The Dudley Group
NHS Foundation Trust

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Russell's Hall Hospital
Dudley
West Midlands
DY1 2HQ

Ref: FOI-042024-000828

Date: 08/05/2024

Address / Email:

Dear

Request Under Freedom of Information Act 2000

Thank you for requesting information under the Freedom of Information Act 2000.

Request

Please could you confirm if you have any guidance/guidelines/flowcharts/advice or posters relating to the areas below.

Urology
*** Renal colic/flank pain/management of renal stones**
*** Testicle pain/torsion/epididymitis**
*** Pyelonephritis/Upper urinary tract infection/Prostatitis**
*** Priapism**
*** Urinary incontinence, retention**
*** Hydronephrosis/hydroureteronephrosis**
*** Catheterisation/Catheter care**
*** Haematuria (acute, visible, or non-visible)**
*** Lower urinary tract symptoms**
*** Investigation and management of any of the following: (prostate, bladder, ureter, kidney, testicle, penile cancer)**
*** Phimosis/paraphimosis**
*** Interstitial cystitis/Bladder pain**
*** Flexible cystoscopy**
*** Prostate biopsies**
*** Recurrent UTIs**
*** ESWL**
*** Nephrostomy insertion/management**

Electrolytes: the management of high or low levels of
Potassium
Sodium
Phosphate
Magnesium
Calcium

Response

Please find attached PDFs documents.

If you are dissatisfied with our response, you have the right to appeal in line with guidance from the Information Commissioner. In the first instance you may contact the Information Governance Manager of the Trust.

Information Governance Manager
Trust Headquarters
Russell's Hall Hospital
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Email: dgft.dpo@nhs.net

Should you disagree with the contents of our response to your appeal, you have the right to appeal to the Information Commissioners Office at.

Information Commissioners Office
Wycliffe House
Water Lane
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SK9 5AF
Tel: 0303 123 1113
www.ico.org.uk

If you require further clarification, please do not hesitate to contact us.

Yours sincerely

Freedom of Information Team
The Dudley Group NHS Foundation Trust

GUIDE

ACI Urology Network

Bladder Irrigation: Management of Haematuria

NSW GOVERNMENT

AGENCY FOR CLINICAL INNOVATION

The Agency for Clinical Innovation (ACI) is the lead agency for innovation in clinical care.

We bring consumers, clinicians and healthcare managers together to support the design, assessment and implementation of clinical innovations across the NSW public health system to change the way that care is delivered.

The ACI's clinical networks, institutes and taskforces are chaired by senior clinicians and consumers who have a keen interest and track record in innovative clinical care.

We also work closely with the Ministry of Health and the four other pillars of NSW Health to pilot, scale and spread solutions to healthcare system-wide challenges.

We seek to improve the care and outcomes for patients by re-designing and transforming the NSW public health system.

Our innovations are:

- person-centred
- clinically-led
- evidence-based
- value-driven.

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Further copies of this publication can be obtained from the Agency for Clinical Innovation website at **aci.health.nsw.gov.au**

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Working with Aboriginal People

The ACI is committed to improving the health of all patients across NSW, particularly those who have significantly higher rates of health problems and less access to appropriate health services. Many sufferers of prostate cancer and its related complications fit into this category including those of the male Aboriginal community.

Widely available data indicates that prostate cancer is one the most prevalent cancers to affect the Indigenous male population, with very similar mortality rates to the Non-Indigenous population. However, there may be cultural sensitivities that make complications surrounding prostatectomy and other potential causes of Haematuria to less likely be recognised and discussed openly.

An Aboriginal Health Impact Statement was undertaken prior to commencement of this project and consultation has occurred with senior Aboriginal health workers, focus groups and representative organisations. We would like to thank the key stakeholders whose contributions have informed the recommendations arising from this project. These stakeholders, including those who work closely with Aboriginal people, will continue to be involved in the implementation of the recommendations.

It is important that the appropriate steps are taken to ensure that services are delivered in culturally safe and competent ways across the project lifespan. To achieve optimal health outcomes for Aboriginal people with complications resulting in haematuria, we will need to undertake a cultural audit to identify and address the barriers to access to care and ongoing management. The audit, along with the development of culturally competent and safe services, is described in detail in Chronic care for Aboriginal people model of care.

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- Michelle Paul, Nurse Practitioner, Community Health, Greater Newcastle Cluster
- Wendy Watts, CNC Urology, John Hunter Hospital.

Glossary

CAUTI	Catheter Associated Urinary Tract Infection
CBI	Continuous Bladder Irrigation
IUC	Indwelling Urinary Catheter
PPE	Personal Protective Equipment (including protective eyewear, plastic apron/ disposable gown and gloves)
TURBT	Trans Urethral Resection of Bladder Tumour
TURP	Trans Urethral Resection of Prostate

Contents

Introduction

This guide has information about bladder irrigation, which can be used to prevent blood clot formation, allow free flow of urine and maintain urinary catheter patency.

It has information for health professionals performing bladder irrigation, including their roles and responsibilities, compliance to relevant guidelines and required documentation.

There are three methods of bladder irrigation:

1. continuous bladder irrigation (CBI)
2. intermittent bladder irrigation via irrigation pump bag
3. manual bladder irrigation.

There is information about patient management issues, including how to deal with pain, irritation and leakages.

Clinical Skill Assessment Forms can be used to gauge compliance – see Appendices 1–2.

Health professionals

The following health professionals can perform bladder irrigation:

- medical officers
- registered nurses (RNs)
- accredited endorsed enrolled nurses
- undergraduate student nurses under the supervision of a RN
- urologists or urology registrars.

Roles and responsibilities

Medical officer	Registered nurse
• Documents the order and clinical indication of bladder irrigation in the clinical progress notes • Reviews the bladder irrigation at least daily	• Maintains the patient's comfort • Ensures urinary catheter patency and urine drains freely • Monitors the degree of haematuria and the presence of clots, and adjusts the irrigation fluid infusion rate accordingly • Ensures an adequate supply of infusing fluids is nearby and stored at room temperature to avoid bladder spasm • Responsible for documentation (accurate record of urine output, urine colour/degree of haematuria, presence of clots if any and if manual bladder irrigation was required) • Provides catheter care, securing the indwelling urinary catheter (IUC) appropriately to minimise movement

Competency

Prior to performing insertion of urinary catheter and/or bladder irrigation, the health professional should be able to demonstrate prior knowledge, understand the risks and to the standard set by the LHD or healthcare provider.

Compliance to relevant guidelines

The health professional should follow local Local Health District or healthcare provider guidelines on urinary catheterisation and bladder irrigation (e.g. *Adult Urethral Catheterisation for Acute Care Settings*[1]).

The following other guidelines should also be followed:

- **Catheter associated urinary tract infection (CAUTI)** – Aseptic technique is required for performing bladder irrigation, catheter care and maintenance to reduce the risk of a CAUTI) secondary to contamination during the procedure and break in the closed urinary drainage system. Refer to the Clinical Excellence Commission information.[2]
- **Hand hygiene** – A policy outlines the specific hand hygiene practices required to minimise the risk of infection.[3]
- **Infection control** – A policy outlines the broad principles of infection control.[4]
- **Medication handling** – The best practice principles on medication procurement, storage, prescribing, supplying, dispensing and administration at NSW public health facilities.[5]

Compliance

Compliance to these guidelines will achieve the expected outcomes:

- maintained urinary catheter patency
- maintained patient's comfort
- prevention/minimisation of clot formation
- CAUTI risk reduced.

Continuous bladder irrigation

Continuous bladder irrigation (CBI) is used to reduce the risk of clot formation and maintain indwelling urinary catheter (IUC) patency by continuously irrigating the bladder via a three-way catheter.

The three-way catheter allows fluid to flow into and out of the bladder simultaneously. A large gauge IUC is used to allow for drainage of clots and debris.

The use of 0.9% sodium chloride (normal saline) is recommended. Use sterile equipment and aseptic technique.

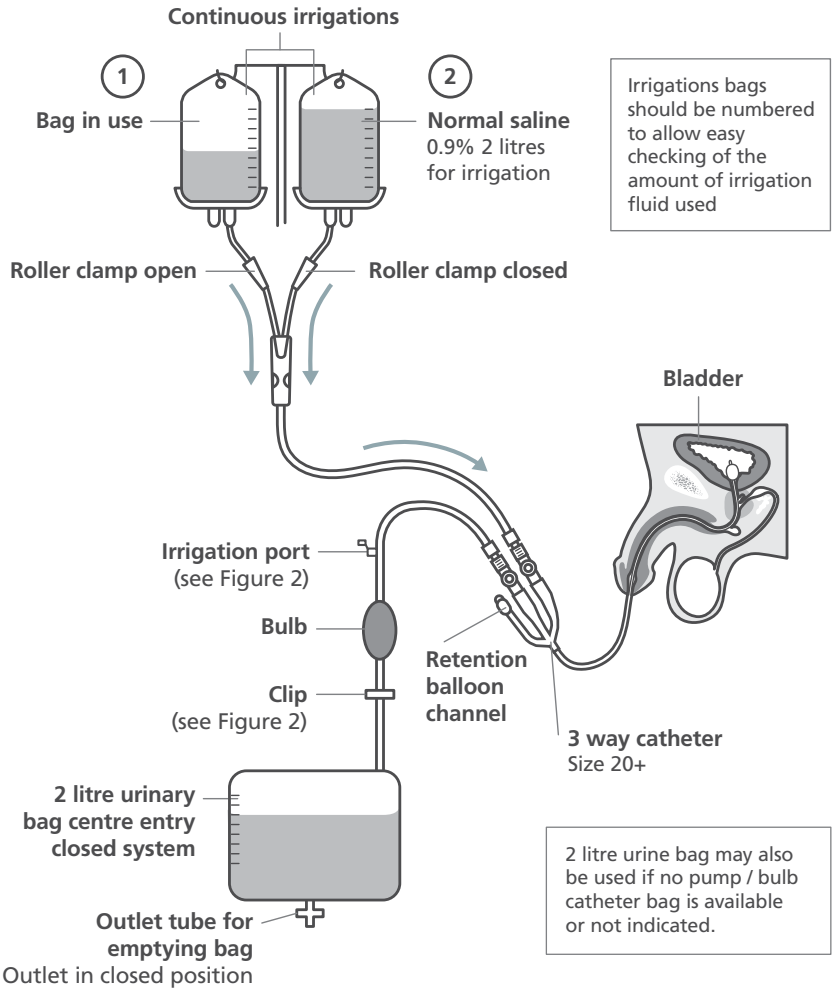
Three-way haematuria (whistle tip) catheter

A three-way standard (round) tip catheter has three ports: a large internal lumen that is reinforced to avoid collapse when the pressure of manual irrigation is applied, large drainage eyes which facilitate easier evacuation of clots, and a third port allowing for continuous irrigation. A three-way whistle tip catheter has the same features as above but the tip is different in shape. The tip is open and bevelled to facilitate drainage of blood clots. Insertion of whistle tip catheter is usually performed by urologists or urology registrars.

Equipment

- Alcohol-based hand rub
- Personal protective equipment (PPE): protective eyewear, plastic apron and gloves
- Dressing trolley
- Dressing pack
- 2x Sodium chloride 0.9% (normal saline) irrigation bags (volume as per facility procedure)
- 70% isopropyl alcohol wipes
- CBI set
- IV pole
- 6x 70% alcohol swabs
- Sterile gloves
- Waste bag
- Disposable underpad

Figure 1. **Continuous bladder irrigation**



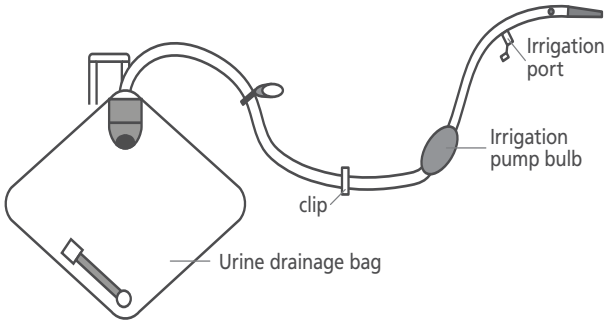
Procedure

1. Perform hand hygiene in accordance with the 5 moments in hand hygiene.[6]
2. Verify patient's identity, confirm the procedure, obtain consent and check for allergies. As part of this process:
   - Assess the patient's health literacy (understanding of the procedure).
   - Ask patient if he or she identifies as Aboriginal or Torres Strait Islander. If so, provide access to Aboriginal Liaison Officer to provide support with health literacy.
   - Provide an interpreter for patients who require it.
3. Check if a three-way Foley catheter is in situ. *Note: A three-way Foley catheter must be in situ, and if one is not in place, it must be inserted (refer to facility procedure for insertion of an indwelling urinary catheter).*
4. Clean dressing trolley with 70% isopropyl alcohol wipes. Allow drying, then gather equipment, and check the sterility and integrity of sterile items. Take to the bedside.
5. Ensure patient privacy.
6. Position patient in supine position, allowing for easy access to the IUC to minimise the need for staff to twist, bend or maintain awkward static postures. Obtain assistance if required.
7. Place a disposable sheet under the patient's buttocks.
8. Empty the urine drainage bag (refer to facility procedure). Record measurement on the fluid balance chart.
9. Perform hand hygiene.
10. Put on PPE (protective eyewear, plastic apron and non-sterile gloves).
11. Ensure the IV pole is at a safe accessible height before hanging the sodium chloride flasks.
12. Insert the prongs from the irrigation set into the flasks and prime irrigation tubing, expel air and close the clamp. Do not remove the silicone protective tube from the connector at this time – hang the tubing from the IV pole. Maintain asepsis.
13. Raise and secure the IV pole to the appropriate height. *Note: When priming, open one irrigation flask only as the fluid can run from one flask to the other.*
14. Place a disposable underpad underneath the irrigation port to contain any spillage and discard gloves.
15. Perform hand hygiene.
16. Open the dressing pack and add the 70% alcohol wipes and put on sterile gloves.
17. Using sterile gauze, grasp the irrigation port with your non-dominant hand.
18. Using your dominant hand, place the sterile paper towel over the disposable sheet to create the sterile field.
19. Using your dominant hand and sterile gauze, remove the spigot from the irrigation port and discard if not attached.
20. Clean the IUC irrigation arm and port well with 70% alcohol swabs. Allow to dry.
21. Remove the silicone tube from the connector of the irrigation tubing and connect securely to the irrigation port, whilst maintaining aseptic technique.
22. Unclamp the irrigation tubing and set the rate of infusion by adjusting the roller clamp.
23. Remove the disposable sheet and ensure patient is comfortable.
24. Dispose of waste according to facility protocol.
25. Remove PPE.
26. Clean trolley.
27. Perform hand hygiene.
28. Document the procedure performed and outcome in patient clinical progress notes.

Intermittent bladder irrigation via a closed system

Intermittent bladder irrigation via a current indwelling two-way catheter which requires a special urinary drainage system which has an irrigation port to connect to irrigation fluid. The closed catheter system is maintained to minimise risk of CAUTI.[7]

Figure 2. Bard irrigation pump bag[1]



Source: Bard Australia Ptd Ltd

This intermittent irrigation system can be used for:

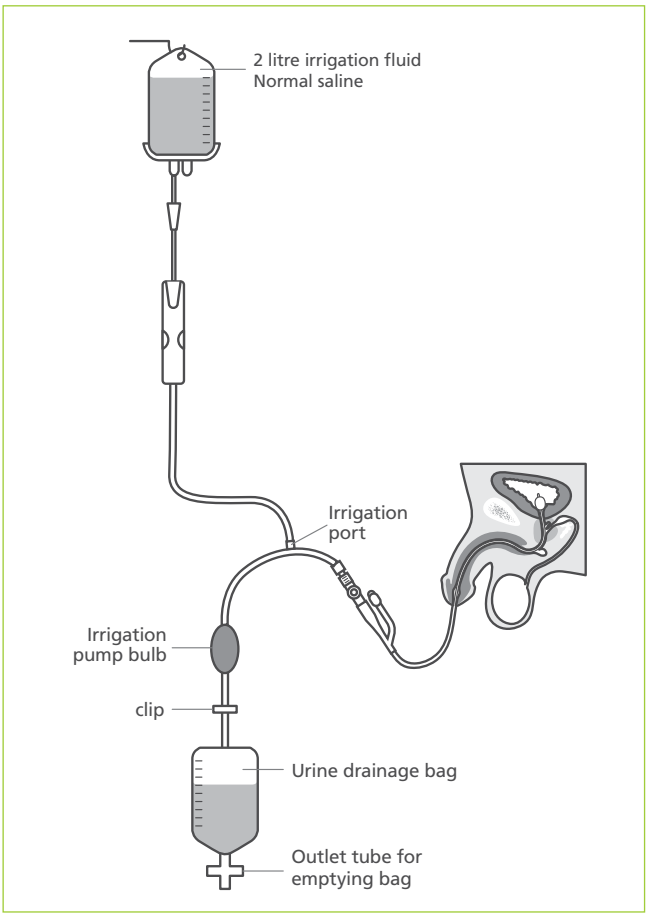
- Moderate haematuria in a patient who had a two-way catheter – this system can be the first-line treatment. The catheter does not have to be changed to a three-way for continuous irrigation, and changed back to two-way when haematuria settles.
- Palliative patients whose catheters are frequently blocked with clots or debris – this system will minimise the discomfort associated with catheter changes.
- Problematic supra-pubic catheter – this is more preferable than manual irrigation, which breaks down the closed catheter system constantly

Equipment

Refer to Figure 3.

- Irrigation set (single spike)
- Irrigation fluid: 1–2 litre Sodium Chloride 0.9% for irrigation (use IV Sodium Chloride 0.9% if not available)
- Bard irrigation pump bag (2 litre urine collection bag with T irrigation port and hand pump bulb)[2]
- Underpad (bluey)
- Chlorhexidine 0.5% with 70% alcohol wipes
- Non-sterile gloves
- PPE
- IV pole
- Irrigation chart/Fluid balance chart

Figure 3. Intermittent bladder irrigation via two-way catheter (closed system with Bard irrigation pump)



1 Note: The Bard irrigation pump bag is an example of a product that may be used. This does not constitute a recommendation or requirement. LHDs or facilities may use any brand of irrigation system.

Procedure

1. Perform hand hygiene in accordance with the 5 moments in hand hygiene.[8]
2. Verify patient's identity, confirm the procedure, obtain consent and check for allergies. As part of this process:
   - Assess the patient's health literacy (understanding of the procedure).
   - Ask patient if he or she identifies as Aboriginal or Torres Strait Islander. If so, provide access to Aboriginal Liaison Officer to provide support with health literacy.
   - Provide an interpreter for patients who require it.
3. Position patient for easy access to the catheter whilst maintaining patient's comfort.
4. Hang irrigation fluid bags on the IV pole, attach to irrigation set and prime irrigation set, maintaining asepsis of irrigation set. Ensure that the clamp on the irrigation set is closed.
5. Don goggles, impervious gown and non-sterile gloves.
6. Place underpad below catheter connection.
7. Swab T irrigation and catheter drainage ports with chlorhexidine swabs and allow to dry.
8. Connect the irrigation to the T irrigation port (use sterile gauze to remove the cap of the port).
9. Connect irrigation pump bag to catheter (use sterile gauze to remove spigot or old urine bag).
10. Clamp the irrigation pump bag (the clamp is located above the drip chamber of the urine bag).
11. Start the irrigation. Set the administration rate by adjusting the roller clamp. Run 50–100mls of sodium chloride into the bladder.
12. Turn off the irrigation fluid.
13. Squeeze the hand pump gently to flush the bladder via gentle pressure. (If unsure how to use the hand pump, squeeze the tubing directly above the pump instead.)

Pressure during bladder irrigation

Bladder irrigation (squeezing the hand pump) must be done gently as it is possible to suck part of the bladder wall (urothelium) into the eye of the catheter, causing pain and trauma to the bladder.[9]

14. Unclamp the catheter to allow urine, debris and clots flow into the drainage bag.
15. Document outcome in patient clinical progress notes including:
   - the date and time of procedure
   - the indication for the procedure, including the patient's clinical signs and symptoms
   - the outcome, i.e. the colour and type of drainage, presence of clots and patient's tolerance of the procedure
   - the fluid balance chart volume in the volume return.

Issues to note

Irrigation pressure – Bladder irrigation (squeezing the hand pump) must be done gently as it is possible to suck part of the bladder wall (urothelium) into the eye of the catheter, causing pain and trauma to the bladder.[10]

Urine output – Subtract irrigation fluid to calculate accurate urine output.

Frequency of irrigation – This is determined by the degree of bleeding and the amounts of clots and/or debris returned. If bleeding or clots are persistent, continuous bladder irrigation is indicated

Manual washout – Manual washout is also accessible by using 50ml catheter-tip syringe via the T irrigation port, to maintain the closed system.

Manual bladder irrigation for managing clot retention

Manual bladder irrigation is used to clear the bladder and catheter of blood clots and restore catheter patency.

Manual bladder irrigation involves flushing a three-way urinary catheter manually with a catheter tipped syringe and sterile sodium chloride 0.9% (normal saline) to evacuate all clots, followed by continuous bladder irrigation to minimise the risk of further clot formation and over distention of the bladder.

The optimal outcome is removal of the clots from bladder, with the urine draining freely. Some sub-optimal outcomes include:

- overdistention of the bladder
- inability to unblock the IUC, requiring catheter replacement
- development of a CAUTI secondary to contamination during the procedure
- a break in the closed urinary drainage system.

Prior to undertaking the procedure, the nurse, medical officer or student should be able to demonstrate prior knowledge and perform manual irrigation safely and to the standard set by the LHD or healthcare provider. Manual irrigation must be gentle as the increased pressure in the bladder can result in suture disruption or bladder perforation with resultant extravasation of urine. Sterile equipment and aseptic techniques are used – see procedure instructions.

Ordering and documenting manual bladder irrigation

Whilst not contraindicated in patients who have had deep resection of bladder tumours, open bladder or renal transplant surgery, manual bladder irrigation must be ordered and documented by urology registrar or urologist and be performed by an experienced clinician.

If in the first 24 pours post-transurethral resection of prostate (TURP) the catheter cannot be unblocked, the urology registrar or consultant urologist must be notified. Nursing staff (unless an experienced urology nurse) and resident medical officers must not attempt re-catheterisation unless authorised by urology registrar or consultant urologist. This is due to the risk of prostatic capsular perforation or sub-trigonal catheter placement on reinsertion.

Signs and symptoms of a blocked catheter

- No urine flow from the catheter.
- Suprapubic distention and lower abdominal pain becoming more pronounced as the bladder fills.
- Urine leaking around the catheter (bypassing).
- Development of vaso-vagal symptoms, such as sweating, tachycardia and hypotension.
- Autonomic dysreflexia in patients with a spinal cord injury (SCI).

Equipment

- Alcohol-based hand rub
- 1 catheter pack
- 1 catheter tip 50mL syringe 70% alcohol swabs
- 1 bottle 500mL sterile sodium chloride 0.9% (normal saline)
- Sterile kidney dish
- 1 sterile urinary drainage bag
- Disposable underpad (bluey)
- Non-sterile jug/receptacle on bottom of trolley
- Sterile gloves
- PPE

Procedure

1. Perform hand hygiene in accordance with the 5 moments in hand hygiene.[11] Observe hygiene throughout the procedure.
2. Verify patient's identity, confirm the procedure, obtain consent and check for allergies. As part of this process:
   - Assess the patient's health literacy (understanding of the procedure).
   - Ask patient if he or she identifies as Aboriginal or Torres Strait Islander. If so, provide access to Aboriginal Liaison Officer to provide support with health literacy.
   - Provide an interpreter for patients who require it.
3. Clean dressing trolley with 70% isopropyl alcohol wipes, allow drying, gather equipment, check sterility and integrity of sterile items and take to the bedside.
4. Ensure patient privacy.
5. Position patient in supine position, allowing for easy access to the IUC to minimise the need for staff to twist, bend or maintain awkward static postures. Obtain assistance if required.
6. Place a disposable sheet under the patient's buttocks.
7. Place blue disposable underpad under the catheter and drainage bag connection.
8. Place non-sterile jug/receptacle on bottom of designated procedure trolley.
9. Perform hand hygiene.
10. Open the catheter pack and add 50mL syringe, alcohol swabs, sterile drainage bag.
11. Pour sterile chloride 0.9% into kidney dish.
12. Perform hand hygiene.
13. Put on PPE (eye protection, disposable gown/plastic apron and sterile gloves).
14. Draw up 50mL of sodium chloride 0.9%.
15. Using both hands, place the gauge squares around the catheter drainage port and drainage bag connection.
16. Disconnect the catheter from the drainage bag, then discard the drainage bag and gauze under the catheter port to create a sterile field.
17. Using the dominant hand place the sterile paper towel over the disposable sheet and under the catheter port to create a sterile field.
18. Clean the catheter drainage port well with the 70% alcohol swabs and discard.
19. Warn the patient that the next step will be painful/uncomfortable. Using 50ml volumes of sodium chloride 0.9%, irrigate the catheter by flushing in and drawing back on the plunger to evacuate any clot or debris. Take care to avoid splashing that could lead to exposure to body fluids during the procedure. If resistance is encountered, reasonable pressure can be applied (except following renal transplant or bladder surgery). Empty each syringe directly into the non-sterile jug/receptacle on the bottom of the trolley.
20. Continue to irrigate with 50ml volumes until you achieve a clear or clot free return.
21. Connect a new drainage bag and secure the catheter.
22. Recommence continuous bladder irrigation.
23. Remove disposable sheets and ensure that the patient is comfortable.
24. Remove PPE.
25. Dispose waste according to local policy.
26. Perform hand hygiene.
27. Calculate the difference between volume in and volume returned.
28. Document outcome in patient clinical progress notes including:
    - the date and time of procedure
    - the indication for the procedure, including the patient's clinical signs and symptoms
    - the outcome, i.e. the colour and type of drainage, presence of clots and patient's tolerance of the procedure
    - the fluid balance chart volume in the volume return.

Required documentation

Clinical progress notes

- Indication/order for irrigation, e.g. post TURP or transurethral resection of bladder tumour (TURBT)
- Report on clot retention, haematuria and catheter blockage
- Method of bladder irrigation: continuous bladder irrigation (CBI), intermittent bladder irrigation via irrigation pump bag and manual bladder irrigation
- Complications, such as bladder spasm, lower abdominal pain, leakage around catheter, negative fluid balance
- Medical review at least daily
- Order for cease irrigation

Fluid balance chart

- Infusion amount, urine output, degree of haematuria, presence of clots
- Calculate true output i.e. subtract the volume out from the volume in for the true urine output.

For example, if the patient has had a 2L irrigation bag emptied twice, and the total output is 2400mL, the true urine output is 400mL (2400mL output – 2000mL irrigation fluid).

- Clinicians may choose to record the patient information in a bladder irrigation chart prior to entering the information to eMR.

Patient management

If the amount of drainage is less than the irrigant infused

- Turn off the irrigation and check for kinks, loops or clots in the catheter or drainage bag tubing.
- Palpate the bladder and note any patient pain or discomfort. Performing a bladder scan may be useful to determine bladder volume. Try 'milking' the IUC to dislodge clots.
- Check the height of the IV pole and for overflowing of the drip chamber (can affect patency).
- Recalculate input and output, i.e. calculate the urine volume: volume in – volume out = urine volume.
- Use of a closed intermittent irrigation system (preferred) or manual irrigation may be required if obstruction is the cause (refer to facility guidelines). If unsuccessful, notify the relevant medical officer.

If there is an increase in haematuria or clots present

- Increase the infusion rate and observe the drainage and patient comfort.
- Use of a closed intermittent irrigation system (preferred) or manual irrigation may be indicated if obstruction is suspected to aid in clot evacuation (refer to facility guidelines). If unsuccessful, notify the relevant medical officer.

If the patient is experiencing pain

- Turn off the irrigation and check for kinks, loops or clots in the catheter or drainage bag tubing.
- Palpate the bladder to determine distention.
- Check drainage to determine if output is adequate.

If there is leakage around the catheter (bypassing)

- Assess for obstruction.
- Assess for bladder spasm.
- Avoid cold irrigation fluid.
- Ensure the IUC is secured to the patient's thigh to minimise catheter movement.

If the patient becomes confused or agitated post TURP

TURP syndrome occurs when there is an overload of irrigation fluid through the prostatic sinuses during the operative procedure that can lead to confusion, hypertension and hyponatraemia. This is uncommon.

- Assess patient for orientation to time, person and place and notify relevant medical officer of patient's changed status.
- Ensure relevant information is available for the medical officer to review, including time of change in orientation, administration of any pain relief, amount of irrigant infused and true output (i.e. subtract the volume in out from the volume in = true urine output).

Appendix 1

Clinical Skill Assessment Form: Continuous Bladder Irrigation for Clearing Clot Retention

Name of Assessee		**Signature of Assessee**	
Ward/Location		**Date of Assessment**	
Name of Assessor		**Signature of Assessor**	

Performance Criteria	YES	NO
Professional Attitude and Patient Communication		
Introduced self to patient.		
Explained that the procedure is being observed and assessed.		
Gained verbal or inferred consent from the patient.		
Addressed any patient concerns that may have arisen during the procedure.		
Patient Assessment and Planning		
Explained the procedure to the patient.		
Assessed patient's health literacy and asked if he/she identifies as Aboriginal or Torres Strait Islander.		
Stated indications and reasons for the bladder irrigation.		
Followed the requirements for patient preparation as per facility policy.		
Identified and planned for potential difficulties.		
Continuous Bladder Irrigation (Procedure)		
1. Performed hand hygiene.		
2. Verified the patient's identity, confirmed procedure, obtained consent and checked for allergies. If necessary, referred to Aboriginal Liaison Officer or interpreter provide support with health literacy.		
3. Ensured that a three-way Foley catheter was in situ/inserted if necessary.		
4. Cleaned dressing trolley with 70% isopropyl alcohol wipes, allowing for drying, gathered equipment, checked sterility and integrity of sterile items and took to the bedside.		
5. Ensured patient privacy.		
6. Positioned patient in supine position, allowing for easy access to the IUC to minimise the need to twist, bend or maintain awkward static postures. Obtained assistance if required.		
7. Placed a disposable sheet under the patient's buttocks.		
8. Emptied urine drainage bag according to facility procedure and recorded measurement on the fluid balance chart.		
9. Performed hand hygiene.		
10. Put on PPE (protective eyewear, plastic apron and non-sterile gloves).		

