

DERBYSHIRE HEALTH COMMUNITY

Derbyshire Community Health Services NHS Foundation Trust,

Chesterfield Royal Hospital NHS Foundation Trust

Derby and Derbyshire Clinical Commissioning Group

CONTINENCE APPLIANCE PRESCRIBING GUIDELINES

COMMUNITY GUIDELINE

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INTRODUCTION

Prescribing for continence products is becoming an increasingly difficult and complex process given the variety of products available. This guidance aims to help in the rational prescribing of continence products to promote good clinical practice. It is expected that prescribers will preferentially use the products listed in the guidance for routine use. Product selection has been based on cost-effectiveness, evidence of efficacy (although there is little research evidence available), manufacturers literature and practical experience of use.

Review and update

Guidelines / formularies need to be regularly updated and reviewed to ensure they meet the needs of patients. The process for reviewing and updating the guidelines included:

- Incorporation of new NICE technology appraisal and recommendations
- Responding to important new evidence relevant to the guideline
- Responding promptly to important new information on medicines safety, such as serious adverse effects
- Reviewing and updating associated decision outputs
- Ensuring timely evaluation of requests to review and reconsider the evidence
- Establishing a rolling schedule of structured guideline review

The guidelines have been updated and were previously developed by health professionals from primary and secondary care. Consideration for new products to be included within the guideline has been supported by the implementation of representative meetings which have been scheduled every quarter. The patient experience and use of the products have been considered when undertaking the review and update of this guideline. A decision - making working group identified specific products to be included in the guideline.

PRESCRIPTIONS FOR APPLIANCES

Prescriptions for appliances should be issued at the request of the patient or their carer and will not be issued if requested from a third party. Repeat requests should not be accepted from a dispensing appliance contractor; there can be significant problems related to appliance contractors ordering prescriptions on behalf of patients, such as over-ordering quantities or ordering too early, which can lead to considerable wastage. The dispensing contractor must receive the prescription prior to the delivery of items.



Prescriptions should not be issued *retrospectively* for Dispensing Appliance Contractor (DAC)

If organisations have a manufacturing sponsored nurse they should ensure that the specialist nurse is not required to recommend the sponsor's products in preference to other clinically appropriate appliances, or withhold information about other products. Furthermore, the arrangement should not require that patients are recommended to use a particular dispensing service.

Continence appliances are usually provided to patients by a prescription written by their GP or a nurse prescriber, which can then be dispensed by either:

- ❖ A Dispensing Appliance Contractor (DAC)
- ❖ A community pharmacy contractor
- ❖ A dispensing doctor

PRESCRIBING POINTS When prescribing:

- Include full details of product required to ensure the correct size, type, quantity and length (Standard or Female for catheters)
- The brand and manufacturer should be stated to ensure continuity of supply.
- DO NOT prescribe generically because of the differences between individual products
- Avoid the term 'original pack' (OP). Pack sizes differ between products and patients may receive inappropriate amounts if the quantity is not stated.
- The Drug Tariff (Part IXA for urethral catheters and IXB for other continence appliances) outlines the pack sizes available for different products.
- When new products are being tried, the smallest amount required should be prescribed to minimise wastage.

Choosing an appropriate continence product depends upon a variety of factors:

- Accurate assessment and diagnosis
- The evidence base for the effectiveness of products
- Patient choice
- The history and effect of previously used products
- Prescribers' awareness of which products are available

It should be remembered that the use of any continence appliance may significantly affect the person who has to use them (and their carers) psychologically, physically, socially and sexually. These issues should always be considered whenever a continence product is prescribed.

Assessment and diagnosis

Accurate assessment of patients with a bladder/bowel problem is vital to maximise the potential for cure or alleviation. Diagnosis must be established wherever possible, as the effective management of the bladder/bowel problem depends on the cause.¹ If a diagnosis cannot be made, referral to a specialist may be appropriate.

Evidence base for products

Although there is some good evidence available on strategies for treating bladder and bowel problems, research around the appropriate use of continence products is limited and is often of poor quality. Many studies involve small numbers of patients and there are few randomised controlled trials. All nurses involved in continence care should have up to date knowledge of products available and their relative merits. The key message from these studies is that no single product suits all patients.

Product use history

A full continence product history should be taken from the patient as well as details of the patient's experience with particular devices. Patient-held product records may assist continuity and increase patient involvement. Any history of allergies to products such as latex or chlorhexidine should be determined and documented, as potential allergens are often used in continence products.

Patient choice

Enabling the patient to make an informed choice when selecting products is important². The choice of continence products are determined by clinical assessment and are guided by the continence prescribing guideline in the majority of cases. It is recognised that a small number of patients may need items that are not included in the guideline which may be prescribed or purchased by the patient if the product is not available on FP10. Patients' and carers' views or needs may change with experience; therefore, a regular review of product's acceptability is essential.

How are continence products regulated?

All continence products within this guidance are classified as medical devices and are regulated by the Medicines and Healthcare Regulatory Agency (MHRA). www.mhra.gov.uk. The MHRA should be informed of minor faults and discrepancies between products as per Trust Policy for Medical Devices. Anyone may report adverse incidents using the yellow card system, including patients, carers, or any healthcare professionals. The forms can be found in the BNF or can be downloaded / completed online from the MHRA website www.mhra.gov.uk/yellowcard

INDWELLING FOLEY CATHETERS

The NHS Safety Thermometer is a local improvement tool used by secondary care for measuring, monitoring and analysing harms and 'harm free' care. Catheter associated urinary tract infections (CAUTI) has been identified as one of the four harms in the NHS and it is a national requirement to record information about how many patients in your care with a urinary catheter insitu (excluding supra pubic) and how many have a CAUTI and urinary tract infection (old and new)³.

Derbyshire Community Health Services no longer complete the Safety Thermometer but it is a requirement that all CAUTI that have developed whilst within DCHS care are reported as an incident via the DATIX system. Careful patient assessment is essential before deciding to catheterise and alternative management options (Intermittent Self Catheterisation ISC) should be considered first in view of the complications associated with long term catheterisations.^{4, 5}

Insertion of urinary catheters is a high impact intervention and nursing staff have the potential to significantly reduce infection rates⁶. The presence of a urinary catheter and the duration of its insertion are contributory factors to development of a urinary tract infection. Some 60% of healthcare associated urinary tract infections are solely related to catheter insertion⁷ and between 2-7% of patients acquires bacteriuria with every day of catheterisation. The longer the catheter is left in place the greater the likelihood of infection⁸. All interventions relating to urinary catheterisation and continuing catheter care must minimise the risk of infection and prevent complications so as to maintain the comfort and well being of the individual receiving the care^{7,8}

The management of individuals requiring an indwelling catheter system includes obtaining consent, appropriate selection of equipment, aseptic non-touch technique (ANTT) for catheter insertion, appropriate drainage systems and its maintenance, continuing care and daily review of its necessity with prompt removal of the catheter⁹. The Chesterfield Royal Hospital have implemented the HOUDINI catheter removal protocol which ensures the timely removal of the catheter if it is not clinically indicated. In the community setting, urinary retention, the promotion of wound healing in patients with sacral sores and use in end of life care are considered the clinical indications for insertion of indwelling catheter. Catheters should never be used for the management of incontinence.

NHS improvement have developed a suite of catheter tools to use within the hospital setting including a catheter care plan, a stop cauti poster, patient cauti card and a national patient catheter passport. It is envisaged that patients within the hospital setting will have access to the same appliances as recommended in the community guidelines which will help to standardise catheter care.

