NORTHLAND DISTRICT HEALTH BOARD (NDHB): ADULT URINARY CATHETERISATION & CATHETER CARE SELF DIRECTED LEARNING PACKAGE

INTRODUCTION

The following Self Directed Learning Package (SDLP) is offered to enable all health professionals involved in patient catheterisation to perform this clinical skill competently and with confidence, whilst reducing the risk of infection or undue discomfort to the patient. This SDLP covers the core elements of urinary catheterisation and catheter care and can be used in all clinical settings. This SDLP is suitable for Medical Practitioners, Nurse Practitioners, Registered Nurses, Midwives, Enrolled Nurses and Student Nurses/Midwives.

Before commencing the SDLP discuss with your Educator/ Manager which modules would be of most benefit to you in your role, requirement for updates and any clinical sign off required.

Please note that the information given in this workbook is from the latest best practice guidelines. Some specialised areas may have variations on this practice to meet the needs of their client group; these will be discussed in your area of practice by your Educator/ Specialist

OBJECTIVES

Completion of this SDLP will enable the healthcare professional to:-

1. Be able to provide necessary information and ensure patient safety.
2. Communicate with the patient in a way, which reduces anxiety.
3. Understand the rationale for catheterisation.
4. Understand the importance of aseptic technique and infection prevention.
5. Be able to identify potential problems when performing catheterisation and remedial action to be taken.
6. Discuss catheter care and maintenance.
7. Understand the rationale for the decision to remove an indwelling catheter.
8. Be aware of comprehensive documentation relating to the procedure of catheterisation.

INSTRUCTIONS

The Catheterisation SDLP is designed for completion on a modular basis.

Female Catheterisation: This SDLP is **not** compulsory to perform female catheterisation. It can however be used to obtain professional development hours by completing the workbook and submitting the answered questions to your Nurse Educator or equivalent

Male catheterisation: To be able to perform male catheterisation, please discuss further with your Educator. Following completion of this SDLP, you will need to attend a simulation workshop and be observed in clinical practice by a health professional that is skilled in male catheterisation.

The Male catheterisation observation form can be found in appendix 6. Your sign off can be completed by a member of staff who is experienced in the male catheterisation procedure. Once completed please retain in your personal professional records.

Healthcare professional's currently competent in male catheterisation

A healthcare professional that is currently competent in male catheterisation may choose to complete the pathway outlined for female catheterisation, to update knowledge and gain 2 hours professional development.

It is expected that the healthcare professional will have an up to date knowledge of the related anatomy and physiology in relation to catheterisation. For those wishing to update their knowledge the following reading material is recommended:

Douglas, S. F. (2004). Urology Nursing (3rd edition). London: Balliere Trindall. Royal College of Nursing. (2012). Catheter Care. RCN Guidance.

Royal Marsden Hospital (2004). Manual for Clinical Nursing Procedures. Oxford: Blackwell

European Association of Urology Nurses. (2012) Evidence based guidelines for best practice in urology healthcare: Catheterisation indwelling catheters for adults.

Before preceding the healthcare professional should familiarise themselves with the relevant sections of associated organisational documents:

- Northland District Health Board (2015). Hand hygiene.
- Northland District Health Board (2015). Infection prevention; standard precautions.
- Northland District Health Board (2015). Waste management policy and procedure.

Throughout the SDLP there are markers to bring information to your attention:

 Important additional information

 Links to further Information

ACKNOWLEDGEMENT

This document was developed by Canterbury District Health Board and adopted and altered to meet Northland District Health Board requirements. The document was review by key members of staff from urology, education and clinical nurse specialists.

PROFESSIONAL DEVELOPMENT (PD) HOURS

Professional development (PD) hours will be recognised following the professional development hours guide dependent on modules completed.

Profession Professional development hours will be allocated by your Nurse/Midwifery Educator, Clinical Nurse Specialist or equivalent in your work area on completion of your clinical assessment

Sign off will be completed by your Nurse Educator, Clinical Nurse Specialist or equivalent within your work area on completion of your pathway.