Performance Criteria	YES	NO
11. Ensured the IV pole is at a safe accessible height before hanging the sodium chloride flasks.		
12. Inserted the prongs from the irrigation set into the flasks and primed irrigation tubing, expelling air and closing the clamp. Did not remove the silicone protective tube from the connector. Hung tubing from the IV pole. Maintained asepsis.		
13. Raised and secured the IV pole to the appropriate height. (Used one irrigation flask only.)		
14. Placed a disposable underpad underneath the irrigation port to contain any spillage. Discarded gloves.		
15. Performed hand hygiene.		
16. Added the 70% alcohol wipes to the dressing pack and put on sterile gloves.		
17. Used a sterile gauge to grasp the irrigation port with the non-dominant hand.		
18. Used dominant hand to place the sterile paper towel over the disposable sheet to create a sterile field.		
19. Used dominant hand and sterile gauze to remove the spigot from the irrigation port (discarded if not attached).		
20. Cleaned the IUC irrigation arm and port with 70% alcohol swabs and allowed to dry.		
21. Removed the silicone tube from the connector of irrigation tubing and connected securely to the irrigation port, whilst maintaining aseptic technique.		
22. Unclamped the irrigation tubing and set the rate of infusion by adjusting the roller clamp.		
23. Removed the disposable sheet and ensured the patient was comfortable.		
24. Disposed of waste according to facility protocol.		
25. Removed PPE.		
26. Cleaned trolley.		
27. Performed hand hygiene.		
28. Documented procedure and outcome in patient clinical progress notes. Calculated the difference between volume infused and volume returned.		
WH&S Issues Identified and Applied		
Identified the following aspects of WH&S and performed a risk assessment prior to performing the bladder irrigation.		
Positioned patient to minimise need to twist, bend or maintain awkward position. Obtained assisstance if required.		
Maintained aseptic technique.		
Use of personal protective equipment (facial protection, gown/apron, gloves).		
Correctly disposed of waste.		
Performed hand hygiene in accordance with 5 Moments for Hand Hygiene.		

Appendix 2

Clinical Skill Assessment Form: Manual (Intermittent) Bladder Irrigation for Clearing Clot Retention

Name of Assessee		**Signature of Assessee**	
Ward/Location		**Date of Assessment**	
Name of Assessor		**Signature of Assessor**	

Performance Criteria	YES	NO
Professional Attitude and Patient Communication		
Introduced self to patient.		
Explained that the procedure is being observed and assessed.		
Gained verbal or inferred consent from the patient.		
Addressed any patient concerns that may have arisen during the procedure.		
Patient Assessment and Planning		
Explained the procedure to the patient.		
Assessed patient's health literacy and asked if he/she identifies as Aboriginal or Torres Strait Islander.		
Stated indications and reasons for the bladder irrigation.		
Followed the requirements for patient preparation as per facility policy.		
Identified and planned for potential difficulties.		
Continuous Bladder Irrigation (Procedure)		
1. Performed hand hygiene.		
2. Verified the patient's identity, confirmed procedure, obtained consent and checked for allergies. If necessary, referred to Aboriginal Liaison Officer or interpreter provide support with health literacy.		
3. Cleaned dressing trolley with 70% isopropyl alcohol wipes, allowing for drying, gathered equipment, checked sterility and integrity of sterile items, and took to the bedside.		
4. Ensured patient privacy.		
5. Positioned patient in supine position, allow for easy access to the IUC to minimise the need to twist, bend or maintain awkward static postures. Obtained assistance if required.		
6. Placed a disposable sheet under the patient's buttocks.		
7. Placed a blue disposable sheet under the catheter and drainage bag connection.		
8. Placed a non-sterile jug/receptacle on bottom of designated procedure trolley.		
9. Performed hand hygiene.		
10. Opened the catheter pack and added 50mL syringe, alcohol swabs, sterile drainage bag.		

Performance Criteria	YES	NO
11. Poured sterile chloride 0.9% into kidney dish.		
12. Performed hand hygiene.		
13. Put on PPE (eye protection, disposable gown/plastic apron and sterile gloves).		
14. Drew up 50mL of sodium chloride 0.9%.		
15. Used both hands to place the gauge squares around the catheter drainage port and drainage bag connection.		
16. Disconnected the catheter from the drainage bag, then discarded the drainage bag and gauze under the catheter port to create a sterile field.		
17. Used the dominant hand to place the sterile paper towel over the disposable sheet and under the catheter port to create a sterile field.		
18. Cleaned the catheter drainage port well with the 70% alcohol swabs and discarded.		
19. Warned the patient about pain and discomfort. Used 50mL volumes of sodium chloride 0.9% to irrigate the catheter by flushing in and drawing back on the plunger to evacuate any clot or debris. Emptied each syringe directly into the sterile receptacle.		
20. Continued to irrigate with 50mL volumes until you achieve a clear or clot free return.		
21. Connected a new drainage bag and secured the catheter.		
22. Recommenced continuous bladder irrigation.		
23. Removed disposable sheets and ensured that the patient was comfortable.		
24. Removed PPE.		
25. Disposed waste according to local policy.		
26. Performed hand hygiene.		
27. Calculated the difference between volume in and volume returned.		
28. Documented the outcome in patient clinical progress notes including: – the date and time of procedure – the indication for the procedure, including the patient's clinical signs and symptoms – the outcome, i.e. the colour and type of drainage, presence of clots and patient's tolerance of the procedure – the fluid balance chart volume in the volume return.		
WH&S Issues Identified and Applied		
Identified the following aspects of WH&S and performed a risk assessment prior to performing the bladder irrigation.		
Positioned patient to minimise need to twist, bend or maintain awkward position. Obtained assisstance if required.		
Maintained aseptic technique.		
Use of personal protective equipment (facial protection, gown/apron, gloves).		
Correctly disposed of waste.		
Performed hand hygiene in accordance with 5 Moments for Hand Hygiene.		

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9 Scholtes S. Management of clot retention following urological surgery. Nursing Times 2002; 98(8):48-50.

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The Dudley Group NHS Foundation Trust

ANAESTHETIC LUBRICATING GEL USE FOR URINARY CATHETERISATION ADULT GUIDELINE			
	DOCUMENT TITLE:	**ANAESTHETIC LUBRICATING GEL USE FOR URINARY CATHETERISATION ADULT GUIDELINE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] – Clinical Education Manager [redacted] – Interprofessional Senior Educator	
	Local / Trust wide	Trust Wide	
	Statement of Intent:	The aim of this guideline is to provide staff with the necessary clinical information and requirements to competently and safely use sterile anaesthetic lubricating gel when performing urinary catheterisation.	
	Target Audience:	All staff within the Dudley Group NHS Foundation Trust who have undergone the required training and will be undertaking urethral catheterisation as part of their role.	
	Version:	4.0	
	Name of Group and Date when Recommended for Ratification	Drugs and Therapeutics Committee	Date: August 2023
	Name of Exec Lead and Date of Final Ratification:	[redacted] Medical Director	Date: 22/11/2023
	Review Date:	30/11/2026	
	Contributors:	**Designation:** [redacted] Pharmacist for Cancer Services [redacted] Clinical Lead for District Nursing	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	May 2014	This is a new document
1.1	July 2014	Amendments on front sheet, added community name who initially missed off. Minor Amendments agreed at Policy Group in July 2014. Previous dates apply.
1.2	February 2015	Guideline Summary amended to clarify that no prescription required if guideline followed. Training amended to remove Bondy Framework and continued training needs.
2.0	June 2017	Update to the Guideline due to expiration. This document replaces version 1.2
3.0	March 2020	Update to the Guideline due to expiration. This document replaces Version 2.0.
4.0	November 2023	Full Review due to expiration. This document replaces Version 3.0.

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

ANAESTHETIC LUBRICATING GEL USE FOR ADULT URINARY CATHETERISATION GUIDELINE

1. GUIDELINE SUMMARY

Best practice evidence suggests the risk of urethral trauma, associated infections and discomfort caused by the catheterisation procedure can be minimised with the use of an appropriate sterile, single-use lubricant containing antiseptic and anaesthetic properties during catheter insertion (EAUN 2012, NICE 2012). The full local anaesthetic and disinfectant action using 6 ml/11 ml takes effect after 5-10 minutes.

Anaesthetic lubricating gel can be administered during urinary catheterisation without prescription providing this guideline is followed. All staff undertaking urinary catheterisation must have read this guideline and signed the Trust Declaration **(Appendix 1)** stating that they understand the use of anaesthetic lubricating gel. After satisfactory completion of urinary catheterisation training, this guideline must be followed to ensure that sterile anaesthetic lubricating gel is used according to the manufactures instructions and its use is recorded in the appropriate documentation.
The current brand used by the Trust is Instillagel® which contains Lidocaine 2% with Chlorhexidine 0.25%. This product is classed a Pharmacy (P) medicine and therefore is not classed as a PGD. This guideline will cover its use.

The registered practitioner who is either undertaking or overseeing the procedure must review the patient prior to urinary catheterisation to ensure the gel application is appropriate. Assessment prior to administration should include identification of patients at increased risk of systemic effects and checking for possible drug interactions or sensitivity reactions (please see below inclusion/exclusion criteria and cautions). When Urinary Catheterisation is being carried out by a HLCSW, a registered practitioner **MUST** review the patient prior to urinary catheterisation to ensure the use of anaesthetic lubricating gel is appropriate. This must include assessment as to whether the patient is at increased risk of systemic effects and checking for possible drug interactions or sensitivity reactions. If it is deemed safe and appropriate to use, the registered practitioner **MUST** also check the packaging and expiry date prior to use. This must be document in the patient's notes.

1.1 Students

Students, and Trainee Nurse Associates must perform the skill under direct supervision until they have gained their registration. (Please also see section **9 Training/support**).

2. Criteria for inclusion and exclusion

2.1 Inclusion

All adult patients undergoing urinary catheterisation after review and checking that there are no exclusion criteria.

2.2 Exclusion

Patients with a hypersensitivity to chlorhexidine, methyl hydroxybenzoate, propyl hydroxybenzoate, sensitivity to local anaesthetics such as lidocaine, articaine, bupivacaine, levobupivacaine, mepivacaine, prilocaine, and ropivacaine as cross-sensitivity can occur also any of the other ingredients in the product indicated.

- Damage to or bleeding from the urethra.

In certain circumstances alternative lubricating gels should be utilised:

- If the patient has noticeable abrasions and lesions on the penis or urethral orifice, local anaesthetics should not be applied. If applied to a urethra with visible trauma the drug may be absorbed so rapidly that a systemic, rather than a local reaction is produced BNF – Formulary Complete. These could include confusion, respiratory depression and convulsions, hypertension, and bradycardia (may lead to cardiac arrest).
- All medical devices and medicinal products containing **Chlorhexidine** have been identified as being a risk for anaphylactic reaction. All staff should ensure that any known allergies are recorded in the patient notes and report any adverse events to the Medicines and Healthcare Regulatory Agency (MDA/2012/075).

If there are any contraindications to the active ingredients, Lidocaine/Chlorhexidine (Instillagel®, sterile water-soluble lubricating gel **(Optilube®)**, which contains no active ingredients, should be used.

2.3 Cautions

Products containing local anaesthetics should also be used with caution in patients with impaired cardiac conditions, hepatic insufficiency and Epileptic patients. It should only be used if absolutely necessary during the first three months of pregnancy. As stated in the Instillagel ® summary of Product Characteristics, it is not known whether lidocaine passes into the breast milk, so breast-feeding should not take place until approximately 12 hours after administration.

3. Consent

Informed verbal consent is required, and this must be documented within the patient's clinical record. In circumstances where it is not possible to gain verbal consent, please refer to the Consent Policy.
http://thehub/c/documents/policies/Documents/Consent Policy.pdf
The requirement for use of anaesthetic lubricating gel must be clearly documented in patients' management plan.

4. Description of Treatment

Drug	Indication	Volume (Dose)	Route of administration
Lidocaine 2% with Chlorhexidine 0.25% gel (Instillagel®)	Urinary catheterisation	6ml female 11ml male	Urethral

The physical application of the gel is taught as part of urinary catheterisation training for all registered Healthcare Practitioners and Higher-Level Clinical Support Workers, students including TNAs, if applicable to their area of practice (please see **Section 9**. Training/Support section).

5. RECORD OF ADMINISTRATION

Full details of the administration must be recorded in the Catheter Care Bundle and the patients notes which will include volume used, batch number and expiry date.

6. INSTRUCTIONS ON IDENTIFYING, MANAGING AND REPORTING ADVERSE DRUG REACTIONS;

- **Higher Level Clinical Support workers (HLCSW) -** If the patient experiences, complains or expresses signs or symptoms of pain or discomfort when the anaesthetic lubricating gel is applied this must be reported immediately to the registered practitioner who will review the patient.

- **Registered Staff–** If an adverse reaction is suspected this must be reported promptly to a doctor or lead nurse; out of hours, this should be escalated to the Site Co-ordinator. If medical advice is required, the patient will be referred to a doctor working within the team to which the patient's care is assigned or to the on-call doctor when the patient's own doctor is not available. For staff working in the community, any adverse reactions should be escalated to the GP, documented on EMIS and in the patients notes. In all cases reactions should be reported to the Medicines and Healthcare products Regulatory Agency (MHRA) through the Yellow Card Scheme.

7. ADVICE TO PATIENT

The rationale for using the anaesthetic lubricating gel should be explained to the patient.

- Reduces pain
- Reduces discomfort
- Aid ease of insertion

8. DEFINITIONS/ABBREVIATIONS

EMIS - Medical Information System

HLCSW – Higher Level Clinical Support Workers

Local anaesthetic gel: A short acting anaesthesia to provide lubrication, anaesthesia and reduce the risk of infection when urinary catheterisation is indicated.

MHRA: Medicines and Healthcare Products Regulatory Agency

NA – Nurse Associates

PGD – Patient Group Directive. A specific written instruction for the supply or administration of medicines to clinical groups of patients who may not be individually identified before presentation for treatment.

Registered Practitioner– For the purpose of this Guideline refers to Registered to Nurses, Doctors, Operating Department Practitioners and Nurse Associates.

TNA – Trainee Nurse Associate

Urinary catheterisation: The insertion of a catheter into a patient's bladder. The catheter is used as a conduit to drain urine from the bladder into an attached bag or container.

9. TRAINING/SUPPORT

All practitioners employed by the Trust and using anaesthetic lubricating gel whilst performing urinary catheterisation must have undertaken an approved classroom Urinary Catheterisation course (Clinical Skills Training Policy) and have read and signed the declaration **(Appendix 1)** if it is deemed part of their job role and have returned completed competencies or further evidence to the Clinical Skills Department. The signed declaration must be retained by the practitioner in their personal file.

HLCSW must have completed the Trust Band 3 Program which includes female catheterisation before attending male urinary catheterisation session.

All students, including TNAs will attend Trust approved Urinary Catheterisation training and will then be able to undertake clinical practice and assessment in the skill and use anaesthetic lubricating gel under the direct supervision of a registered practitioner who is competent and in date with that skill.

After being assessed and signed off as competent in the clinical area, **HLCWs** can perform the skill independently. However, they must always ask a registered practitioner to review the patient prior to urinary catheterisation to ensure the use of anaesthetic lubricating gel is appropriate and check the packaging and expiry date prior to use. They must return their completed assessment document to the Clinical Skills Administration Department.

After being assessed and signed off as competent in the clinical area **Nursing, Midwifery, TNAs, Medical or AHP Students** must continue to perform this skill under direct supervision until they have gained their registration. If they are taking up a post within this Trust after registration, they will be able to perform the skill independently after completing and returning their assessment document to the Clinical Skills Administration Department. They must also read, sign, and retain a copy of the anaesthetic gel declaration. **(Appendix 1)**

9.1 The Clinical Education Manager and Clinical Educators

- Are responsible for reviewing training and course content for Adult Urinary Catheterisation
- Have responsibility to ensure every effort is made to incorporate relevant up to date evidence and best practice into the training programme for Adult Urinary Catheterisation
- Are responsible for delivering the clinical skills training programme for urinary catheterisation including the observation, supervision and assessment of staff within the simulated environment.
- Responsible for reviewing and updating clinical guidelines, policies and standard operational procedures with relation to urinary catheterisation.

10. Process For Monitoring Compliance

	Lead	**Tool**	**Frequency**	**Reporting Arrangements**	**Acting on recommendations and Lead(s)**	**Change in practice and lessons to be shared**
Adherence to This guideline Through actual and near miss incident reporting	Department Lead/Matron	DATIX Incident Reporting System	Quarterly for the first six months then annually thereafter	Quarterly aggregated report of incidents to the Clinical Quality Safety and Patient Experience Committee for the first 6 months and then an annual report thereafter	Depending on compliance, outcome and clinical or operational area – Director Lead or Manager assigned	Directorate Risk Management Groups

REFERENCES

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RCN (2021) *Catheter Care: RCN Guidance for Health Care Professionals*. London: Royal College of Nursing

APPENDIX 1

Confirmation of Knowledge and Understanding of Anaesthetic Lubricating Gel for Urinary Catheterisation Guideline.

To be completed by Registered to Nurses, Higher level Support workers, Operating Department Practitioners and Nurse Associates.

I have completed the required Catheterisation training/assessment

Date of Training/assessment.....

I have read and understood the anaesthetic lubricating gel for Urinary Catheterisation Guideline.

Name (print name) ……..

Job title .....

Signature ……..

Date……

Manager/Lead Signature ……

Date ……

Please retain for personal file

The Dudley Group
NHS Foundation Trust

CANCER SERVICES HAEMATURIA PRIORITY TRACKING LIST - PATIENT TRACKING AND REMOVAL STANDARD OPERATING PROCEDURE			
	DOCUMENT TITLE:	***CANCER SERVICES HAEMATURIA PRIORITY TRACKING LIST – PATIENT TRACKING AND REMOVAL STANDARD OPERATING PROCEDURE***	
	Name of Originator/Author /Designation & Specialty:	[redacted] - *Cancer Operations Manager* *Cancer Services Department*	
	Local / Trust wide	*Local*	
	Statement of Intent:	*To outline process for tracking procedures and responsibilities for patients on a Haematuria Pathway*	
	Target Audience:	*Cancer Services Management Team* *MDT Co-ordinators* *Cancer MDT & Data Assistants*	
	Version:	*1.0.*	
	Name of Group and Date when Recommended for Ratification	*Cancer Services Local Governance Group*	*Date Dec 2020*
	Name of Division and Date of Final Ratification:	*Clinical Support Services*	*Date 19 Jan 2021*
	Review Date:	*31/01/2024*	
	Contributors: ***Individuals involved in developing the document.***	**Designation:** [redacted] – *Cancer Nurse lead.* [redacted] *Clinical Cancer Lead* [redacted] – *Head of Cancer Services.*	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	Jan 2021	*This is a new document*

Note: A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies

THE DUDLEY GROUP NHS FOUNDATION TRUST

Cancer Services Priority Tracking List Process for patient tracking and removal from PTL

1 STANDARD OPERATING PROCEDURE SUMMARY

- Suspected Cancer patients are booked into Rapid Access clinics within 2 weeks from date of referral.
- Referral information is added to Somerset Cancer Register on receipt of referral and prior to booking the patient appointment on OASIS. This means that the tracking process can commence from receipt of referral (NOT from point of booking). The Cancer PTL (Priority Tracking List) then pulls information from SCR to create a working tool for MDT Co-ordinators (MDTC) and Cancer MDT and Data Assistants ("Trackers") to track patients and add escalations to the electronic system.
- Haematuria patients are booked into Rapid Access clinics where a flexible cystoscopy is carried out as a first diagnostic at the initial 2ww appointment. Referral information is added to Somerset Cancer Register.

2 STANDARD OPERATING PROCEDURE DETAIL

- Referral received via e-RS.
- Referral added to SCR.
- Appointment booked on OASIS, patient informed and letter sent.
- SCR updated with first appointment details and record pulls through into PTL.
- Once patient has attended outpatient appointment, the MDTC/Tracker reviews outcome of OPA/first diagnostic within 48 hours of attendance.
- A tracking note with the outcome of the appointment is made on SCR.

Possible outcomes:

- Patient discharged back to GP with no further intervention

  OR
- Further investigation requested – e.g. Endoscopic examination/radiology/biopsy etc.

Actions to complete following the outpatient appointment outcome:

<u>Scenario 1 – No cancer diagnosed.</u>

- MDTC/Tracker adds "No Cancer Diagnosis" record to SCR which removes patient from PTL and further tracking. 28 Day Faster Diagnosis – Patient informed date should also be recorded on SCR at this point.

<u>Scenario 2 – Further investigations needed</u>.

- If further investigations have been requested, Clinical systems (OASIS/CRIS etc.) should be checked to ensure the correct investigation has been requested, and that the priority is correct (Urgency 8 for Electronic Radiology Request or 31/62 Day sticker attached, urgent biopsy).

- A tracking note is added to SCR providing details of which investigations have been requested. An Investigation record should be added to the record providing details of investigation type, date requested. If investigation is booked at time of tracking, add date to SCR investigation record and tracking note.
- If an investigation has not been booked at time of initial tracking this should be reviewed within 48 hours to check that a booking has been made in-line with trust booking targets (i.e. 14 days for radiology).
- In cases where an investigation request has not been received/booked with 48 hours, this should be raised with the relevant department and an escalation added to PTL.
- As part of daily tracking processes it is essential to ensure that booked dates are checked frequently to ensure that there have been no amendments to the appointments (patient choice etc.). In this event, the investigation date and tracking comments should be amended.
- Once the date of investigation has passed, the result of the investigation should be obtained from relevant clinical systems and recorded on SCR. In the absence of a report with 72 hours, then this should be escalated for reporting.
- If the result is entirely normal, with no query then the record can be updated with a "*No Cancer Diagnosis***"** on SCR. If there is any query clinical teams should be made aware and next actions confirmed.
- For CT/US Urinary Tract, the report should be reviewed for any abnormalities or recommendation of further investigation.

Tracking of Patient pathways

- Tracking of the patient should continue through the pathway following the above principle for each investigation/result and MDT listings created when requested/required along the pathway.
- Once a diagnosis is confirmed, this should be added to the diagnosis section of SCR and the 28 Day Faster Diagnosis dataset completed with date patient is informed, who informed the patient and means of communication (i.e. face to face, letter etc.).
- When a treatment plan has been decided for the patient, this record should be created on SCR as soon as the decision has been made and agreed with the patient.
- Checks should be made to ensure that the treatment date is within 31 days of decision to treat date, and that this is also before the 62 Day target. If there are any breaches to either of these targets, then this should be escalated to secretaries and Surgery Management to attempt to bring forward within target.

Removing Patients from Tracking:

In order to remove a patient from tracking and PTL, either of the following scenarios MUST to be complete:

a. A 'No Cancer Diagnosed' record created on Diagnosis record.

OR

b. A completed 'Cancer Diagnosis' record created WITH a treatment record/plan. *Note: The record will only be removed from PTL once the treatment date has passed.*

OR

c. A completed ‘Cancer Diagnosis’ record created with treatment plan of “Active Monitoring.” *Note: The record will be removed from PTL at point active monitoring begins. (This includes watch and wait)*

- In order to ensure that patients are not removed inappropriately with a ‘No Cancer Diagnosis’ - all investigations must have been completed and results reviewed.
- Results should only be taken from verified/authorised reports. The only exception to this is clinical confirmation from treating clinician that patient can be removed from cancer pathway.
- Any results which do not clearly indicate a non-cancer diagnosis should be highlighted to clinical teams for approval to remove from cancer pathways. A tracking note should be made to record the means of this confirmation. I.e. clinician name, date and advice provided.

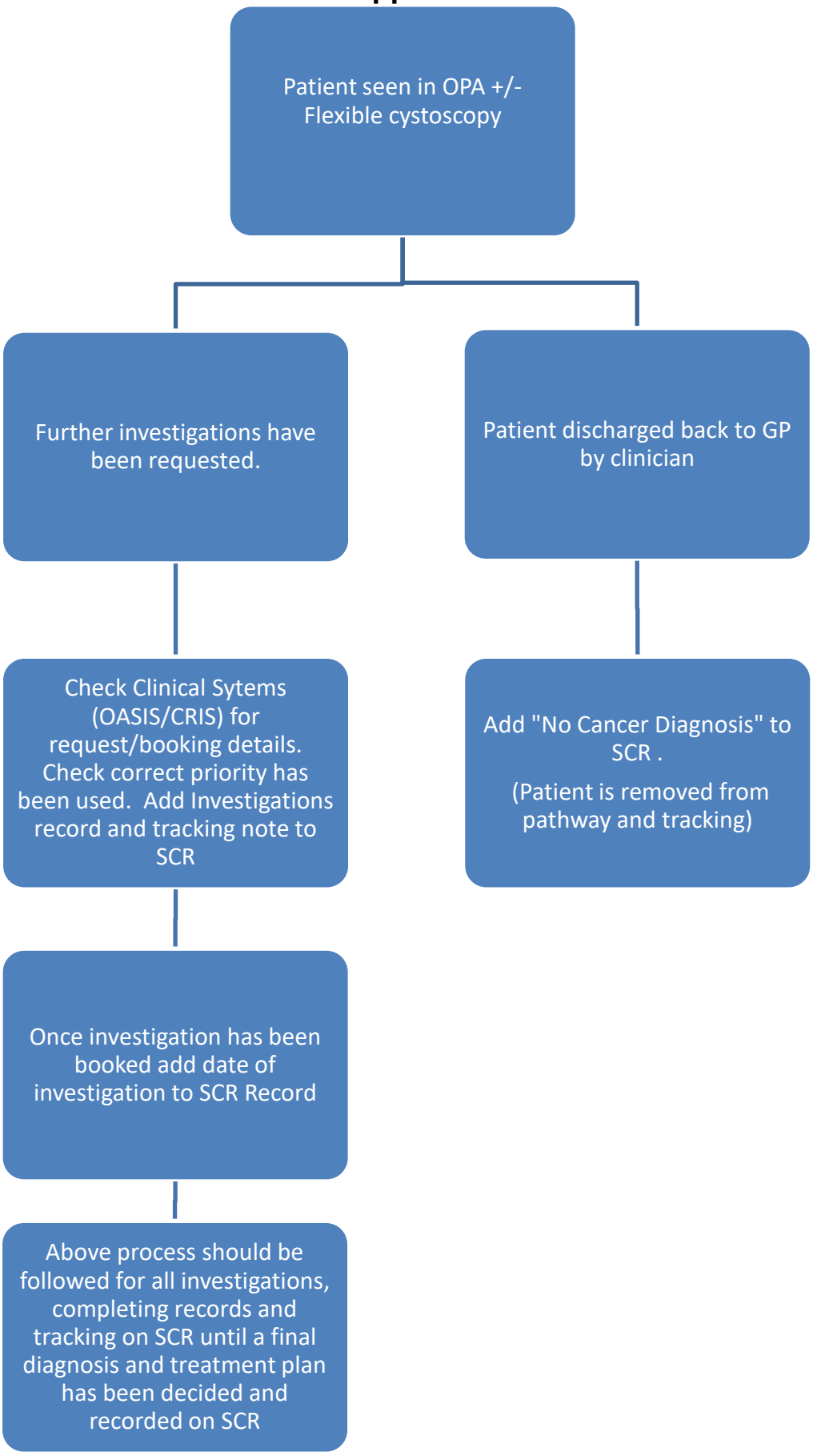
3. DEFINITIONS OF ABBREVIATIONS

- PTL Priority Tracking List
- SCR Somerset Cancer Register
- MDT Multidisciplinary Team Meeting
- MDTC MDT Co-ordinator
- e-RS Electronic Referral Service (previously known as Choose & Book)
- OPA Out Patient Appointment
- DNA Did not attend

4. TRAINING/SUPPORT

- All Cancer Services Team members will be training on commencing within the team and ongoing training will be provided to encompass further developments, or changes at a local and national level.
- Cancer wait times version 11 is available to refer to on: National Cancer Waiting Times Version 11

Appendix 1


Patient seen in OPA +/- Flexible cystoscopy
Further investigations have been requested.
Patient discharged back to GP by clinician
Check Clinical Sytems (OASIS/CRIS) for request/booking details. Check correct priority has been used. Add Investigations record and tracking note to SCR
Add "No Cancer Diagnosis" to SCR .
(Patient is removed from pathway and tracking)
Once investigation has been booked add date of investigation to SCR Record
Above process should be followed for all investigations, completing records and tracking on SCR until a final diagnosis and treatment plan has been decided and recorded on SCR

ED Renal colic pathway

Emergency Department

Radiology

SAEC

Analgesia
Check U&E's / Amylase / Preg test
No clinical evidence AAA / acute abdomen / pregnancy

Pain persistent
Pyrexia
Acute abdomen / AAA
Infection on urine dip
U&E's abnormal

Refer to RSO

Bloods normal / Pain free / No acute abdomen or AAA / Pregnacy test -ve

Book (24/7) next available CTKUB slot (**Mon - Fri only**) by calling ext 2043
DO NOT ASK PATIENT TO JUST TURN UP FOR A SCAN. MUST HAVE SCAN BOOKED
Order CTKUB on Sunrise / Responsible Consultant: A Singal. State **Renal Colic Pathway**
Ask patient to arrive 15 mins before scan appt time
Ensure patient has a Renal colic patient information leaflet (in minors rack)
Please inform the RSO about this patient being on the pathway so they can chase if pt DNA's
Please inform patient they MUST attend Emergency Surgical Hub (ESH) at 10am after scan
Discharge patient with analgesia (see right)

CTKUB slots
(1) Call ext 2043 to book
(2) Booking of CTKUB slots can be done 24/7 by ED
(3) Scans will be done Mon - Fri only
(4) Same day empty CTKUB slots available for ESH to book after 0600 hrs BUT pt must be ambulatory AND not require contrast

Patient attends for scan at 0830 or 0845 hrs
If patient DNAs, please email ED secretraies dgft.EDSecretaries@nhs.net

Suggested analgesia
Cocodamol 30 / 500 2 tabs QDS
plus
Voltarol 50 mgs TDS (ensure no contra-indications)

Radiographer informs patient to attend ESH at 10 am. If gross abnormaility, call ED

Scan reported by Radiology < 10am

Patient attends ESH at 10 am

Patient DNA ESH
ESH to chase up CT KUB results AND arrange appropriate follow up

Positive for renal stone

Urology review

Negative for renal stone

Surgical review

NOTES

[redacted]

Date: 24/8/2022
Review date: 24/8/2024

The Dudley Group NHS Foundation Trust

GENERAL ABDOMINAL ULTRASOUND STANDARD OPERATING PROCEDURE			
	DOCUMENT TITLE:	**GENERAL ABDOMINAL ULTRASOUND STANDARD OPERATING PROCEDURE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] – Sonographer	
	Local / Trust wide	Trust wide across all sites of the Dudley Group NHS Foundation Trust	
	Statement of Intent:	To standardise general abdominal ultrasound examinations and reporting for sonographers	
	Target Audience:	Sonographers who are trained to undertake general abdominal ultrasound examinations	
	Version:	1.0	
	Name of Group and Date when Recommended for Ratification	Imaging Governance Group	Date 22/08/2023
	Name of Division and Date of Final Ratification:	Community with Core Clinical Services (CCCS) Divisional Governance Group	Date 20/10/2023
	Review Date:	31/10/2026	
	Contributors: ***Individuals involved in developing the document.***	**Designation:** [redacted] – Consultant Radiologist and Clinical Service lead for Ultrasound	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
V1.0	October 2023	This is a new document

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

GENERAL ABDOMINAL ULTRASOUND STANDARD OPERATING PROCEDURE

1.0 STANDARD OPERATING PROCEDURE SUMMARY

To ensure a robust and consistent approach to undertaking general, renal and testicular ultrasound examinations and reporting.