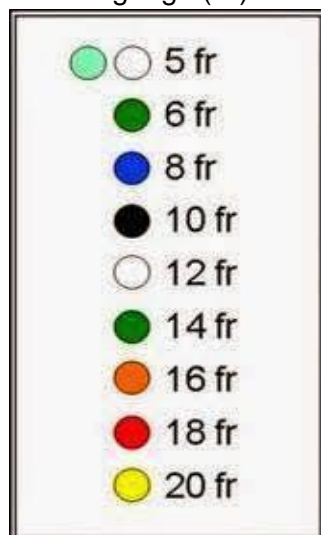
<https://improvement.nhs.uk/resources/urinary-catheter-tools/>

Best Practice and recommendations - the key messages

- The clinical indication for catheterisation **MUST** be documented¹⁰
- Always check what type of catheter has been inserted. A PTFE catheter is a 28 day catheter- the make, material, size and intended length of use are printed on the catheter funnel
- Use of a 5ml - 10ml balloon helps to minimise the risk of infection, irritation, spasm, ulceration and stricture formation¹¹
- Smaller catheters minimise urethral trauma and improve patient comfort. Make sure you select the correct length catheter - female or standard (see rapid response report in appendix)
- For male patients use a standard length, size 12Ch or 14Ch
- For female patients use a female length, size 12Ch but standard length can be used if the patient finds this more comfortable
- To avoid problems such as bypassing, the smallest Charriere size which provides adequate drainage should be used, however a larger size is sometimes advised in urological patients
- For supra-pubic catheters use a standard length – no less than a size 16 Ch. The catheters in this guideline are licensed for both urethral and supra-pubic use.
- An all-silicone catheter should be considered as a first line choice due to the increase in latex allergy¹²
- Episodes of catheter blockage must be documented¹⁰. A catheter history for each patient should be developed using the appropriate tool in an attempt to prolong the length of catheter life before potential blockage. Once this is determined, the catheter should be changed before blockage is expected.
- The use of a sterile lubricating / anaesthetic gel is advocated for both male and female catheter insertions. A 6ml syringe is adequate for females and 11ml syringe for males
The catheter lubricating gel in the guidelines contains lidocaine and is chlorhexidine free. This is a new product for the guideline and was selected as severe allergic reactions to chlorhexidine have been reported
- Patients should be provided with a spare catheter in case of blockage.
- Patients requiring a long term catheter should be provided with a NHS Patient Catheter Passport and training / instruction with regards managing their own catheter.
- Patients should be provided with a hospital to home pack when discharged from the hospital setting and a completed referral to the community teams.

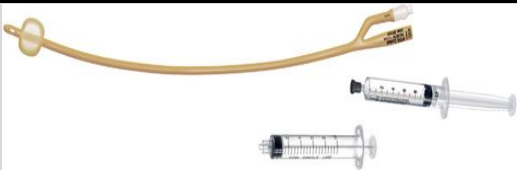
SIZING AND COLOUR CODING FOR ALL CATHETERS

There is a universal colour coding on the funnel of all catheters (nelaton and foley) which denotes the Charriere (Ch) or French gauge (Fr). The catheter brand and size of balloon is printed on the funnel.



FOLEY CATHETERS FOR SHORT/ MEDIUM TERM USE (UP TO 28 DAYS)


Generally inappropriate for use in primary care unless patients experience recurrent blockage necessitating frequent changes (more than 12 per year). If this type of catheter is used it must be clearly documented. When patients are discharged from an acute hospital to a community setting, it is important to check what type of catheter they have inserted, when it was inserted and why it was inserted.


Company and product	Standard / Male Cost Code	Female Cost Code	Comment / expected use
TELEFLEX MEDICAL Rusch AquaFlate PTFE Up to 28 days use	£2.21 DP310112 DP310114 DP310116 DP310118	£2.21 DP210112 DP210114 DP210116 DP210118	 Polytetrafluoroethylene (PTFE) coated latex For urethral and supra-pubic use Packaged in single units, with a pre-filled and empty syringe for balloon inflation and deflation. Prescribe 2 initially and from then on only one to be prescribed at a time Should require one unit per month



FOLEY CATHETERS FOR LONG-TERM USE (3-12 WEEKS)

These catheters can remain in place for up to three months in many cases. The advantages will be lost by frequent changing. All catheters in the guidance are licensed for a single balloon inflation, if the patient is experiencing re occurring by-passing and problems caused by diffusion or water loss from the balloon, please consider prescribing the Brilliant Plus Aquaflate Cylindrical Tip (see below)


Company and product	Standard / Male Cost Code	Female Cost Code	Comment / expected use
TELEFLEX MEDICAL Rusch Brilliant Aquaflate Up to 12 weeks use	£6.11 DA310112 DA310114 DA310116 DA310118 DA310120 DA310122 DA310124	£6.11 DA210112 DA210114 DA210116 DA210118 DA210120 DA210122 DA210124	All-silicone catheter with 5 -10ml balloon Licensed for urethral and supra pubic use Packaged in single units with a pre-filled and empty syringe for balloon inflation and deflation. Reported problems have been diffusion / water loss from the balloon causing deflation

					<p>Prescribe 3 initially and from then on only 1- 2 to be prescribed at a time- usually one unit every 12 weeks.</p> <p>Review if catheter life lasts less than 4 weeks and consider a short term catheter</p>
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Company and product	Standard / Male Cost	Male Code	Female Cost	Female Code	Comment / expected use
TELEFLEX MEDICAL Rusch Sympacath Aquaflate 3 – 12 weeks use 	£6.34	DH310112 DH310114 DH310116 DH310118 DH310120 DH310122 DH310124	£6.34	DH210112 DH210114 DH210116 DH210118 DH210120 DH210122 DH210124	<p>Hydrogel coated latex</p> <p>Urethral and supra-pubic use</p> <p>Packaged in single units with a pre-filled and empty syringe for balloon inflation and deflation.</p> <p>Prescribe 2 initially and from then on only one to be prescribed at a time- usually one unit every 12 weeks.</p> <p>Review if catheter life lasts less than 4 weeks and consider a short term catheter</p>

<p>TELEFLEX MEDICAL</p> <p>Rusch</p> <p>Brillant Plus Aquaflate</p> <p>3 – 12 weeks use</p> 	<p>£6.00</p>	<p>Cylindrical Tip</p> <p>850081 000120</p> <p>850081 000140</p> <p>850081 000160</p> <p>850081 000180</p> <p>850081 000200</p> <p>850081 000220</p>	<p>£8.46</p>	<p>Tiemann Tip</p> <p>850084 000120</p> <p>850084 000140</p> <p>850084 000160</p> <p>850084 000180</p> <p>850084 000200</p> <p>850084 000220</p>  <p>Tiemann tip is a curved tip catheter which will be advised by Urology.</p>	<p>All silicone catheter</p> <p>Urethral and supra-pubic</p> <p>Packaged as a single unit with a pre-filled and empty syringe for balloon inflation and deflation.</p> <p>10% glycerine is added to the water to prevent water loss from the balloon</p> <p>To be considered for use in patients who regularly experience bypassing caused by balloon deflation</p> <p>Prescribe 2 initially and from then on only one to be prescribed at a time- usually one unit every 12 weeks.</p> <p>Review if catheter life lasts less than 4 weeks and consider a short term catheter</p>
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OPEN TIPPED CATHETER RECOMMENDED FOR SUPRA PUBIC USE

Company	Cost	Product Code	Pharmacy PIP code	Comments /expected use
L.I.N.C Medical Systems LTD All silicone open tip with uniball balloon  3-12 weeks use	£10.95	Balloon size 08451205G 5ml 08451405G 5ml 08451610G 5-10 ml 08451810G 5-10 ml 08452010G 5-10 ml 08452210G 5-10 ml 08452410G 5-10 ml	3383845 3383852 3833860 3833878 3833886 3833894 3833124	All-silicone open tipped catheter for supra pubic and urethral use Standard length are recommended for suprapubic catheterisations Female length for urethral and paediatric catheters also available To be considered for patients where there are noted problems when removing the supra pubic catheter. Has Uniball balloon technology for easier catheter removal (no cuffing of the balloon) 5ml or 10ml syringe with 10% glycerine added to the water to reduce premature balloon deflation Lubricating / anaesthetic gel is included with the catheter Pharmacy may need to order with the PIP code

SILVER COATED CATHETERS


Silver coated catheters should only be prescribed with specialist advice from the continence service. Basic research and development, validation and in-use evaluations have shown benefits¹⁴ however; this has evaluated only the short term use¹⁵ and is not appropriate for continued use in primary care. Recent evidence suggests that the silver coated catheters may delay or prevent the onset of bacteriuria but there was insufficient evidence to indicate whether they reduce the risk of CAUTI^{9,16} Silver coated catheters are licensed for short term use – up to 4 weeks.



