisation (Loveday et al 2014)

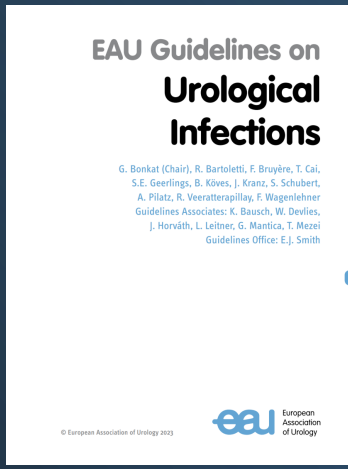
Do Not perform Urinalysis or Routine Culture on patients with no symptoms of infection (NICE 2015 & EAU 2023)

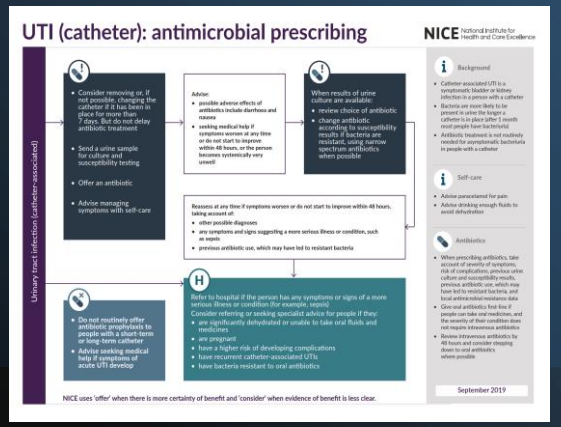
Treatment of asymptomatic bacteria in patients urine increases risk of side effects of antibiotics and contributes to the growing problem of resistance (Public Health England 2020, EAU 2022)

If required obtain CSU via the sampling port on the drainage bag using an aseptic technique not via the tap (NICE 2018)

If Infection confirmed - consider removing or, if this cannot be done, changing the catheter as soon as possible if it has been in place for more than 7 days. (NICE 2018)

NICE CAUTI Treatment Pathway (2018)
European Association of Urology – Urological Infections in depth resource on signs of infection, and treatments (2022)





Removal of Catheter

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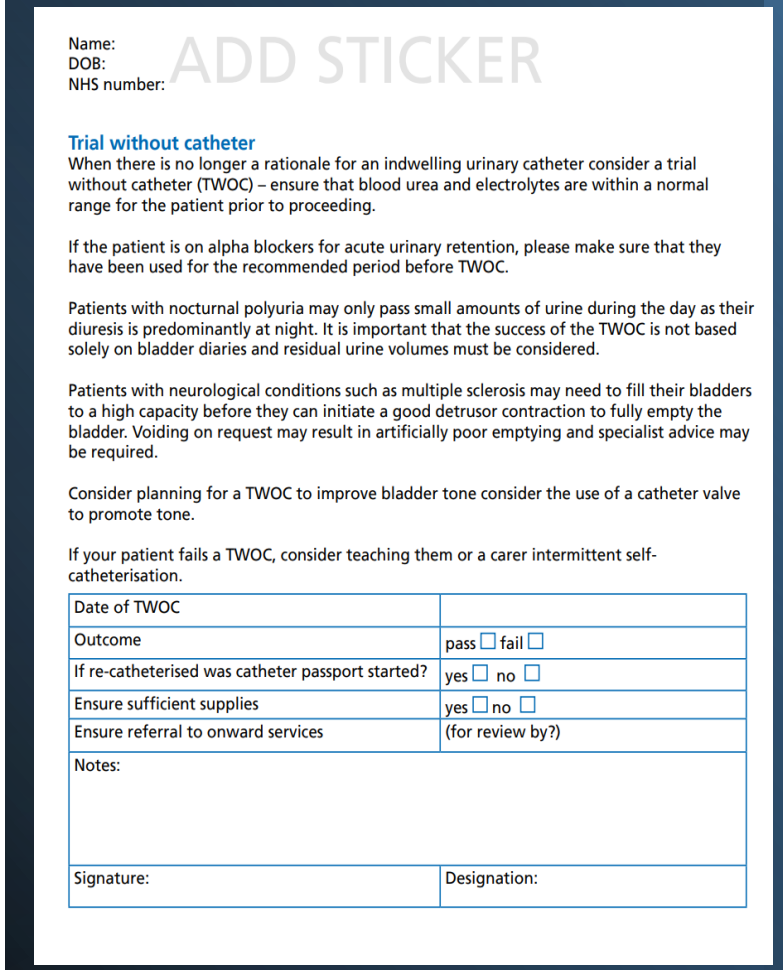
- The highest risk factor for CAUTI is duration of catheterisation
- CAUTI's are leading cause of heath care acquired infection 20% of bacteraemia arise from the urinary tract (EAU 2022)
- The most effective way to reduce risk of CAUTI is to remove catheter/Don't insert it in the first place (Lo et al 2014)
- Robust processes should be in place to review ongoing need for catheterization
- Daily review of the catheter in acute care (IPS 2017)
- At least every catheter change in long term catheterization (IPS 2017)
- Address risk factors to optimize outcome of a Trial With Out Catheter (TWOC)

NHS urinary Catheter Tools & RCN Catheter Care Guidance offers considerations when planning a TWOC



Name:
DOB:
NHS number: ADD STICKER

Trial without catheter

When there is no longer a rationale for an indwelling urinary catheter consider a trial without catheter (TWOC) – ensure that blood urea and electrolytes are within a normal range for the patient prior to proceeding.