2.0 STANDARD OPERATING PROCEDURE DETAIL

All sonographers MUST read and follow the following documents.

Ultrasound Referrals Booking Vetting and Examination SOP

BMUS_Justification_Doc_2021_V4.pdf

General guidance for ultrasound of the abdomen:

Where possible, relevant previous imaging and reports should be reviewed prior to the ultrasound scan. Document in the ultrasound report if they are not, e.g., during electronic downtime or when the original scan was performed elsewhere.

The ultrasound practitioner should tailor the examination according to the clinical presentation. The emphasis of examination of the abdominal structures may be altered according to the clinical scenario and patient history. If targeted ultrasound has been performed, this should be documented within the report, making explicit which structures have and have not been examined.

All abdominal organs should be examined in two planes i.e., longitudinal section (LS) and transverse section (TS), with additional views as required. The purpose of the scan is to survey the entire organ, if possible, with representative images of normality and any pathology being taken. The images should document all abnormal features mentioned in the report.

The abdominal ultrasound examination is inevitably a clinical examination and any tenderness found during a scan should be stated in the report, indicating where possible whether it is organ-specific or diffuse. The absence of tenderness should also be documented where relevant e.g., sonographic Murphy's sign is negative.

During the examination the ultrasound practitioner should demonstrate:

- Normal anatomy/variants of abdominal organs and structures including age-related appearances of each organ in at least two planes. (This

should include assessment of size, outline and ultrasound characteristics).
- Pathological findings including focal and diffuse processes and associated haemodynamic findings (pre- and post-operative assessments).
- The presence of any intra-abdominal fluid, focal fluid collections or masses.

Upper abdominal examinations:

A survey should be performed of the liver, gallbladder, common bile duct, pancreas, spleen, kidneys, IVC, aorta and para-aortic areas. Both hemidiaphragms should be examined and any fluid mentioned.

Left side down decubitus, left posterior oblique and intercostal surveys of the liver and biliary tree are essential if the entire organ is to be evaluated, as these positions allows access to areas of the liver not seen in the supine position.

Exclude the presence of free fluid in the upper abdomen before turning the patient.

The intestines are part of the abdominal cavity and gassy bowel has typical patterns which should be recognised by experienced operators. Bowel patterns should be imaged where possible.

Ultrasound of the Liver

The liver is a large organ and complete examination requires supine, subcostal and intercostal access, supplemented by repeating in the left lateral decubitus / left posterior oblique positions in order to cover the entire organ. Imaging should document the liver size, reflectivity, parenchymal echo-texture and surface regularity.

Size:

Use of formal liver measurements is controversial as alterations in liver volume may not be reflected in isolated measurements. Moreover, the anthropometry of the patient will affect liver size and shape. Early enlargement may be more sensitively identified by the blunting of the free inferior edge of the right liver. Variation in size and position of liver segments should be documented e.g., enlargement of the caudate in established cirrhosis.

Echotexture:

The liver is minimally hyperechoic or isoechoic compared to the normal renal cortex. Where abnormality is suspected, or diffuse liver disease is the clinical

indication for the scan, then a split screen comparison image of liver/kidney and spleen/ kidney should be taken.

Where the liver texture suggests steatosis (fatty change) then the following assessments should be specifically made:

- Loss of signal in deep liver due to increased attenuation.
- Loss of prominence of intrahepatic portal vein branch walls.
- Altered liver surface (steatosis and fibrotic change often coexist).
- Colour and pulse wave Doppler analysis of portal and hepatic veins.

Liver surface:

Subtle alterations in liver texture may be confirmed if the liver capsule can be demonstrated to be irregular rather than smooth. Images of the anterior aspect of the right lobe should be acquired intercostally with a high frequency linear probe. A left side down decubitus position and/or left posterior oblique position may be helpful. Careful evaluation of the hepatic veins may also show irregularity relating to hepatic nodularity.

Liver vessels and blood flow:

Images should routinely include the hepatic veins draining into the IVC and the portal vein at the liver hilum. If the liver texture is diffusely abnormal, or if portal hypertension /or chronic hepatitis is mentioned on the request, then Doppler studies of the portal vein and hepatic venous waveform should be obtained.

Record the peak velocity and the direction of flow in the portal vein (PV) and the hepatic vein (HV) waveform pattern. Normal lower range of peak velocity in the main portal vein is 12 cm/s in the fasted patient. Higher velocities are not generally of significance except in liver transplants where it may indicate vessel stenosis and needs reporting if above 40cm/s (mean flow velocity).

Normal waveform of hepatic veins should be triphasic. Bi or monophasic flow indicates a loss of liver compliance (report as loss of elasticity to GPs) but this is a very non-specific sign which is also present in other conditions.

Highly pulsatile waveforms in both or either the portal vein or selected hepatic vein is indicative of congestive cardiac failure and this should be reported as may be suggestive as a cause of abnormal LFTs.

For incidental hepatic haemangioma guidance, **see Appendix 1.**

Gallbladder:

The gallbladder is normally situated inferior to the right lobe of the liver. Its size and shape vary. The gallbladder neck usually sits in the gallbladder fossa and the fundus is frequently mobile, dependent upon patient position. The gallbladder

should be scanned following a period of fasting (drinking clear fluids only) to aid distension.

It should be examined in at least two patient positions, for example, supine, left side down decubitus, left posterior oblique and/or erect to establish movement of any contents and to unfold the organ. It is good practice to examine the gallbladder both along its long and transverse axes.

The shape and measurements of the gallbladder vary enormously. The gallbladder is normally pear shaped when optimally dilated, with a narrow neck, widening towards the fundus. A very rounded shape may imply tense dilatation.

Some gallbladders may be folded or have a Phrygian cap at the fundus. These shapes can conceal small stones if care is not taken to 'unfold' the organ and examine it comprehensively.

The wall of the neck of the gallbladder is slightly thicker than the wall of the body and fundus in a normal organ. Frequently the neck describes a 'J' or reversed J shape, and attention should be paid to this area to exclude pathology such as trapped stones.

The bile contained in the gallbladder should be anechoic. The wall should be thin (no more than 3 mm), smooth and well-defined. Measurements of wall thickness should ideally be taken with the wall perpendicular to the beam to reduce artefact due to beam thickness.

In patients attending with RUQ pain, the transducer may be used to gently explore the exact site of the pain. This information may be useful in confirming a diagnosis of cholecystitis.
Gallstones are frequently asymptomatic, so it should not be assumed that the finding of gallstones establishes the cause of pain and a full scan should always be conducted.

Attention to equipment settings is important in demonstrating tiny stones, as posterior enhancement from the bile within the GB may obscure shadowing from small stones if incorrectly set.

For gallbladder polyp surveillance, **see Appendix 2.**

Bile Ducts:

The common duct normally lies anterior to the main portal vein and is best imaged using the liver as an acoustic window at this point, with the beam perpendicular to the vein. The duct should then ideally be traced distally to the head of pancreas, (allowing for duodenal gas, which can sometimes be moved by altering patient position and/or gentle pressure from the transducer).

The measurement is taken from inner-lumen wall to inner-lumen wall, measured at the porta hepatis. Duct measurements should be taken in clinical context with

reference to previous history, including previous cholecystectomy, and liver function tests.

The normal common duct has a variable diameter. The upper limit of normal calibre is generally accepted at 6mm in the adult, but this can increase after cholecystectomy and in older adults due to loss of elasticity of the duct wall. It is worth noting that a duct less than 6 mm diameter does not necessarily imply normality as biliary obstruction can occur with a non-dilated duct, particularly if diffuse liver disease prevents dilatation or if the patient has cholestatic disease.

Bile duct wall thickening is an abnormal sign, even in the absence of dilatation, and is frequently associated with cholangitis or cholestatic disease. It is difficult to demonstrate normal intrahepatic ducts past the first order of duct (right and left hepatic ducts) but they can be seen in young, thin patients with good equipment and should not be confused for intrahepatic duct dilatation. Comparison should be made with the accompanying veins.

In health, the bile duct is narrower than the parallel portal vein. In cases of intrahepatic duct dilatation, efforts should be made to establish the cause by tracing the system down to the point of obstruction. Isolated segments of intrahepatic duct dilatation, with a normal calibre extra-hepatic biliary tree, raises the possibility of serious disease such as primary sclerosing cholangitis (PSC) or cholangiocarcinoma.

Pancreas:

CT and MRI are the principal imaging modalities for assessing the pancreas. Conventional ultrasound has a significant false negative rate for detecting serious pancreatic disease. However, when the pancreas is well seen, ultrasound may give better detail than CT and MRI.

While ultrasound scanning can image the pancreas completely in exquisite detail under optimal conditions, the result is often disappointing and the published performance data for ultrasound in the detection of treatable pancreatic cancer and chronic pancreatitis is too poor to recommend it as a first line technique.

However, it is expected that the pancreas will be scanned fully in all general upper abdominal examinations. The entire gland should be imaged in a combination of transverse, longitudinal and oblique views.

The pancreas is slightly hyperechoic compared with the liver and this generally increases with age-associated loss of glandular elements and increasing fibro-fatty proliferation. The size of the pancreas is variable and is not routinely measured in practice.

As rule of thumb, if measurements are required, the maximum antero-posterior measurement of the head of pancreas is about 3cm the neck and body 2.5cm and the tail 2cm. The main pancreatic duct can usually be identified and measured in the pancreatic head or body. A pancreatic duct diameter of 2mm or less is normal

but some increase with age is associated with gland atrophy up to a maximum of 3mm.

Spleen:

The spleen is a homogenous organ with a smooth echotexture and border. It is hypoechoic compared to the liver but hyperechoic compared to the kidney.

Size:

The spleen can vary greatly in size and the normal range is from 5 cm to 12 cm. It is important to note that spleen size will vary according to the anthropometry of the patient. As a rule of thumb, the spleen length should be the same or less than the left kidney, assuming the kidney is normal.

Small spleens are rarely commented upon and are of doubtful significance. Careful assessment of the splenic hilum should be made as this is a common area for splenunculi to develop. A splenuculus will be of the same smooth, homogenous echotexture as the spleen itself and is not pathological. It is valuable to report however as in patients who have a splenectomy and co-existing splenunculi are commonly reported to hypertrophy and replace the native spleen.

For guidance on incidental splenic lesions, see Appendix 3.

Renal Ultrasound:

Kidneys should be examined in two planes and representative images recorded, to include the adrenal areas for possible pathology. The renal length / size should be assessed and measured and reported. Exophytic (protruding) cortical lesions and / or cysts should not be included in the length measurement.

Cortical thickness measurement:

The texture, echogenicity and thickness of the renal cortex should be noted. Increased echogenicity and cortical thinning are indicative of renal parenchymal disease and chronic renal impairment. Cortical thickness measurements should more accurately be called the parenchymal thickness. The parenchymal thickness includes the cortex and medulla. Parenchymal thickness is the measurement taken from the border of the sinus fat and parenchyma to the outer capsule of the kidney. The measurement is taken in longitudinal section at the mid pole (or where it is at its thinnest), being careful to avoid any column of Bertin. The lower limit of normal parenchymal thickness is 10mm.

Renal lesions:

As a useful guide suspicious renal lesions may demonstrate any of the following:

- Predominantly solid but can be complex cystic masses.

- Usually Exophytic – protruding outside of the renal capsule.
- Different echogenicity from the surrounding cortex
- Well demarcated
- Vascularity – either altered or vessels deviated.
- Indentation of the renal sinus (hypertrophied column of Bertin might mimic tumour).

Renal cysts:

If a renal cyst is imaged on ultrasound and is not simple then:

- Check previous imaging reports to see if the cyst was identified previously.
- If it is new or not known, then suggest CT evaluation.

Renal Transplant:

The objective is to demonstrate any surgical complications which may require immediate intervention. The size and morphology of the transplant kidney should be examined to establish a baseline for subsequent scans. The practitioner should establish the presence/absence of perinephric haematoma/collection and exclude pelvi-calyceal dilatation.

Colour Doppler of the entire kidney should be performed to establish that blood flow is present to all areas of the kidney. Pulsed wave Doppler of the inter-lobar arteries should also be performed to assess blood flow patterns which may give indirect evidence of arterial (inflow) or venous (outflow) problems of the graft.

Doppler indices (resistance or pulsatility indices) should be recorded. The presence/absence of reversed arterial diastolic flow should be established and the practitioner should be aware of the possible causes for this.

Finally, the renal vein should be examined with colour Doppler ultrasound to ensure patency throughout its length. The practitioner should be aware of ultrasound appearances which require immediate surgical intervention such as arterial or venous occlusion of the transplant kidney and discuss with the surgical team when these are suspected.

Testes:

Sonographically examine the testes and epididymes in both a longitudinal and transverse plane, noting the echotexture and echogenicity of each.

A varicocele is reported if the AP diameter of the peri-testicular veins are more than 3mm. The venous flow is assessed using colour Doppler. Demonstration of the presence or absence of reflux is made using the valsalva technique and should be

documented on the report. If a varicocele is present the upper renal tract and aorta should be examined to exclude the presence of masses compromising venous return.

In cases of complex epididymitis/epididymo-orchitis a follow-up scan in 6 weeks is advised (referring clinician to request), to avoid small underlying lesions being missed.

Scrotal masses:

The aim is to localise the scrotal lump (intra- or extra-testicular) and characterise if possible. Both testes should be assessed for size, morphology and the presence/absence of a testicular lesion. The testes should be assessed for echogenicity by comparing both testes on a side-by-side view on the same image.

Assessment of the epididymal heads, bodies and tails should be made for thickening, presence of lesions, cysts etc. Be aware of the presence of normal mild epididymal thickening after vasectomy together with the common appearances of sperm granulomas.

The tunical space should be examined for the presence of hydrocoele and the scrotal wall should be examined for the presence of oedema or thickening. Every effort should be made to visualise and characterise a scrotal mass. The patient should be asked to localise the mass with direct scanning over this area where the practitioner is unable to visualise the mass during normal scrotal scanning.

Suspected testicular torsion:

In clinically suspected testicular torsion, ultrasound investigation should not delay surgical exploration to offer the best chance of preserving testicular viability. Ultrasound cannot confidently exclude torsion, but an examination may be performed in cases of acute testicular pain.

Practitioners need to be aware of the ultrasound features of torsion and if in any doubt, urgent urological advice should be sought. Assess the testes, epididymides and tunical space.

Colour Doppler of both testes should be undertaken, assessing presence and symmetry of blood flow within the testes. The absence of discernible blood flow within a testis (where flow is visible on the contra-lateral normal side) is highly predictive of testicular torsion.

However, it should be noted that the presence of blood flow does not exclude torsion, particularly intermittent torsion. The spermatic cord should be examined to assess for the presence of twisting of vessels within the spermatic cord (the whirlpool sign). The ultrasound practitioner should be aware that testicular torsion can also cause epididymal swelling and hydrocoele formation, mimicking epididymo-orchitis, although the absence of intra-testicular flow may be diagnostic.

However, intermittent testicular torsion can demonstrate increased intra-testicular blood flow on colour Doppler examination which may be indistinguishable from epididymo-orchitis.

3. DEFINITIONS/ABBREVIATIONS

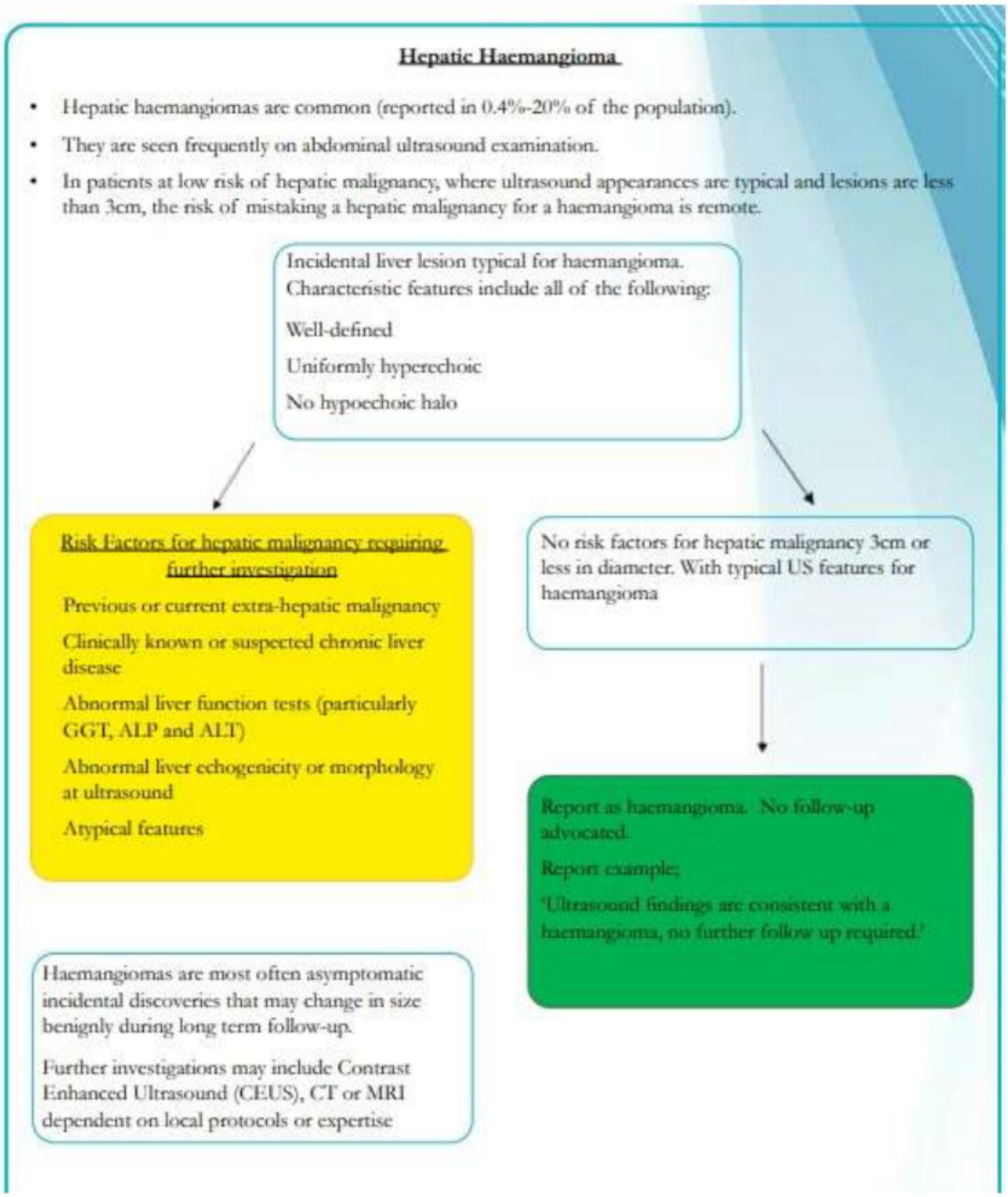
AP – Anterior-Posterior
LS – Longitudinal Section
TS – Transverse Section
IVC – Inferior Vena Cava
HV – Hepatic Vein
LFTS – Liver Function Tests
PV – Portal Vein
GB – Gallbladder
CT – Computed Tomography
MRI – Magnetic Resonance Imaging
RUQ – Right Upper Quadrant
PSC – Primary Sclerosing Cholangitis

4. TRAINING/SUPPORT

Post Graduate Qualification in Ultrasound.
Named Consultant Mentor.

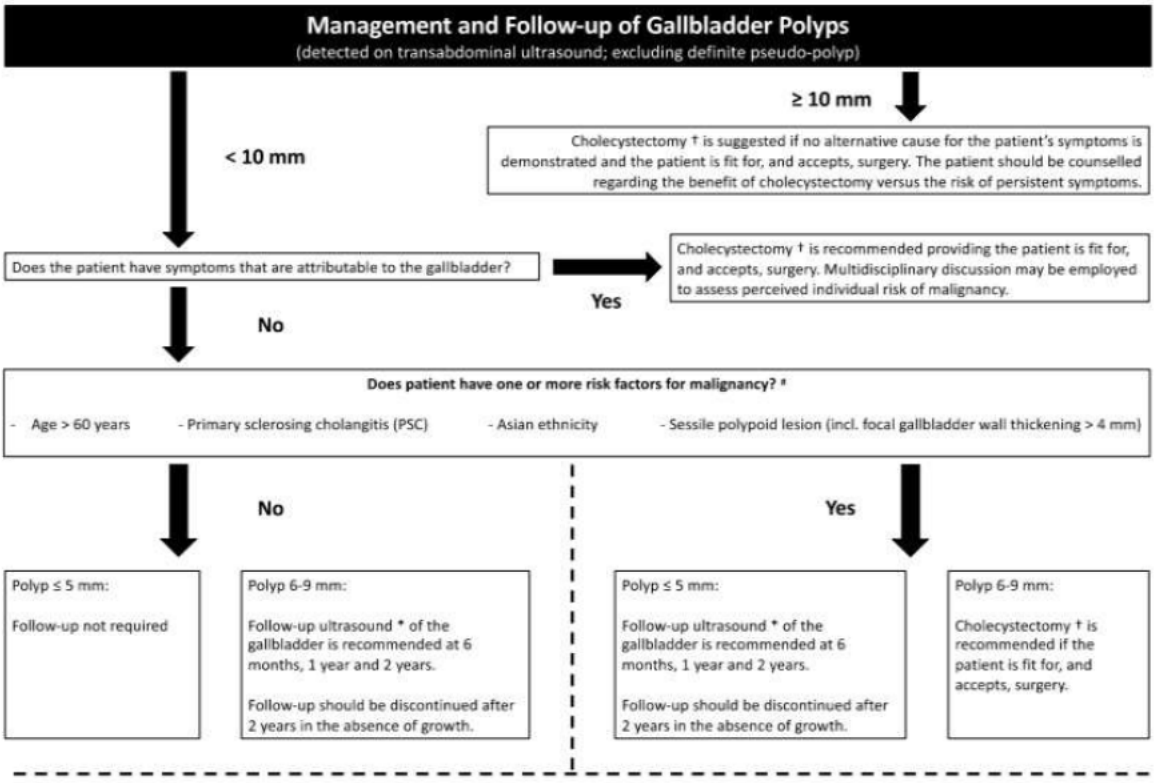
APPENDICES

APPENDIX 1:


Hepatic Haemangioma
Hepatic haemangiomas are common (reported in 0.4%-20% of the population).
They are seen frequently on abdominal ultrasound examination.
In patients at low risk of hepatic malignancy, where ultrasound appearances are typical and lesions are less than 3cm, the risk of mistaking a hepatic malignancy for a haemangioma is remote.
Incidental liver lesion typical for haemangioma. Characteristic features include all of the following:
Well-defined
Uniformly hyperechoic
No hypoechoic halo
Risk Factors for hepatic malignancy requiring further investigation
Previous or current extra-hepatic malignancy
Clinically known or suspected chronic liver disease
Abnormal liver function tests (particularly GGT, ALP and ALT)
Abnormal liver echogenicity or morphology at ultrasound
Atypical features
No risk factors for hepatic malignancy 3cm or less in diameter. With typical US features for haemangioma
Report as haemangioma. No follow-up advocated.
Report example;
'Ultrasound findings are consistent with a haemangioma, no further follow up required.'
Haemangiomas are most often asymptomatic incidental discoveries that may change in size benignly during long term follow-up.
Further investigations may include Contrast Enhanced Ultrasound (CEUS), CT or MRI dependent on local protocols or expertise

APPENDIX 2:

European Radiology (2022) 32:3358–3368



APPENDIX 3:

Solitary Splenic Lesions

	Appearance	Likely diagnosis and comments
Cysts	Well-defined, thin-walled, anechoic lesions	Epidermoid cysts have calcified walls in 10% of cases. Hydatid cysts may be anechoic or of mixed echogenicity due to the presence of hydatid sand or infolded membranes. Multiple, small, internal or subjacent daughter cysts may arise.
Haemangioma	Well-circumscribed hyperechoic lesion	Usually solitary. Multiple lesions may be associated with Klippel–Tre´naunay–Weber, Beckwith–Wiedemann or Turner syndrome. Large lesions may result in portal hypertension or splenic rupture.
Lymphangiomas	Complex solid-cystic lesion with a hyperechoic periphery	Rare, slow-growing, vascular lesions that may be single or multiple.
Infarction	Ill-defined, often peripherally based, wedge-shaped or rounded hypoechoic lesion	May be difficult to identify with ultrasound in the acute setting. Contrast enhanced ultrasound imaging can aid diagnosis.

Multiple Lesions

	Appearance	Likely diagnosis and comments
Infection	Ill defined, hypoechoic lesions, which may contain echogenic debris and internal septations	Splenic abscesses occur most frequently in immunocompromised patients, and may be bacterial, fungal or granulomatous.
"Spotty " Spleen	Multiple, small (2–3 mm), highly echogenic foci with or without acoustic shadowing and may correspond to calcified lesions seen on plain film or CT	Multiple highly reflective focal lesions within the spleen gives rise to the so-called 'spotty spleen' appearance. It is usually secondary to previous granulomatous infection with histoplasmosis or tuberculosis
Lymphoma	Multiple ill-defined and hypoechoic lesions, however, hyperechoic lesions of a complex nature and target lesions have also been described	Hodgkin's and non-Hodgkin's lymphoma account for the majority of splenic malignancies
Metastases	Variable appearance, ranging from hypoechoic poorly-defined lesions to hyperechoic lesions, with or without a hypoechoic rim or halo	Uncommon site for metastatic disease. The commonest primary tumours are malignant melanoma, breast and bronchogenic carcinoma. CT remains gold standard for imaging metastatic disease
Sarcoidosis	Multiple hypoechoic nodules measuring up to several centimetres.	Hepatosplenomegaly and lymphadenopathy are common associated findings. Multisystem granulomatous disease of unknown origin and splenic involvement is relatively uncommon
Malignant Infiltration	Splenomegaly with no discernible alterations in splenic echo texture	Diffuse leukaemic or lymphomatous involvement of the spleen. Clinical correlation is required. Doppler evaluation of the portal vein may be valuable

5. REFERENCES

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MANAGEMENT AND FOLLOW UP OF GALLBLADDER POLPS: UPDATED JOINT GUIDELINES BETWEEN THE ESGAR, EAES, EFISDS AND ESGE

Management and follow-up of gallbladder polyps: updated joint guidelines between the ESGAR, EAES, EFISDS and ESGE - PubMed (nih.gov)
(Accessed 06.09.2023)

The Dudley Group
NHS Foundation Trust

HYPOCALCAEMIA IN ADULTS CLINICAL GUIDELINE			
	DOCUMENT TITLE:	**HYPOCALCAEMIA IN ADULTS CLINICAL GUIDELINE**	
	Name of Originator/Author /Designation & Specialty:	[redacted] Lead Pharmacist Surgery	
	Local / Trust wide	Trustwide	
	Statement of Intent:	To guide clinicians treating inpatient adults with hypocalcaemia	
	Target Audience:	All staff involved in the care of inpatient adults	
	Version:	2.0	
	Name of Review and Approval Group and Date when Recommended for Ratification	DTC	Date April 2022
	Name of Division/Group and Date of Final Ratification:	DRGM	Date July 2022
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	Contributors:	**Designation:** [redacted] Acute Medicine Registrar [redacted] Consultant Endocrinologist [redacted] Consultant Anaesthetist [redacted] Lead Pharmacist Clinical Governance [redacted] Acute Medicine Consultant	
	The electronic version of this document is the definitive version		

CHANGE HISTORY

Version	Date	Reason
1.0	10/10/2018	This is a new document
2.0	20/02/2022	Full Review - Confirmation that information is current and update links

A translation service is available for this document. The Interpretation/Translation Policy, Guidance for Staff is located on the intranet under Trust-wide Policies.

THE DUDLEY GROUP NHS FOUNDATION TRUST

HYPOCALCAEMIA IN ADULTS CLINICAL GUIDELINE

1. GUIDELINE SUMMARY

Symptoms & Signs	
Peri-oral & digital paraesthesiae	ECG changes (↑ QT interval) & arrhythmia
Positive Trousseau's & Chvostek's sign	Tetany & carpopedal spasm
Laryngospasm	Seizure

Causes	
Total thyroidectomy (temporary or permanent)	Cytotoxic drug-induced
Selective parathyroidectomy (transient & mild)	Pancreatitis
Severe vitamin D deficiency	Magnesium deficiency
Rhabdomyolysis	Large volume blood transfusions

Investigations: Phosphate, PTH, Urea and Electrolytes, Vitamin D

Check magnesium for co-existing deficiency – **see guideline** for replacement

Severe hypocalcaemia and/or symptomatic Adjusted calcium <1.9 mmol/L	• **Medical emergency – continuous ECG monitoring** • IV calcium gluconate: 10 – 20 ml of calcium gluconate in 50 – 100 ml of 5% dextrose over 10 minutes • Repeat until asymptomatic • **Commence an infusion:** 100 ml of 10% calcium gluconate in 1 L of normal saline or 5% dextrose at 50-100 ml/hr • Titrate rate of infusion to achieve normocalcaemia • Monitor levels 8 hourly – stop if calcium levels >2

Note: Large volume calcium infusions should not be used in patients with end stage renal failure or who are on dialysis – for guidance discuss with the renal team

Mild hypocalcaemia and asymptomatic Adjusted calcium >1.9 mmol/L	• **Oral calcium supplementation:** • Cacit 2-4 tablets BD, Adcal 2-3 tablets BD

Treat the underlying cause

- Vitamin D deficiency – for replacement see guideline
- Postoperative hypocalcaemia & other cases of hypoparathyroidism – consider alfacalcidol, starting dose approximately 0.25-0.5micrograms / day (or calcitriol therapy)

Discharge

- Adjusted calcium >1.9 and asymptomatic
- Observe patient for 24 hrs prior to discharge if intravenous calcium gluconate has been given
- Repeat adjusted calcium levels at 1 week and refer to speciality

Speciality Referral

- Renal team - for patients with CKD stage 4 on cinacalcet
- Oncology / osteoporosis clinic - for patients who have received Denosumab
- Endocrinology - for all other patients including those requiring intravenous calcium gluconate

2. GUIDELINE DETAIL

2.1 Introduction

- Acute hypocalcaemia can be life threatening, necessitating urgent treatment. In severe cases intravenous calcium forms the mainstay of initial therapy but it is essential to ascertain the underlying cause and commence specific therapy as early as possible.