STERILE LUBRICANTS FOR CATHETER INSERTION

Optilube Active CHG is a sterile lubricant which contains a local anaesthetic (lidocaine 2%) for the urethral mucosa. It can prevent injury to the urethra and as a consequence reduces the subsequent risk of urethral damage. The sterile lubricant has been specifically selected for the guideline as it is chlorhexidine free and negates the risk of anaphylactic reactions.


***Medical Devices Agency (MDA) Alert 17 December 2014 warns products containing chlorhexidine have a risk of anaphylactic reaction**

Its use is advocated for catheterising both male and female patients. Single use containers also reduce infection risk. In most cases the 6ml product should be used when treating females or supra pubic and the 11ml product when treating males. Different volumes may be used if clinically indicated. Extra caution should be exercised if using more than 11mls as the risk of side effects from the ingredients increases. It is not recommended to use more than 22mls for a single intervention.

Company and product	Size	Code	PIP Code	Cost	Comment expected use
OPTIMUM MEDICAL Optilube Active CHG Chlorhexidine free 	6ml	1167	404-0663	£1.09	Sterile catheter lubricant gel For female use
	11ml	1168	404-0671	£1.14	For male use Takes 3-5 minutes to take effect Prescribe individually - 1 syringe per catheter prescribed Contains lidocaine hydrochloride 2%

Company and product	Quantity	Code	PIP Code	Cost	Comment expected use
OPTIMUM MEDICAL OptiLube  	5 gram sachets	1120	367-8275	15 pence	Sterile lubricating jelly suitable for most clinical procedures
	42 gram tube	1121	357-7012	£1.01	
	82 gram tube	1122	367-7012	£1.67	

Available via NHS Supplies, FP10 or direct purchase from the companies

Company and product	Quantity	NHS Code	Cost	Comment / expected use
Crest Medical LTD Irrigation pod 	20ml pod x 25	MRB1140	£4.99	Irrigation fluid 0.9% normal saline for urethral cleansing prior to catheter insertion
RICHARDSON HEALTHCARE Softdrape sterile wound pack Suitable for catheterisation Pack of 20	Small	EJA045	£8.53	Each pack contains: 1 x sterile gloves 1 x sterile sheet 1 x waste disposal bag 1 x paper dressing towel 5 x non woven swabs
	Medium	EJA046	£8.53	
	Large	EJA047	£8.53	

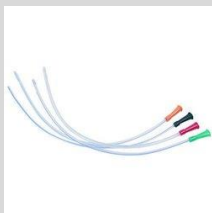
INTERMITTENT SELF CATHETERISATION (ISC) - NELATON CATHETERS

ISC is the preferred method for managing urine retention and must be considered as an alternative to a urinary indwelling catheter. Intermittent self-catheterisation (ISC) is a well established and accepted form of management for neuropathic bladder dysfunction and other causes of incomplete emptying¹⁵. It may also be used to prevent stricture reoccurrence following stricture surgery and is referred to as intermittent self-dilatation (ISD). Performing ISC protects the upper urinary tract from reflux and reduces the threat of encrustation and infection.¹⁶ Age should not prevent ISC being considered as an option for patients as it is suggested that ISC is a safe and valuable procedure for older people with significant post void residuals.¹⁷ Patients with manual dexterity problems may find these catheters difficult to use but there are various aids available that can facilitate easier handling.


Patients should always be encouraged to try to pass urine prior to insertion of the catheter and general points regarding the need for hygiene apply equally with this technique. Patients should be taught to avoid touching the catheter tip. How many catheters a patient uses depends on the medical reason for ISC and can range from 1-5 catheters daily to 1-2 catheters weekly. If ISC has been commenced whilst in hospital, the patients are usually discharged home on a specific size, which should not be altered without consultation. 5-6 packs should be enough for a month's supply (30 catheters per pack- 150 catheters per month and full packs should be prescribed as they cannot be split.

If ordering more than 6 packs per month - please liaise with the continence advisory service regarding patient management.

A variety of intermittent catheters are available and the majority are hydrophilic which require water adding to the catheter to activate the coating. The Optismooth catheters on the guideline are recommended for routine use for males and females however patient assessment is advocated and the correct catheters selected on clinical need.

Company and product	Male Sizes 8ch-18ch		Female Sizes 8ch-16ch		Comment / expected use
	Cost	Code	Cost	Code	
VESICA UROLOGY Ltd Optismooth 	£35.40 Pack of 30	40cm OS4008	£35.40 Pack of 30	18cm OS1808	Single use hydrophilic low friction catheter
		OS4010		OS1810	Requires tap water adding to the catheter before use to activate lubricant coating
		OS4012		OS1812	
		OS4014		OS1814	Female catheters are available in two lengths -18cm and mini
		OS4016		OS1816	
		OS4018		Mini 12cm OS1208	Patient / product information booklets available from the Continence Advisory Service
				OS1210	Patients may be self catheterising or having ISC 1 x weekly or up to 5 x daily depending on their condition
				OS1212	
				OS1214	
				OS1216	

For male use only

Company and product	Code	Pharmacy PIP code	Cost	Comment / expected use
MANFRED SAUER iQ Cath 21 with internal saline sachet Box of 30 	iQ2104-10	372-5421	£47.06	Hydrophilic catheter with integrated saline sachet
	iQ2104-12	324-7400		
	iQ2104-14	324-7418		
	iQ2104-16	324-7426		Known as a pathfinder and ideal for men with enlarged prostates, urethral strictures, false pockets and difficult catheter insertions
	iQ2104-18	372-5413		
				Soft, bendy tip which navigates problematic urethras

STERILE CATHETER LEG DRAINAGE BAGS



Leg bags and night bags are NOT intended for single use in the community as this would increase costs unnecessarily. Bags may be reused for up to 5-7 days and good hygiene control should be used to avoid infection risk.

Leg bags are suitable for the collection of urine from indwelling catheters or sheaths. Designed for daytime use, they vary in capacity and can be worn in different positions (thigh, knee and calf). Leg bags differ in

outlet taps, connectors, length of inlet tubes and inclusion of attachment straps.

The quality of the tap on drainable appliances is important and patient capabilities on opening and closing the tap must be assessed before deciding on which bag to prescribe.