If the patient is on alpha blockers for acute urinary retention, please make sure that they have been used for the recommended period before TWOC.

Patients with nocturnal polyuria may only pass small amounts of urine during the day as their diuresis is predominantly at night. It is important that the success of the TWOC is not based solely on bladder diaries and residual urine volumes must be considered.

Patients with neurological conditions such as multiple sclerosis may need to fill their bladders to a high capacity before they can initiate a good detrusor contraction to fully empty the bladder. Voiding on request may result in artificially poor emptying and specialist advice may be required.

Consider planning for a TWOC to improve bladder tone consider the use of a catheter valve to promote tone.

If your patient fails a TWOC, consider teaching them or a carer intermittent self-catheterisation.

Date of TWOC	
Outcome	pass ☐ fail ☐
If re-catheterised was catheter passport started?	yes ☐ no ☐
Ensure sufficient supplies	yes ☐ no ☐
Ensure referral to onward services	(for review by?)
Notes:	
Signature:	Designation:

Patient Education

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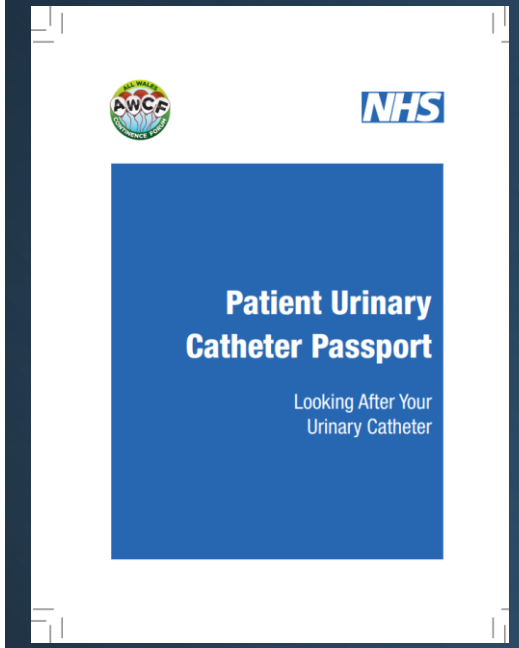
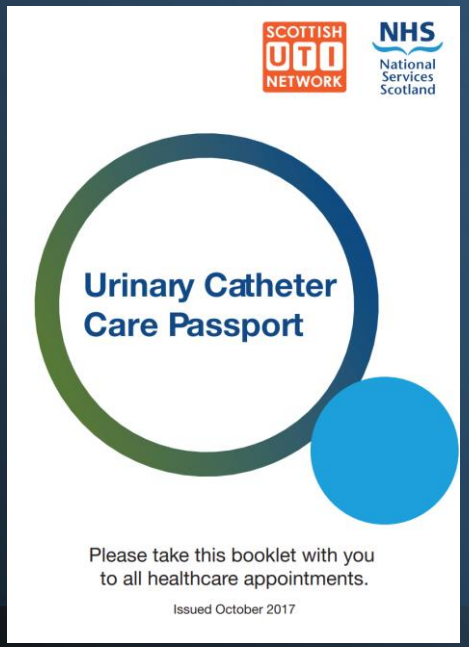
- Ensure patients, relatives and carers are given information on reason for catheter, plan for review and removal
- If discharged with a catheter, the patient should be given written information and shown how to:
- Change leg bags/valves and how to attach night bags
- How & when to perform hand hygiene and personal hygiene
- Order supplies
- Signs and symptoms of infection
- Contact numbers and how to access help
- Ongoing advice and support should be available for the duration of catheterization
- Providing the patient with a Catheter Passport supports consistency of care

(Loveday et al 2014, EAUN 2012, RCN 2019)





Documentation

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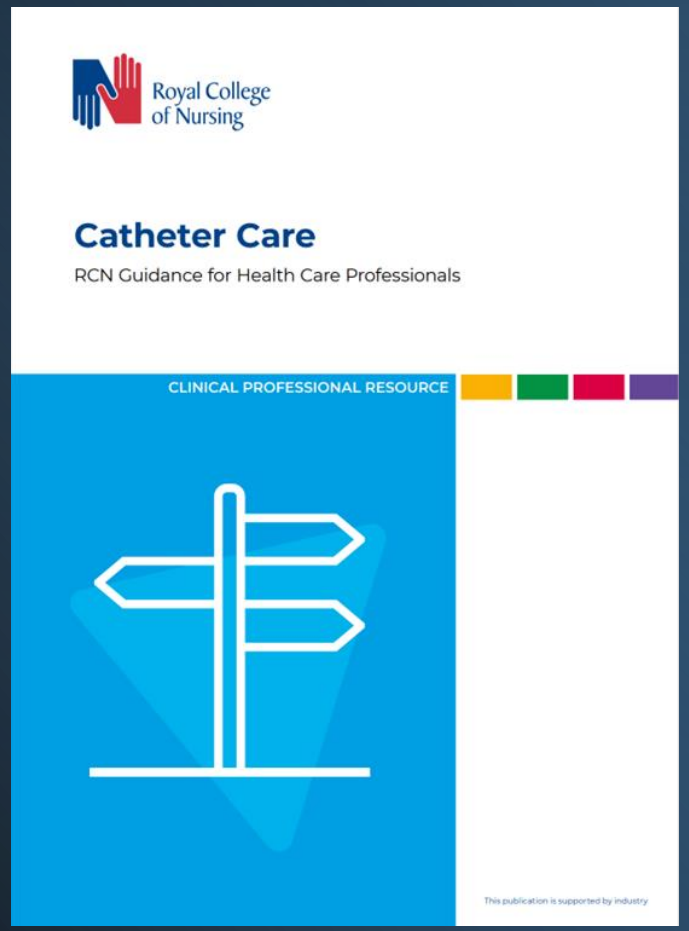
Documentation