- Symptoms of hypocalcaemia typically develop when adjusted calcium levels fall below 1.9mmol/l. This threshold will vary greatly and is dependent on the rate of fall. Mild hypocalcaemia is often asymptomatic and can be treated more conservatively.

- The normal range for serum calcium is 2.20 – 2.60mmol/l. The adjusted calcium is reported automatically when albumin is ≠ 40 g/l. If no adjustment has been made, the measured serum calcium forms basis of treatment decisions.

2.2 Symptoms & Signs

- Peri-oral & digital paraesthesia
- ECG changes (↑ QT interval) & arrhythmia
- Positive Trousseau's & Chvostek's sign
- Tetany & carpopedal spasm
- Laryngospasm
- Seizure

2.3 Causes

- Total thyroidectomy (temporary or permanent)
- Cytotoxic drug-induced
- Selective parathyroidectomy (transient & mild)
- Pancreatitis
- Severe vitamin D deficiency
- Magnesium deficiency
- Rhabdomyolysis
- Large volume blood transfusions

2.4 Investigations

- Phosphate
- PTH
- Urea and Electrolytes
- Vitamin D
- **Check magnesium** for co-existing deficiency refer to – Hypomagnesaemia Guideline

2.5 Treatment

Severe hypocalcaemia and/or symptomatic: **Adjusted calcium <1.9 mmol/L**

- **Note:** Large volume calcium infusions should not be used in patients with end stage renal failure or who are on dialysis – for guidance discuss with the renal team http://kdigo.org/wp-content/uploads/2017/02/2017-KDIGO-CKD-MBD-GL-Update.pdf . Note - plastic ampoules are used locally.

- **Medical emergency – continuous ECG monitoring needed**
- IV calcium gluconate: 10 – 20 ml of 10% calcium gluconate in 50 – 100 ml of 5% glucose over 10 minutes
- Repeat until asymptomatic then start an infusion
- **Infusion:** 100 ml of 10% calcium gluconate in 1 L of sodium chloride 0.9% or 5% dextrose at 50-100 ml/hr
- Titrate rate of infusion to achieve normocalcaemia
- Monitor calcium levels (in addition to any co-existing electrolyte abnormality e.g. magnesium) 8 hourly – stop if calcium levels >2
- Ensure monitoring requirements and patient follow up are communicated clearly in patient notes and verbally at patient handover/transfer of care.

Mild hypocalcaemia and asymptomatic: Adjusted calcium >=1.9 mmol/L

- **Oral calcium supplementation: Give between 10-50mmol calcium per day**

Preparation	Ca^{2+} dose
Adcal	15mmol/tablet
Cacit (Calcium gluconate effervescent) 1.25g	12.5mmol/tablet
Sandocal 1000 (effervescent)	25mmol/tablet

- The Society of Endocrinology recommends larger doses for acute hypocalcaemia e.g Sandocal 2 tablets bd (100mmol total).
- Calcium is generally well tolerated orally but high doses need to be monitored closely. Primary care and the patient / carer must be informed of the on-going plan to prevent unnecessary continuation of the medication. Ensure clear documentation on the discharge letter.
- Monitor serum calcium levels weekly until stable then at 3-6month intervals.

2.6 Treat the underlying cause

- Vitamin D deficiency – for replacement see pharmacy guideline
- Postoperative hypocalcaemia & other cases of hypoparathyroidism – consider alfacalcidol, starting dose approximately 0.25-0.5micrograms/day. Frequent blood testing (8 hourly) is required in the stabilisation phase to prevent hypercalcaemia. An intravenous preparation is available if needed. Speak to pharmacy for advice.

- Medications e.g phenytoin, bisphosphonates, rifampicin, some chemotherapy – check BNF monographs, individual product SPC or speak to pharmacy for advice.

2.7 Hazards of IV therapy

- Calcium infusions are incompatible with numerous other infusions therefore infuse separately to other intravenous infusions and flush line well with sodium chloride 0.9% before and after use unless compatibility is known. Check the Injectable Medicines Guide (Medusa) and/or speak to pharmacy for further advice, if needed.
- Calcium infusions are irritant. Use the largest vein available for all calcium infusions and monitor injections site carefully e.g. phlebitis monitoring tool.

2.8 Cautions and Contraindications

- Calcium salts are contraindicated in patients with ventricular fibrillation. Rapid infusion can cause arrhythmias and hypotension. Other side effects include chalky taste in mouth, flushing, nausea and vomiting and sweating.
- Calcium salts should be used with caution in patients with calcium renal calculi or in patients with diseases associated with hypercalcaemia. Monitor these patient and those with renal dysfunction more closely.
- See BNF for further information

2.9 Drug interactions

- Digoxin: Calcium enhances the effect of digoxin so can lead to digoxin toxicity.
- Thiazide diuretics: Impair the excretions of calcium which may cause hypercalcaemia.
- Oral calcium administration impairs the absorption of a number of other medicines including tetracycline, iron, levothyroxine, doxycycline and bisphosphonates. An interval of at least 3 hours should be left between the medications.

2.10 Critical care

- Calcium chloride is available and can be administered if required in fluid restricted patients via a central venous access if possible.
- The maximum rate of infusion for calcium chloride is 1mmol/minute and it should be diluted to 4 times its volume. Calcium gluconate is still preferred peripherally due to reduced risk of tissue necrosis in extravasation.
- Calcium chloride 10% minijets do not require dilution but should be reserved for emergency situations only

2.11 Discharge

- Adjusted calcium should be >=1.9mmol/l and asymptomatic.
- Observe patient for 24 hrs prior to discharge if intravenous calcium gluconate has been given.
- Repeat adjusted calcium levels at 1 week and refer to speciality.

- Inform primary care on discharge of on-going plan for calcium supplementation and monitoring. Primary care and the patient / carer must be informed of the on-going plan to prevent unnecessary continuation of the medication. Ensure clear documentation on the discharge letter.

2.12 Speciality Referral

- Renal team - for patients with CKD stage 4 on cinacalcet.
- Oncology / Osteoporosis clinic - for patients who have received Denosumab.
- Endocrinology - for all other patients including those requiring intravenous calcium gluconate.

3. TRAINING

Contract the Fluid and Electrolytes Group or Acute Medicine Team.

4. REFERENCES

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LMS BLADDER CARE POLICY GUIDELINES			
	DOCUMENT TITLE:	**LMS BLADDER CARE POLICY / GUIDELINES**	
	Name of Originator/Author /Organisation:	Local Maternity Systems (LMS)	
	Local / Trust wide	Local use - Maternity	
	Statement of Intent:	To provide appropriate bladder care during labour and postpartum	
	Target Audience:	Maternity and Obstetric Staff	
	Name of Group and Date when Recommended for Use in the Trust	Maternity	August 2020
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	Review Date:	August 2023	
	The electronic version of this document is the definitive version		

External Documents

For all external documents a Trust front sheet is required to be added to ensure there is a record of

- The origin of the document
- Agreement from the appropriate groups/ specialty to use the document in the Trust
- Where the document is intended to be used and the target audience
- When the document is to be reviewed to ascertain if it remains the most up to date guidance that reflects current gold standard/ national practice

The format of the document behind the front sheet is not dictated by the organisation

LMS BLADDER CARE POLICY GUIDELINES

Introduction

Postpartum voiding dysfunction is defined as failure to pass urine spontaneously within six hours of vaginal delivery or catheter removal after delivery. It occurs in 0.7-4% of vaginal deliveries.

It may occur as a result of reduced bladder sensation due to epidural or spinal anaesthesia, or trauma to the bladder or pelvic floor muscles and nerves. This results in urinary retention which leads to over distension of the bladder. Unrecognised, this can cause permanent damage to the detrusor muscle of the bladder and result in voiding problems, which can persist for life. Other long term sequelae include recurrent urinary tract infection and urinary incontinence.

Optimal bladder care in the postpartum period is crucial in ensuring rapid return to normal bladder function.

Management in Labour for all Women

First Stage

Encourage 2-4 hourly voiding. Threshold for catheterisation (in / out) should be low if the woman is unable to void after four hours. If any void measures more than 500ml empty the bladder more frequently to prevent over distension.

Maintain adequate hydration during labour.

Perform urinalysis every four hours and document in partogram or Hospital Maternity Care Record.

Second Stage

Always ensure bladder is empty. If necessary catheterise. Remember that a full bladder may hinder descent of the presenting part and is at an increased risk of damage.

Empty the bladder prior to instrumental delivery.

Risk factors for postpartum voiding dysfunction:

- Primigravida
- Prolonged labour
- Epidural analgesia
- Instrumental delivery
- Perineal trauma

Symptoms suggestive of voiding dysfunction:

- Inability to void 6 hours following delivery
- Frequently passing small voids
- Lower abdominal pain
- Prolonged voiding
- Slow urinary stream
- Sensation of incomplete bladder emptying
- Urinary incontinence

It is important to note that women in acute urinary retention may be asymptomatic especially following epidural or spinal analgesia.

Postpartum Bladder Care

- **All women should void (pass urine) within six hours of delivery or six hours of catheter removal**.

- The time and volume of first two void's following delivery or removal of catheter **must** be recorded in the Hospital Maternity Care Record.

- **See Appendix 1 (Postpartum Bladder Care Pathway)** for management of patients with postpartum voiding difficulty i.e. those unable to void or who fail to void within 6 hours of delivery or removal of catheter.

- If a woman has not passed urine within six hours of delivery or removal of catheter or passes a small amount of urine (less than 150ml) the bladder volume must be estimated by ultrasound, followed by catheterisation if appropriate. If it is not immediately possible to perform a bladder scan then the bladder must be emptied by catheterisation and the volume recorded. Commence and follow the Postpartum Bladder Care Pathway (see Appendix 1).

- Following diagnosis of urinary retention, a urine sample must be analysed (by dipstick) and sent for microscopy and culture. The presence of urinary infection can contribute to and prolong voiding dysfunction. If urine infection is suspected administer antibiotics promptly.

Further management and treatment

- Ensure that adequate analgesia has been prescribed for women with perineal trauma, as perineal pain is a significant factor in the development of urinary retention.
- Avoid constipation and administer laxatives if required
- Advise women of the importance of pelvic floor exercises

Removal of catheter following the first episode of retention (trial without catheter, TWOC)

- Once the catheter has been removed the woman should void within six hours.
- Provide the woman with two bedpans
- Encourage fluid intake and regular voiding
- Advise the woman to report any abdominal discomfort and/or difficulty in passing urine
- Chase CSU /MSU result.
- Perform a bladder scan to measure the residual volume of urine in the bladder on two occasions after the woman voids
- Record the time of voiding, volume voided and residual volume on the Removal of Catheter after Retention Proforma (see Appendix 2).
- If the woman is unable to void or persistently has high residual volumes (greater than 150mls), then re-catheterise and leave the indwelling catheter in for 7days.
- If the woman does not want an indwelling catheter, she may be taught intermittent self-catheterisation as an alternative method to empty her bladder. Contact the urogynaecology nurse on D7 to teach the woman how to perform intermittent self-catheterisation.
- Discharge the woman if well and organise a follow up appointment for her to attend the ward in a week for repeat trial without catheter (TWOC).

Discharging a woman with an indwelling urinary catheter

- Ensure the woman has a plan of care clearly documented within the notes
- Change the 2 litre catheter bag to a leg bag
- Ensure the woman has enough supplies of leg bags to cover the time she requires the catheter and ensure the woman knows how to change the bag. Leg bags require changing every 5-7 days
- If any woman requires long term catheter supplies then complete a referral form to Bullen Services and fax a copy to them. Forms can be found in the bladder care folder on the Maternity Ward.
- Educate the woman on catheter care, the importance of hygiene, oral fluids and the prevention of constipation
- Advise the woman to report any abdominal discomfort, symptoms of UTI and / or leakage of urine urethrally to the Maternity Ward
- Ensure the woman has contact numbers for the Maternity Ward and aware to report any concerns
- Arrange a date in the TCI book for the woman to return for TWOC on the Maternity Ward D10
- Place a sticker and the woman's information in the bladder care folder on the Maternity Ward for audit purposes.

Repeat TWOC after 7days

Use 'Removal of Catheter after Retention' Proforma (see Appendix 2)

The woman should void within 6 hours of catheter removal. Perform a bladder scan after the patient voids. If residual volume is more than 150ml;

- Explain the diagnosis to the woman
- Chase CSU result
- Inform the obstetric registrar on call to review and for further management.
- **Refer for urogynaecology opinion**
- Place a sticker and the woman's information in the bladder care folder on the Maternity Ward for audit purposes.

If you are unsure on the management of any woman with suspected voiding dysfunction discuss with the urogynaecology nurses on D7, the Urogynaecology consultants or the on call obstetric team.

For any member of staff who is not bladder scanner trained RM E. Thorns situated on the Maternity Ward D10 is a trainer and can assist.

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National Institute for Clinical Excellence and Care 2014 Intrapartum Care Care of healthy women and their babies during childbirth

National Institute for Clinical Excellence 2011 Caesarean section

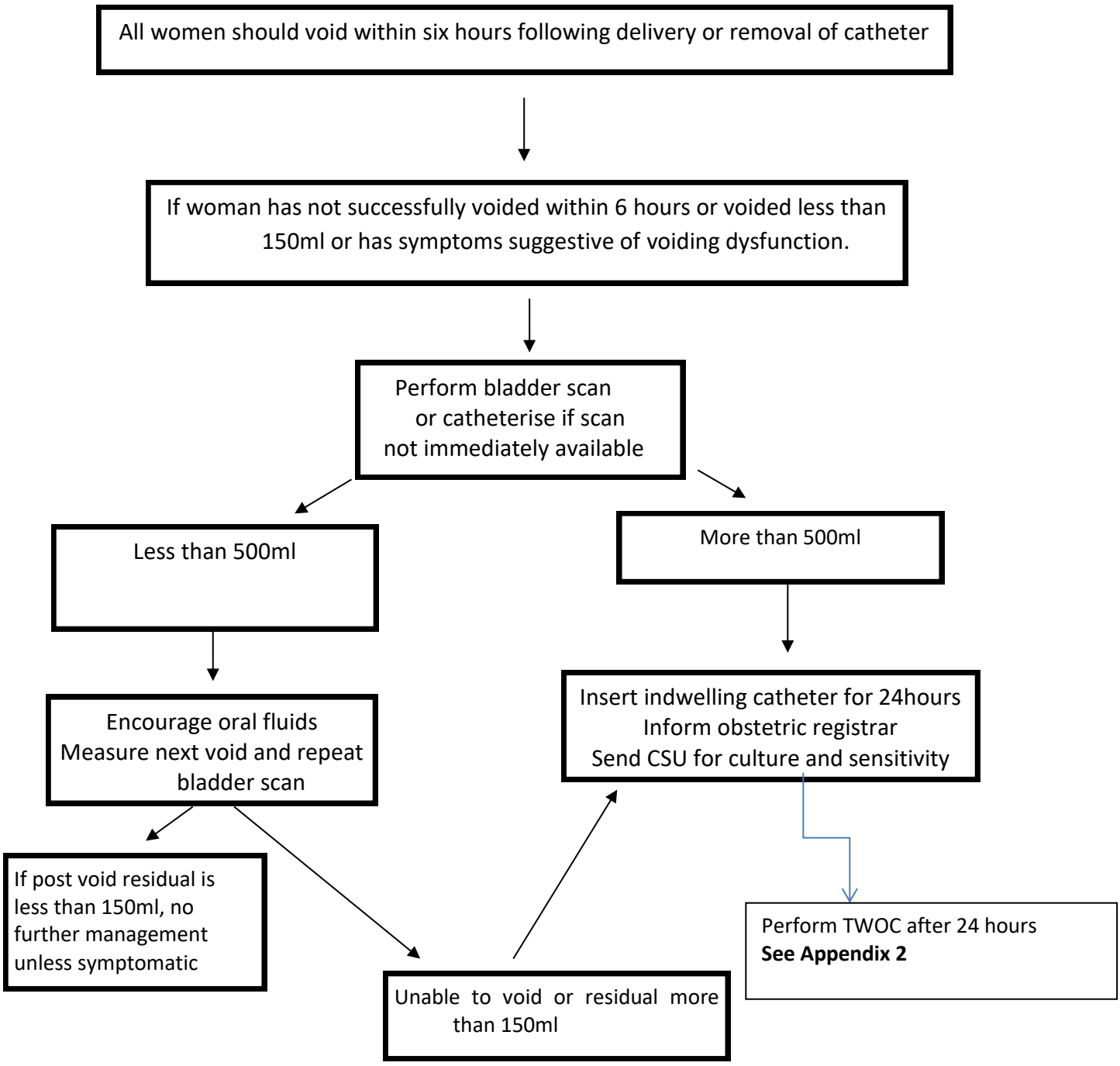
National Institute for Clinical Excellence 2006 Routine postnatal care for women and their babies

APPENDIX 1

POSTPARTUM BLADDER CARE PATHWAY

Time of delivery or time of catheter removal……..
Time of first void ……
Amount voided…….

The time of first void must be within 6 hours of delivery or catheter removal and more than 150ml, if not inform the midwife and commence bladder care pathway below.

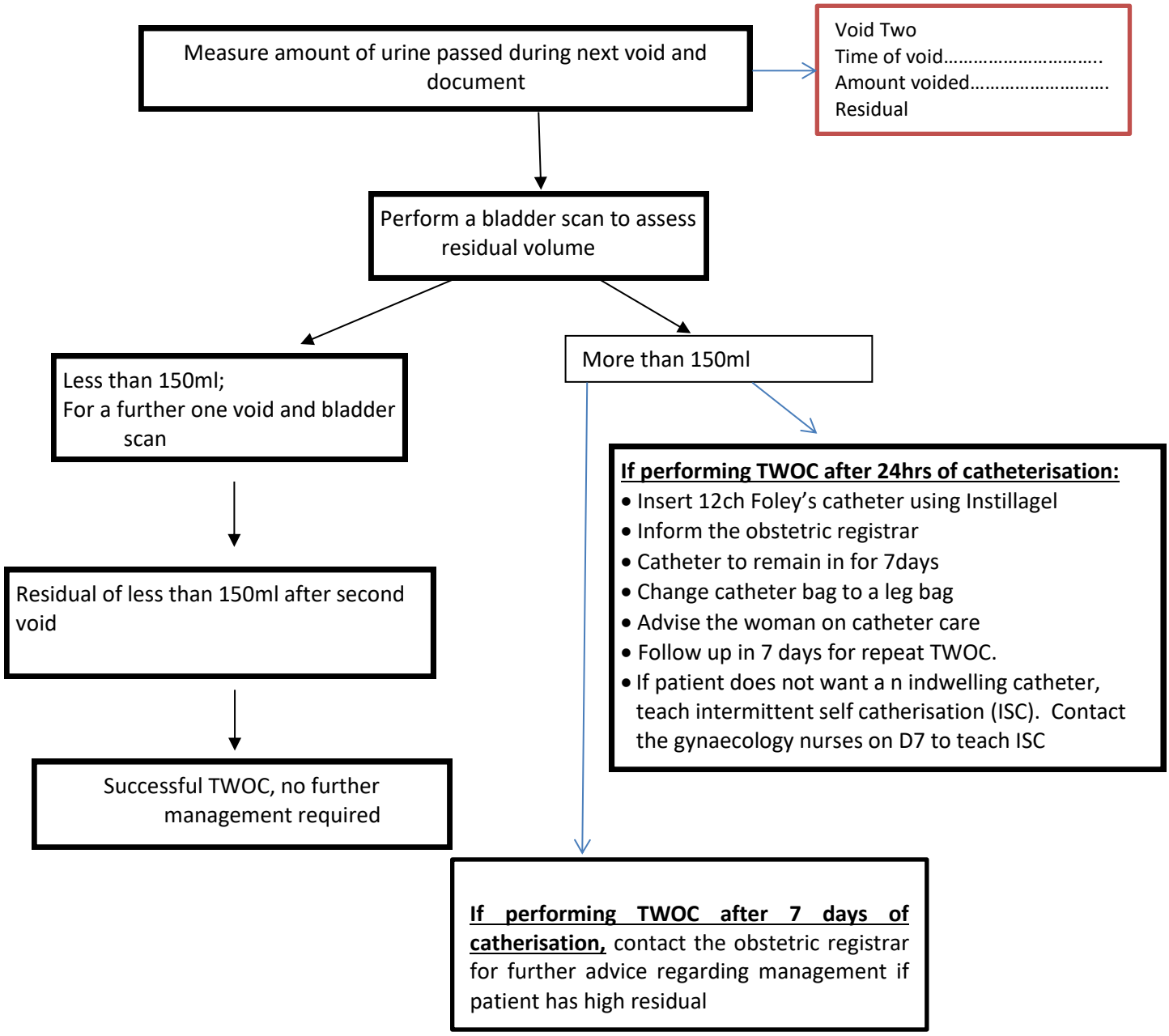


APPENDIX 2

REMOVAL OF CATHETER AFTER RETENTION (TRIAL WITHOUT CATHETER)

Time of catheter removal……..
Void One – Time of void ……
Amount voided…….
Residual volume…….

The first void must be within 6 hours of catheter removal and perform a bladder scan to measure residual urine volume. If the residual is more than more than 150ml, inform the midwife and manage as per flowchart below



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INTERVENTIONAL RADIOLOGY SERVICE

PROTOCOL / PROCEDURE FOR NEPHROSTOMY INSERTION

ALL WARDS

1) Prepare as for theatre, operating theatre check list to be completed
2) Theatre gown on (no Ted Stockings)
3) Starve 6 hours before appointment but can take tap water up to 2 hours before
4) Consent form (in x-ray department)
5) Notes, treatment sheets to department with patient
    i. Inhalers / GTN spray to accompany patient
6) Notify department if patient is barrier nursed
7) **Ciprofloxacin 750mg orally 60 – 90 minutes prior to procedure / Not required if patient is on Antibiotics for urosepsis**
8) **Please ensure patient has a patent venflon insitu**

CAUTIONS

If a patient is on a sedation list, starving is required 6 hours prior to appointment time and 2 hours for water

1) Anticoagulants

i. Patients on low molecular weight Heparin – omit last dose prior to procedure
ii. Patients on IV Heparin – to be stopped 4 hours before procedure
iii. Patients on Warfarin – to be stopped 5 days before procedure.
iv. Aspirin and/or Clopidogrel to be stopped 7 days prior to procedure

IF PATIENT HAS MITRAL VALVE REPLACEMENT – discuss need for Heparin with Haematologist

All the above patients will need INR & PTTK checked

Radiologists and Clinicians will liaise if clinical urgency requires the procedure when INR or PTTK is abnormal

AUTHORISATION:

NAME : [redacted]

DESIGNATION: Consultant Radiologist

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Royal College of Nursing

Catheter Care

RCN Guidance for Health Care Professionals

CLINICAL PROFESSIONAL RESOURCE

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This document has been designed in collaboration with our members to ensure it meets most accessibility standards. However, if this does not fit your requirements, please contact corporate.communications@rcn.org.uk

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Contents

Foreword

The Royal College of Nursing's (RCN) catheter care guidance has been used widely by many health care professionals over the years. The guidance has not only influenced practice and teaching, but has also been used, and quoted extensively, within local policies. It is with great pleasure that the RCN is able to publish this updated edition.

By providing a full understanding of the National Occupational Standards (NOS), this revised publication aims to encourage further adoption of the standards across all NHS and independent health care sectors, leading to good quality care for patients.

Continence is one of the fundamentals of nursing care and maintaining continence can significantly increase a patient's quality of life. Many people may need the support of continence products, such as catheters, to help them manage their everyday activities. Catheters can provide an effective way of draining the bladder, for both short and long-term purposes, and it is therefore important that the NOS are available to guide practice in catheter care.

The NOS relating to catheter care were developed through a partnership between the RCN and Skills for Health (SfH), with funding support from B. Braun, BD Medical, Coloplast and Wellspect. The previous edition of Catheter Care has been updated, with input from the RCN Continence Care Forum, other RCN forums and independent health care and academic professionals to give an up-to-date and easy-to-use document.

Sharon Holroyd Editor

We are indebted to the work done by both present and past members of the RCN Continence Care Forum Committee. We are also immensely thankful for the expertise and willingness of other key members of the RCN and others who have suggested additions and changes – their help has been central to the successful revision of this document. I would like to thank Sharon Holroyd for working with previous key contributors to the earlier versions and leading on this new edition.

I am also very grateful to Sharon Holroyd who willingly took on the editorship, incorporating the suggested changes and additions, reviewing other parts and updating the reference section.

I hope practitioners will continue to benefit from this publication and, more especially, our patients, by fostering good evidence-based practice.

I would also like to thank Skills for Health for ensuring the information on the National Occupational Standards is up to date.

Ali Wileman Chair, RCN Continence Care Forum Committee

1. Introduction

In 2006 the RCN and Skills for Health (SfH) jointly identified a need for competences related to continence care. On completion of scoping, development, field testing and approval processes, a competence suite – containing six competences for catheter care – was produced. A full insight into the competency frameworks can be found at the SfH website at **www.skillsforhealth.org.uk**

The following six areas related to cathetercare was included in the competence suite.

1. Insert and secure urethral catheters.
2. Monitor, and help individuals to self-monitor, urethral catheters.
3. Manage suprapubic catheters.
4. Undertake a trial without catheter (TWOC).
5. Enable individuals to carry out intermittent self-catheterisation.
6. Review catheter care.

The aims of this updated publication are the same – to produce further clarity and depth to the six competences related to aspects of catheter care. As before, the design and development of this publication has been shaped by a number of considerations and features:

- it is written and designed for a nursing audience
- it aims to link the six approved catheter care related competences within one document and enhance core themes
- the order of content within the document aims to reflect that used by SfH in the design of its competences
- it is written and endorsed by a group of expert practitioners, and represents their collective views and opinions
- each section focuses on a specific statement or group of statements taken from the catheter care related competency
- each section of the document 'maps out' a wide range of SfH competences that relate to that specific aspect of catheter care
- there is a need for an up-to-date RCN publication on catheter care to help enhance teaching and other developments within catheter care
- recent evidence has been identified and selected to support this guidance.

However, the document is not a compendium of evidence and many of the statements are based on clinical experience and expert opinion.

How to use this publication

It is recognised that a diverse workforce of both registered and non-registered staff now deliver health care in a variety of settings. This publication is a resource and framework for practice for any health care professional (HCP) who is required to undertake urinary catheterisation as part of their role (this may be a registered practitioner or an unregistered practitioner working under the guidance/supervision of someone on a professional register). It can be used in a number of ways, including:

- as a practical guide to take the NOS to a user-friendly clinical level within the wider nursing workforce
- forming a catheter care benchmark to reflect and compare competence and practice against, within the wider nursing workforce
- as a point of reference to support academic work related to catheter care for health care professionals
- as a point of reference for the development of KSF-friendly job descriptions related to specialist HCPs working within catheter care
- in recruitment plans, advertising, staff selection and appraisals within the wider nursing workforce
- as a nursing resource to support the development of guidelines, policies and protocols related to catheter care at a local level
- as a guide for the development of catheter care related clinical procedures
- to support catheter care related nursing assessment and the effective use of the nursing process at all levels of practice
- to inform integrated catheter care pathways (ICPs)
- as a framework on which to develop catheter care related teaching material, programmes of learning and courses
- to stimulate nursing audit and research activity in catheter care.

2. Legislation, policy and good practice

What you need to know

You need to apply:

- legislation, policy and good practice, the current international, European, UK and national legislation, guidelines and local policies, protocols and procedures which affect your work practice in relation to the care of individuals using urinary catheters
- a factual knowledge of the current European and national legislation, national guidelines, organisational policies and protocols in accordance with clinical/ corporate governance which affect your work practice in relation to the care of individuals using urinary catheters.

The above statements appear in a significant number of NOS. In essence, they relate to key documents and publications which influence this specific aspect of care, and outline your areas of responsibility.

National Occupational Standards

Some key documents that relate to catheter care are listed below; this is not a comprehensive or exhaustive list. Please use it as a guide to influence you within your area of care and responsibility.

British Geriatrics Society

British Geriatrics Society (2018) ***Continence care in residential and nursing homes. Clinical guideline***, London: BGS.

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Royal College of Nursing (2018) ***Adult Safeguarding: Roles and Competencies for Health Care Staff***, London: RCN.

Royal College of Nursing (2018) ***Tools of the Trade: Guidance for health care staff on glove use and the prevention of dermatitis***, London: RCN.

Royal College of Nursing (2018) ***Older people in care homes: Sex, Sexuality and Intimate Relationships***, London: RCN.

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United Kingdom Continence Society (2014) ***Minimum Standards for Continence Care in the United Kingdom: Report of the Continence Care steering group 2014***, Hampshire: UKSC.

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Local documentation

Examples may include:

- antibiotic policy
- catheter care policy

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

and skills in catheterisation and catheter care.

- Declaring competence requires you to have an agreed/approved level of knowledge, understanding and skill.
- You are required to have the relevant skills and abilities and to maintain competence requirements – you must regularly practise these skills; performing procedures once or twice annually, is not acceptable to maintain competence.
- Even though you may feel competent to perform a procedure, the employer must allow/approve its nursing workforce or individual named HCPs to undertake this.
- To maintain competence, you must keep up to date with new knowledge and changes to procedures.
- Performance criteria taken from the NOS must be used to measure level of competence.
- Develop and use nursing indicators based on the NOS performance criteria as a 'tool' to monitor competence.
- Gain consent from a patient to perform a procedure – this indicates that the nurse is competent; do not mislead patients about your abilities and competence when gaining consent (this is unlawful).
- If a procedure performed by you does not go according to plan, it may indicate a lack of competence and should be assessed; if incompetence is identified, then an individual programme of reflection and learning must be undertaken to ensure the competence is attained and maintained.
- Professional clinical supervision is an ideal framework to facilitate reflection on competence.
- A competent mentor is essential in gaining competence in clinical practice.
- The NOS should be used when teaching HCPs to gain competence in specific procedures.
- Training courses, lectures and study days should focus on specific competences based on the NOS.
- Documented evidence of competence attainment or updating should be kept as evidence for KSF reviews.

Practice recommendations

The suggested structure for gaining competence in catheterisation

- Gain a theoretical knowledge and understanding in aspects of catheterisation.
- Observe model/manikin being catheterised.
- Practise catheterisation on a model/manikin under supervision until confident.