It is recommended that the ProSys bags (CliniSupplies) are to be considered as first line choice. The sterile gloves provide assurance that the potential risk of infection is minimised during leg and night bag changes. The bag has a robust ridged connector to ensure that the bags do not become accidentally disconnected

Company and product CLINISUPPLIES	Tap	Inlet tube	Volume / capacity	Product Code	PIP Code	Cost	Comments / Expected use
Prosys Sterile leg bag Box of 10  	Lever tap	Short	500ml	P500S-LT	351-1474	£26.15	Up to 5-7 days use.
		Long	500ml	P500L-LT	351-1466	£26.15	Can be worn indifferent positions on the leg
	Slide tap	Short	350nl	P350S		£26.15	One pair of sterile non latex gloves in packet
		Long	350ml	P350L	299-6817	£26.15	A ridged connector and a needle free sample port
		Short	500ml	P500S	299-6767	£26.15	Overnight bag connection tube and non-return valve to prevent backflow of urine
		Long	500ml	P500L		£26.15	
		Short	750ml	P750S	299-6825	£26.15	Maintaining a closed drainage system (i.e. not removing the leg bag when attaching a night bag) reduces the risk of infection
		Long	750ml	P750L	299-6791	£26.15	1 pair of elastic straps included per box of 10 bags
					299-6833		1 box of 10 every 2 months
					299-6809		


STERILE AND NON STERILE 2 LITRE NIGHT DRAINAGE BAGS

These drainage bags are connected to the leg bag and are used in conjunction with a stand which can be obtained from contacting the company (see table). The position of the bag should be below the bladder level to enhance gravity induced drainage, but no more than 30cm below as the negative pressure created may cause a suction effect to the bladder mucosa, which may increase the likelihood of catheter blocking.¹⁸ Catheter night bag stands are available


If in a nursing home / residential home or hospital setting, a drainable single use night bag is recommended if attaching to a leg bag. Inappropriate re-use of urinary continence devices, such as some night urine bags may increase infection risks. Where items are labelled single use, recommending re-use means that the legal liability for the product rests with the prescriber.

Company and product CLINISUPPLIES	Tap	Volume	Code	PIP Code	Cost	Comment / expected use
ProSys Sterile 2 litre night drainage bag 	Slide Lever	2000mls 2000mls	P2000 P2000-LT	313-7940 351-1458	£12.17 £12.17	5-7 days use Can be connected directly to the catheter or connected to a leg bag for overnight drainage Can be used with sheath devices Contains one pair of sterile non latex gloves Prescribe 1 box of 10 every two months
3 way night bag stand 			PBS001		Free	Telephone 020 8863 4168 


NON STERILE SINGLE USE 2 LITRE DRAINABLE NIGHT BAG

Company and product CLINISUPPLIES	Tap	Volume	Product Code	PIP Code	Cost	Comment / expected use
ProSys Non sterile single use drainable night bag Pack of 10 	Slide	2000mls	PSU2	327-6672	£3.09	Single use For use on hospital wards and residential / nursing homes or when the patient does not have access to own bathroom Slide tap designed to ensure that the bag cannot be reused Prescribe 3 packs per month Recommended for use with a sheath or a urinal



SPECIALIST CATHETER BAG

Company and product	Tap	Volume	Code	Cost	Comment / expected use
Teleflex Rusch Belly Bag 	Twist tap	1000mls	B1000P	£10.89	<p>Sterile drainage bag with sample port</p> <p>Suitable for patients who are wheelchair-dependent, or dislike other drainage options</p> <p>Can be used for up to 28 days and should be prescribed as a single unit</p> <p>Has 1000mls capacity and has a twist control tap</p>

CATHETER FIXATION STRAPS

Company / product CLINISUPPLIES	Size	Product Code	PIP Code	Cost	Comment / expected use
Catheter Fixation Strap Box of 5 	Short- 40cm	PCS40	4085536	£12.20	<p>It is extremely important that both the leg bag and catheter are both supported.</p> <p>A catheter retainer strap is to be used for every patient with an indwelling catheter to prevent trauma and reduce the risk of infection</p> <p>Patients and carers should be educated on the correct fitting of the retainer strap</p> <p>Machine washable</p> <p>Prescribe 1 box every 4- 6 month</p>
	Adult- 50cm	PCS50	4085544	£12.40	
	Abdominal 85cm	PCS85	4085551	£13.69	

CATHETER BAG SUPPORT


Company / product CLINISUPPLIES	Size	Product Code	PIP Code	Cost	Comment / expected use
Leg bag sleeve Pack of 4 	Small Leg circumference 24-40cm Medium Leg circumference 36-50cm Large Leg circumference 40-65cm	PLS3881 PLS3904 PLS3928		£7.70 £7.70 £7.70	Washable support system Leg straps are often not correctly used and the leg bag sleeve may be comfortable to wear, Worn on the thigh Measurement of the patients leg is essential to ensure a correct fitting 1 pack should last 4-6 months
Elasticated leg straps Pack of 10 	One size	P1OLS	299-6841	£13.02	Cotton strap with silicone leg grip for use with a ProSys leg bag Hand wash in warm soapy water and hang to dry Do not tumble dry Prescribe 1 pack every 4 - 6 months

CATHETER VALVES

May be used by patients (or carer) with long-term catheters that have sufficient manual dexterity to turn a valve to empty the bladder when required. This avoids the need for a day bag. The patient must have cognitive awareness and adequate bladder capacity to utilise these systems. Catheter valves help prevent catheter infections by flushing the bladder when the valve is opened. The valve can be attached to night bag to allow free drainage overnight. This product should not be used without assessment of bladder function by an appropriate health professional. Please seek advice from the continence advisors or a consultant urologist before prescribing a valve.




Contraindications for using a catheter valve:


- Reduced bladder capacity
- Must not be used for patients post radical prostatectomy and bladder reconstruction
- No bladder sensation
- Cognitive impairment
- Insufficient manual dexterity to operate the catheter valve

Company and product LINC Medical	Product Code	PIP Code	Cost	Comment / expected use
CareFlo Catheter Valve Box of 5 	CF1	3441524	£7.59	Provides a discreet alternative to using a leg bags. For use with indwelling catheters only Helps to imitate normal bladder function Has a ridged connector and lever tap Recommended change every 5-7 days Maximum 1 box per month to be prescribed

CATHETER MAINTENANCE SOLUTIONS


The use of catheter maintenance solutions still remains controversial and should not be used routinely for every patient who has an indwelling catheter. Please read information provided in Appendix before making a decision to commence patients on catheter maintenance solutions.

Company and product B BRAUN	Code	Cost	Comment / expected use
Urotainer Sodium Chloride 0.9% 	50ml CSS50 100ml CSS100	£3.57 £3.57	Clinical indication To be used as a mechanical flush when there is debris or blood clots Single chamber for use Not for routine use
Uro-Tainer PHMB 	100ml FB99965	£3.46	Clinical Indication- Provides a mechanical flush together with bacterial decolonisation Contains 0.02% polihexanide Hypo allergenic, non toxic Not for routine use
Uro-Tainer Twin Suby G 3.25% citric acid 	9746609	£4.89	Clinical Indication - Used to reduce/resolve crystallisation and encrustation in the catheter A twin chamber system containing 30mls of citric acid (3.25%) solution in each chamber Recommended regime following assessment is from once weekly to twice daily depending on the severity of the case. Instill for 5-10 minutes per chamber

<p>Uro-Tainer Twin Solutio R 6% citric acid</p> 	<p>9746625</p>	<p>£4.89</p>	<p>Not for routine use Clinical Indication- Used to dissolve persistent crystallisation in the blocked catheter or can be instilled 5-10 minutes prior to catheter removal to minimise trauma A twin chamber system containing 30mls of citric acid (6%) solution Prescribe as individual items Not for routine use</p>
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BLADDER INFUSION KIT

The bladder infusion kit (BIK) is a device that enables the instillation of a catheter maintenance solution without the need to disconnect the patient's leg/night bag therefore eliminating the need to break closed catheter system. The device enables the catheter maintenance solution to be instilled into the catheter and bladder via the needle free sample port of the catheter bag. Please note that the device is not compatible for use in all leg drainage bags but is compatible with the ProSys.