- **Catheter Insertion**
- Brand, catheter name, material, tip type, catheter length, Charrière size, balloon size, batch number, expiry date (usually found on a sticker on the catheter packaging)
- Lubricant/anaesthetic gel used
- The reason for catheterisation, change & ongoing need for catheterisation
- That the patient understands the process and verbally consents.
- Where the individual lacks capacity, the reasons why it was in the persons best interests must be recorded.
- Meatal or genital abnormalities observed.
- If the insertion was easy or difficult
- Steps taken to overcome difficulties with insertion
- Volume of urine drained; colour & any debris noted (RCN 2019)

Refer to RCN Catheter Care for full guidance on documentation



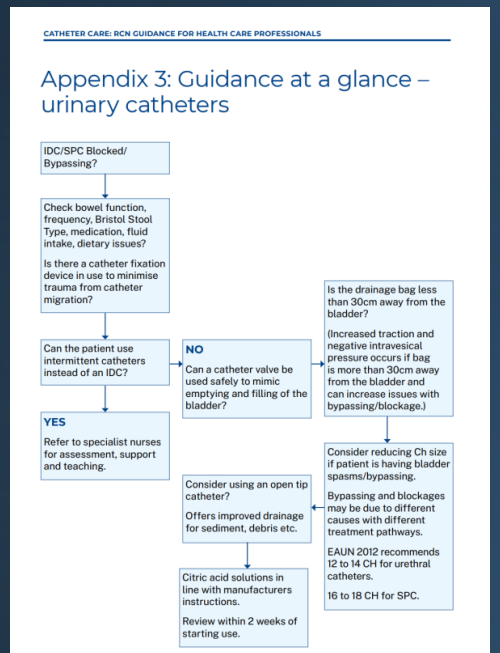
Catheter Removal

- *Was the catheter tip and balloon intact*
- *Was the type of catheter used appropriate for length of use*
- *Catheter observations – encrustation, debris, discharge*
- *Any haematuria noted on removal*
- *Meatal or genital abnormalities observed.*
- *Any pain or difficulties on removal and steps taken to reduce these*

If Catheter Change:

- *Is continued catheter usage still clinically indicated*
- *Is the type of catheter, drainage system & securement appropriate for the patient*
- *Impact on patients QoL*
- *Any side effects experienced – pain, bladder spasms, bypassing and plan to reduce these*