- Observe catheterisation performed by others on actual patients.
- Undertake supervised catheterisation on actual patients.
- Be able to catheterise without direct supervision.
- Gain experience and become confident.
- Become a competent mentor for others.
- Have the catheterisation technique observed as part of a clinical audit (***Saving Lives***)

HCPs, in all care settings, should have observed clinical practice for the following procedures supporting urinary catheter management.

- Assessing individual patients to ensure catheterisation is still required.
- Hand hygiene and use of personal protective equipment (PPE).
- Aseptic technique.
- Obtaining a catheter specimen of urine (CSU).
- Changing urinary drainage systems.
- Emptying a urine bag or catheter valve.
- Catheter insertion.
- Catheter removal.
- Meatal cleansing.
- Bag position and support.
- In relation to all aspects of catheter care it is recommended that health care professionals have a formal update at least every five years, and more often if appropriate or required.

4. Documentation

What you need to do

You need to record clearly, accurately and correctly any relevant information in ongoing patient/person or urinary catheter care records. You also need to be aware of the importance of documentation and the implications of the Data Protection Act 2018. You must be careful with patient records; any disclosure of information should be with the consent of the patient and your employer. You must understand the legal and professional consequences of poor practice.

Knowledge and understanding

What you need to know and understand

- Produce documents in a business environment **(BAA211)**.
- Prepare text from notes **(BAA213)**.
- Communicate with, and complete records for individuals **(HSC21)**.
- Use and develop methods and systems to communicate, record and report **(HSC41)**.
- Maintain and manage records and reports **(HSC434)**.
- Determine a treatment plan for an individual **(CHS41)**.
- Develop clinical protocols for delivery of services **(CHS170)**.
- Monitor your own work practice **(GEN23)**.
- Capture and transmit information using electronic communication media **(GEN69)**.
- Observe, monitor and record the conditions of individuals **(HSC224)**.
- Develop models for processing data and information in a health context **(HI5)**.
- Provide authorised access to records **(SS34).**
- Protect records **(SS35)**.

Skills for Health Competencies

Some general principles relating to documentation apply. These include confidentiality and legibility (so that documents can be photocopied several times and are legible, factual, easy to understand, contain no jargon, remain objective – with no personal opinions).

Good documentation:

- contributes to and establishes a diagnosis
- influences a care bundle and pathway of catheter care for an individual patient
- is a legal record of care bundle provision and what actually happened

- provides effective communication for other health care professionals involved in a patient's care
- is a point of reference and can be used to influence decisions for further interventions
- facilitates product tracing (if for any reason an individual patient experiences product failure)
- provides a record for the investigation of complaints and/or litigation
- facilitates critical reflective thinking
- offers a focus for clinical professional supervision and identification of learning needs
- completes an episode of care, end of a procedure or care bundle (group of procedures, tasks or activities forming a bundle of care).

Ensure all documentation is audit friendly and understood by the patient. You must be thorough in how consent is recorded and documented, even if it is written or verbally provided.

You should consider including the following information in your catheter insertion documentation

- The reason for the catheterisation, catheter change or ongoing need for a catheter with all its risks.
- Use of a catheter passport – as a tool for communication between different health care providers and if used what information needs to be included.
- The results of any risk assessment prior to catheterisation.
- The health status of the patient prior to catheterisation – well/unwell.
- Is the patient febrile, do they have a temperature (over 39°C, are blood cultures needed)?
- If taking antibiotics for a urinary tract infection, are these appropriate and still required?
- Is the individual patient in any form of localised discomfort or pain?
- It may be necessary to record fluid intake balanced against urinary output and, in some cases, this may be ongoing (for example, renal function and or failure).
- The use of a bladder scanner to determine bladder capacity, pre and post void residuals.
- Allergy status (for example, latex, gels and medication).
- Has consent been obtained for the procedure? Some organisations now require this to be in written form.
- If antibiotic cover has been used, state drug and dosage. Check prescription is correctly written and document administration of medicine.
- Meatal or genital abnormalities observed, including discharge.
- If the insertion was easy or difficult.

- Indications used to ensure catheter was inserted correctly (in men – amount of catheter inserted, obstruction felt at prostatic area, patient reaction to passing the prostatic area, urine drained, no resistance to balloon inflation, no patient reaction or pain related to balloon inflation, free movement of the catheter once balloon inflated).
- If urine is drained, the amount, colour, smell and, if necessary, dipstick and record the result (blood, protein, pH, glucose, nitrite, leucocytes). Dipsticks should not be undertaken routinely as they form part of a wider clinical assessment.
- If no urine drains, document what actions you took.
- 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).
- Cleaning fluid used.
- Lubricant/anaesthetic gel used.
- If specimens were sent, why? Note: A specimen of urine should only be sent if clinically indicated.

Drainage equipment documentation checklist

- Is this type of urinary drainage system appropriate for this particular patient?
- Is the brand, capacity and tube length appropriate?
- What support system is being used and is it appropriate?
- Is a link system being used and what type of night bag (single use or drainable)?
- Check when the drainage system was previously changed and if this is appropriate. Note the date of the change of bag or valve.
- Urinary drainage bags are dated whenever they are changed within health and social care settings.
- Note the batch number of equipment and sterility expiry date.
- Note any problems with product function.
- Note any problems with the supply of equipment.
- Note any problems with comfort.
- Note any associated skin or allergy problems.
- Note any problems related to lifestyle or daily activities.
- Is the system being used cost effective? Where are the supplies to be obtained from? (eg pharmacy, acute trust, GP, Home delivery service).

Catheter removal documentation checklist

- Was the length of time the catheter was in-situ appropriate for the type being used?
- Was the type of catheter, drainage system and support garments/straps being removed appropriate?
- Were the catheter tip and balloon intact upon removal?
- Note if encrustation was present, and to what degree.
- Note if the section of the catheter retained within the bladder was clean or dirty or if debris was evident.
- Did the balloon deflate appropriately?
- Note if the catheter was removed because of blockage, the catheter was not present to allow direct observation, was it dissected to identify the cause and severity?
- Note if the removal was painful.
- Note if blood was present and, if so, where (catheter tip, in the bag, around the meatus, clots in the drainage bag tube) and to what degree (clot, red coloured urine, meatal bleeding, frank haematuria)?
- Note observations around the meatus for any abnormalities (inflammation, swelling, meatal erosion, discharge/amount/colour).
- Note observations of urine and any clinical indication of signs of infection (cloudy, debris, amount, colour and smell, abdominal pain, pyrexia).
- Note patient tolerance of the catheter.
- Have any issues been encountered? eg self expelling, bypassing.

Ongoing observations documentation checklist

- Record the health status of the patient (well/unwell/seriously ill).
- Is the patient febrile, do they have a temperature (over 39°C, are blood cultures needed)?
- Is the patient taking antibiotics for a urinary tract infection? Record the type and duration of course, and if they are appropriate and still required.
- Note patient's tolerance of the catheter and associated drainage system.
- Is the patient in any form of discomfort or pain?
- Note the fluid intake balanced against urinary output.
- If first-time catheterisation takes place in a primary care setting, it is safe practice to monitor and make note of urine output for four hours after catheterisation. If the patient passes more than 200mls per hour after initial drainage, they need to be referred to the accident and emergency unit for fluid replacement as they are in risk of hypovolemic shock.

- Note the hourly urine output in critically ill patients.
- Note bowel activity.
- Note renal status.
- Note relevant blood results (prostate-specific antigen (PSA), urea, creatinine), plus the results, diagnosis and any further interventions.
- If patient is diabetic, glycosuria is indicative of poor blood sugar control and a potential infection risk, if diagnosis is unknown then further investigations are needed to establish a diagnosis.
- Note blood pressure status in relation to proteinuria and nocturnal polyuria (increased night time urinary output) to help establish a diagnosis.
- If a patient is immunocompromised, insertion of an indwelling catheter needs to be considered carefully due to higher risk of infection.
- Record all communication with other members of the multidisciplinary team regarding the patient's status.
- Does patient know how, where and when to obtain further supplies?

5. Anatomy and physiology

What you need to know

You need to apply an in-depth understanding of:

- the anatomy and physiology of the male and female lower urinary tract in relation to lower urinary tract function and continence status, including:
  - urine production and what influences this
  - normal micturition
  - the nervous system, including autonomic dysreflexia
  - the bowel and its links to voiding problems
  - the endocrine system
  - sexual function and links to catheter usage
  - the prostate gland, urethral sphincters and the urethra
  - anatomy and physiology applied to voiding dysfunction and how a urethral urinary catheter could be used to relieve this
  - anatomy and physiology links on how common catheter-related complications occur
- how to educate and advise individuals in the use of catheters, particularly on anatomy, catheter function and sensation.

Skills for Health

Urine production

The production of urine is influenced by several body systems; failure of any of these systems to function within normal limits will alter urine production. When a catheter has been inserted, these influencing factors must be considered in the measurement of urine output and fluid intake.

Urine production is controlled by the kidneys, a minimum of 30mls of urine an hour is produced by the normal functioning kidneys. The primary function of kidneys is to remove and restore selected amounts of water and solutes, in order to maintain homeostasis of blood pressure.

Renal function in the formation of urine is carried out by the nephrons. Nephrons carry out three important functions:

- the control of blood concentration and volume by removing selected amounts of water solutes
- regulating blood pH
- removing toxic waste from the blood.

The nephrons remove many unwanted materials from blood, return ones that the body

needs and excrete the remainder as urine. The kidneys become less effective with age; at 70 years of age the filtering mechanism is half that of someone who is 40 years of age. HCPs therefore need to know what actions to take if urine production is reduced or stops.

The bladder is a hollow muscular organ situated retroperitoneal in the pelvic cavity. Its shape depends on the volume of urine in it; empty, it is collapsed and becomes spherical when slightly distended. It rises into the abdominal cavity as urine volume increases. The function of the bladder is to store urine. HCPs need to understand how catheter usage affects bladder function from both a positive and negative perspective.

Prostate – only present in males and transgender females. It sits around the urethra just below the level of the bladder. It enlarges normally with age, causing bladder outflow obstruction, which can lead to urinary retention and is a common reason to insert a urinary catheter. Outflow obstruction can also be caused by inflammation of the prostate. In catheterisation technique, it is important to understand how the patient reacts and the feeling of obstruction as the catheter is passed through the prostate gland. It is also important to be aware of catheter insertion and removal techniques in individuals following prostatic surgery.

Urethral sphincters – there are two urethral sphincters. The internal sphincter is under the control of the brain and spinal cord nerve pathways. The external sphincter has an element of learned behaviour that the patient can control. Closure of the sphincters during bladder filling help to maintain continence, but damage or excessive detrusor pressure can lead to incontinence. They may be damaged during catheterisation or post prostatic surgery. In catheterisation, it is important to understand how the patient reacts and the feeling of obstruction as the catheter passes through the sphincters.

Urethra – the anatomy of the urethra makes it sensitive to trauma during catheterisation. The lumen of the urethra is a convoluted, ribbon-like structure, only dilating during urination or when accommodating a urethral catheter. The urethra is lined with transitional epithelium; underlying the epithelium lays is a thin layer of tissue that is rich in blood vessels. Therefore, any trauma to the epithelium during urethral catheterisation provides convenient entry sites for micro-organisms into the blood and lymphatic system.

The female urethra is 3 to 5cm long and its elasticity is influenced by circulating oestrogens. The male urethra is 18 to 22cm long; trauma to the male urethra often results in the formation of scar tissue which can cause urethral stricture. Its function is to allow the discharge of urine from the body. Its length is important in relation to how much of the catheter is needed to reach the bladder.

Catheters come in different lengths and relate to urethral length; a female catheter is not long enough to reach the bladder in a male. In the catheterisation technique of a male patient, the amount of catheter inserted is an important indication of being in the bladder, along with other key observations. The HCP should be aware of any individual who has undergone surgery on the genitourinary tract as this may alter the urethral length/ structure and will affect the type of catheter chosen. If the patient is very tall or obese, shorter length catheters may not be sufficient for effective drainage.

Normal micturition – this is caused by a combination of involuntary and voluntary nerve impulses. As the bladder fills, stretch receptors in the bladder wall transmit nerve impulses to the spinal cord. These impulses transmit by way of sensory tracts

to the cortex, initiating a conscious desire to void. Parasympathetic impulses from the micturition centre in the sacral spinal cord are conducted to the urinary bladder wall and internal urethral sphincter. These cause contraction of the detrusor muscle and relaxation of the internal urethral sphincter. The cerebral cortex of the brain then allows voluntary relaxation of the external sphincter and urination takes place.

Involuntary micturition – this can occur as a result of:

- unconsciousness
- injury to the spinal nerves controlling the urinary bladder
- irritation due to abnormal constituents in urine
- disease of the urinary bladder
- damage to the external sphincter
- inability of the detrusor muscle to relax.

Urinary retention – this can occur as a result of:

- obstruction at the bladder neck
- enlarged or inflamed prostate
- obstruction of the urethra (stricture)
- contraction of the urethra during voiding
- lack of sensation to pass urine
- neurological dysfunction
- urinary tract infection
- the effects of medication
- pain overriding normal bladder sensation
- psychological causes.

Nervous system – this needs to be intact to allow normal bladder function to take place, but it may be a reason for catheterisation. Poor or no bladder sensation can lead to incomplete emptying or urinary retention. Catheterisation technique needs more caution in individuals with altered sensation, as normal reactions are absent.

Endocrine system – there are a number of factors that influence its effect on the production of urine, such as angiotensin II and antidiuretic hormone (ADH) or vasopressin.

- Angiotensin II stimulates thirst, promotes the release of aldosterone, which increases the rate of salt and water re-absorption by the kidneys.
- Antidiuretic hormone (ADH) is produced by the hypothalamus and released into the blood stream by the posterior pituitary gland. This hormone regulates the rate of water reabsorption by the kidneys and causes constriction of blood vessels.

- Aldosterone is secreted by the renal cortex; release of aldosterone enhances the reabsorption of sodium and water.
- Glycosuria is usually an indicator of diabetes mellitus. When glucose exceeds the renal threshold in normal glomerular filtration, the sodium glucose symporters cannot work fast enough to reabsorb the glucose and glucose is excreted in the urine. It can lead to symptoms of urgency and frequency, and can also become infected as bacteria have a medium by which to multiply quickly.

HCPs need to link urinary output and symptoms to possible endocrine dysfunction.

Cardiac system – the heart is responsible for pumping blood around the body. As the blood flows through body tissues it picks up waste products which are excreted via the kidneys. An inefficiently functioning heart can produce the side effects of nocturia or nocturnal polyuria. If a catheterised patient produces more urine at night than during the day, it could be nocturnal polyuria and appropriate interventions should be considered.

Pelvic floor muscles – in females, the pelvic floor supports the organs within the abdominal cavity, resists increased intra-abdominal pressure and draws the anus towards the pubis and constricts it. Nerve supply is from sacral nerves S3 to S4 and the perineal and pudendal nerve. Where catheters fall out of females, pelvic floor laxity should be considered as a cause. In males, the bulbocavernosus and deep transverse perineal helps to expel the last drops of urine during micturition. Ischiocavernosus helps to maintain erection of the penis. Nerve supply is from sacral nerves S4 and the perineal and pudendal nerve.

Sexual function – this can become compromised with the use of a catheter. Altered body image due to urethral or suprapubic catheterisation may impede the person's desire to want sexual intercourse. The presence of an indwelling catheter in a male urethra may cause trauma to the urethra on erection. Painful erections, particularly when sleeping, are a common complication of having an indwelling urethral catheter. In undertaking a catheter care review, HCPs must consider sexual needs and plan care where possible to facilitate an individual's ability to meet these. The RCN has produced ***Older People in Care Homes: Sex, Sexuality and Intimate Relationships*** (2018). This publication offers guidance for nursing staff to help address the needs of older people in a professional, sensitive, legal and practical way.

Skin – has several functions, but related to continence and catheterisation it offers:

- protection – providing a physical barrier that protects the underlying tissues from physical abrasion, bacterial invasion and dehydration
- sensation – skin contains abundant nerve endings and receptors that detect stimuli related to pain, touch and pressure.

It is important to make every effort to ensure that incontinence and catheterisation do not compromise these vital functions of the skin. Catheterisation can increase sacral skin breakdown due to lack of movement. Where sacral skin breakdown has occurred, catheter-related complications increase because of cross infection from wound to bladder. It can also increase the risk of bacteraemia.

Female Genital Mutilation (FGM) – this is the alteration/mutilation of the female genitalia for any non-medical reason. It can involve piercing, tattooing, removal of the clitoris and labial folds, suturing. It is illegal in the UK to allow FGM practices. All HCPs have a legal duty of care to report any known episodes of FGM or anyone at risk of FGM. For further guidance see the RCN's publication ***Female Genital Mutilation*** (2016).

Transgender individuals – individuals who undergo treatment or surgery to alter their gender. Their internal urethral structure is altered, and this may affect the choice of catheter used. Careful assessment and sensitive questions are required to ensure the correct equipment and products are used.

6. Consent

What you need to do

The law requires that the patient must give valid consent before the procedure (catheterisation) or care is given. In terms of care and support of the patient, know how to obtain valid consent and how to confirm that sufficient information has been provided on which to base this judgment.

What you need to know and understand

- Obtain valid consent for or authorisation (CHS167).
- Enable individuals to make informed choices and decisions (PE1).

National Occupational Standards

Obtaining consent is essential before carrying out catheterisation. Without consent, the care or treatment may be considered unlawful and the patient could take legal action against the health profession, even if treatment was for the patient's benefit.

Consent can only be given by the patient. To enable the patient to give consent they must have capacity to understand and retain the information and be able to weigh the risks against the benefits.

You must respect and support an individual's right to accept or decline treatment. You should uphold their right to be fully involved in decisions about their care, plus be aware of the legislation regarding mental capacity (NMC, 2015; Mental Capacity Act, 2005).

The five key principles of the Mental Capacity Act (2005) need to be taken into consideration when obtaining consent from a patient for catheterisation.

1. **A presumption of capacity** – every adult has the right to make their own decisions and must be assumed to have capacity to do so unless it is proved otherwise.
2. **Individuals should be supported to make their own decisions** – a person must be given all practicable help before anyone treats them as not being able to make their own decisions.
3. **Unwise decisions** – just because an individual makes what might be seen as an unwise decision, they should not be treated as lacking capacity to make that decision.
4. **Best interests** – an act done, or decision made under the Act for, or on behalf of a person who lacks capacity, must be done in their best interests.
5. **Least restrictive option** – anything done for, or on behalf of a person who lacks capacity, should be the least restrictive of their basic rights and freedoms.

Additional key statements related to consent and catheterisation

- A health care worker may decline temporarily (not consent) to perform any aspect of catheterisation or ongoing catheter care because of a lack of competence, until it is gained within an agreed reasonable period of time (at local level).
- Catheterisation is an invasive procedure with associated serious risks, therefore obtaining documented, valid consent is vital prior to the procedure. In the patient who is unable to give consent, there must be a clearly stated rationale for using a catheter and it must be clear that this is in the best interests of the patient. There should be MDT involvement in this situation and also evidence of consultation with appropriate next of kin.
- The patient expects that it is in their best interests and safety.
- The patient should be provided with supportive, written information, in a format that they can understand.
- The patient should understand the rationale, the alternatives and the consequences of not being catheterised.
- The patient expects that their catheter care reflects up-to-date, evidence-based best practice in the giving of consent.
- Where other health care workers are present to observe or perform, under supervision, aspects of catheter care, patient consent is required.
- Patient consent is required for the use, or not, of a chaperone during any aspect of catheterisation or ongoing catheter care.
- In an acute care setting, the patient understands that the catheter will be removed as soon as possible because of the daily increase in the serious risk of infection.
- The patient understands the types (indwelling urethral, suprapubic, intermittent) available and has made an informed choice for the one selected.
- The common risks associated with long-term catheter usage (over three months) should be explained in the process of gaining consent. These include: bypassing, discomfort, blockage, infection, bleeding and, in men, painful erections.
- In gaining consent to catheterise a patient, they are accepting that the health care worker is competent and can demonstrate this if required.
- Avoid coercing or restraining patients for catheterisation, including aspects of ongoing catheter care, as this is assault in law and demonstrates a lack of consent.
- The patient would expect that any health care worker will take all standard precautions in performing the procedure in an aseptic manner.
- In undertaking any aspect of catheter care, the patient gives consent to that individual health care worker to perform specific tasks.

- In gaining consent for screening/testing/monitoring of urine, performing other investigations and reaching a diagnosis, the rationale needs to be explained and the implications of the results.
- If a patient is being discharged from hospital with any form of urinary catheter in place, consent is required before information concerning their care can be passed onto community staff within another organisation.
- Consent is required for all aspects of catheter care including: catheter removal, meatal care, use of a catheter instillation, solution and medication and for obtaining a specimen of urine for laboratory analysis.
- In using any catheter care equipment or medication, the consent is valid on the grounds of indications, manufacturers' directives and licence.
- When considering onward referral (for example, the urologist or specialist nurse), explain clearly: patient choice, the rationale, what it involves, the waiting times and possible outcomes, so the patient can give consent and comply.
- If a home delivery service is recommended for catheter care equipment (dispensing appliance contractor), consent is required before passing on agreed information outside of your organisation.
- In the usage of catheterised patient's data, ethical approval and consent are required in writing before the data can be released or used for this specific purpose.
- Documenting the giving of consent for catheter usage and ongoing catheter care is vital from a professional, ethical and legal perspective.

7. Reasons for, and decisions influencing, catheterisation

Catheters should only be used after all alternatives have been considered. (NICE, GC171)

Knowledge and understanding

Clinical indications for intermittent, suprapubic or urethral catheterisation

- Acute urinary retention **(AUR)**.
- Chronic urinary retention, only if symptomatic and/or with renal compromise.
- Monitoring renal function hourly during critical illness.
- Monitoring/recording/draining residual urine volumes (wherever possible, a bladder scanner is the preferred option to measure residual urine volumes).
- During and post-surgery, for a variety of reasons.
- Allowing bladder irrigation/lavage.
- Allowing instillation of medications, for example, chemotherapy.
- Bypassing an obstruction/voiding difficulties.
- Enabling bladder function tests, for example, urodynamic assessment.
- Facilitating continence and maintain skin integrity (when all conservative treatment methods have failed).
- Obtaining a sterile urine specimen.

What you need to know

- Plan the assessment of an individual's health status **(CHS38)**.
- Plan interdisciplinary assessment of the health and wellbeing of individuals **(CHS52)**.
- Assess an individual's health status **(CHS39)**.
- Assess risks associated with health conditions **(CHS46)**.
- Obtain valid consent or authorisation **(CHS167)**.
- Establish a diagnosis of an individual's health condition **(CHS40)**.

What you need to do

- During individual assessment, when instrumental bladder drainage is deemed necessary, consider the patient's suitability for intermittent, suprapubic or urethral catheterisation **(NICE GC171)**
- Understand the reasons for catheterisation and constantly review the need for continued catheter usage. In acute areas, this should be a daily review.

- Where it is viewed as appropriate for the patient to use a catheter, such as: end-of-life care, disability, unfit for surgery, HCPs must remember that the risks associated with catheter usage are serious and increasingly may be more difficult to justify.
- Never catheterise or continue catheter usage for nursing convenience.
- HCPs must ensure that catheterisation is based on a balanced decision with more benefits than disadvantages and in consultation with the patient, where possible.
- Routine catheterisation must not be regularly supported by HCPs, particularly in specific patient groups, such as those with a fractured neck or femur.
- Incontinence is considered a major factor in the development of moisture-associated skin damage, incontinence-associated dermatitis and pressure ulcers. Inserting an indwelling catheter could be assessed as reducing this risk, however with a catheter in-situ, there is less need for the patient to mobilise as they would with toileting or pad changes, so the risk may be higher.
- Catheterisation of patients who are agitated and/or cognitively impaired should be carefully considered and risk assessed, due to the possibility of deliberate self-removal of the catheter leading to tissue trauma.
- Where a significant residual volume of urine is identified, the patient's symptom and severity profile, along with their renal function and cognitive status, must be considered prior to catheterisation.
- Where a residual volume of urine is identified and a decision to catheterise is made, it is imperative that the HCP ensures that the route of catheterisation is made within a multidisciplinary team (MDT) framework.
- HCPs must always assess clinical need for catheter usage as part of their professional role, even if medical directives state 'to catheterise'.
- When an indwelling catheter is inserted, the HCP should consider and plan for early removal as infection risk increases on a daily basis.
- HCPs should not, under any circumstance, present or promote catheterisation to patients as an easy, best option to regain continence.
- When making the decision to catheterise, HCPs must be mindful of the serious implications, for example, the risk of infection, particularly those associated with multi-resistant bacteria and a possible lack of effective antibiotics.

Risk assessment

It is essential that risk assessment is an integral part of catheter care in all care settings. Using any form of catheter has associated risks. These risks are becoming more serious with the continued development of a wide range of multi-resistant bacteria which cause catheter-associated urinary tract infections and associated life-threatening complications. HCPs should consider the following questions.

- Is there a catheter in use, is it necessary?
- What type of catheter is in use (for example, 3-way, long-term short-term, Tiemann tip)?

- Is this type of catheter normally used in this facility? Are staff competent to manage the type of catheter?
- Is a closed system being maintained?
- Is the catheter inserted using a catheter 'insertion tray' with pre-connected catheter and drainage bag? (Refer to local formulary/policy.)
- Is the catheter secured to the patient's body to prevent urethral tension using an appropriate securement device?
- Is the bag below the level of the patient's bladder? (if the bag is more than 30cm away from the bladder, there is an increased negative pressure which may increase the risk of blockage or bypassing).
- Is the tubing from the catheter to the bag free from kinks or obstruction?
- Is the drainage bag well supported using an appropriate stand or securement device?
- Could a catheter valve be used instead of a drainage bag?

Patients who are more likely to be at risk of an associated catheterisation infection

The following examples are not comprehensive, but can be used in the formation of risk assessment tools for HCPs to use in clinical practice. By performing a risk assessment, indwelling catheterisation may not be the best management for the patient; intermittent catheterisation or pad, or external appliance, may be a better choice. However, indwelling catheterisation may be the only option and the risks should be managed carefully.

In carrying out a risk assessment consider if the patient has/had:

- an artificial heart valve
- a heart defect
- urinary infections post catheterisation – the urinary catheter and drainage system will become colonised by bacteria within 48 hours (the longer a catheter remains in situ the greater the risk)
- or is immuno-suppressed
- organ transplants
- poor bowel control/diarrhoea since having a catheter (high risk of infection)
- one kidney (risk of renal infection)
- a urinary infection since having a catheter (this indicates a high risk of further infection).

8. Risk assessment

Knowledge and understanding

Using any form of catheter has associated risks and with the continued risk of urine infections and associated life-threatening complications, such as sepsis, it is of great importance that risk assessment becomes an essential part of clinical decisions and catheter care in all care settings.

Catheterisation should be only be undertaken after considering alternative methods of management and the person's clinical need for catheterisation should be reviewed regularly, with the urinary catheter removed as soon as possible (NICE, 2012).

What you need to know

- Understand the different risks and health issues that will influence how, where and when to catheterise, and when to undertake a trial without a catheter.
- Understand the risks associated with catheterisation and how to minimise their impact.
- Undertake a risk assessment to determine whether the patient still requires an indwelling catheter or is ready to undergo a trial without catheter, or to perform intermittent catheterisation.
- Plan an assessment of an individual's health status **(CHS38)**.
- Plan an interdisciplinary assessment of the health and wellbeing of the individual **(CHS52)**.
- Assess an individual's health status **(CHS39)**.
- Assess the risks associated with health conditions **(CHS46)**.

Skills for Health

When considering long-term catheterisation, a risk assessment should consider the patient's quality of life, particularly:

- the impact of the catheter on the patient
- their sexuality and body image
- their social support networks
- if they can manage the catheter independently at home and, if not, what support needs to be arranged
- the patient's and family's education
- the supply of equipment
- how the equipment will be ordered and where from.

(EAU, 2012)

Patients where the risk of catheter associated urinary tract infection (CAUTI) may be serious

The following are examples of health risks that should be assessed prior to catheterisation and catheter usage. They can be used in the formation of risk assessment tools for HCPs to use in clinical practice. By performing a risk assessment, it may be decided that an indwelling catheter may not be the best management for the patient; intermittent catheterisation or pad, or external appliance may be a better choice. Any patient can experience serious complications as a result of infection but some are particularly vulnerable.

It is important to minimise the use and duration of urinary catheterisation in all patients, but especially those at higher risk for CAUTI-related morbidity and mortality such as:

- women
- the elderly
- individuals with impaired immunity.

Additional risk factors which may increase the potential for serious complications of CAUTI include if the patient:

- has been in hospital in the last 12 months, exposed to the risk of colonisation with multi-resistant bacteria
- has taken antibiotics in the last six months, as this increases the risk of C. difficile infection
- is pregnant
- has diabetes mellitus
- has more than six medications – indicative of compromised health status
- has had chemotherapy within the last six months (immune compromised)
- is taking steroids (immune compromised, increased infection risk)
- has underlying renal tract abnormalities
- has one kidney (due to the potential implications of a renal infection)
- has one functioning kidney – currently taking antibiotics for a urinary tract infection
- has a history of repeated urine infection or at least one urinary tract infection since using a catheter
- has chronic wounds that require dressings (could potentially cross-infect the catheter and drainage system)
- has an artificial heart valve or heart defect (due to risk of endocarditis)

- is immuno-suppressed
- has organ transplants
- has poor bowel control/diarrhoea.

Allergy risks related to catheterisation include:

- latex
- soap
- lubrication gels containing lidocaine.

Complications which indicate a need for further investigation include:

- previous difficulty in catheter insertion and/or removal
- history of frequent catheter blockage
- catheter has fallen out
- bypassing of urine
- pain, discomfort and discharge associated with catheter usage
- recurrent infection.

Risks of haematuria include:

- use of medication such as aspirin or warfarin
- recent catheter-related trauma
- recent urinary tract surgery
- known bladder/prostate cancer
- prostatic trauma.

Careful consideration should be given to patients where:

- blood clots have been observed
- meatal bleeding is observed.

When a catheter is already being used the HCP should consider if it is necessary. This can be established using the HOUDINI (Adams et al, 2012) indicators.

H – Haematuria.

O – Obstructed.

U – Urologic surgery.

D – Decubitus ulcers – open sacral or perineal sore in an incontinent person.

I – Input/output monitoring.

N – Not for resus/end of life care – comfort.

I – Immobility due to physical restraints.

If the catheter is necessary, consider the following questions to minimise the risk of infection and complications.