Company	Code	PIP Code	Cost	Comments / expected use
<p>LINC MEDICAL LTD</p> <p>Bladder Infusion Kit</p> <p>Pack of 10</p> 	<p>MCI / 701</p>	<p>3783883</p>	<p>£20.06 £2.06 each</p>	<p>For use with patients who require instillations of catheter maintenance solutions more than once per week</p> <p>Applied with aseptic non touch technique using the needle free sample port on the leg bags/ night bags</p> <p>No breach in the closed sterile system and no need to disconnect the drainage bag from the catheter</p> <p>Includes one red tubing clamp which is attached to the drainage tube below the sample port and one infusion device</p> <p>Full instructions for use provided on packaging</p> <p>Prescribe 1 box of 10 per month</p>

SHEATHS

Sheaths must be fitted by an appropriately trained health professional and referral to a specialist should only be made for patients with fitting difficulties.

Generally, problems encountered relate to poor skin preparation, poor fitting and the inappropriate choice of product. This may result in: increased susceptibility to urinary tract infections sores on the end of the penis,

and/or damage to the surrounding skin caused by some adhesives. If measured and fitted correctly, sheaths can be left in place for 1-3 days before changing.

Assessment

The success of urinary sheaths relies heavily upon correct assessment. It is suggested²¹ that patients must meet the following criteria:

- A non retracted penis
- Healthy unbroken skin
- No risk of sheath being pulled off
- Reasonable mental awareness, eyesight and manual dexterity or adequate carer availability



Sizing


Patients should be measured to determine the size required. One of the main reasons for sheaths disconnecting prematurely is incorrect sizing. Each company provides individual fitting guides and sheath sizes vary from company to company.²² Each time a brand new sheath is used, the patient must be measured with the company's own fitting guide and the fitting guide discarded after use. The size is measured around the shaft of the penis, not the glans. A small sheath may constrict the penis and a large sheath may kink, leak or disconnect.²³

The length required also requires consideration, too long a sheath will roll off and shorter sheaths are available to prevent this occurring. If the patient's penis measures less than 3cm in length, it is unlikely that a sheath device will be suitable and an alternative method of management may be required. The continence advisory service can provide advice regarding this.

Trial packs of the chosen sheaths and measuring devices are available from the continence advisory service. Please ensure that the chosen sheath is working effectively before prescribing
Generally, one box of 30 should be adequate for one month.


N.B: The P-Sure and b - Sure sheath are unique in that it has a wider range of sizes and can be used for adults or paediatrics

Company and product	Size	Code	PIP Code	Cost	Comment /expected use
MANFRED SAUER P-Sure Urinary Sheath Box of 30  	Paediatric 18mm	97.18	290-2849	£48.34	Available in 11 sizes including paediatric
	Small 20mm	97.20	290-2856	£48.34	Latex free and self-adhesive
	Small 22mm	97.22	290-2864	£48.34	
	Small+ 24mm	97.24	290-2872	£48.34	Anti blowback system
	Medium- 26mm	97.26	290-2880	£48.34	Includes 1 free pubic hair protective cloth
	Medium 28mm	97.28	290-2898	£48.34	Instructions for fitting and measuring devices available
	Medium+ 30mm	97.30	290-2906	£48.34	
	Large- 32mm	97.32	290-2914	£48.34	Prep wipes are advised prior to application to protect the skin and to help with adhesion.
	Large 35mm	97.35	290-2922	£48.34	
	Large 37mm	97.37	290-2930	£48.34	




MANFRED SAUER b.Sure Violet Quickfit Urinary Sheath Box of 30  	Ex Large	40mm	97.40	290-2948	£48.34	Sample packs available
	Small	18mm	B18	401- 8511	£51.28	Available in 9 sizes
	Small	20mm	B20	401- 8529	£51.28	Adaptable for retracted penis and can be used as a drip urinal
	Small	22mm	B22	401- 8537	£51.28	Fitting literature and measuring devices available
	Small+	24mm	B24	401- 8545	£51.28	Changed every 1-3 days
	Medium	26mm	B26	401- 8552	£51.28	Shorter sheath designed as pop on 55cm shorter than the P sure
	Medium	28mm	B28	401- 8560	£51.28	Has stronger adhesive
	Medium+	30mm	B30	401- 8578	£51.28	Comes with a sheath fitting cloth
	Large-	32mm	B32	401- 8586	£51.28	
	Large	35mm	B35	401- 8594	£51.28	








ANAL PLUG

Please discuss with a continence advisor if considering using an anal plug. Can be used for patients with faecal incontinence but most suitable for patients with a neurogenic condition and associated impaired rectal sensation. Adequate bowel management to clear bowels must be instigated prior to use.

Company and product	Size	Code	Cost	Comment / expected use
COLOPLAST LTD Peristeen Anal Plug Box of 20 	Small	1450	£47.51	For use with faecal incontinence
	Large	1451	£46.54	Can be used for up to 12 hours
				Caution required in patients with autonomic dysreflexia
				Lubricant gel included in box

URINAL SYSTEMS Urinal devices are available on FP10

Manufacturer BEAMBRIDGE MEDICAL	Appliance Image	Code	Pharmacy PIP code	Cost	Comment / expected use
Bridge urinal no tap		6-18	267-5296	£14.67	Female urinal with handle requires connection to a drainage bag, can be used seated or in bed
Bridge urinal with tap		6-18T	267-5304	£14.67	Female urinal with handle, additional tap provides the option for connecting a drainage bag. Total useable unit volume without a bag 400ml
Lady Jug		6- 45	237-6291	£15.78	Designed for women to use in bed and serves as an alternative to the Bridge Urinal.
Lady Funnel		6-40	277-1111	£14.10	Designed for women to use out of bed. It is recommended that the woman sits on the edge of a chair/bed or stands and holds the funnel in place.
The Beambridge Saddle		6-26	271-7221	£14.67	Specifically designed for women to use in bed or chair, sitting up or lying down This product has a closed end and does not drain; it will require emptying after each void. Total volume 750ml.
Male draining jug/ bottle closed end		6-51	379-9079	£14.25	Male urinal bottle for use as a receptacle
Male draining jug no tap		6-50	282-9471	£14.67	Male Jug for connection to drainage bag
Male draining Jug with tap		6-50T	282-9463	£14.67	Male jug with tap for the option to connect a drainage bag Total useable unit volume without a bag 400ml

Manufacturer BEAMBRIDGE MEDICAL	Appliance Image	Code	Pharmacy PIP code	Cost	Comment / expected use
Male Funnel		6-35	262-5960	£13.55	Designed for use in bed and out of bed. For men with sufficient mobility and continence, the funnels can be used to help as a director when urinating into a toilet. Suitable for men with retracted penis
Adult Funnel Short (male)		6-37	340-1007	£13.55	
Beambridge Bed Bottle urinal closed end		6-BBC	408-7177	£12.00	Both funnels can be connected directly to a drainage bag. The short funnel can be used as a non spill adapter for the draining jug Specifically designed for men to use in bed. It has the greatest standalone capacity of the male product range.
Beambridge Bed Bottle urinal with tap		6-BBT	405-1249	£14.10	
Bed Bottle urinal without tap		6-BB	262-5960	£14.10	Contoured design for bed use with easy grip handle Secure cap- spill proof Includes a measuring scale Total useable unit volume without a bag 1300ml.
Cygnet female urinal					With tap can be used with or without a drainage bag Without tap requires a drainage bag to be connected
Male urinal bottle					Available from Medequip Obtain from peripheral stores Available from Medequip Obtain from a peripheral store and complete equipment form on TCES

PATIENT EDUCATION AND SUPPORT

Good quality, comprehensive information on products should be given to all patients to whom they are prescribed. Advice may be supported by written patient information designed for each product type. Patients should also be given information on the patient groups that offer support in this area.