RCN Catheter Care Guidance (2019) & EAUN (2012) offers useful trouble shooting guides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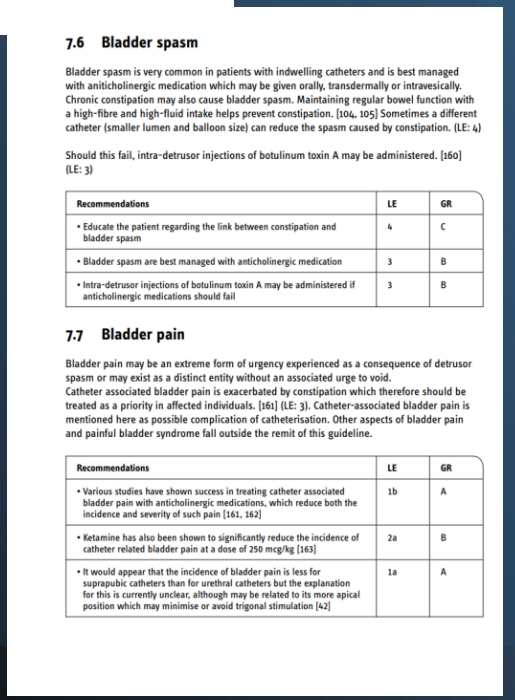
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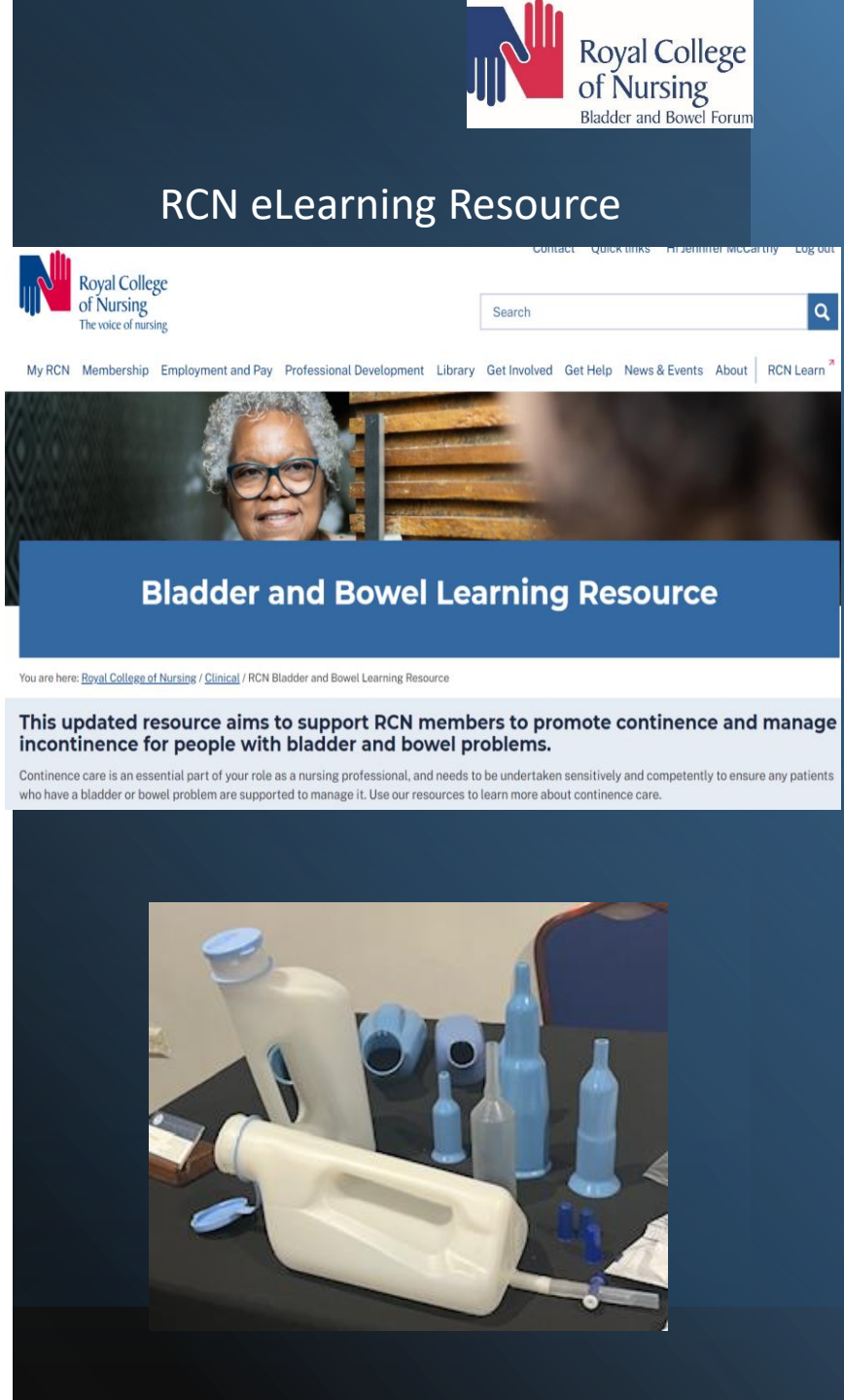
What Does Good Catheter Care Look Like?

- Catheters are only inserted for valid clinical reasons which are clearly documented (Meddings et al 2014, Lo et al 2014)
- Evidence of an Individual risk assessment prior to decision to catheterise (RCN 2019)
- Catheterisation for continence is only performed where all other methods have been exhausted
- Practitioners regularly review and document the ongoing need catheterisation(APIC 2014)
- Processes are in place and staff empowered to facilitate catheter removal at the earliest possible time.
- Patients and carers are provided with education and support to care for their catheters
- Robust communication between providers on transfer/discharge
- Education provided on managing continence including treatments and appliances to manage bladder symptoms.

See RCN Bladder & Bowel eLearning resources on promoting continence and managing incontinence



In Conclusion

- ***Remember the 4 "R"s***
- *The **Right** catheter*
- *For the **Right** reasons*
- *With the **Right** care*
- *Regularly **Reviewed***

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Questions ?

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Symptoms of CAUTI (EAU 2022)

- *Fever and rigors*
- *Altered mental status (new onset or worsening confusion/delirium)*
- *Malaise or lethargy (in the absence of other cause)*
- *Flank pain*
- *Back Pain*
- *Acute haematuria*
- *Pelvic discomfort*
- *In a catheterised patient the presence of cloudy or odorous in the absence of symptoms should not be used to differentiate a CAUTI (EAU 2023, APIC 2014)*

EUA 2022 guidelines provides comprehensive guide on where treatment of infection is indicated