- Has hand washing/general hygiene advice been given to patient?
- Is a closed system being maintained?
- Is the catheter secured to the patient's body to prevent urethral tension?
- How secure is it? And is it the most appropriate device?
- Is the bag secured below the level of the patient's bladder?
- Is the tubing from the catheter to the bag free of dependent loop?
- Is a catheter bag stand in use which prevents the bag from touching the floor?
- Does the patient have an individual measuring device (if appropriate, marked with their name and room number)?
- Is the meatus washed daily with non-perfumed soap and water? Women should wipe front to back and if the man has a foreskin, ensure cleansing is undertaken with a retracted foreskin.
- Who will be responsible for emptying/changing the bag? Have they been trained appropriately?

If the catheter needs to be removed (and your patient is male), before undertaking a trial without catheter and to help minimise failure, consider the following factors.

- The patient's prostate size.
- Has the patient had a previous episode of acute urinary retention?
- Is the patient over 70 years of age?
- Has the patient had a previous failed trial without catheter?
- Check the patient isn't taking alpha blockers.
- Check other medication taken, such as anticholinergics
- The patient's ability to manage toileting without a catheter.

Factors which may increase urinary output when supine (important when considering flow rates or trial without catheter when the patient is upright) include:

- heart disease
- diuretics
- postural oedema
- hypertension.

9. Catheter-related equipment

What you need to know

Knowledge of available catheter equipment including catheter types and sizes, indwelling, intermittent, suprapubic, urinary drainage bags, catheter fixation devices, catheter valves – see appendix list.

- A comprehensive understanding of appropriate choice of catheter and associated equipment based on holistic patient assessment and education.
- How to order, store and dispose of catheter equipment, adhering to manufacturers recommendations and local policies including waste and IPC.

Skills for Health

Knowledge and understanding

- Insert and secure urethral catheters **(CC02)**.
- Care for individuals with urethral catheters **(CC03)**.
- Manage suprapubic catheters **(CC04)**.
- Undertake a trial without catheter **(TWOC) (CC05)**.
- Enable individuals to carry out intermittent catheterisation **(CC06)**.
- Review catheter care **(CC07)**.

A medical device is defined as an apparatus, appliance, material, software or an instrument used alone or collectively to diagnose, monitor, treat, and alleviate disease or injury.

Regulation and appropriate use

The Medicines and Healthcare products Regulatory Agency (MHRA) is an executive agency of the Department of Health. It has three UK centres which use research and anonymised NHS data to improve public health. The MHRA is responsible for ensuring medical devices are high quality, effective and safe for patient use.

Urinary catheters and related equipment are medical devices. HCPs must therefore understand the importance of research and audit for the appropriate evaluation, selection and use of urinary catheters and associated catheter equipment. All equipment must be evidence based and used in accordance with a manufacturer's guidance and used only for the purpose intended.

Catheter products require a CE mark. This is a declaration of conformity by the manufacturer that the device is fit for intended purpose and meets legislation relating to safety.

HCPs must have a clear understanding of the benefits and disadvantages of catheter equipment and must be familiar with the types of catheters and associated equipment available:

- catheter size
- type – indwelling, suprapubic
- intermittent, long term, short term
- leg bags, belly bags, night bags
- stands, link systems, catheter valves, fixation devices, support garments (See Appendix 1).

Ordering equipment

The UK health services must consider cost efficiency and the best use of available products and resources when purchasing catheters and related equipment. Many continence services have their own product formulary created using evidence-based research, cost and availability.

The ordering of catheter equipment is guided by local policy. The HCP must know how to order the correct catheter equipment and organise this prior to patient discharge. In areas where a stock of catheter equipment is required, overstocking must be avoided, and stock should be rotated to prevent products expiring and leading to wastage.

Correct procedures

The following processes and procedures must be adhered to when using any catheter-related equipment.

- The patient must be provided with the correct equipment, which is in date and stored appropriately. In a community setting, the patient should also have a spare catheter in case of unplanned recatheterisation. Catheters and associated equipment must be stored intact in a clean area to avoid cross contamination. The HCP must check the urinary catheter size, length and date prior to insertion of catheter and use of associated equipment. A female length urinary catheter must never be used for male catheterisation.
- In a community setting the patient should have a spare catheter in case of unplanned recatheterisation.
- The patient must be provided with education and information on available catheter equipment to support an informed choice. Also provide advice on process of obtaining regular supplies and where they can be obtained from. Patient information leaflets must be up to date, evidence based and available in several formats to support the individual needs of the patient.
- Patients who independently manage their catheter care must be provided with appropriate support. Practical planned education and written information is required to ensure the patient can competently care for their catheter. This education must include hand decontamination and personal hygiene information to maintain infection control.
- Single use equipment must not be reused or reconnected in any care settings.

- Drainable products should not be rinsed/washed out. If the bag is contaminated, it should be changed for a new product even if this is earlier than the scheduled change of seven days (or 28 days in the case of a belly bag).
- The HCP must have the knowledge and skills to teach a patient intermittent self-catheterisation, how to use catheter valves, catheter bags and associated equipment, as appropriate. Catheters and related equipment must be used following manufacturers' guidelines.
- Any adverse incident involving urinary catheter related equipment requires reporting to the MHRA, who immediately work with the manufacturer and take timely action. Incident reporting must be in line with local incident reporting policy.
- A patient assessment is required prior to the use of any catheter and catheter-related equipment. Assessment safeguards the appropriate choice and use of catheter type, size and associated equipment. The HCP must ensure the patient receives a holistic assessment which is documented.
- Patient privacy and dignity must be considered and the HCP must be able to advise the patient on the most suitable catheter types and associated equipment to support their lifestyle.
- The type of catheter and related equipment required must be clearly documented. The patient must have a documented plan of care which must indicate the reason for insertion of the catheter, if it is long term, short term or plan for trial without catheter (TWOC). The care plan must be periodically reviewed, inclusive of the catheter and equipment, to ensure the appropriate care is received.
- HCPs must be aware of how to safely dispose of catheter equipment (following local policy for the safe disposal of waste). This applies to all settings – hospital, clinic and the patient's home.

Urinary catheter passport

Providing the patient with a urinary catheter passport supports consistency of catheter care. Catheter passports are currently used in many areas and are advocated by NHS England (2015) The HCP must educate the patient on the importance of the catheter passport document when accessing health care support for their catheter. The document provides the patient and health care professionals with relevant catheter care information, inclusive of reason for catheterisation, catheter type, size, insertion information, catheter-related equipment, planned catheter change and forward planning (for example, TWOC date).

10. Suprapubic catheterisation

What you need to know

An in-depth understanding of the reasons why suprapubic catheterisation is necessary including: maintaining urethral surgery, long term catheterisation, and sexual needs.

- Indications and contraindications for suprapubic catheters.
- Advantages and limitations.
- Insertion techniques.
- Subsequent catheter changes, management and complications.

Knowledge and understanding

- Assess bladder and bowel dysfunction **(CC01)**.
- Care for individuals with urethral catheters **(CCO3)**.
- Manage suprapubic catheters **(CC04)**.
- Undertake a trial without catheter **(TWOC) (CC05)**.
- Review catheter care **(CC07)**.

Skills for Health

What you need to do

- Comply with the correct protocols and procedures relating to suprapubic catheterisation.
- Observe the cystostomy site for any abnormalities and take appropriate action.
- Remove the previous indwelling catheter in accordance with protocols.
- Observe the catheter removal.
- Contain any leakage from the cystostomy.
- Aseptically clean the site for insertion of the new catheter and administer appropriate lubrication.
- Insert catheter safely, aseptically and correctly, according to manufacturer's instructions and with minimal discomfort and trauma to the individual.
- Ensure the catheter is in the correct position, using the appropriate indicators before balloon inflation.
- In addition to the indications for a urethral catheterisation, the following indications apply for suprapubic catheterisation.
- Acute and chronic urinary retention that cannot be adequately drained with a urethral catheter or where a urethral catheter is contraindicated.

- Patient preference due to patient needs for comfort and accessibility (for example, wheelchair user, sexual issues).
- Acute prostatitis.
- Obstruction, stricture, abnormal urethral anatomy.
- Pelvic or urethral trauma.
- To minimise complications of long-term urethral catheterisation.
- Complex urethral or abdominal surgery.
- Neuropathic disorders, such as multiple sclerosis and spinal cord injury, require frequent catheterisation due to catheter expelling frequently.
- Patients who have faecal incontinence and are constantly soiling urethral catheters or suffer moisture lesions.

Adapted from the European Association of Urology Nurses, ***Catheterisation. Indwelling catheters in adults – Urethral and suprapubic***, (2012) and the British Association of Urological Surgeons (2010).

Contraindications for a suprapubic catheter

- Absolutely contraindicated in the absence of an easily palpable bladder or when unable to visualise a distended bladder by ultrasound.
- Known or suspected carcinoma of the bladder.
- Previous lower abdominal surgery.
- Coagulopathy – a clotting disorder and bleeding disorder in which the blood's ability to clot (coagulate) is impaired –until the abnormality is corrected.
- Ascites.
- Prosthetic devices in lower abdomen (for example, a hernia mesh).

Adapted from the European Association of Urology Nurses, ***Catheterisation. Indwelling catheters in adults – Urethral and suprapubic***, (2012).

Advantages of a suprapubic catheter

There is little evidence-based research on the use of suprapubic catheters but the EAUN (2012) and Yates (2016) highlight several benefits to having a suprapubic catheter when compared to a urethral catheter.

- There is less risk of urethral trauma, necrosis, or catheter-induced urethritis and urethral strictures.
- Greater comfort, particularly for patients who are in wheelchairs, as the catheter is not positioned between the legs and less risk of the catheter becoming kinked causing bypassing.

- Easier access to the cystostomy site for cleaning and catheter changes.
- Reduced risk of catheter contamination with micro-organisms that are commonly found in the bowel, therefore reducing the number of urinary tract infections.
- Greater freedom to be, or remain, sexually active
- Micturition is still possible if urethra not surgically closed or obstructed.
- Voiding trials (TWOC) may be easier.

Disadvantages of a suprapubic catheter

- It can bring about significant life changes, including physical, psychological as well as altered body image.
- It can cause swelling, infection, cellulitis and over granulation of the cystostomy site.

Suprapubic catheter – how to help prevent granulation and infection

To help prevent over granulation the EAUN (2012) recommend changing the angle of the balloon so that the catheter lies externally against the abdominal wall. An appropriate catheter fixation device should be used to reduce migration and potential trauma.

To reduce infection, always ensure good hand hygiene is performed prior to any intervention, and ensure an aseptic technique is followed during catheter changes.

National guidelines recommend that daily cleansing of the site with soap and water is all that is required as excess cleansing may increase the risk of infection (EAUN, 2012).

- Bypassing can occur as it may be caused by catheter blockages or detrusor overactivity. Also, a patient may still experience urethral leakage if urethral closing pressure is inadequate or absent (BAUS, 2010).
- Cuffing and/or encrustation can make suprapubic catheter removal difficult, causing pain and trauma. This has often been associated with all-silicone catheters. EAUN (2012) recommend that by leaving the catheter in situ for five minutes after deflating the balloon, allows the catheter to regain its original shape. Then, on removal, rotate the catheter slowly. The use of an all-silicone catheter with an integral balloon may help reduce the risk of cuffing.
- Bladder stones are more prevalent in suprapubic catheterisation than in urethral catheterisation, and can cause recurrent urinary tract infections, haematuria and catheter blockages. The EAUN (2012) recommend that frequent catheter blockages should be investigated using a cystoscopy as these blockages are often related to the development of bladder stones.
- Bladder cancer has been associated with long-term catheterisation. The EAUN (2012) believe the risk is greater in spinal cord injury patients.
- Complications such as bowel perforation or internal injury can occur during the initial cystostomy formation (National Patient Safety Agency, 2009).

- Urinary tract infections are associated with catheters, however, suprapubic catheters are less prone to cause symptomatic infection compared to urethral catheterisation (EAUN, 2012). Trauma on removal or changing of catheters can result in infection.

Changing a suprapubic catheter

Following the initial insertion of a suprapubic catheter, the catheter must stay in place for up to 4 to 6 weeks, depending on local guidelines. This allows time for the tract to become established EAUN (2012).

There are potential risks when changing a suprapubic catheter (for example, the loss of the tract) and, therefore, the first change must be done without delay so that the cystostomy is not allowed to close. This procedure is usually performed in hospital and should take no longer than 10 to 15 minutes – from removing the old catheter to replacing the new catheter. A subsequent change, when the cystostomy is established, is not so critical but does need to be carried out immediately after removal of the old catheter.

Most uncomplicated changes occur in a community setting or within the patient's own home. Subsequent changes should be undertaken on an individual basis, when clinically indicated, or when local protocols dictate.

Training and experience in changing a suprapubic catheter is essential. Only appropriately trained staff should undertake a suprapubic catheter change and they should ensure that they comply with local protocol and procedures. It is also important that checks are made with the manufacturer to ensure that the catheters, and any lubricant used, are licensed for suprapubic usage (EAUN, 2012).

Incorrect insertion into the bladder can potentially lead to tissue trauma of the suprapubic tract. Further complications can be caused if the catheter is inserted too far; the catheter can advance into the urethra, resulting in trauma when the balloon is inflated. Therefore, when changing a suprapubic catheter, it is essential to observe:

- the lie of the existing catheter
- the angle of insertion
- how much of the catheter length is viable outside of the body.

On insertion of the catheter, advance the catheter into the tract 3 cm deeper than the removed catheter. If no urine drains, gently apply pressure on the symphysis pubic area. Once urine starts to drain, slowly inflate the catheter balloon according to the manufacturer's instructions. Withdraw the catheter slightly and attach the drainage bag (if this has not already been done) and secure with the appropriate support strap (EAUN, 2012).

Dressings

Dressings are often unnecessary and are best avoided, if a dressing is used to contain a discharge this should be undertaken with strict aseptic technique to protect against infection. Wherever possible, patients should be encouraged to change their own dressing (EAUN, 2012).

Licensed products

If in doubt, check the catheter is licensed for suprapubic usage with the manufacturer. Ensure lubrication and anaesthetic agents are licensed for suprapubic usage.

Antibiotic cover

Local policies should be checked for information on if antibiotic cover is required

11. Trial without catheter

Knowledge and understanding

- Assess bladder and bowel dysfunction **(CC01)**.
- Insert and secure urethral catheters **(CC02)**.
- Care for individuals with urethral catheters **(CC03)**.
- Manage suprapubic catheters **(CC04)**.
- Undertake a trial without catheter **(TWOC) (CC05)**.
- Enable individuals to carry out intermittent catheterisation **(CC06)**.
- Review catheter care **(CC07)**.
- Care for individuals using containment products **(CC08)**.
- Help individuals to effectively evacuate their bowels **(CC09)**.
- Assess residual urine by use of portable ultrasound **(CC10)**.
- Implement toileting programmes for individuals **(CC11)**.
- Enable individuals to undertake pelvic floor muscle exercises **(CC12)**.
- Enable individuals with complex pelvic floor dysfunction to undertake pelvic floor muscle rehabilitation **(CC13)**.
- Plan interdisciplinary assessment of the health and wellbeing of individuals **(CHS52)**.
- Assess risks associated with health conditions **(CHS46)**.
- Establish a diagnosis of an individual's health condition **(CHS40)**.

Skills for Health

What you need to know

- The reasons why trial without catheter is necessary.
- The different types of trial without catheter and the rationale behind chosen methods.
- How to minimise any unnecessary discomfort during treatments relevant to trial without catheter.
- When not to proceed, or when to abandon a trial without catheter for an individual and what actions to take.
- The reasons why intermittent bladder drainage is the better option if the trial without catheter is unsuccessful.
- How to perform a trial of voiding for an individual with a suprapubic catheter.
- How to perform and interpret bladder ultrasound.

What you need to do

- Provide the individual and relevant others with the appropriate health-related information and advice to establish the individual's health needs and suitability for trial without catheter.
- Undertake a risk assessment and use the outcomes to determine a suitable method for trial without catheter.
- Recognise any adverse effects and potential complications during the trial without catheter.
- Identify appropriate treatments for the individual based on the results of the trial without catheter.
- Provide appropriate care for individuals where the trial without catheter is not effective.

National Occupational Standards

Indications for a trial without catheter (TWOC)

This is to establish if voiding is possible, therefore preventing unnecessary continued catheter usage. Ascertain:

- voiding function post-operatively
- post-acute urinary retention and, in men, the effectiveness of alpha blockers
- chronic retention, and to what degree.
- If a suprapubic catheter is present, a catheter valve can be used to stop continuous drainage, if appropriate. If voiding is satisfactory and the residual is low, the catheter can be removed after three days.

Suitability for a TWOC

- Self-scheduled assessment where possible, with a focused history combined with a risk assessment.
- Medical status should include: infection history and status, antibiotic indications, nocturnal polyuria indications, cognitive status and social status.
- Catheter history should include: equipment used, who is involved in catheter care.
- Is medical status improving, stable or deteriorating?
- Patient's ability to consent/co-operate.
- Any previous falls or are there mobility, dexterity, difficulty issues in getting to the toilet?

Cautions

- Presence of a large urogenital prolapse.
- Previous failed TWOC.
- Any surgery for stress incontinence.
- Medication (for example, anticholinergics)
- Large fibroid uterus.

Types of TWOC

(Refer to local policy, if available.)

- Early daytime, with an increased fluid intake – undertaken more for the convenience of those involved.
- Daytime extended overnight, with next day review – especially for those patients with likely residual urine volume.
- Night time – useful for inpatients and those with nocturnal polyuria.

How to minimise discomfort during a TWOC

- When removing a catheter at the start of a TWOC, check water volume in the balloon.
- Avoid pulling on the syringe as this may create a vacuum and cause the balloon to cuff, making removal difficult. Instead, allow water to drain out of the balloon under its own pressure.
- Warn the patient of potential discomfort prior to catheter removal.
- Encourage the patient to drink normally (1.5 to 2 litres during the day) prior to TWOC – over consumption may compromise bladder function.
- Advise the patient on protocol should TWOC fail (for example, about catheterisation or learning to perform intermittent self-catheterisation).

Indications to abandon a TWOC

- A patient withdraws consent.
- Bleeding is of concern.
- Pain is of concern.
- Urine has not passed, or an unacceptable amount of residual urine is showing present on a bladder ultrasound (bladder scanners should be used in caution postpartum). If you have a real time imaging scanner, and can competently identify the bladder, this can be used as they are reliable. However, a standard bladder scan will often give a false positive result due to increased fluid in, and around, the uterus postpartum.

- Where to perform TWOC and why
- At home, if possible, as it is more relaxed for the patient and may reduce the risk of cross infection from a hospital ward environment.
- An isolated environment, if immuno-compromised. This is best performed in the patient's own home to minimise the risk of infection.
- In a supervised environment if:
  - urinary output is a concern (because of ill health problems such as renal failure, cardiac failure, postural oedema)
  - functional issues are a concern (for example, assistance with toileting or there is risk of falls in relation to toilet, or commode usage)
  - haemorrhaging is a concern (such as with prostate cancer, medication or a combination of these factors)
  - the likelihood of re-catheterisation could be difficult
  - the patient's needs are complex (for example, sudden acute urinary retention may be an outcome – with a time delay in returning to the patient and potential difficulty in catheterisation).
- Continual supervision because of cognitive impairment, (for example, dementia resulting in the patient's inability to follow instructions).

Intermittent bladder drainage

Intermittent bladder drainage is the better option if a TWOC is unsuccessful for various reasons.

- Intermittent bladder drainage can be achieved by use of a catheter valve or intermittent catheterisation as these allow the bladder to expand to store urine and contract to empty. This helps maintain the muscular effect, stimulate blood supply and continue normal bladder health.
- If a patient remains on long-term continual/free drainage, bladder function can be lost and may not return if a TWOC is considered in the future.
- It should be considered for patients using long-term indwelling catheters because of the long-term (over six months) consequences of continual drainage.

12. Intermittent self-catheterisation

Knowledge and understanding

- Assess bladder and bowel dysfunction **(CC01)**.
- Care for individuals with urethral catheters **(CC03)**.
- Enable individuals to carry out intermittent catheterisation **(CC06)**.
- Review catheter care **(CC07)**.
- Care for individuals using containment products **(CC08)**.
- Help individuals to effectively evacuate their bowels **(CC09)**.
- Assess residual urine by using ultrasound **(CC10)**.
- Acquire, interpret and report on ultrasound examinations **(CI.C)**.
- Acquire, interpret and report on ultrasound examinations of the abdomen and pelvis **(CI.C1)**.
- Plan interdisciplinary assessment of the health and wellbeing of individuals **(CHS52)**.
- Assess risks associated with health conditions **(CHS46)**.
- Establish a diagnosis of an individual's health condition **(CHS40)**.
- The frequency and continued usage of intermittent catheterisation should be based on: symptom severity improvement.

Skills for Health

What you need to know

- How to undertake intermittent catheterisation.
- Possess an in-depth understanding of the effects of intermittent catheterisation and dilatation on the individual.
- Have an in-depth understanding of the different short and long-term risks, and the health implications associated with intermittent catheterisation/dilatation and how to resolve or minimise these.
- Possess an in-depth understanding of the clinical decisions and method/s required to terminate the usage of intermittent catheterisation/dilatation in an effective and safe manner.

- Possess an in-depth understanding of how individuals should risk assess themselves and how this will influence their self-care.
- Have an in-depth understanding of how to minimise any unnecessary discomfort during and after the procedure, being aware of privacy and dignity.
- Be able to assess the individual's ability to perform self-catheterisation.
- Should explain and demonstrate the relevant aspects of self-catheterisation.
- Enable individuals to develop the necessary skills and actions to carry out intermittent self-catheterisation, safely and correctly.
- Should maintain the comfort and dignity of the individual during and post procedure.
- Always review the continued need and frequency of self-catheterisation (with all its associated risks) with the symptom improvement, quality of life indicators and volumes drained via catheter.
- Review the support required for individuals to successfully continue with ISC on a long term basis.
- Recognise when to stop the catheterisation/intermittent catheterisation in case of bleeding/complications, and to seek help.

Intermittent catheterisation – the Gold Standard

Intermittent catheterisation is considered the Gold Standard for urine drainage (NICE, 2015). It can be used as treatment for voiding problems due to disturbances or injuries to the nervous system, non-neurogenic bladder dysfunction or intravesical obstruction with incomplete bladder emptying. In a hospital setting, intermittent catheterisation is often used for diagnostic evaluation (for example, to obtain a sample or to facilitate urodynamics (NICE, 2015)).

As with any urethral catheterisation, intermittent catheterisation is contraindicated if the patient is experiencing priapism, suspected urethral tumours or injury urethral. False passage, stricture and some diseases of the penis (such as injury, tumours or infection) can contraindicate intermittent catheterisation. Caution should be displayed with patients following prostatic, bladder neck or urethral surgery, female genital mutilation, and in patients with a stent or artificial prosthesis

Further information to support intermittent catheterisation

- Before commencing a patient on intermittent catheterisation, their symptom severity profile, renal function, risk assessment, psychological and physical ability to perform intermittent catheterisation and residual urine status must be considered. Do not initiate intermittent catheterisation based solely on the residual urine status.
- Intermittent catheterisation is preferable to an indwelling urethral or suprapubic catheter with patients who have a bladder emptying dysfunction or a spinal cord injury.

- With the usage of portable ultrasound equipment, HCPs can easily identify residual urine status and have the ability to initiate intermittent catheterisation as an intervention. It is imperative that the importance of cause is not over looked and that the patient receives further investigations or onward referral to reach a formal diagnosis.
- Intermittent catheterisation has a reduced infection rate when compared to indwelling catheters, although there still is a risk.
- Where a trial without catheter is unsuccessful, the HCP should, if appropriate, consider introducing the use of intermittent catheterisation.
- There is a reduced risk of infection.

Consent

When gaining consent from a patient to perform intermittent self-catheterisation, the following must be covered.

- Rationale for intermittent catheterisation.
- Information on lifestyle and disability.
- The procedure may be lifelong and performed several times each day.
- The positive benefits of intermittent catheterisation, including increased independence.
- The negative risks and common complications.
- The need for continual follow up and regular review.

Catheter choice

In helping patients to choose an intermittent catheter, HCPs should be aware of:

- the types available
- the value of previous user feedback
- lifestyle needs
- clinical evidence base, quality assurance and support
- catheters that have infection reducing properties, for example ‘no touch’
- additional features, such as integral drainage bags
- cost effectiveness
- user-friendly aspects of design.
- local formulary.

Catheter samples

In using catheter samples, the HCP:

- must use them only for demonstration purposes
- may use them to inform patient choice
- must not use them in actual catheterisation (unless the company concerned takes vicarious liability).
- must not give them to patients for insertion unless the company concerned takes vicarious liability.

Teaching intermittent catheterisation

When teaching a patient the procedure of intermittent catheterisation, the following must be considered.

- Intermittent catheterisation is best taught by a competent experienced specialist HCP with the relevant communication skills.
- Exclusions to intermittent catheterisation include cognitive impairment and lack of consent.
- Assess the likely level of motivation and compliance with intermittent catheterisation.
- Increased support and follow up may be necessary, particularly in the early stages, to ensure long term compliance.
- Motivational factors for intermittent catheterisation, such as improved quality of life, symptom improvement, reduced risks.
- Explain the anatomical and physiological aspects of self-catheterisation, with the help of visual aids.
- Carry a wide range of samples to ensure the patient has choice. Choice is important to ensure product suitability to individual patient needs and lifestyles. Local formulary may be available in some areas.
- Demonstrate the features, size, preparation, lubrication and handling of the intermittent catheter.
- Use models to demonstrate catheter insertion and removal.
- All products must be used in line with the manufacturer's guidelines.
- Intermittent catheterisation should be taught in a safe environment, with the patient sitting or lying or standing, depending on patient choice and ability.
- Teaching must be in an environment that offers a minimum risk of cross infection.
- Genital and hand hygiene should be supervised prior to insertion and removal.
- Aids and devices, such as mirrors, leg dividers and grips, should be discussed where appropriate.
- It is acceptable for the patient to use a clean technique (EUAN, 2013)
- The process of catheterisation, and product used, should be adapted depending on the patient's lifestyle and daily activities.
- Observe the patient post-intermittent catheterisation (particularly if this is a first-time catheterisation) as decompression of the bladder may cause bleeding and/or shock. To avoid this occurring the residual urine should be assessed by a bladder scan prior to undertaking the first catheterisation.
- All equipment must be disposed of appropriately and according to local waste disposal policy.

- Advice should be provided on how to transport catheters for daily usage outside of the home environment.
- Understand there are various ways to obtain a supply of equipment: from GP dispensing practices, high street pharmacists and dispensing appliance contractors.
- Offer patients supporting information and signpost to: learning programmes, literature, websites, classes, meetings (patient support groups), and recommend organisations and help lines.

It is unlikely that a patient (or a carer if performing the procedure) will become competent in intermittent catheterisation with one interaction. Appropriate support and products are crucial to long term concordance with ISC. Several sessions are required, over a period of time, to support learning, problem solving, and to review experiential learning and related habits. The patient will then require follow up and review depending on need.

Patients should be taught how to deal with common complications associated with intermittent catheterisation. These include:

- signs and symptoms of a urinary tract infection
- colonisation
- bleeding
- false passage
- difficult insertion or removal
- how to manage multi-resistant bacterial invasion
- how to initiate unscheduled care for urgent catheter-related needs.

Frequency and use

The frequency and continued usage of intermittent catheterisation is based on:

- symptom severity improvement
- quality of life and lifestyle indicators
- volumes drained related to times of urinary output
- clinical requirement
- renal function.

During periods of urinary tract infection, increased intermittent catheterisation may be needed, not a reduction or withdrawal of catheter use. A risk assessment should be undertaken to determine the risks associated with increased catheterisation in such circumstances.

13. Catheter care review and follow up

All aspects of urinary catheter care require regular review

Knowledge and understanding

- Obtain valid consent or authorisation **(CHS167)**.
- Plan the assessment of an individual's health status **(CHS38)**.
- Plan the interdisciplinary assessment of the health and wellbeing of individuals **(CHS52)**.
- Assess an individual's health status **(CHS39)**.
- Support individuals in undertaking desired activities **(GEN15)** and enable carers to support individuals **(GEN20)**.
- Inform an individual of discharge arrangements **(GEN16)**, contribute to the discharge into the care of another service **(GEN17)** or discharge and transfer individuals from a service of your care **(GEN28)**.
- Interact with individuals using telecommunications **(GEN21)**.
- Minimise the risk of spreading infection by cleaning, disinfecting and maintaining environments **(IPC1)**.
- Perform hand hygiene to prevent the spread of infection **(IPC2).**
- Minimise the risk of spreading infection by cleaning, disinfecting and storing care equipment appropriately and in line with manufacturers' guidance **(IPC4)**.
- Use personal protective equipment to minimise the risks of exposure to blood and body fluids while providing care only **(IPC5)**.
- Perform hand hygiene when indicated to reduce the risk of transmission of infection and wear gloves only when indicated (IPC**3**).
- Remove, clean and disinfect spillages of blood and other body fluids to minimise the risk of infection **(IPC3).**
- Minimise the risks of spreading infection when handling used linen **(IPC11)**.
- Enable individuals to make informed health choices **(PE1)**.
- Manage information and materials for access by patients and carers **(PE2)**.
- Work with individuals to evaluate their health status and needs **(PE3)**.
- Agree a plan to enable individuals to manage their health condition **(PE4).**
- Develop relationships with individuals to help support them in addressing their health needs **(PE5)**.
- Identify the learning needs of patients and carers to enable management of a defined condition **(PE6)**.
- Enable individuals to manage their defined health condition **(PE8)** by providing advice and information to individuals on how to manage their own condition **(GEN14)**.
- Collate and communicate information to individuals **(GEN62)**.
- Develop learning tools and methods for individuals and groups with a defined health condition **(PE7)**.

Skills for Health

What you need to know

- How to competently assess and review a patient's catheter care.
- The importance of ensuring any individual with a urinary catheter has a completed care plan in all care settings.
- The importance of patient/carer catheter care education, scheduled catheter changes and forward planning for catheter care and/or removal.
- The reasons for scheduled and unscheduled catheter care reviews.
- What methods to undertake to assess the function of a urinary catheter.
- National and local guidance and policy for urinary catheter and catheter care.

Indwelling urinary catheterisation must only be used when clinically indicated and following an assessment and discussion with the patient. All other methods of management must be considered prior to catheterisation. A plan for removal of the catheter must be made at the point of catheter insertion and reviewed regularly.