Derbyshire Continence Advisory Service
Alfreton Primary Care Centre
Church Street
Alfreton
Derbyshire
DE55 7BD
Tel: 01773 546868
Email : continence.advisoryservice@nhs.net

Bladder and Bowel Foundation
SATRA Innovation Park
Rockingham Road
Kettering
Northants NN16 9JH
Tel: 01536 533255 Fax 01536 533240
Email: info@bladderandbowelfoundation.org

The Gut Trust
Unit 5
53 Mowbray Street
Sheffield
S3 BEN
Tel: 0114 272 3252
Email: info@guttrust.org.uk

Web address: www.bladderandbowelfoundation.org Web: www.guttrust.org

NICE ANTIMICROBIAL GUIDANCE FOR CATHETERS <https://www.nice.org.uk/guidance/ng113>

PUBLIC HEALTH ENGLAND Urinary tract infection diagnostic flow chart
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795340/PHE_UTI_diagnostic_flowchart.pdf

NHS IMPROVEMENT CATHETER DOCUMENTS <https://improvement.nhs.uk/resources/urinary-catheter-tools/>

Use of prophylaxis antimicrobials during catheter manipulation in the community setting

*Catheter manipulation refers to insertion, removal or change of a urinary catheter

Unintentional expulsion of urinary catheter with the balloon inflated

Prophylaxis antibiotic treatment is not indicated unless the patient is undergoing peritoneal dialysis or is immunocompromised.

Routine administration of antimicrobial agents to cover urinary catheter insertion is NOT INDICATED in the community. However, if the patient is actively suffering SYMPTOMS of urinary tract infection (a positive urine culture in the absence of symptoms of infection is NOT an indication) at the time of catheterisation, then they should receive one dose of ciprofloxacin OR gentamicin for prophylaxis and a further 5 days of an appropriate oral antibiotic changed if necessary when the culture and sensitivity results are available. – see details* below.

In patients at risk of endocarditis, NICE guideline 2008 recommended that routine antibiotic prophylaxis for urinary catheterisation are no longer required. However, if these patients are already on antimicrobial treatment for a urinary tract infection, or if infection is suspected, ensure that their antibiotic regime covers organisms likely to cause endocarditis, prior to catheter insertion or removal. For further advice, contact the consultant microbiologist.

Asymptomatic patients requiring antimicrobial prophylaxis for urinary catheterisation:

- The patient has had a febrile illness on previous catheter insertion
- It is within 6 weeks of a post-operative orthopaedic prosthetic insert / removal or 24 hours before an orthopaedic prosthetic insert^{22,23}
- The patient is undergoing peritoneal dialysis
- The patient is immunocompromised and is not already on antibiotics
- The patient has been identified with MRSA

NICE antimicrobial guidance (2018) recommends that antibiotic prophylaxis should also be considered for patients who:

- Have a history of symptomatic urinary tract infection after catheter change
- Experience trauma during catheterisation
(frank haematuria after catheterisation or 2 or more attempts of catheterisation)

*The choice of antibiotic will be guided by recent urine culture results or, if no information is available, administer a single dose of ciprofloxacin 500mg orally 1 to 2 hours before catheter insertion OR a single dose of 80-120mg gentamicin IV/ IM just before the procedure.

For advice on patients identified with MRSA please contact Consultant Microbiologist for gentamicin sensitivities.

NB: ciprofloxacin should be avoided in patients at high risk of developing C.Difficile disease (please refer C.Difficile high risk criteria including patients with GDH +ve results).

If a single dose of oral ciprofloxacin is given to non high risk patient, follow the community UTI guideline for the rest of the course of antibiotics and await culture results.

Advice for patients with urinary catheters and symptomatic urinary tract infection

NICE (2018) antimicrobial recommendations for management of a catheter-associated urinary tract infection^{39,40,41}. A catheter-associated urinary tract infection (CAUTI) is a symptomatic infection of the bladder or kidneys in a person with a urinary catheter, the longer a catheter is in place, the more likely bacteria will be found in the urine; after 1 month nearly all people have bacteriuria and antibiotic treatment is not routinely needed for asymptomatic bacteriuria in people with a catheter.

- ◆ Consider removing or, if this cannot be done, changing the catheter^{39,40,41} as soon as possible in people with a catheter-associated UTI if it has been in place for more than 7 days^{8,32,33, 39,40,41}
- ◆ Do not allow catheter removal or change to delay antibiotic treatment.
- ◆ Obtain a urine sample before antibiotics are taken^{39,40,41}. Take the sample from the catheter or via a sampling port if provided, and use an aseptic technique.
- ◆ If the catheter has been changed, obtain the sample from the new catheter.^{39,40,41}
- ◆ If the catheter has been removed, obtain a midstream specimen of urine.
- ◆ Send the urine sample for culture and susceptibility testing^{39,40,41}, noting a suspected catheter-associated infection and any antibiotic prescribed.
- ◆ Offer an antibiotic to people with catheter-associated UTI, taking into account the previous urine culture and susceptibility results, severity of symptoms and the risk of developing complications, which is higher in people with known or suspected structural or functional abnormality of the genitourinary tract, immunosuppression, or previous antibiotic use, which may have led to resistant bacteria.
- ◆ When urine culture and susceptibility results are available: review the choice of antibiotic and change the antibiotic according to susceptibility results if the bacteria are resistant, using narrow-spectrum antibiotics wherever possible.
- ◆ Reassess people with catheter-associated UTI if symptoms worsen at any time, or do not start to improve within 48 hours of taking the antibiotic, taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition, such as sepsis
- ◆ Advise people with catheter-associated UTI about drinking enough fluids to avoid dehydration.

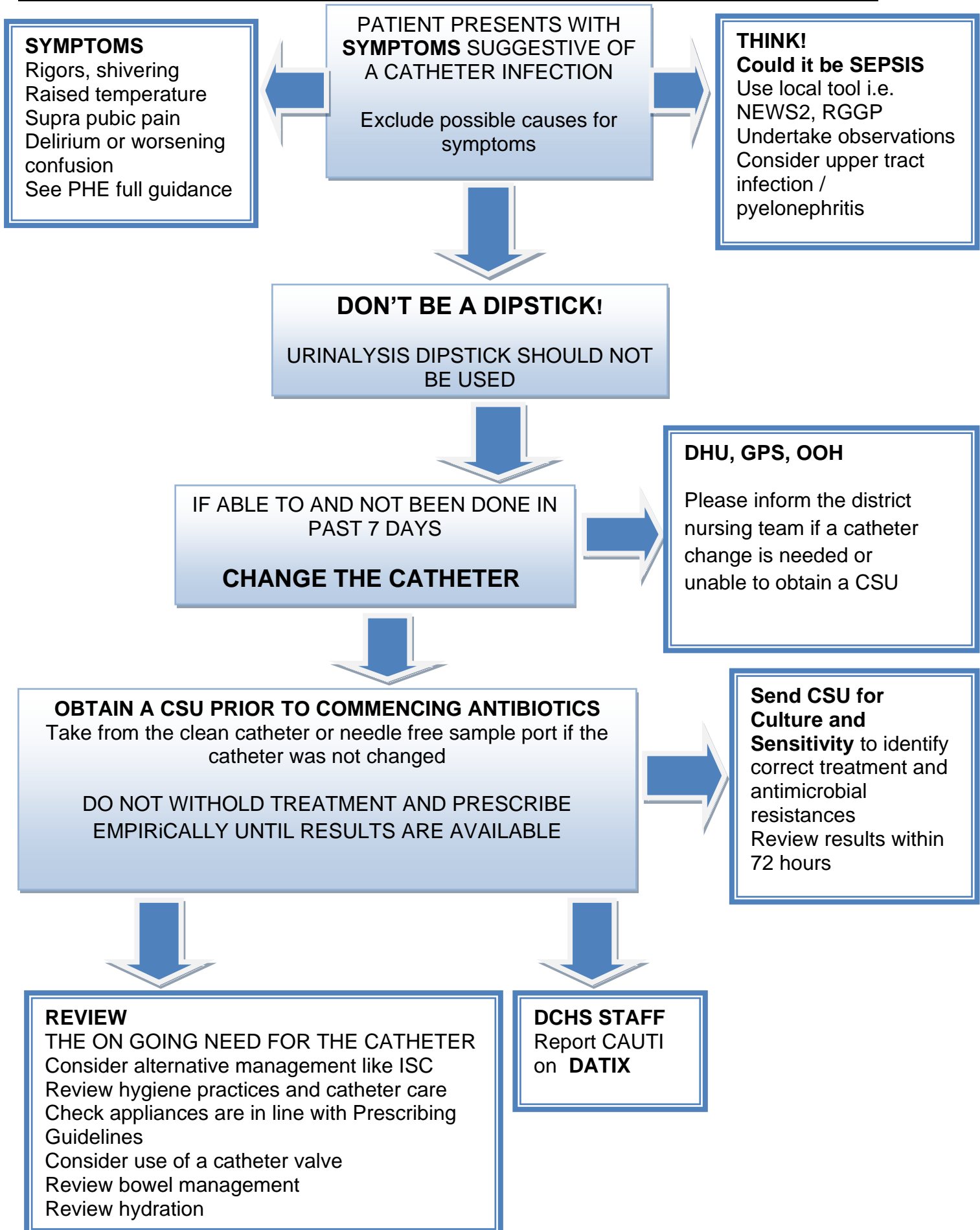
Public Health England (2018) Recommendations