Pathway	Requirements	PD Hours
Female catheterisation self-learning	Modules 1, 2, 3, 4, 5, 7, 8, 9	2 hours
Male catheterisation self-learning + workshop + skills assessment	Modules 1, 2, 3, 4, 6, 7, 8, 9	6 hours
NB. Registration onto the practical session is through your Educator/Manager or equivalent		

Contents

Module One: Scope of Practice, Informed Consent & Cultural Safety

Scope of Practice Nurses

Patient care should be carried out within the nurse's scope of practice, being aware they operate under the Nursing Council of NZ requirements which states "They (R/N) provide comprehensive nursing assessments to develop, implement, and evaluate an integrated plan of health care, and provide nursing interventions that require substantial scientific and professional knowledge and skill" (New Zealand Nursing Council, 2012).

The Nurses Code of Conduct has four principles that should be considered and upheld Nurse are:

- To act ethically and maintain contemporary standards of practice.
- To respect the rights of patients/clients.
- To comply with legislated requirements.
- To justify public safety and confidence.

Nurses are responsible and accountable for their actions, decisions and practices:

- To uphold the safety, wellbeing, interests and rights of patients, families and colleagues.
- To ensure that no actions or omissions are detrimental to the condition and safety of the patient.
- To take appropriate action where they have a duty of care, expected knowledge and understanding of the implications.
- To only undertake activities where they are competent, and are authorised to do so (as per their level of practice).
- To acknowledge any limitation in their knowledge/competence and seek assistance.
- To practise according to current policies, standards and accepted practices and seek clarification if dissatisfied with a clinical decision or inappropriate practices or orders.

http://www.nursingcouncil.org.nz/Nurses/Scopes-of-practice/Registered-nurse

Midwives

The Midwifery Council is required by Section 11 of the Health Practitioners Competence Assurance Act 2003 (HPCAA) to prescribe the Scope of Practice for Midwifery:

"The midwife works in partnership with women, on her own professional responsibility, to give women the necessary support, care and advice during pregnancy, labour and the postpartum period up to six weeks, to facilitate births and to provide care for the newborn.

The midwife understands, promotes and facilitates the physiological processes of pregnancy and childbirth, identifies complications that may arise in mother and baby, accesses appropriate medical assistance, and implements emergency measures as necessary. When women require referral midwives provide midwifery care in collaboration with other health professionals.

Midwives have an important role in health and wellness promotion and education for the woman, her family and the community. Midwifery practice involves informing and preparing the woman and her family for pregnancy, birth, breastfeeding and parenthood and includes certain aspects of women's health, family planning and infant well-being.

The midwife may practise in any setting, including the home, the community, hospitals, or in any other maternity service. In all settings, the midwife remains responsible and accountable for the care she provides." (Midwifery Council, 2010)

The Competencies for Entry to the Register provide details of the skills, knowledge and attitudes expected of a midwife to work within the Midwifery Scope of Practice. Whereas the Midwifery Scope of Practice provides the broad boundaries of midwifery practice, the Competencies provide the detail of how a registered midwife is expected to practise and what she is expected to be capable of doing.

Information on the four Competencies and a Statement on Cultural Competence can be found on the Midwifery Council website on

https://www.midwife.org.nz/meras

Medical Staff

Under section 118 of the Health Practitioners Competence Assurance Act 2003 (HPCAA) the Medical Council of New Zealand (MCNZ) is responsible for setting standards of clinical competence, cultural competence and ethical conduct for doctors. The MCNZ expects all doctors registered with the Council to be competent. It is the responsibility of competent doctors to be familiar with Good Medical Practice Guidelines.

In relation to catheterisation the public and the profession expect doctors to be competent in the following areas

Medical care

- Adequately assess the patient condition, taking account of the patient's history and examining the patient as is appropriate.
- Provide and arrange investigations and treatments as needed.
- Taking suitable and prompt action when needed.
- Recognise and work within limits of competence.
- Provide effective treatments based on the best practice available.
- Take steps to alleviate pain and distress whether or not a cure is possible.

http://www.mcnz.org.nz/assets/News-and-Publications/good-medical-practice.pdf

Informed Consent

Informed consent is a process of exchanging information so that an informed decision can be made by the patient.

Every health professional has a responsibility to inform patients of proposed procedures and to gain consent for these. Health professionals who are to catheterise their patient **must** realise the primary responsibility for providing information regarding the procedure lies with themselves. Information should be given in a language, style and form that the patient can easily understand. The explanation should outline why the procedure is indicated, an explanation of the procedure, the risks involved and the benefits. It should be made clear to the patient that he or she has the right to refuse or withdraw from treatment without fear of recrimination and that he or she will be supported in their decision.