A urinary catheter care review can include

- A review of the patient urinary catheter passport, if available in your area and/or catheter diary/care plan for monitoring changes and plan of ongoing management.
- A patient assessment which considers the clinical ongoing need for the urinary catheter and ensures no other alternative method or catheter is appropriate at the time of assessment.
- A clearly documented rational for the continuing use of a urinary catheter, with a forward plan.
- The patient's current health status, inclusive of long-term conditions, medical and surgical history, medications and allergies. Also consider the health of the patient's bladder.
- Considering the psychological implications of catheterisation: how is the patient coping with the catheter, how do they feel about having a urinary catheter? Does the catheter impact on their lifestyle and quality of life? Discuss any concerns, such as the potential impact on employment and home life (including sexual activity, sports and recreation, body image and confidence, socialising, travel and holidays). Provide support, reassurance and information to the patient.
- Reviewing the patient's understanding and compliance with their catheter care. Ensure the patient is following the manufacturer's guidance when independently caring for their catheter. Confirm all single use equipment is only used once and discarded following local infection control policy. The products must not be washed out and reconnected. Review frequency of the catheter drainage system changes and if this is appropriate. Check leg/night bag and valve changes are in line with manufacturer's guidance. Discuss bag or valve emptying routines and educate the patient if needed to support infection control.

- Discussing the patient's meatal hygiene practices, ensure the patient/carer is aware that after washing a male, the foreskin must be returned to its usual position to avoid paraphimosis.
- Reviewing the patient's daily fluid intake inclusive of fluid type, the patient's knowledge and health belief regarding daily intake and its appropriateness. Review the 24-hour urine output, urine colour, visual sediment etc.
- Reviewing bowel activity and relationship to the catheter function, stool type (Bristol stool chart) amount passed and how frequently.
- Reviewing the patient's compliance and capability to care independently for their catheter and dependence status.
- Understanding the roles of health care workers and review the appropriateness of those involved; inclusive of community nurses and matrons, urologists and specialist nurses.

Reviewing the risk of infection

The following should be considered.

- Preventing infection. Maintain a closed urinary drainage system as it is essential to avoid the patient acquiring a catheter-associated urinary tract infection (CAUTI). Review any need for breaches in the closed system as part of catheter care assessment. The frequency of drainage bag emptying, catheter valve opening and obtaining a urine sample, increases the risk of CAUTI and must be avoided. The patient/carer or HCP must be educated to only initiate a break in the closed system to empty the drainage bag when three quarters full. The catheter valve may require opening every three to four hours, depending on the fluid intake of the patient. Urine samples must only be obtained when clinically indicated using the sample port and an aseptic technique.
- Clinical indicators for a urinary tract infection (UTI) are pyrexia, tachycardia, abdominal pain and changes in the urine, such as colour and odour. A specimen for culture and sensitivity should only be obtained if a clinical indication of infection is suspected, and not 'just in case', as all urine from a catheterised patient will contain bacteria. The presence of bacteria does not always indicate infection. For patients over the age of 65 years, asymptomatic bacteriuria is common and unnecessary antibiotic use must be avoided.
- Classical symptoms of UTI should not be relied upon for patients with a urinary catheter. Antibiotics will not eliminate asymptomatic bacteriuria in patients with indwelling catheters. A urine dipstick is not an effective method for detecting infection for adults with an indwelling catheter. If a urine sample is required, it must not be obtained from the catheter drainage bag. A sample should be taken via the sampling port as a result of an aseptic procedure. The risk of CAUTI increases the longer the urinary catheter remains in place, therefore the catheter must be removed as soon as it is no longer required.

Antibiotics

Review current treatments and interventions, such as antibiotics and always follow local antibiotic policy. Antibiotics should only be prescribed for a symptomatic patient with confirmed urinary tract infection to ensure appropriate treatment is prescribed where possible. Antibiotics do not eliminate asymptomatic bacteriuria in a urinary catheterised patient. Treatment with antibiotics should only be prescribed if the patient is systematically unwell or pyelonephritis is suspected.

Patients receiving IV (intravenous) antibiotics require a review of treatment within 48 to 72 hours in all care settings. This assessment determines the need for continued IV treatment or, if suitable and required, treatment can be switched to oral antibiotics (***Start Smart – then Focus***, PHE (2015)).

HCPs must consider the side effects of antibiotics which may cause catheter-related complications. Side effects include: abdominal pain, bloating, diarrhoea and constipation. Exposure to antibiotics can also increase the risk of other infections such as C. difficile. Increasing resistance of E. coli bacteria to first line antibiotics is an increasing cause of concern.

Prophylactic use of antibiotics

Prophylactic use of antibiotics is not recommended for routine use against infective endocarditis when changing a urinary catheter. Prophylactic antibiotic use to avoid symptomatic UTI for patients with long-term catheter use is not recommended. There is no supportive evidence that prophylactic antibiotics are beneficial. However, they could be used for patients with long-term catheters if they have a history of recurrent or severe urinary tract infection.

Catheter care equipment review

Assess the catheter equipment being used. Does it remain appropriate for the patient? Is the equipment being stored and disposed of correctly? Check the equipment is in date and it is licensed for use – some catheters are not licensed for suprapubic use.

Catheter size

Check the catheter size is the smallest gauge to meet the patient's needs, to reduce risk of bladder spasms, catheter bypassing and trauma.

- 12ch, 14ch or 16ch for male long-term use.
- 12ch or 14ch for female long-term use.
- 16ch or 18ch for suprapubic use in both male and females.
- Catheter length.
- Check the correct length of the catheter.
- A male standard length catheter used for men in all situations – a female catheter must never be used for a male patient.

- Male/standard length catheter is recommended for females in the following situations: bedbound, immobile, post operatively, emergency situations, critically ill and clinical obesity.
- Female length catheters are recommended for ambulant female patients who are a reasonable weight.

Also check:

- the catheter material
- the balloon size (should be 10ml, unless following prostatic surgery)
- there is a clear rationale for not using a catheter valve – the patient must be educated on the long-term implications when not using a valve
- the capacity of the urine bag – day and night bag
- any complications relating to wearing products or accidental disconnection
- supply issues, stock levels and safe storage
- correct emptying techniques are being used
- correct changing techniques are being used
- correct disposal techniques of urine and equipment are being used – follow local disposal of waste policy.

Catheter-associated complications review

Consider and discuss any complications the patient is experiencing. Complications include: bypassing, discomfort or pain, bleeding, painful erections, blocked catheter, infection, insertion and removal problems, history of difficult catheterisation, meatal soreness, bladder and meatal erosion, stone formation and catheter rejection. Consider:

- the severity and frequency of the complications, any triggers that cause the complication (such as physical activity)
- if the complications are of a serious nature
- what interventions have been implemented to prevent or to treat the complications and how effective have they been?
- the catheter position (type of catheter and size) to ensure the correct position and appropriateness of equipment and use
- if the support system and drainage system need a check to ensure they are effective and suitable for the patient and avoid traction trauma
- and assess the entry site of the catheter for sores and inflammation, traction trauma, over granulation, bleeding or discharge – a swab may be required
- if there are signs of pressure damage or a reaction to any of the equipment. Assess the general health of the genital area

- and discuss meatal hygiene and general hygiene with the patient or carer to avoid introduction of bacteria around the catheter site. Male patients with a foreskin must gently pull the foreskin back to cleanse the area (the foreskin must be returned to its usual position after cleansing to avoid paraphimosis).

Assess and discuss incontinence (urinary and faecal). If containment products are in use, this can impact on the catheter function and cause catheter complications.

14. Patient education

Knowledge and understanding

- Enable individuals to make informed health choices and decisions **(PE1)**.
- Manage information and materials for access by patients and carers **(PE2)**.
- Work with individuals to evaluate their health status and needs **(PE3)**.
- Agree a plan to enable individuals to manage their health condition **(PE4)**.
- Develop relationships with individuals that support them in addressing their health needs **(PE5)**.
- Identify the learning needs of patients and carers to enable management of a defined condition **(PE6)**.
- Enable individuals to manage their defined health condition **(PE8)**.
- Provide advice and information to individuals on how to manage their own condition **(GEN14)**.
- Collate and communicate information to individuals **(GEN62)**.
- Develop learning tools and methods for individuals and groups with a defined health condition **(PE7)**.

Skills for Health

What you need to know

How to educate individuals using catheters in relation to lifestyle advice, maintaining catheter function, reducing infection, what to do in the event of problems with equipment and how to deal with common complications.

People with catheters should also be supported to understand best practice on the indications for the need and use of antibiotics as part of broader antimicrobial stewardship programmes in health and care settings.

National Occupational Standards

Guidance and information – HCP role

It is important to provide patients or carers with clear instruction and advice. This should cover:

- hand hygiene (indications and technique)
- how to change bags/valves and the timescale for doing this
- the use of a catheter restraining strap
- guidance on good fluid intake; urine colour should be pale, clear yellow in most cases
- creating and maintaining good bowel habits

- cleaning of perineal area from front to back, to include under foreskin (but ensure this is rolled back to prevent complications)
- how to obtain catheter associated products, store and dispose of them
- common complications and where to seek advice
- information on the catheter passport – ensure patients know it is their property and they should take it with them to any health care setting.

Possible complications

Paraphimosis

Paraphimosis is a urological emergency in which the retracted foreskin of an uncircumcised male cannot be returned to its normal anatomic position. It is important for clinicians to recognise this condition promptly, as it can result in gangrene and amputation of the glans penis.

Paraphimosis can often be effectively treated by manual manipulation of the swollen foreskin tissue. This involves compressing the glans and moving the foreskin back to its normal position, perhaps with the aid of a lubricant, cold compression and local anaesthesia – as necessary. If this fails, the tight oedematous band of tissue can be relieved surgically with a dorsal slit or circumcision.

Urethral erosion

This is usually found in patients with long-term catheters that have not been secured correctly; the degree of erosion can vary. The erosion is usually secondary to catheter tension on the distal urethra at the meatus. The way the catheter is secured should be alternated to prevent prolonged tension or pressure at an individual site.

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.)

- An individual risk assessment.
- Clear rationale for use is documented.
- Frequency of administration should be according to severity and manufacturer's instructions.
- Always use sterile gloves and ensure an aseptic technique procedure is followed.
- Warm solution to room temperature.
- Consider use of closed irrigation administration set to minimise infection risk.
- Leave solution in situ in line with manufacturer's instructions.
- Record the effectiveness of the intervention each time.

Types of catheter maintenance solutions

- Normal saline – mechanical removal of small clots, debris, tissue etc. Not effective for encrustation. Use as required.
- 3.23% citric acid – dissolves crystals formed by urease producing bacteria. Contains magnesium oxide to protect the bladder. Use once weekly, up to a maximum of twice daily (depending on severity of symptoms). Instil for 5 to 10 minutes in the bladder.
- 6% citric acid – stronger solution, effective in severe encrustation and dissolves persistent crystallisation in the bladder or catheter. Can also be used prior to catheter removal to prevent trauma. Use once a week, up to a maximum of twice a day (depending on severity of symptoms). Instil for 5 to 10 minutes in the bladder (5 to 10 minutes prior to removal of a catheter).

When considering the use of any instillation, HCPs should consider the clinical rationale, evidence and manufacturer's advice before commencing. A clear clinical rationale must be documented and reviewed regularly.

16. Infection control and catheter care

Knowledge and understanding

- Minimise the risk of transmission of infection by cleaning, disinfecting and maintaining environments **(IPC1)**.
- Minimise the risk of transmission of infection by cleaning, disinfecting (if necessary) and storing all equipment **(IPC4)**.
- Perform hand hygiene to prevent the spread of infection **(IPC2)**.
- Use of personal protective equipment appropriately to protect HCP from the risk of infection from blood/body fluids **(IPC6)**.
- Clean, disinfect and remove spillages of blood and other body fluids to minimise the risk of infection **(IPC3)**.
- Minimise the risk of spreading infection when storing and using clean linen **(IPC12)**.

Skills for Health

What you need to know

- Knowledge of the causes of urinary tract invasion from bacteria and how to minimise this in all care settings.
- Knowledge of the importance of applying standard precautions for the prevention of infection and the potential serious life-threatening consequences of poor practice.
- Knowledge of how to meet standards of environmental cleanliness in the area where catheterisation is to take place, to minimise the infection risk.
- Knowledge of when to undertake urinalysis and obtain a catheter specimen of urine (CSU).
- How to perform an aseptic technique.

National Occupational Standards

General principles of catheter care

- Gloves should only be worn if indicated – eg to avoid contact with blood/body fluids.
- Hands should be washed/decontaminated before and after attending to a catheter or performing catheter care or removal of gloves.
- Meatal care and observation are best undertaken during daily hygiene practices. Only soap and water are needed to maintain meatal hygiene.
- Drainage bags with taps must be emptied often enough to maintain urinary flow and prevent reflux.
- A separate container must be used for each patient and contact between the tap and the container avoided.
- Drainage bags should be changed when they become discoloured, contain sediment, smell offensive or are damaged. The HCP must consider the risk of too frequent changes as breaking the sterile system will increase the risk of infection.
- All drainable day and night bags must be changed at least every seven days, in line with manufacturer's guidelines. It should be noted some drainage bags are designed for longer use (up to 28 days for some belly bags).
- Never reuse, wash urine bags or reconnect them in any care setting, unless the manufacturer has put in writing that this is an acceptable practice and you have the resources and facilities to comply with this.
- Consider use of non-drainable bags.
- Antiseptic or antimicrobial solutions must not be added to drainage bags.
- Always challenge the need for catheterisation and catheter usage.
- Always review your own competence and challenge others where you have concerns.
- All staff involved in catheter care must be educated, trained and competent to manage urinary catheters.
- Observation and feedback to HCPS delivering catheter care is a high priority within nursing to help maintain high standards of care.
- A risk assessment is imperative prior to catheterisation in all care settings to determine the need for, or removal of, a catheter.
- Always consider the environment in which the catheterisation is to take place and the associated risk variance.

Defining a urinary tract infection

HCPs must understand the following terms and the associated implications for the care of the patient.

- Colonisation.
- Bacteriuria.
- Urinary tract infection (UTI).
- Catheter-associated urinary tract infection.
- Asymptomatic UTI.
- Symptomatic UTI.
- Uncomplicated UTI.
- Complicated UTI.
- Nosocomial UTI.
- Hospital acquired, community acquired UTI and the classification of each.
- Bacteraemia.
- Septicaemia.

HCPs must understand the aetiology of the following organisms.

- Escherichia coli (E. coli).
- Meticillin-Resistant Staphylococcus Aureus (MRSA).
- Extended spectrum beta-lactamases (ESBL).
- Clostridium difficile (C. diff).
- Carbapenemase Producing Enterobacteriaceae (CPE).
- Proteus mirabilis.

How and when to send a catheter specimen of urine (CSU)

All catheterised patients will have an abnormal urinalysis (NICE, 2015 [MIB 121]). Routine dipstick urinalysis testing on patients who regularly use intermittent self-catheterisation (ISC), or have an indwelling catheter, is therefore unnecessary and unreliable. Following a clinical assessment, if a patient has symptoms indicating a CAUTI, a CSU should be taken to determine the cause of infection. Urine samples must be obtained using an aseptic technique from a catheter sampling port and only if:

- clinical indication of infection is present
- the patient is not responding to antibiotic treatment.

Environmental and geographical risk areas

- Patients with poor health in nursing homes (where they require continuous nursing care and are grouped together) and older men are more likely to have a catheter.
- Orthopaedic units, particularly those wards grouping older people who are frail or have fractured femurs.
- Intensive care and high dependency areas, where the majority of patients will have a urinary catheter.
- Emergency departments, when the insertion of catheters is for emergency life-saving reasons and aseptic technique may be minimised or abandoned.
- In wards and departments where older people are being cared for and male patients (who are more likely to have a long-term catheter on admission) are grouped together in bays (as in single-sex accommodation).

Care of the patient with an infection

The presence of a urinary catheter places patients at increased risk of a CAUTI. People with CAUTI should be closely monitored to ensure the infection is treated appropriately due to the risk of sepsis if the infection is not resolved.

- If the patient is colonised or infected with a resistant organism, such as MRSA, they may undergo a programme of decolonisation and the catheter and drainage system should be changed (refer to local policy).
- Where possible, intermittent catheterisation by the patient may be of benefit and has less associated risks but is not risk free.
- Antibiotics should only be prescribed if the patient is systemically unwell and an infection is suspected following clinical assessment.
- Catheters should be changed as soon as possible when a bacterial infection has been confirmed or is suspected. The clinical evidence is limited, but expert opinion recommends this should be immediately (if the patient is stable and comfortable) or within 48 to 72 hours of starting antibiotic treatment European Association of Urology.

Aseptic technique

Procedures which require an aseptic technique

- A catheter insertion.
- CSU or mid-stream urine (MSU) sample.
- Changing a catheter bag or valve.
- Administering any form of catheter management fluid instillation.

Broad principles of an aseptic technique

- The patient's area of the body is socially clean.
- Use sterile equipment where required (for example, urinary catheters and bags).
- Hand hygiene – hand washing or hand sanitisers.
- Use protective clothing (aprons and gloves) only when indicated as change between tasks or patient's as required.
- Staff should undertake clinical procedures when bare below the elbow.
- Trolleys and trays should be decontaminated and cleaned prior to individual procedures.
- Create a sterile field to maintain sterility of the procedure.
- Check all equipment sterilisation dates to ensure equipment is in date. Catheters, drainage bags and catheter valves have a shelf life of five years, pre-inflated catheters only three years; they must be discarded if out of date.
- Check the packaging of sterile items to ensure they are intact; discard if damaged.

17. Catheter guidance for the end of life

Knowledge and understanding

- Assess bladder and bowel dysfunction **(CC01)**.
- Obtain valid consent or authorisation **(CHS167)**.
- Plan assessment of an individual's health status **(CHS38)**.
- Assess risks associated with health conditions **(CHS46)**.

Skills for Health

What you need to know

- To understand the role of catheterisation at end of life and the indications for catheter use.

There is a lack of evidence on the role of catheters at end of life/palliative care. The relaxation of the urethral sphincters of the bladder, causing urinary incontinence, can indicate approaching death. It is appropriate to use absorbent pads at this stage. However, if a full distended bladder or urinary retention is suspected, then prompt action of urethral catheterisation is needed before the patient becomes agitated or distressed.

It is important to note that retention can be a peripheral side effect of opioid medication.

Indications for urethral catheterisation at the end of life

- The management or prevention of wound damage (for example, sacral pressure ulcers, fungating wounds or soreness of the anus, perineum, vulva or penis).
- Painful physical movements due to frequent changes of bed linen caused by incontinence.
- Pain or difficulty for female patients getting in and out of bed to use a commode.
- Urinary incontinence associated with obstruction.
- Urinary retention/distended bladder – excessive oedema of the genitalia making micturition uncomfortable.

Catheterisation is an invasive procedure and it is important to explore alternatives. Consider which method of containment is best for the patient so they are able to maintain comfort, hygiene, dignity and wellbeing (especially if the patient is unable to give consent).

The benefits of inserting a urinary catheter at the end of life must outweigh any possible complications, such as catheter encrustation (leading to frequent changes) or bladder spasm (leading to pain and discomfort and possible catheter expulsion).

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Appendix 1: Urinary catheter and related equipment

Catheter material

Latex

Polytetrafluoroethylene Teflon coated latex (PTFE)

Hydrophilic polymer coated

Hydrogel coated silicone

Silicone elastomer coated latex

Silver alloy

Antibiotic coated

Gel coated and PVC free

Drainage bags

Closed drainage system

Bedside drainage bag

Leg bag

Belly bag

Self-contained sterile system (for intermittent catheters)

Securing devices

Adhesive Foley catheter device

Catheter leg strap

Elasticated catheter fixation device

Foley anchoring device

Foley stabilising device

Leg bag sleeve

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.

- If not in catheter pack, prepare 10ml of sterile water for injection and place this to the side of the sterile field.
- Open the 0.9% sodium chloride and pour into gallipot.
- Open but do not remove sterile anaesthetic gel from packaging.

7. Prepare the patient by removing the cover that is maintaining their dignity and place a procedure sheet underneath the patient.
8. Decontaminate hands using hand gel or washing – apply sterile gloves.
9. Place sterile towel across the patient's thighs, ensuring the scrotal area is covered. Place the receiver between the patient's legs.
10. Wrap a sterile swab around the penis and with the same non-touch technique, retract the foreskin if present.
11. Clean the urethral meatus with sterile saline – ensuring finger tips do not touch the glans penis.
12. Position the penis at a 90˚ angle to the patient's thigh, extending the penis forward.
13. Pre-installation – prime the syringe of the anaesthetic gel, then squeeze a small amount onto the tip of the urethra.

Installation – place the tip of the syringe into the urethral opening and slowly insert all 11mls of the gel – remove the syringe and discard.

Squeeze the penis and wait approximately 3 to 5 minutes (according to manufacturer's instructions) for the gel to take effect.

14. Remove used gloves – use hand sanitiser and put on second pair of sterile gloves.
15. Remove catheter packaging from the end and attach the sterile drainage bag (optional).
16. Ensure the water for inflation of the catheter balloon is prepared and ready to use (unless catheter has prefilled device attached). Free packaging from the catheter tip
17. Re-position the penis at 90˚ and insert the catheter into the urethra for 15 to 25cm, ensuring the fingers do not touch the glans penis. If resistance is felt at the external sphincter, ask the patient to cough or strain gently as if trying to pass urine.
18. When urine begins to flow, advance the catheter a further 2 to 5cm.
19. Slowly inflate the balloon, according to the manufacturer's guidelines and observing the patient at all times – if discomfort is displayed stop and re-check the catheter's position. Withdraw the catheter slightly and check that it remains secure.
20. Ensure that the glans penis is clean and then reduce or reposition the foreskin.
21. Ensure patient is comfortable and dry.
22. Observe the colour and measure the amount of urine drained – collect sample if required.

23. Retain the sticky labels from the catheter packaging and dispose of equipment, including apron and gloves. Secure the drainage system to the patient; consider their individual needs using either:

- adjustable leg bag straps
- thigh strap device
- leg bag sleeve.

Ensure that the catheter tubing does not become taut when the patient is mobilising. Ensure that the patient's clothing has been repositioned and is comfortable.

24. Wash hands using soap and water, then dry thoroughly using paper towels. Record essential information in the patient's documentation:

- reason for catheterisation
- informed consent
- name of the person inserting or changing the catheter
- date and time of catheterisation
- type of catheter – including manufacturer, material, batch number and expiry date (use manufacturer's catheter sticker)
- size and length of catheter
- type of sterile anaesthetic/lubricating gel used
- volume of sterile water used in the balloon
- name, size and type of drainage system used
- problems encountered at the time of the procedure, including difficulties specific to the individual
- if patient leaflet discussed and evidence of the care instructions given to the patient or carer.

Complete catheter documentation and include the planned date of review and catheter change.

Urethral catheterisation procedure: Female

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

Non-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 (only required if clinical assessment identifies need for laboratory analysis)

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 – put apron on.
4. Wash hands using approved technique or decontaminate using the hand sanitiser.
5. Open catheterisation pack onto the trolley.
6. Using an aseptic non-touch technique, 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.
- If not in catheter pack, prepare 10ml of sterile water for injection and place this to the side of the sterile field.
- Open the 0.9% sodium chloride and pour into gallipot.
- Open, but do not remove, sterile anaesthetic gel from packaging.

7. Prepare the patient by removing the cover that is maintaining their dignity and place a procedure sheet underneath the patient.
8. Decontaminate hands using hand gel or washing – apply sterile gloves.
9. Place sterile towel across the patient's thighs and place the receiver between the patient's legs.
10. Using the sterile swabs, part the labia minora so that the urethral meatus can be seen – one hand should be used to maintain labial separation until catheterisation is completed.
11. Clean around the meatus with sterile saline – use separate single downward strokes (firstly the labia majora, then the labia minora and then the urethral meatus).
12. Pre-installation – prime the syringe of the anaesthetic gel, then squeeze a small amount onto the tip of the urethra.

Installation – place the tip of the syringe into the urethral opening and slowly insert all 6mls of the gel – remove the syringe and discard.

Wait approximately 3 to 5 minutes (according to manufacturer's instructions) for the gel to take effect.

13. Remove used gloves – use hand sanitiser to decontaminate hands and put on second pair of sterile gloves.
14. Remove catheter packaging from the end and attach the sterile drainage bag (optional)
15. Ensure the water for inflation of the catheter balloon is prepared and ready to use (unless catheter has prefilled device attached). Free packaging from the catheter tip.
16. Introduce the tip of the catheter into the urethral orifice in an upward and backward direction. Advance the catheter until 5 to 6cm has been inserted.
17. When urine begins to flow advance the catheter a further 2 to 5cm.
18. Slowly inflate the balloon according to the manufacturer's guidelines, observing the patient at all times – if discomfort is displayed stop and re-check the catheter's position. Withdraw the catheter slightly and check that it remains secure.
19. Ensure that the meatal area is clean and that the patient is comfortable and dry.
20. Observe the colour and measure the amount of urine drained – collect sample if required.
21. Retain the sticky labels from the catheter packaging and dispose of equipment, including the apron and gloves. Secure the drainage system to the patient; consider their individual needs using either:

- adjustable leg bag straps
- thigh strap device
- leg bag sleeve.

Ensure that the catheter tubing does not become taut when the patient is mobilising. Ensure that the patient's clothing has been repositioned and is comfortable.

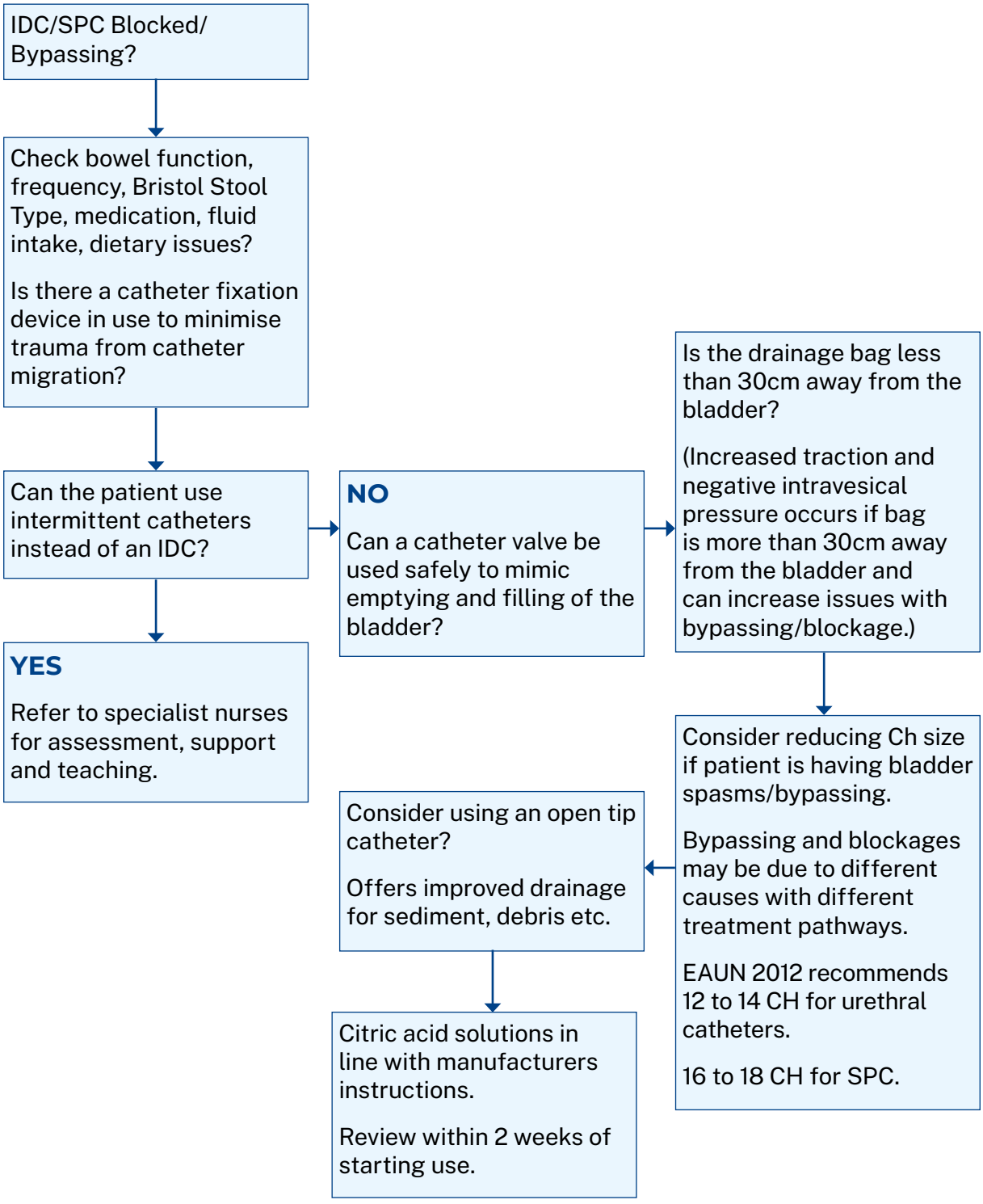
22. Remove PPE, dispose of waste in line with local policy. Wash hands using soap and water, then dry thoroughly using paper towels.

Record essential information in the patient's documentation:

- reason for catheterisation
- informed consent
- name of the person inserting or changing the catheter
- date and time of catheterisation
- type of catheter – including manufacturer, material, batch number and expiry date (use manufacturer's catheter sticker)
- size and length of catheter
- type of sterile anaesthetic/lubricating gel used
- volume of sterile water used in the balloon
- name, size and type of drainage system used
- Problems encountered at the time of the procedure, including difficulties specific to the individual
- if patient leaflet discussed and evidence of the care instructions given to the patient or carer.

Complete catheter documentation and include the planned date of review and catheter change.

Appendix 3: Guidance at a glance – urinary catheters



BACK TO CONTENTS

RCN quality assurance

Publication

This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.

Description

There are an increasing number of people with criminal justice setting who have multiple and complex health care needs. From time-to-time these people require attention in NHS settings outside of prison/police custody. This guidance is aimed at nursing staff working in NHS settings and gives further support and advice to provide optimum care to this group of patients.

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The Nine Quality Standards

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Suspected Renal colic due to renal / kidney stones

Emergency Department

Patient Information Leaflet

Introduction

We suspect you may have renal colic due to kidney stones. Renal colic is a type of pain you get from your urinary tract (kidneys, ureters, bladder, urethra). This can be from kidney stones or an infection.

Stones can form in any part of your urinary tract. Stones are formed from minerals like calcium and uric acid which are normally excreted in your urine. Occasionally, these minerals can form into crystals / stones. Stones can be as small as a grain of sand or as large as a marble.