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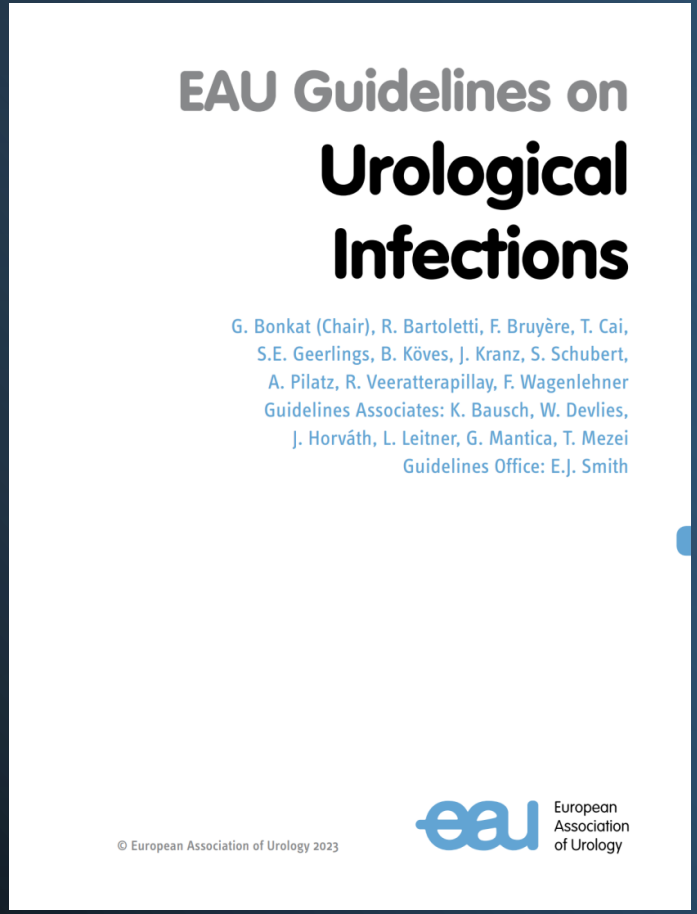

“At risk” times with Catheter Care

- Insertion/change of catheter
- Catheter Care
- Removal/Renewal of bags
- Emptying of bag
- Urine sampling

The presence of a catheter allows bacteria to adhere to its surface and multiply, leading to colonisation and the formation of a biofilm. (Barford & Coates 2008)

Use a separate clean container for each patient, avoid contact with the drainage tap and the container (NICE 2014, Loveday et al 2014, HII 2017)

Trouble Shooting Guidelines

Royal College of Nursing

15. Catheter maintenance solutions, bladder washouts and irrigation

Bladder irrigation, instillation and washouts do not prevent catheter-associated infection. Regular use can lead to an increased risk if the sterile closed drainage system is repeatedly broken, which can lead to infection, sepsis and death.

When considering the use of washouts/maintenance solutions, there must be evidence of an individualised assessment and the clinical indication for use must be recorded.

Bladder irrigation

This is a continuous irrigation of the bladder via a 3-way catheter for the purpose of removing clots and debris post urology surgery. This method of irrigation is normally used for short periods only and only within an acute care setting

Bladder washouts

These involve flushing the bladder with sterile normal saline to remove clots, debris or mucus. Consider the following when using this technique.

- Best practice guidance suggests that small sequential volumes are more effective than a single larger volume administration.
- There is a high risk of infection due to the breaking of the closed drainage system every time an administration is performed.
- There should be a clear, documented clinical rationale for using bladder washouts with evidence of effectiveness.
- The administration should be via a pre-filled administration set.
- Bladder washouts should be administered, where possible, using gravity rather than direct pressure to avoid tissue trauma.
- In the case of a patient with a surgically augmented bladder (where bowel tissue has been used to enlarge the bladder capacity), it may be necessary to use a sterile 50ml syringe to administer the washout due to the high level of mucus present.
- Consider using an irrigation connection device (inserted into the needle-free sample port of the catheter bag) to minimise the risk of infection caused by breaking the closed drainage system.

Catheter maintenance solutions

These are sterile prefilled prescription-only products, they should only be used when all other options have been considered. Evidence suggests smaller volumes, instilled sequentially, are more effective than large volume single administrations.

The use is based on an individual assessment and several considerations must be made before use.

- Have all other less risky options been considered first to maintain the patency of the catheter? (See Appendix 3 for an example of this.)

7.6 Bladder spasm

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Appendix 5: Summary of key recommendations for urinary catheter care

Health Protection Scotland

Preventing catheter associated urinary tract infections – Acute Settings

NHS National Services Scotland

Patient who needs a urinary catheter (acute settings)

When inserting a Urinary Catheter

Ensure that:

- alternatives to indwelling urethral catheterisation have been considered
- hand hygiene is performed immediately before donning sterile gloves prior to insertion of the indwelling urinary catheter (WHO Moment 2)
- aseptic technique is used for insertion of indwelling urinary catheters
- the indwelling urinary catheter selected has the smallest gauge and once inserted, the balloon is filled to the recommend level i.e. 10ml (unless clinically indicated)
- the urethral meatus is cleaned with sterile saline prior to indwelling urinary catheter insertion
- single use sterile lubricant is used prior to insertion
- aseptic technique is applied/maintained when connecting indwelling urinary catheter to sterile closed drainage system

When maintaining a Urinary Catheter

Ensure that:

- there is a daily review of the need for the indwelling urinary catheter; remove if possible
- the connection between the indwelling urinary catheter and the drainage system is not broken except to meet clinical requirements (for example changing the bag in line with manufacturers' recommendations)
- daily meatal hygiene is performed (ensure patients are aware of their contribution in preventing urinary tract infections)
- the drainage bag is emptied when clinically indicated using a clean, disposable container for each patient
- hand hygiene is performed immediately prior to access or manipulation of the indwelling urinary catheter (WHO Moment 2)
- the drainage bag is situated below the bladder level and the tap is not in contact with any surface, e.g. floor

Practice points

Documenting date and time of catheter insertion is an important step to achieve timely line removal.