Written Consent for the insertion of a urinary catheter in the ward setting is not required, verbal consent will generally suffice.

Consent should be documented in the patient's notes and in the situation where a patient is unable to give consent it should be recorded who gave consent on their behalf and their relationship to the patient.

Cultural Safety

Catheterisation for Maori is particularly sensitive, due to the tapu nature. Seek guidance from the patient or their whanau about whom is appropriate to have present during the procedure. If the Maori patient is unconscious and whanau members are present, it is important to look to the person whom the whanau is mandating as the person with authority to speak on their behalf in order to obtain the appropriate consents. If there is no whanau member present at the time, but they arrive later, it will be important to advise them of the procedure and the reasons for it. Allow enough time for issues to be set out, explained and talked through sufficiently for a clear decision to emerge.

You may also want to give some thought as to how you:

- Deal with different styles of communication, including silence.
- Can use whanau / family and katumatua as part of the healthcare team.
- Can obtain help to assist with the interactions with Maori patients and their whanau through the Maori health workers available within NDHB.
- Reinforce the holistic care perspectives, including all aspects of wellbeing described in the Tikanga best practice guidelines.
- Show through words and actions that you understand Maori concepts of health and wellbeing

Some Maori may want to say Karakia before or after the procedure. When Maori are embarrassed, shy, feeling powerless, frustrated, under scrutiny or at a disadvantage, they may use or exhibit the description “whakama”. This is an expression of unhappiness and requires time and sensitivity.

Maori women are seen as being at the centre of their whanau, hapu and iwi, consider Te Whare Tangata, the house of people. The spiritual link between land and the health and well being of Maori women is reflected in the language used to describe the functional anatomy of Te Whare Tangata. The female genitals are the doorway to Te Whare Tangata and there are deeply felt cultural beliefs relating to the sanctity of Te Whare Tangata with consequences for related clinical practices such as catheterisation.

Module Two: **Decision to Catheterise**

Definition

Urinary catheterisation is the insertion of a special tube into the bladder, using aseptic technique, for the purpose of evacuating or instilling fluids (Royal Marsden Hospital, 2004).

The decision to catheterise should only be made once all non-invasive options have been exhausted and documented in the patient notes. A full assessment of the patients needs should be carried out including identifying the underlying cause of bladder emptying problems (Bond.R, 2005).

Indications for catheterisation

Within the NDHB there are strict guidelines outlining indications for catheterisation:

- Acute and chronic urinary retention
- Maintaining a continuous outflow of urine for a patient with voiding difficulties as a result of neurological disorders.
- Need for accurate measurements of urinary output in critically ill patients.
- Patients undergoing urological surgery.
- Anticipated prolonged duration of surgery.
- Patients requiring prolonged immobilisation.
- Unconscious or sedated patients unable to void.
- In the operative and peri-operative setting.
- Patients with prolonged epidural anaesthesia eg. In labour, after surgery
- Chronic retention if associated with impaired renal function or infection.
- Incontinence, if patient has a sacral or perineal would requiring protection while healing
- To instill medication into the bladder.
- End of life care.
- Specific clinical needs

Urethral catheterization for incontinence needs to be carefully assessed in light of social situation.

Contraindications for Urethral Catheterisation

- Acute prostatitis
- Suspicion of urethral trauma
- Within 6 weeks of Radical Prostatectomy