- ◆ **Do not treat asymptomatic bacteriuria in those with indwelling catheters**
Treatment does not reduce mortality or prevent symptomatic episodes, but it does increase side effects and resistances^{29,30}
- ◆ Only send urine for culture in catheterised patients if features a systemic infection^{8,31,33}. However, always: - exclude other sources of infection⁸. The diagnosis of catheter associated urinary tract infection (CAUTI) can be difficult in people with indwelling catheters. Check that the catheter drains correctly and is not blocked
- ◆ Consider need for continued catheterisation and remove the catheter if not clinically indicated
- ◆ Do not give antibiotic prophylaxis for catheter changes unless history of symptomatic UTIs due to catheter change or patient has previously experienced a traumatic catheter change^{34,35}

Key points to remember:

- Dipstick testing **should not be used** to diagnose UTI in catheterised patients³⁶. Urine dipstick tests are unlikely to be useful so should not be used in catheterised patients as the test will always give a positive dipstick
- Collect urine from the catheter tubing using the sample port (not from the bag) and place in a preservative-containing bottle or refrigerate, and transfer as soon as possible to laboratory for culture
- Prescribe antibiotics as recommended by NICE / Derbyshire antimicrobial guidance until sensitivities are available
- Report as an incident on Trusts patient safety management system i.e. DATIX
- Review choice of antibiotic with progress and culture results within 72 hours.
- Antibiotic prophylaxis are not recommended for the prevention of symptomatic CAUTI^{39,40,41}

FLOWCHART FOR MANAGEMENT OF A CATHETER ASSOCIATED URINARY TRACT INFECTION



MAKE SURE YOU SELECT THE CORRECT SIZE CATHETER



Shorter catheters
(**20-26cm**) are for females only.

Standard
catheters
(**40-45cm**) can
be used for males
and females.

Female only catheters can cause severe trauma and haemorrhage if used in males.

For further information, go to www.npsa.nhs.uk/rrr


National Patient Safety Agency
National Reporting and Learning Service

CATHETER MAINTENANCE SOLUTIONS^{26,27,28}

Introduction

The use of catheter maintenance solutions is controversial as clinical evidence for the use of catheter maintenance solutions is limited. Many of the research papers involve a small number of patients, raising questions about the general application of findings to wider patient groups. Therefore the decision to use a catheter maintenance solution must involve careful consideration of the potential risks and benefits of such an intervention for each individual patient and include the consent of the patient.

Potential benefits

Use of the appropriate catheter maintenance solution can:

- Reduce the build up of mineral deposits or remove debris and aim to reduce the frequency of catheter blockage and the need for re-catheterisation
- Minimise urothelial damage by removing encrustation prior to catheter removal.

Potential risks

- There is evidence that all catheter maintenance solutions cause mucosal trauma within the bladder due to the physical process of administration. This damage may be worse if the solution used is acidic or if any force is used during administration e.g. via a syringe.
- The risk of infection increases each time the closed catheter system is broken into.
- Catheter maintenance solutions may be employed when re-catheterisation is indicated, increasing the interventions and delaying appropriate treatment.
- Catheter maintenance solutions should not be used in patients with spinal injury due to the possibility of autonomic dysreflexia
- Pain and discomfort on administration

Assessment of Catheters

- Carry out a full patient assessment to ensure that a catheter maintenance solution is required, as catheters can block for a variety of reasons including constipation, patients position in a bed or chair, bladder spasm and the drainage system being kinked or raised above the level of the bladder.
- In a first time blockage, where there is no evidence of the cause of the blockage, the catheter should be removed, examined and cut open, and the urine pH tested to explore the possible causes of blockage. The findings should be recorded.
- Check the pH of the urine. Normal is 6-7 slightly acidic. If the pH is alkaline then encrustation is the most likely cause of the catheter blocking. Weekly pH monitoring should be undertaken and **documented** to predict future blockages. An individual maintenance programme can then be planned.
- Only use catheter maintenance solutions where there is a clear indication to do so (see table) and the risk of introducing infection outweighs the benefit.
- Always warm the solution to body temperature (37°C) prior to instilling. To warm the solution it is suggested the container be placed in a jug of warm water to bring it up to body temperature. This is to prevent the bladder going into spasm if the solution is too cold
- It is suggested that the use of containers that allow gentle agitation may be more effective than instilling the product for a long period of time, as agitation appears to dissolve the encrustation.

- As the bladder size decreases on catheterisation, it is better to use a smaller volume of maintenance solution. It is suggested that as little as 15mls can be used to gently bathe the lumen and the tip of the catheter
- If the patient experiences pain or discomfort on administration then treatment should be stopped. For these clients the only option is to change the catheter frequently to prevent encrustation building up.
- Regular opening of a closed drainage system is likely to cause infection .Therefore the closed drainage system must be changed after every treatment. If an instillation is deemed essential where possible it should coincide with the change of a leg bag
- Always record reasons for catheter changes in the care plan and patient's notes. By recording details correctly patterns of blockage can be clearly identified and action can be taken at an early stage to ensure that the catheter remains patent.
- Where a catheter maintenance solution is used the effect of the treatment should be assessed and ongoing care planned accordingly. Continued use of such a product can only be justified if the patients care plan can clearly demonstrate regular evaluation of the product use and that demonstrable action can be seen.
- Catheter maintenance solutions should not be used to prevent catheter associated infection.
- Consideration should be deployed if a patient's blockage is occurring more often as a referral to a urologist may be necessary

Choice of Solution

Solution	Product License	Recommended regimen	Practice Notes /Cautions
Sodium chloride 0.9%	Mechanical flushing debris (blood, mucus, pus) from the catheter.	As required , usually when leg bag is changed	Will not dissolve crystal formation and is not recommended if a catheter is regularly blocking due to encrustation
PHMB	Mechanical flushing debris, mucus and light haematuria	As required , usually when leg bag is changed	Contains polyhexanide which is an antimicrobial to help reduce bacteria colonization of the catheter
Solution G Citric acid 3.23% (pH 4)	For the dissolution of struvite crystals which form on the catheter tip under alkaline conditions (pH 7.5-9.5).	Once weekly to a maximum of twice daily depending on severity of the case.	Charting of urinary pH over time will allow development of an individual catheter care plan.
Solutio R Citric acid 6% (pH 2)	Stronger citric acid solution for more persistent crystallization particularly prior to catheter removal	Once weekly to a maximum of twice daily depending on severity of the case.	Strongly acidic – potential mucosal irritation. This should be used only after Solution G has been tried and has not been effective. Minimise use as far as possible Can be used just prior to catheter removal to dissolve any crystals on the tip of the catheter which may cause trauma on removal ²⁴