Symptoms

Often people will have kidney stones with no symptoms. Renal colic usually occurs when a stone moves into the ureter (tube between your kidney and bladder). This stretches the ureter, causing pain.

Common symptoms are:

- Severe pain that comes in waves, usually from your flank / side. This can last between 20 minutes and one hour.
- This pain may radiate into your groin and testicles.
- Blood in the urine.
- Sickness and / or vomiting.
- Sweating.

Other symptoms of urinary stones include:

- Smelly urine.
- Gravel / sand in your urine.
- A frequent sensation to pass water.
- Pain when passing urine.
- Fever and chills (if you have an infection).

Causes of renal / kidney stones

About six per cent of women and 12 per cent of men will develop a renal stone in their lifetime.

Certain things may increase your risk of developing renal stones. These are:

- Eating a high-protein, low-fibre diet.
- Being inactive or bed-bound.
- Having a family history of kidney stones.
- Previous history of kidney or urinary infections.
- Previous history of kidney stones, particularly if it was before you were 25 years old.
- Certain medication.

Managing pain in renal colic

The majority of stones will pass in your urine over the next few days and do not require any further treatment. Whilst this happens, your pain can be managed with simple painkillers e.g. paracetamol / co-codamol (never both together) or a non-steroidal anti-inflammatory drug (such as ibuprofen / naproxen / diclofenac). Occasionally, simple painkillers are not enough and you may need to be admitted to the hospital to be treated with stronger medication e.g. morphine.

Diagnosing kidney stones

You will require a blood test to ensure your kidneys are working well. You will also have a bedside urine test to look for blood and to ensure that you have no signs of an infection.

A scan called a computerised tomography (CT) scan will be used to scan your urinary tract to look for any evidence of a stone. This is the best scan for picking up kidney stones. The CT scan is a low risk procedure involving a low dose of radiation. You will feel no ill effects from the scan. Once we have the scan results, we can plan what further treatment you require.

On occasion, you may have already passed the stone by the time the scan is done. In this case, the scan may be normal unless there is more than one stone. Occasionally, this scan may also identify other abnormalities.

Please inform the doctor / radiographer if you suspect you may be pregnant.

Treating kidney stones

The majority of stones, especially small stones, will pass in your urine over the next few days and do not require any further treatment.

If you fail to pass the stone or have a larger stone, you may require further treatment. Your doctor may need to do one of the following procedures to remove it:

- **Extracorporeal shock wave lithotripsy (ESWL):** shock waves are used to break up the large stones into smaller stones so that you can pass them in your urine.
- **Ureteroscopy:** a camera is passed through your urethra and bladder to remove the stone.
- **Percutaneous nephrolithotomy:** keyhole surgery to remove the stone through a small cut in your back whilst you are kept asleep.

Complications of kidney stones

Rarely, you can develop urinary tract infections or kidney damage.

50% of people will develop further kidney stones within 5 years. You can take the below steps to reduce your risk.

Reducing your risk

You can reduce your risk of developing kidney stones by:

- Drinking at least eight to 10 glasses of water a day. Please do not drink in excess of this as too much water can also be dangerous to you.
- Reducing fizzy drinks that contain phosphoric acid.
- Reducing the amount of salt in your diet.
- Reducing foods with animal protein, such as red meat, fish and eggs.
- Reducing foods which are high in oxalate (one of the minerals in stones) such as spinach, nuts and rhubarb.

Your doctor might also prescribe tablets to prevent further stones from forming.

What happens next?

We suspect you may have renal / kidney stones.

Once your pain has eased and is under control, all further investigations can be done as an outpatient.

1. **Painkillers**
   The doctor will give you some painkillers to take home. Please ensure that these are taken as directed.

2. **CT scan**
   The doctor will arrange for you to have a CT scan.

   This has been arranged for _____am on ____/_____/_____.

   This scan will be done in the Imaging (Main X-ray) Department, Ground Floor, Russells Hall Hospital.

3. **Preparing for your scan**
   Please arrive at least 30 minutes before your allocated scan time.

   Please remove any piercings you have that are between your shoulders and knees as these create artefacts on the CT scan.

   Please inform the doctor / radiographer if you suspect you may be pregnant.

   On arrival, you will be asked to undress and put on a hospital gown. You will then lay on a bed that will take you through the scanner. You will feel no pain or side effects during the scan.

   If you cannot attend your scan appointment, please call 01384 456111 ext. 2327 to rearrange the scan.

4. **After the CT scan**

Once the scan is completed, please go to B5 / Emergency Surgical Hub (2nd Floor) at 10am.

Please inform the nurse in charge that you are on the **Renal colic pathway.**

According to what your scan shows, you will be seen by the most appropriate specialist.

For more information

Please visit the following website if you require more information:

https://www.nhs.uk/conditions/kidney-stones/

If you have any questions, or if there is anything you do not understand about this leaflet, please contact:

Russells Hall Hospital switchboard number: 01384 456111

This leaflet can be downloaded or printed from:

http://dgft.nhs.uk/services-and-wards/accident-emergency/

If you have any feedback on this patient information leaflet, please email dgft.patient.information@nhs.net

This leaflet can be made available in large print, audio version and in other languages, please call 0800 073 0510.

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یہ کتابچہ آپ کو بڑے حروف کی لکھائی ، سمعی صورت اور دیگر زبانوں میں مہیا کیا جا سکتا ہے۔برائے مہربانی فون نمبر 08000730510پر رابطہ کریں۔

Originator: Ashish Singal. Date reviewed: November 2022. Next review due: August 2025.Version: 2. DGH ref: DGH/PIL/02140.

Painful Urinary Retention Protocol

N.B. please do not check PSA

Digital Rectal Exam – assess:

Anal tone – if abnormal refer Urology

Constipation – if present discharge with laxatives

Malignancy – can still be discharged with catheter. Not for TWOC but for **urgent Urology OPD**

Temperature:

≥ 38°C – refer Urology

≥ 37.5°C – discharge with 1/52 ciproxin 500mg bd

Patient in painful retention

Unable to catheterise
Refer Urology

Successful catheterisation
Check: U&E
DRE
CSU
Temp

U&E abnormal
Discuss with Urology

Catheter relieved pain
Refer Urology

Residual <300ml
U&E normal

Catheter did not relieve pain
Reconsider diagnosis

Residual <1.5litre
U&E normal

Not constipated
Discharge with
Alpha blocker
(eg Xatral XL 10mg od)

Successful TWOC
Urology OPD
follow up in 6/52

Residual>1.5litre
U&E normal

Early Urology
OPD follow up

Constipated
Discharge with
Alpha blocker
AND laxatives

Failed TWOC
Urology OPD
follow up in 2/52

TWOC 3-7/7 by
District nurse

Constipation cured
(as assessed by
District nurse)

Important further points:

♦ All women to be admitted

♦ If pain / suprapubic mass still present post-catheterisation: reconsider your diagnosis

♦ If urine is not clear – do not discharge patient *(haematuria following catheterisation that later clears whilst the patient awaits U&E results is acceptable)*

♦ If a patient whose urological problem has been resolved by a catheter requires admission for other reasons (eg "social admission", "off legs") then this should be referred to the relevant specialty and not to Urology

♦ Patients who can be discharged but cannot cope with catheter care need referral to social services / intermediate care. They do not need to be admitted under Urology.

Macroscopic Haematuria

CLOT RETENTION

/ SEPSIS / HAEMODYNAMIC COMPROMISE?

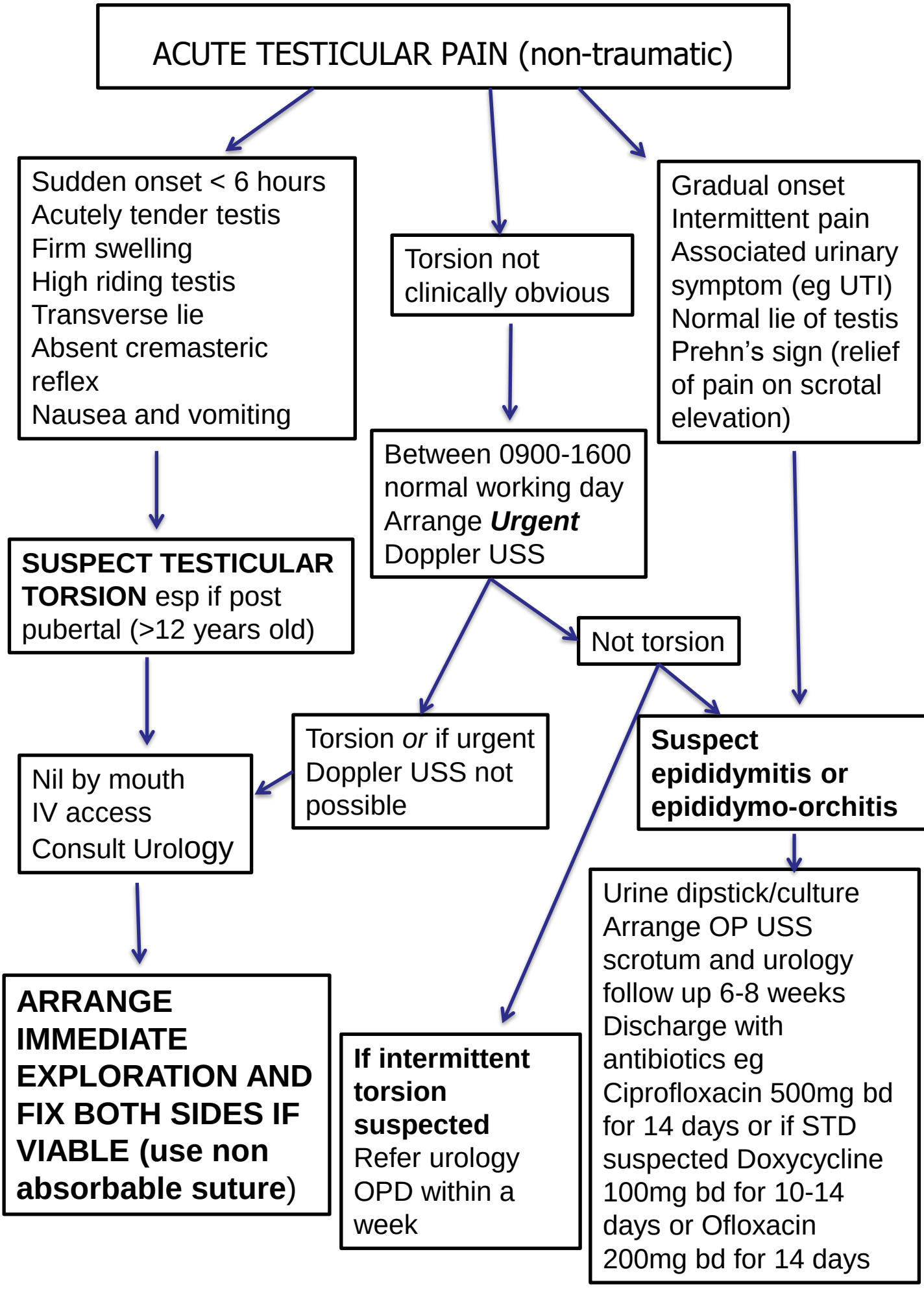
- **ADMIT TO B6**
- **FULL BLOODS**
- **MSU**
- **22F 3 WAY CATHETER WITH IRRIGATION AFTER BLADDER WASH OUT**
- **RECORD BLOOD RESULTS IN NOTES**
- **BLOOD CULTURE AND ANTIBIOTICS IF TEMP>38 DEG c**

VOIDING FREELY NO HAEMODYNAMIC COMPROMISE OR SEVERE ANAEMIA OR SEPSIS

DISCHARGE AND FAX PATIENT DETAILS TO 01384244202 (UROL SECYS) FOR URGENT APPOINTMENT TO 'HAEMATURIA CLINIC'. Document history and blood results in fax

Renal colic – stone disease

- Urine dipstick - ?culture
- Bloods – FBC, U&E, GFR, Uric acid, Calcium, INR
- Pain relief – start with NSAID (unless GFR grossly low) eg Diclofenac PR and alfa blocker
- With fever or solitary kidney, and when diagnosis is doubtful, immediate imaging is indicated and call urologist
- Non-contrast enhanced computed tomography (NCCT) has become the standard for diagnosis of acute flank pain
- Pain settled – no sepsis or obstruction – can be discharged with Urology OPA


ACUTE TESTICULAR PAIN (non-traumatic)
Sudden onset < 6 hours
Acutely tender testis
Firm swelling
High riding testis
Transverse lie
Absent cremasteric reflex
Nausea and vomiting
Torsion not clinically obvious
Gradual onset
Intermittent pain
Associated urinary symptom (eg UTI)
Normal lie of testis
Prehn's sign (relief of pain on scrotal elevation)
Between 0900-1600 normal working day
Arrange Urgent Doppler USS
SUSPECT TESTICULAR TORSION esp if post pubertal (>12 years old)
Not torsion
Torsion or if urgent Doppler USS not possible
Nil by mouth
IV access
Consult Urology
Suspect epididymitis or epididymo-orchitis
ARRANGE IMMEDIATE EXPLORATION AND FIX BOTH SIDES IF VIABLE (use non absorbable suture)
If intermittent torsion suspected
Refer urology OPD within a week
Urine dipstick/culture
Arrange OP USS scrotum and urology follow up 6-8 weeks
Discharge with antibiotics eg Ciprofloxacin 500mg bd for 14 days or if STD suspected Doxycycline 100mg bd for 10-14 days or Ofloxacin 200mg bd for 14 days

Notes:

- Testicular torsion is most common at adolescence but can occur at any age. However is unusual over the age of 25.

- Consider torsion a possibility even when there is a history of previous orchidopexy if you cannot get hold of the operation note (did they use non-absorbable sutures? Were both sides definitely fixed?)

- If torsion of Hydatid of Morgagni (testicular appendix) diagnosed by USS or clinically (ie blue-dot sign)

- -reassure, offer analgesia eg NSAIDS and scrotal support

- -refer urology OPD

URINARY TRACT INFECTION

RECOGNITION AND ASSESSMENT

Treat symptomatic urinary tract infection (UTI) in infants promptly to reduce risk of renal scarring

Symptoms and signs

Age group		Most common	Intermediate	Least common
Infants aged <3 months		• Fever • Vomiting • Lethargy • Irritability	• Poor feeding • Failure to thrive	• Abdominal pain • Jaundice • Haematuria • Offensive urine
Infants ≥3 months and children	**Pre-verbal**	• Fever	• Abdominal pain • Loin tenderness • Vomiting • Poor feeding	• Lethargy • Irritability • Haematuria • Offensive urine • Failure to thrive
	Verbal	• Frequency • Dysuria	• Dysfunctional voiding • Changes to continence • Abdominal pain • Loin tenderness	• Fever • Malaise • Vomiting • Haematuria • Offensive urine • Cloudy urine

Risk factors for UTI and serious underlying pathology

- The following should always be recorded in suspected cases of UTI:
  - poor urine flow in males
  - history suggesting recurrent UTI
  - recurrent fever of uncertain origin
  - antenatally diagnosed renal or urinary tract abnormality
  - family history of vesico-ureteric reflux (VUR)
  - constipation
  - dysfunctional voiding (i.e. any of: frequency, urgency, urge incontinence)
  - enlarged bladder
  - abdominal mass
  - evidence of spinal lesion
  - poor growth
  - high blood pressure

Investigations

- Dipstick test fresh urine for leukocytes and nitrites in:
  - all symptomatic children (see **Table** above)
  - all unexplained febrile admissions with temp >38°C
  - with an alternate site of infection but who remain unwell
- Culture urine if:
  - aged <3 yr
  - a single positive result for leukocyte esterase or nitrite
  - recurrent UTI
  - infection that does not respond to treatment within 24–48 hr
  - clinical symptoms and dipstick tests do not correlate
  - suspected pyelonephritis
- If child seriously unwell, measure serum electrolytes, take blood cultures and insert cannula

Collection of specimens

- Collect urine before antibiotics unless severe sepsis – see **Sepsis (including**

meningococcal) guideline
- **Clean catch** in sterile container is recommended method:
  - in babies too young to co-operate, eliciting lateral abdominal reflex may provoke micturition
- Collect mid-stream urine in those old enough to co-operate
- Pad urine specimens can be used in babies and young children (only useful if negative)
  - make sure nappy area thoroughly cleaned before applying pad
  - urine extracted from specially designed pads with a syringe
  - always follow manufacturer's instructions
  - do not use cotton wool balls or 'home made' equipment
  - for urinalysis (do not send for culture: if +ve nitrites and +ve leukocytes collect another urine sample by clean method)
- In severe sepsis, catheterise for diagnostic urine collection

Handling specimens
- Use plain, white top, sterile bottles for hospital-collected samples
- Use borate only when child large enough to fill bottle
- During working hours, transfer specimens to laboratory within 2 hr
  - out-of-hours, keep specimen in fridge at 4°C until laboratory open
- State date and time of collection on specimen bottle

Interpretation of results

Always take clinical symptoms into account when interpreting results
- **Children aged ≥3 yr:** use dipstick to diagnose UTI
- **Both leukocyte esterase and nitrite positive:** start antibiotic treatment for UTI
- **Leukocyte esterase negative and nitrite positive:** start antibiotic treatment, if fresh sample was tested. Send urine sample for culture
- **Leukocyte esterase positive and nitrite negative:** only start antibiotic treatment for UTI if there is good clinical evidence of UTI. Send urine sample for microscopy and culture
- **Both leukocyte esterase and nitrite negative:** do not send urine sample for culture unless recommended in indications for culture. Do not start treatment for UTI

Microscopy of fresh sample
- Indications:
  - aged <3 yr with fever
  - aged >3 yr, fever with:
    - specific urinary symptoms
    - history of recurrent UTI
    - seriously ill
    - leukocyte esterase or nitrite on urinalysis (see **Interpretation of results**)
- Very useful method of confirming acute infection
  - bacteria and leukocytes (UTI)
  - bacteria only (UTI when symptomatic or contaminant)
  - leukocytes only (treat if symptomatic)
  - no bacteria or leukocytes (no UTI if culture results also negative)
- Pyuria
  - normal $<10 \times 10^6$/L
  - vulvitis, vaginitis or balanitis can also give rise to high counts
  - viruses (echovirus, adenovirus and CMV) can cause sterile pyuria
- Colony counts
  - organism count $>10^5$ organisms/mL pure growth of single organism confirms infection in properly collected and stored mid-stream sample
  - certainty reduced to 80% with pad urine
  - low counts do not exclude infection

IMMEDIATE TREATMENT

If child systemically unwell, do not delay treatment while trying to obtain urine specimen
- Ensure good hydration with maintenance fluids

- Empiric antibiotics (narrow spectrum as soon as organism and sensitivities known)
- If pyelophephritis: systemic illness (fever >38°C or loin pain/tenderness)
- aged <3 months: cefotaxime or ceftriaxone
- aged >3 months: co-amoxiclav oral if tolerated or IV for 7 days
  - if penicillin allergy give high dose cefuroxime IV 8-hrly (unless severe type 1 allergic reaction), or gentamicin IV (once daily dosage regimen) over 30 min for 48 hr minimum (follow local antibiotic guidelines)
  - if shocked refer to **Sepsis (including meningococcal)** guideline
  - ongoing treatment depends on response
- if cystitis: minor systemic disturbance, give cefalexin oral for 3 days
- high rates of trimethoprim resistance (no longer empiric first line)
- when child on prophylaxis already, always give an alternative antibiotic for acute infection
- Imaging: urgent ultrasound imaging is only indicated in 'atypical' cases with:
- seriously ill child
- poor urine flow
- abdominal or bladder mass
- raised creatinine
- septicaemia
- failure to respond to treatment within 48 hr
- infection with organisms other than *E. coli*

SUBSEQUENT MANAGEMENT

Imaging

Dependent on age and type of infection

- Simple UTI: responds within 48 hr
- Atypical UTI:
- seriously ill child
- poor urine flow
- abdominal or bladder mass
- raised creatinine
- septicaemia
- failure to respond to treatment within 48 hr
- infection with organisms other than *E. coli*
- Recurrent UTI:
- ≥2 episodes of UTI with acute pyelonephritis/upper urinary tract infection
- 1 episode of UTI with acute pyelonephritis/upper urinary tract infection **plus** ≥1 episode or UTI with cystitis/lower urinary tract infection
- ≥3 episodes or UTI with cystitis/lower urinary tract infection

Test	Simple UTI	Atypical UTI	Recurrent UTI
Aged 0–6 months			
US during acute infection	No	Yes	Yes
US within 6 weeks	Yes	No	No
DMSA	No	Yes	Yes
MCUG	No	Yes	Yes
Aged 6 months–3 yr			
US during acute infection	No	Yes	No
US within 6 weeks	No	No	Yes
DMSA	No	Yes	Yes
MCUG	No	No	No
Aged >3 yr			
US during acute infection	No	Yes	No
US within 6 weeks	No	No	Yes
DMSA	No	No	Yes
MCUG	No	No	No

- Renal and bladder USS 6 weeks after infection when not indicated urgently (see above)
- Bladder scan pre/post micturition helpful to exclude incomplete bladder emptying
- DMSA (dimercaptosuccinic acid) scan 4–6 months after infection
- If child has subsequent UTI while awaiting DMSA, review timing of test and consider doing it sooner
- MCUG (micturating cysto-urethrography) after infection is treated
- also required where there are voiding problems or abnormalities on US scan requiring further investigation (discuss with consultant)
- requires 3 days of prophylactic antibiotics, usually nitrofurantoin aged >3 months 1 mg/kg (max 100 mg, avoid in G6PD deficiency or renal impairment) or cefalexin aged <3 months 12.5 mg/kg at night according to previous culture sensitivities, with test on middle day or following MCUG
- MCUG for neonates with hydronephrosis give a single dose of gentamicin IV 5 mg/kg over 3–5 min just before MCUG (avoid MCUG in neonates with UTI)

DISCHARGE AND FOLLOW-UP

- Home when:
- symptoms mild, or severe symptoms controlled
- taking oral antibiotics and tolerating them
- discuss and advise to avoid risk factors at discharge:
  - constipation
  - poor perineal hygiene
  - low fluid intake
  - infrequent bladder emptying
- Repeat urine test not required on asymptomatic children
- Prompt treatment of recurrences with co-amoxiclav (check previous culture sensitivities)
- Outpatient review
- check BP
- not required for simple UTI
- in 8–10 weeks where ultrasound imaging has been indicated
- **Prophylactic antibiotics**
- not required following first simple UTI
- Required for:
- proven grade 3+ reflux until out of nappies during the day (provided infections well controlled)
- urinary tract obstruction pending surgical management
- any child with frequent symptomatic infections (>3 urinary tract infections per year)
- aged >3 months: prophylaxis as above
- Surgical management
- antireflux surgery not routinely indicated in VUR
- refer for antireflux surgery for obstructive mega-ureters with reflux
- refer for antireflux surgery if failure to control infections with prophylaxis in grade 3+ reflux
- refer all neuropathic bladder patients
- Circumcision may be considered for recurrent UTI in children with structurally abnormal urinary tracts

Management of children with renal scars

- No follow-up for minor unilateral parenchymal defect unless recurrent UTI or family history or lifestyle risk factors for hypertension
- In cases of significant scarring:
- annual BP measurement
- females must book early when pregnant and inform obstetric team
- Where scarring bilateral:
- annual BP measurement
- assessment of urinary protein excretion and renal function every 3–4 yr
- long-term follow-up in the renal clinic
- transfer to adult service

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«PAT_I_NAME»
«PATIENT_ADDRESS_1»
«PATIENT_ADDRESS_2»
«PATIENT_ADDRESS_3»
«PATIENT_ADDRESS_4»
«PATIENT_POSTCODE»

Department of Urology
Russells Hall Hospital
Pensnett Road
Dudley
West Midlands
DY1 2HQ

Tel: 01384 456111

Dear «PATIENT_TITLE» «PATIENT_SURNAME»

As per our telephone conversation you have been offered the treatment of Extracorporeal Shock Wave Lithotripsy (ESWL) by your urologist. This letter contains detailed information which you need to know about Lithotripsy prior to being treated and should answer most of the questions you have about Lithotripsy. Please read it carefully before you attend.

There is also a separate consent form “Consent Form for Extracorporeal Shock Wave Lithotripsy (ESWL)” enclosed, please read this, but do not sign it. Bring the unsigned consent form to the Lithotripsy clinic on the day of your appointment as your consent will be required before the start of treatment.

Arrangements have been made for your lithotripsy we would be grateful if you attend: -

Date: «PLANNED_ADMIT_DAY» «PLANNED_ADMIT_DATE»
Time: «PLANNED_ADMIT_TIME»
At: Ward West C6, Second floor, West Wing, Russells Hall Hospital

If you are currently taking Aspirin this does not have to be stopped before attending the Lithotripsy clinic unless you have been advised to do so by your doctor, however, please let the clinic nurse know when you last took Aspirin.

If you are currently taking Clopidogrel this must be stopped two weeks before attending the lithotripsy clinic. Please let the clinic nurse know when you last took Clopidogrel. You may re-start Clopidogrel following lithotripsy treatment.

If you are currently taking Warfarin, you must be seen by the by the anticoagulant clinic for dose adjustment one week before you attend the Lithotripsy clinic. You will need to let the clinic nurse know when you last took your Warfarin. You may restart your Warfarin following Lithotripsy treatment. Please take advice from the anticoagulant clinic for dosage.

Yours sincerely

Urology Department
The Dudley Group NHS Foundation Trust

Your Hospital Unit Number is: «PATIENT_ID»
Your NHS Number is: «NHSNUMBER»

UROLESWLPA

To ensure the highest standards of patient care, please scan the QR  code to tell us what you think about our services.

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LITHOTRIPSY AT THE DEPARTMENT OF UROLOGY

What is Lithotripsy or ESWL?

It is a method used to shatter kidney stones into sand like particles small enough to pass out in the urine over a period of time. This is done by focusing shock waves through the skin under ultrasound or x-ray control. You will not require an anaesthetic but will be given painkillers before treatment as some discomfort may be experienced.

There are some risks associated with Lithotripsy you should be aware of:

Common Risks

Bruising over the treatment area, this can take up to several weeks to return to normal.
Passing sand/ gravel in the urine.
Blood in the urine for a few days is normal as the sand like particles are passed out.
Urinary tract infection from bacteria present in the stone at the time it is shattered, this may require antibiotic treatment.
Pain/discomfort as the sand like particles are passed out.

Occasional Risks

The stone may be too hard and fail to break and therefore require alternative treatment.
Stones can recur.
The fragments may need repeated Lithotripsy.
The treatment may not work in every case.

Less Common Risks

Bruising or bleeding to the kidney which may require further treatment.
Infection requiring further treatment with intravenous antibiotics.
Stone fragments may get stuck in the urinary tract between the kidney and bladder requiring treatment in hospital and/ or surgery to remove them. (In cases of severe urinary tract obstruction, it may be necessary to put a drainage tube into the kidney directly through the skin).

Note the above risks may increase in those who smoke, are overweight, diabetic, have high blood pressure or have a history of previous heart disease.

What do I need to bring when I visit the hospital for Lithotripsy?

Dressing gown and slippers.
Reading material E.g newspaper/ magazines.
Any routine mediation you may need to take during your visit as this is not provided by the clinic staff.

Diet
You will need to restrict the foods you eat for two days before the treatment. The reason for this is to stop the build-up of gas in your bowel. Please read the following information carefully.

A light breakfast and/ or lunch is advised on the day of lithotripsy. If you are diabetic continue your diabetic diet within the restrictions given below.

FOODS ALLOWED	FOODS TO AVOID
Cornflakes, Rice Krispies	Weetabix, Shredded Wheat, All bran, bran cereals
Meat, Fish, Cheese, Eggs	Wholemeal flour, wholemeal bread cakes biscuits plus pastry
Rice, Pasta, White flour, White Bread, Cakes, biscuits, and pastry. Made with white flour	All other vegetables especially dried Beans, lentils, pulses
Potatoes Root vegetables i.e., carrots, turnips.	All other fruit including dried fruit
Tinned Fruit	Spicy foods i.e., curries, pickles
Butter, margarine oils in Very small quantities	Fizzy drinks
Clear soup, gravy, Oxo, Bovril, marmite	
Tea, coffee, cocoa, Horlicks, Fruit juice, squash	
Sugar, jelly jam honey, Syrup lemon curd etc.	

Advice Following Lithotripsy

It is normal to see blood and gravel in the urine for a few days. It is advisable to drink plenty of fluids to help eliminate them- try to drink 2-3L a day for about a week.

Patients on restricted fluid intake must follow the fluid restriction advised by their doctor.

It is advisable that you continue to move around as normal after lithotripsy treatment as this will help you to pass the stone fragments.

If you experience mild discomfort or pain on your return home, take normal pain relief.

If you experience fever or shivering or you feel unwell it is extremely likely you will require antibiotics which may need to be administered as a hospital in patient, if this happens, please contact: -
Contact your GP or attend Russells Hall Hospital Emergency Department. You will receive an appointment through the post to see your consultant who will check if the stones have been passed.

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Consent Form For Extracorporeal Shock Wave Lithotripsy (ESWL) A method used to shatter kidney stones into sand-like particles small enough to pass out in the urine. This is done by focusing shock waves through the skin under ultrasound or Xray control. You will not require an anaesthetic but will be given painkillers before treatment as some discomfort may be experienced.	«PATIENT_SURNAME» «PATIENT_FIRSTNAME» «PATIENT_ID» «PATIENT_DOB» «CONSULTANT_TITLE»

I have had the process of ESWL and surgical removal of kidney stones explained to me. I have chosen to have ESWL kidney stone fragmentation and understand the associated risks.

Signed…….In the presence of……Title……

Date……/……20

Common Risks

- I may experience bruising over the treatment area- this can take up to several weeks to return to normal.
- I may pass sand or gravel in my urine.
- I may see blood in the urine for a few days as the sand like particles are passed out.
- I could develop a urinary tract infection from bacteria present in my stone at the time it is shattered, which may require antibiotic treatment.
- I may experience pain or discomfort as the sand like particles are passed out.

Occasional Risks

- I may need to have repeated ESWL treatments if the stone is too hard.
- I am aware kidney stones can recur.
- I am aware the treatment does not work in every case.

Less Common risks

- I may develop bruising or bleeding to the kidney which may require further treatment.
- I may develop an infection requiring further treatment with intravenous antibiotics.
- I am aware stone fragments may get stuck in the urinary tract between the kidney and bladder requiring treatment in hospital and/ or surgery to remove them, and that in cases of severe urinary obstruction it may be necessary to put a drainage tube into the kidney directly through the skin or in the ureter (the tube that connects the kidney to the bladder).

I also understand that the above risks may increase if I smoke, am overweight, diabetic, have high blood pressure or a history of previous heart disease.