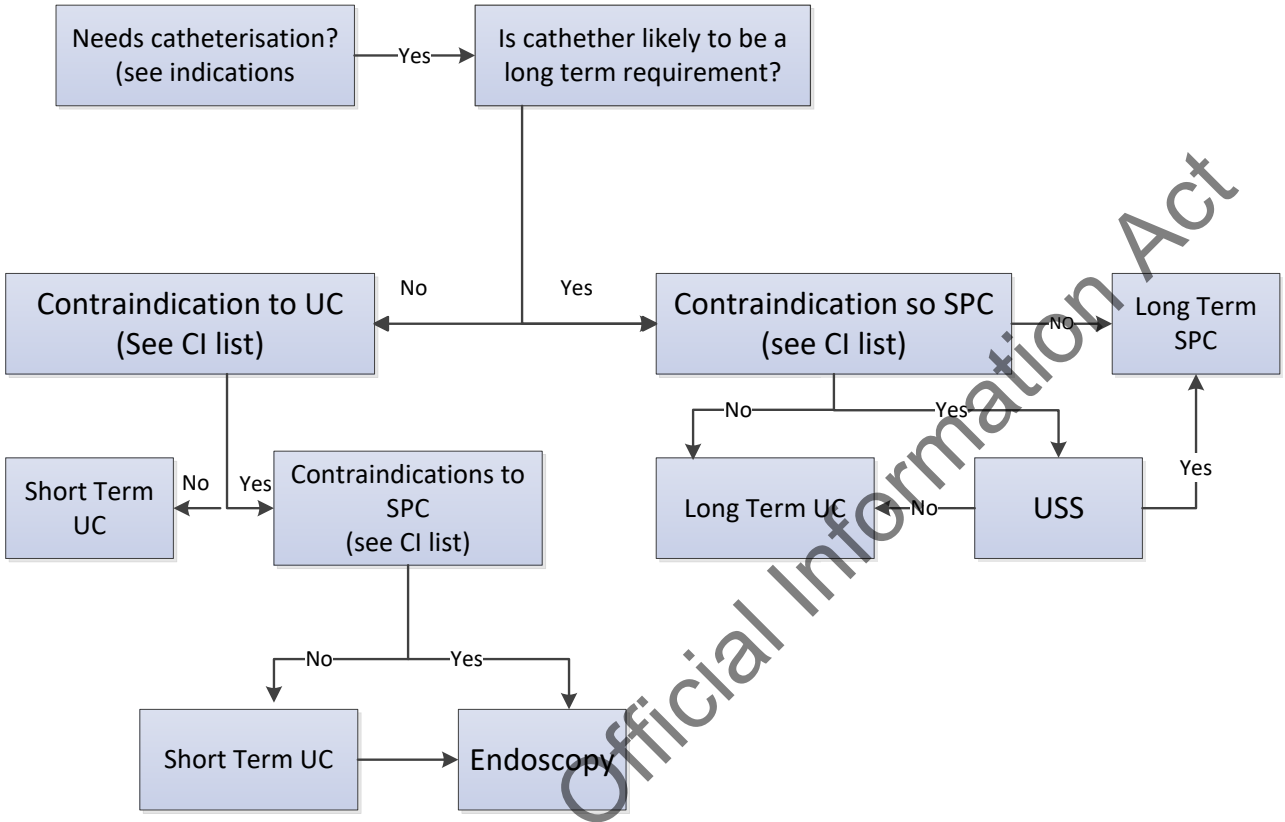
Key Point:

Intermittent catheterisation is the preferred alternative to indwelling catheterisation for individuals in whom bladder emptying is incomplete, providing this is safe and acceptable to them.

Key Challenges:

- Recognising individuals who may require additional support, such as children, elderly frail confused patients and individuals with learning disabilities or learning difficulties
- Ensuring that time and support is given to address specific individual needs and to ensure safe and effective management of the catheter.

Decision flow chart on Indwelling catheterisation



SPC = supra pubic catheter **UC = urethral catheter**
USS = ultrasound scan **CI = contraindications**

(European Association of Urology Nursing 2012)

Module Three: Choice of Indwelling Catheter Equipment

As catheters inserted for urinary retention or monitoring of urine output are short term, this influences the choice of catheter to be used. A size 12-16 Foley catheter is generally sufficient for both adult men and women. The smallest size catheter that will drain the contents of the bladder should be selected. The urethral mucosa contains elastic tissue which will close around the catheter so there are fewer problems with leakage and pain. Fillingham and Douglas (2004. p. 71) stated that "the smaller sizes of catheter have been found to be capable of transporting the volumes produced by the average human being over a 24 hour period". A 12 gauge Foley catheter has the capacity to pass 100 litres of urine in a 24 hour period. On average, urine output is 1.5 litres in 24 hours.

At Northland District Health Board, Bard Biocaths are generally used. For females generally a 12fg - 14fg with 10mls water in balloon. For males 14fg – 16fg with 10 mls water in balloon. This is a latex coated Foley catheter. It has a straight rounded tip and two drainage holes. For a male catheterisation a 40cm – 45cm length catheter is recommended. Females have a choice of a shorter catheter of 20 – 25cm in length or the 40 – 45cm length. These can remain in situ for up to 12 weeks.