The use of personal protective equipment (PPE) including gloves is important in all procedures where blood and body fluid risk exists.

The featured recommendation on hand hygiene does not detract from other times when hand hygiene is recommended and will be monitored against (namely the 5 Moments for Hand Hygiene).

The featured recommendations do not aim to cover emergency situations, which require clinical judgement for patient care actions.

For further information on the background to these recommendations and the literature reviews that informed these please visit http://www.hps.scot.nhs.uk as well as referring to your local teams and policies.

Also see NHS Education for Scotland http://www.nes.scot.nhs.uk and Healthcare Improvement Scotland http://www.healthcareimprovementscotland.org/home.aspx for additional information on education and patient safety improvement. Also refer to the Standard Infection Control Precautions Section of the National Infection Prevention and Control Manual http://www.hps.scot.nhs.uk/haic/ichtasnationalinfectionpreventionandcontrolmanual.aspx.

BDA The Association of UK Dietitians

Food Fact Sheet

Fibre

Fibre is essential for your gut to work normally. It increases good bacteria which supports your immunity against inflammatory disorders and allergies. A high fibre diet seems to reduce the risk of chronic diseases such as cardiovascular disease, type 2 diabetes and bowel cancer.

What is it?

Dietary fibre is the part of plants that you eat but which doesn't get digested in your small intestine. Instead, it is completely or partially broken down (fermented) by bacteria in your large intestine. Fibre includes carbohydrates called polysaccharides and resistant oligosaccharides (ROS).

Recent research suggests that fibre should be categorised by its physical characteristics; how well it dissolves (solubility), how thick it is (viscosity) and how well it breaks down (fermentability). Some commonly known terms are described below:

- Soluble fibre including pectins and beta glucans is found in foods like fruit and oats.
- Insoluble fibre including cellulose is found in wheat bran and nuts.
- Resistant starch (RS) is a soluble fibre that is highly fermentable in the gut. It gets broken down by good bacteria to produce short chain fatty acids (SCFAs). RS is naturally present in some foods such as bananas, potatoes, grains and pulses.
- Prebiotics are types of carbohydrate that only our gut bacteria can feed upon. Some examples are onions, garlic, asparagus and banana (see the BDA food fact sheet on Probiotics and prebiotics).

Why is fibre important?

Once broken down in your large intestine, it has been suggested that dietary fibres increase the beneficial bacteria in your gut. This improves your immune system. Eating a range of dietary fibre can:

- Improve the diversity of your microbiota
- Improve constipation and lactose intolerance
- Enhance immunity
- Reduce inflammation in your gut

For example, high quality randomised controlled trials, have shown that eating oat bran leads to lower blood pressure and lower total cholesterol.

You may wish to see a dietitian if you:

- are unsure about how much and/or what types of fibre you currently have in your diet
- suffer with constipation or diarrhoea (e.g. irritable bowel syndrome (IBS))
- have a condition which can restrict your fibre intake (e.g. inflammatory bowel disease)

How can I eat with this in mind?

Choose fibre rich foods from a variety of sources including wholegrains, fruit and vegetables, nuts and seeds, beans and pulses. When you read food labels, check for the grams of fibre per serving or per 100g.

What are you looking for on a nutrition label?

Fibre Table 1	
High fibre	Source of fibre
6g or more per 100g	3g or more per 100g

How much fibre should I have?

Adults are recommended to get around 30g of dietary fibre each day for the general health benefits. However, the latest figures suggest that in the UK, the average fibre intake for adults is 18g, 60% of what it should be. Children from age two should aim for 15g per day. Primary school age children should try to eat 20g per day. Secondary school aged children should try to eat 25g per day.

This advice should be adapted according to your medical history and tolerance level. If you have conditions such as IBS, you may find fermentable fibre in larger amounts causes bloating, gas and diarrhoea (see our BDA Food Fact Sheet on IBS).