1. Royal College of Physicians (1995) Incontinence - Causes, Management and Provision of Services: A report of the Royal College of Physicians. London
2. Department of Health (1996) NHS Executive, Incontinence (H85/002 1065 AR)
3. Department of Health (2012) Delivering the NHS safety thermometer 2012/2013. A preliminary guide to measuring harm free care www.dh.gov.uk
4. Rigby.D (1998) Long term catheter care Professional Nurse: Vol 13
5. Sabbuba N; Hughes G; Shakler D (2002) The migration of *Proteus Mirabilis* and other urinary tract pathogens over foley catheters British Journal of Urology International Vol 89 Page 55-60
6. Department of Health (2007) Saving lives: reducing infection, delivering clean and safe, High Impact Intervention No 6 London DH
7. Smythe E.T.M (2006) Healthcare acquired infection prevalence survey. Preliminary data in Hospital Infection Society; the third prevalence survey of healthcare associated infections in acute hospitals
8. SIGN. (2006) Management of suspected bacterial urinary tract infection in adults: a national clinical guideline. Scottish Intercollegiate Guidelines Network. 2006
<http://www.sign.ac.uk/guidelines/fulltext/88/index.html>
9. Loveday H.P, Wilson J. A, Pratt R J, Golsorkhi M, Tingle A, Bak A, Browne J, Prieto J, Wilcox M (2014) Epic 3: National Evidence Based Guidelines for Preventing Healthcare – Associated Infections in NHS Hospitals in England Journal of Hospital Infection S1-S70
www.elsevierhealth.com/journals/jhin
10. Bond P & Harris C (2005) Best Practice in urinary catheterisation and catheter care Nursing Times 101 (8) pg.54-58
11. National Institute for Clinical Excellence (2012) Prevention and control of healthcare-associated infections in primary and community care Issued: March 2012 NICE clinical guideline 139
www.nice.org.uk/cg139 NHS
12. Godfrey.H; Evans .A (2000) Management of long term urethral catheters: minimising complication British Journal of Nursing Vol 9 (12) Page 74-81
13. Woodward.S (1997) Complications of allergies to latex urinary catheters British Journal of Nursing Vol 6, No 14, Page 786-793
14. Department of health (2004) Bardex IC Silver coated hydrogel catheters Health Protection Agency
<http://www.hpa.org.uk/infections/topics>
15. Bandalier (1998) Urinary Catheters Bandalier Vol 58 NO 3 Page 1-4
16. Johnson J.R, Kuskowski,M A, Wilt, T J (2006) Systematic review: antimicrobial urinary catheters to prevent catheter-associated urinary tract infection in hospitalised patients. Annual International Journal of Medicine; 144:pages 116-126
17. Shah.J Leach G (2001) Urinary Continence 2nd Ed Oxford Health Press
18. Getliffe K (2003) Catheters and catheterisations. Cited in Dolman M; Getliffe.K (2003) 2nd Ed Promoting continence: A Clinical research resource Balliere Tindall. Page 259-301
19. Piloni; Stefania; Krhut et al (2005) Catheterisation Age and Ageing vol 34 No 1 Page 57-60
20. Lowthian.P (1998) The dangers of long term catheter drainage British Journal of Nursing Vol 7 No 7 Pages 366-379
21. Watson R (1997) Mostly male cited in Dolman M; Getliffe.K (2003) 2nd Ed Promoting continence: A Clinical research resource Balliere Tindall
22. Clarke T. Williams.J (1999) Found in the bed: Audit of the care and management of patients using urinary penile sheaths. South Manchester University Hospitals NHS Trust (unpublished)
23. Clarke.T (1999) Protocol for the management of male urinary incontinence by use of a urinary penile sheath. Practice Development Protocol. South Manchester University Hospitals NHS Trust
24. Wroblewski BM, del Sel HJ (1980) Urethral instrumentation and deep sepsis in total hip replacement. Clin Orthop Relat Res (146) page 209-212 Cited in NHS Leeds Antimicrobial Prophylaxis Guidelines
25. Berbari EF, Hanssen AD Duffy MC Steckelberg JM Ilstrup DM Harmsden WS et al (1998) Risk factors for prosthetic joint infection: case control study. Clini Infect Dis Issue 27. Vol (5) Page 1247-1254 Cited in NHS Leeds Antimicrobial Prophylaxis Guidelines
26. Getliffe, K.A. (1996). Bladder instillations and bladder washouts in the management of catheterised patients. Journal of Advanced Nursing 23, 548-554
27. Getliffe, K.A., Hughes, S.C and Le Claire, M. (2000). The dissolution of urinary catheter encrustations. British Journal of Urology International 85, 60-64
28. Highland Joint Formulary Prescribing Guidelines

29. NHS Quality Improvement Scotland Best Practice Statement Urinary Catheterisation and Catheter Care June 2004
30. Association of Continence Advice Notes on Good Practice Catheter Maintenance Solutions December 2004
31. Abrutyn E, Mossey J, Berlin JA, Boscia J, Levison M, Pitsakis P, Kaye D. (1994) Does asymptomatic bacteriuria predict mortality and does antimicrobial treatment reduce mortality in elderly ambulatory women? Annual International Medicine :827-33.
32. Nicolle LE, Mayhew WJ and Bryan L. (1987) Prospective randomized comparison of therapy and no therapy for asymptomatic bacteriuria in institutionalized elderly women. The American Journal of Medicine 83:27-33
33. Loeb M, Bentley DW, Bradley S, Crossley K, Garibaldi R, Gantz N, McGeer A, Muder RR, Mylotte J, Nicolette LE, Nurse B, Paton S, Simor AE, Smith P, Strausbaugh L. (2001) Development of minimum criteria for the initiation of antibiotics in residents of long-term care facilities: results of a consensus conference. Infection control and hospital epidemiology 22:120-124.
34. Tenke P, Kovacs B, Bjerklund Johansen TE, Matsumoto T, Tambyah PA, and Naber KG. (2008) European and Asian guidelines on management and prevention of catheter-associated urinary tract infections. International Journal of Antimicrobial Agents 31S:S68-S78
35. Raz R, Schiller D, Nicolle LE. (2000) Chronic indwelling catheter replacement before antimicrobial therapy for symptomatic urinary tract infection. Journal of Urology.164: 1254-58.
36. NICE. (2003) Infection control: prevention of healthcare-associated infections in primary and community care. National Institute of Health and Clinical Excellence
<http://guidance.nice.org.uk/CG2>
37. NICE. (2008) Prophylaxis against infective endocarditis: antimicrobial prophylaxis against infective endocarditis in adults and children undergoing interventional procedures. National Institute of Health and Clinical Excellence. <http://guidance.nice.org.uk/CG64>
38. Tambyah PA, Maki DG. (2000) The relationship between pyuria and infection in patients with indwelling urinary catheters: a prospective study of 761 patients. Archives of Internal Medicine. 160:673-77.
39. NICE (2018) Urinary tract infection (catheter-associated): antimicrobial prescribing) National Institute of Health and Clinical Excellence (NG113 <https://www.nice.org.uk/guidance/ng113>)
40. Public Health England (May 2019) Management of Infections in Primary Care
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/795340/PHE_UTI_diagnostic_flowchart.pdf
41. Royal College of Nursing (2019) Catheter Care RCN London
<https://www.rcn.org.uk/-/media/royal-college-of-nursing/documents/.../007-313.pdf>