Health Protection Scotland

NHS National Services Scotland

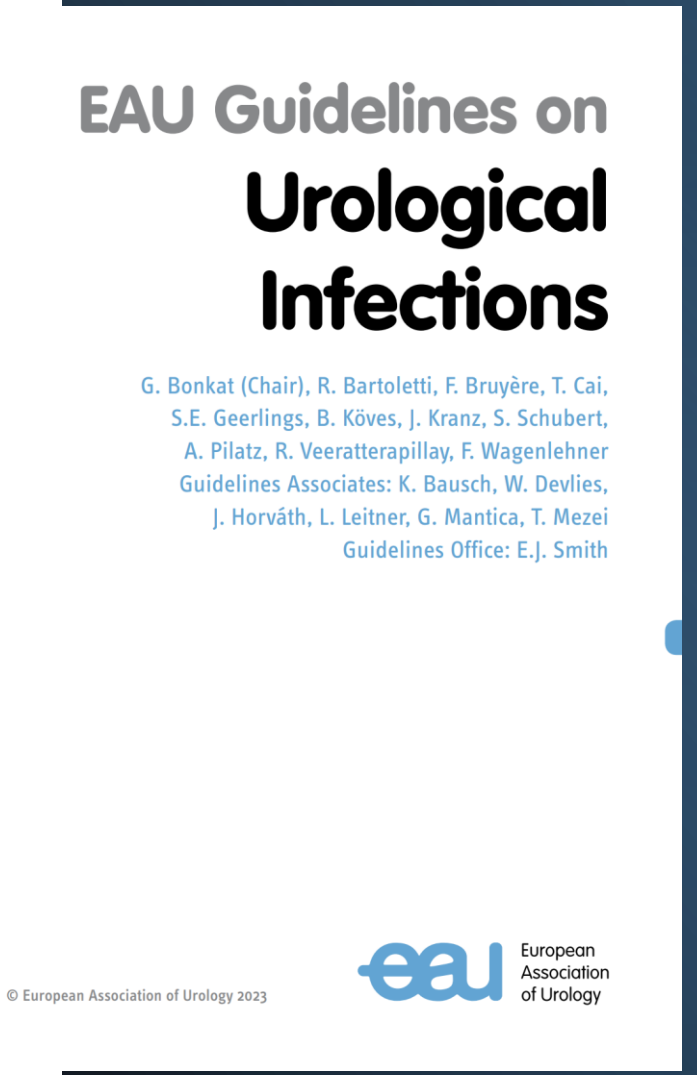
Targeted literature review:

What are the key infection prevention and control recommendations to inform a urinary catheter insertion quality improvement tool?

Version 3.0: December 2018

Symptoms of CAUTI (EAU 2022)

- Fever and rigors
- Altered mental status (new onset or worsening confusion/delirium)
- Malaise or lethargy (in the absence of other cause)
- Flank pain
- Back Pain
- Acute haematuria
- Pelvic discomfort
- In a catheterised patient the presence of cloudy or odorous in the absence of symptoms should not be used to differentiate a CAUTI (EAU 2023, APIC 2014)
- *EUA 2022 guidelines provides comprehensive guide on where treatment of infection is indicated*



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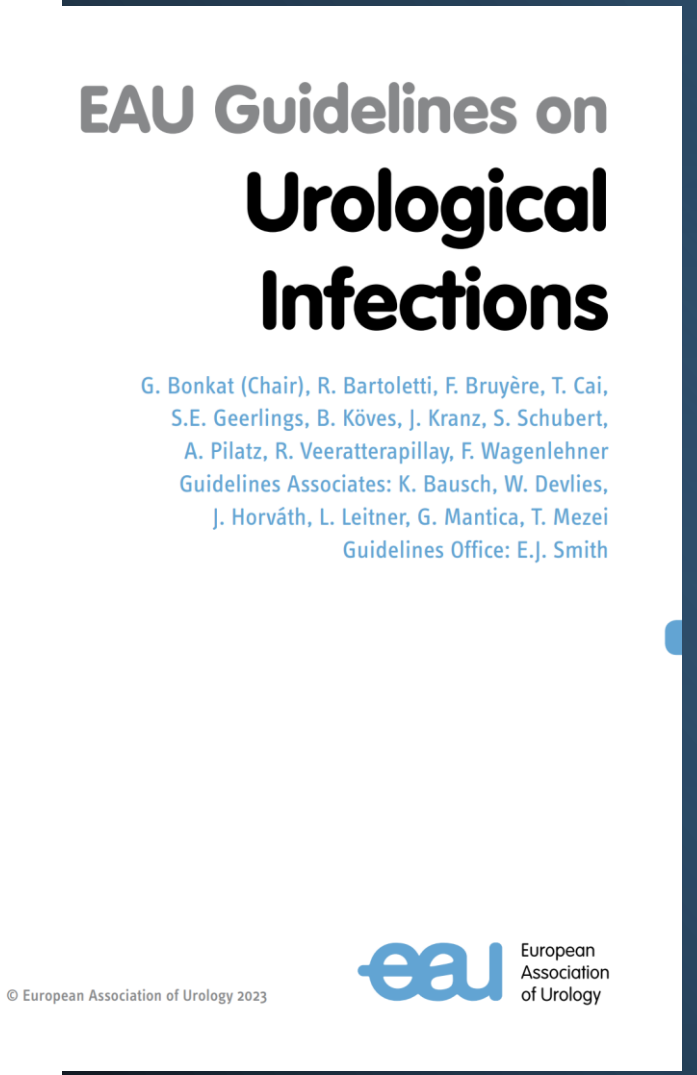


Catheter Removal

7.6 Bladder spasm

Bladder spasm is very common in patients with indwelling catheters and is best managed with anticholinergic medication which may be given orally, transdermally or intravesically. Chronic constipation may also cause bladder spasm. Maintaining regular bowel function with a high-fibre and high-fluid intake helps prevent constipation. [104, 105] Sometimes a different catheter (smaller lumen and balloon size) can reduce the spasm caused by constipation. (LE: 4)

Should this fail, intra-detrusor injections of botulinum toxin A may be administered. [160] (LE: 3)

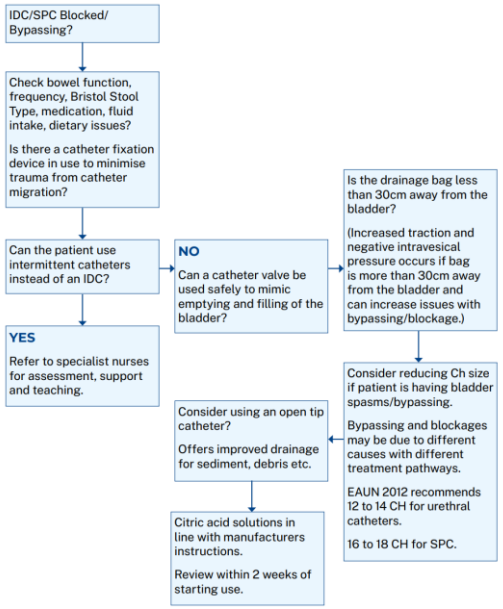
Recommendations	LE	GR
• Educate the patient regarding the link between constipation and bladder spasm	4	C
• Bladder spasm are best managed with anticholinergic medication	3	B
• Intra-detrusor injections of botulinum toxin A may be administered if anticholinergic medications should fail	3	B

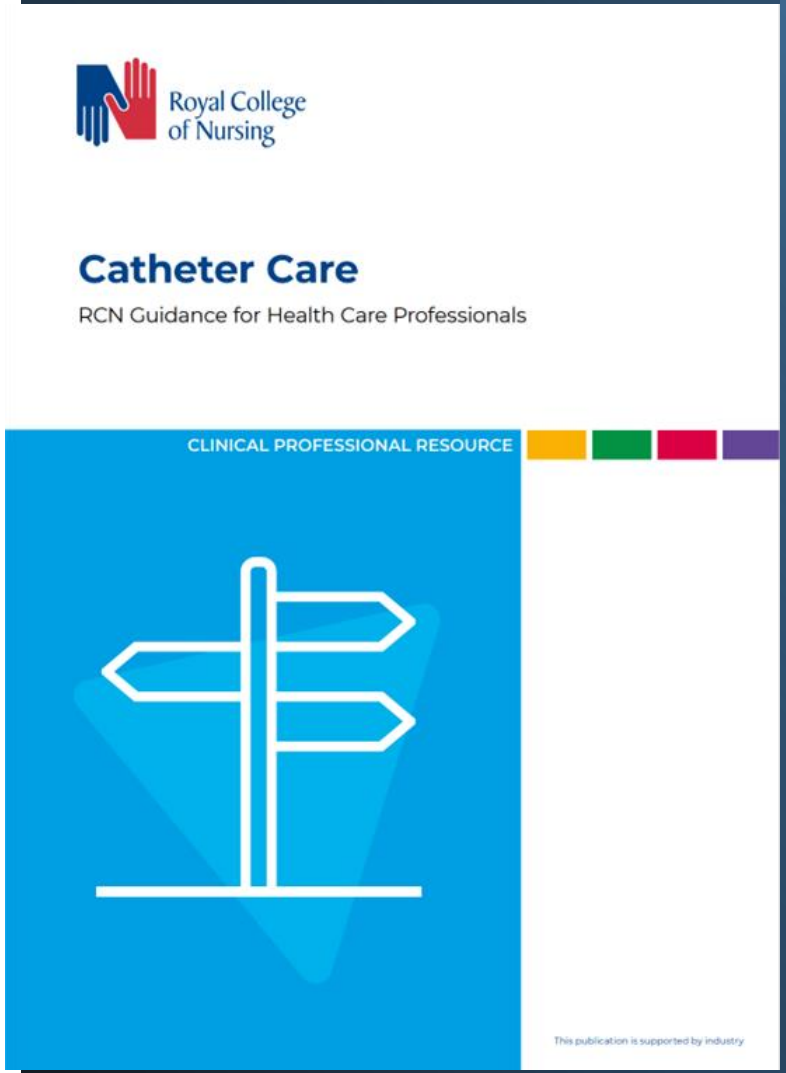
7.7 Bladder pain

Bladder pain may be an extreme form of urgency experienced as a consequence of detrusor spasm or may exist as a distinct entity without an associated urge to void.
Catheter associated bladder pain is exacerbated by constipation which therefore should be treated as a priority in affected individuals. [161] (LE: 3). Catheter-associated bladder pain is mentioned here as possible complication of catheterisation. Other aspects of bladder pain and painful bladder syndrome fall outside the remit of this guideline.

Recommendations	LE	GR
• Various studies have shown success in treating catheter associated bladder pain with anticholinergic medications, which reduce both the incidence and severity of such pain [161, 162]	1b	A
• Ketamine has also been shown to significantly reduce the incidence of catheter related bladder pain at a dose of 250 mcg/kg [163]	2a	B
• It would appear that the incidence of bladder pain is less for suprapubic catheters than for urethral catheters but the explanation for this is currently unclear, although may be related to its more apical position which may minimise or avoid trigonal stimulation [42]	1a	A

Appendix 3: Guidance at a glance – urinary catheters





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