For short term the Bardia Foley is recommended. This is 43cm long. It is a silicone catheter, and is a cheaper option. It can stay in for 12 weeks if need.

Potential side effects of larger catheters include:

- Pain and discomfort
- Pressure ulcers, which may lead to stricture formation
- Blockage of paraurethral ducts
- Bladder spasm

If urine drainage is likely to be clear a 12 gauge catheter should be considered. If debris and clots are present in the urine then a larger catheter is required (Royal Marsden Hospital, 2004).

Patients with latex allergies must be identified and a silicone Foley catheter (latex free) should be used

Catheter types

Type of catheter	Properties	Recommended duration of
Foley catheter (latex)	Cheap, greater elasticity and comfort. Risk of latex allergy Prone to encrustation	14 days
Foley catheter (silicone)	Latex free Larger lumen and thin walled Rigid and less comfortable Prone to cuffing and ridging	12 weeks
Foley catheter (releen)	Expensive Radio opaque	12 weeks

Hydrogel coated	Hydrogel coated latex Well tolerated Become smoother when rehydrated thereby reducing friction	12 weeks
Coude tip / tieman tip	Can negotiate urethra in patients with enlarged prostate Can be intermittent or 2 way	12 weeks
Nelaton catheters	Polyvinylchloride or polyurethane No balloon Temporal use Cheap and minimise risk of infection	1 clean catheter every 2 days in community. A new catheter each time in hospital.

Balloon Size.

Balloon sizes vary from 2.5ml for children up to 30ml. A 30ml balloon is used to aide haemostasis after prostatic surgery. The weight of a 30ml balloon is approximately 48g, which causes pressure on the bladder neck and pelvic floor causing potential damage to these structures (Pomfret, 2000. Robinson, 2001). These size ballons are also associated with leakage of urine, pain and bladder spasm as they cause irritation to the bladder mucosa and trigone (Pomfret, 2000).

A catheter with a 10ml balloon should be routinely used and the balloon should be inflated with sterile water. Normal saline **must not** be used as salt particles may block the inflation channel and prevent the balloon being able to be deflated prior to removal.

If the balloon is over inflated this can cause distortion of the catheter tip, which may result in irritation and trauma to the bladder wall. Symptoms include pain, spasm, bypassing and haematuria (Royal Marsden Hospital, 2004). There is also the possibility of balloon rupture leaving fragments in the bladder.

If the balloon is underinflated one or more of the drainage eyes may become occluded or the catheter may become dislodged.

Storage

Catheters should be stored flat, in the original packaging, out of direct sunlight and **NOT** bundled tightly together with elastic bands. Always check expiry date before use.

Cost

The cheapest product is not necessarily the most efficient. The chosen system should meet the individual patient needs. Particularly when considering the length of time the catheter is to stay in place.

Drainage System

Choose a drainage system that is suitable for the patient's individual needs taking into account:

- Mobility
- Limited dexterity (e.g. can the bag be emptied using one hand)
- Limited visual ability

Changing and emptying of a drainage bag is a relatively technical skill involving a certain amount of skilled co-ordination, therefore patients should be assessed on an individual basis.

A wide variety of drainage systems are available and careful consideration of the reasons for catheterisation, intended duration, the wishes of the patient and infection prevention issues are involved when selecting the correct system.

Drainage bags are available in a variety of sizes incorporating urine measuring devices, which can be used for very close monitoring of urine output when required.

Leg bags (500-750mls)

- Leg bags should be sterile and left in situ to minimise the risk of introducing infection between the catheter and bag connection point
- Drainage bags must have either an anti-reflux valve or anti-reflux chamber to prevent reflux of contaminated urine from the bag into the tubing.
- It is recommended that drainage bags should have a sample/access port for the collection of urine specimens while maintaining a closed system, preferably needle-free.
- Most commonly they are disposed and discarded after one week; however latex based leg bags can be used for longer periods of time.
- Used during the day and can be secured to the leg in a variety of ways e.g. straps, catheter fixation, catheter bag holders strapped from the waist
- The leg bag must be kept below the level of the bladder, some people may choose to wear the leg bag on their thigh; others prefer to wear the leg bag on their calf.
- A newer product; the 'belly bag' may be placed upon the stomach.
- Leg bags can also be used to reduce trauma for the confused or forgetful patient while in hospital.
- Drainage tubing on leg bags is available in different lengths and can be tailored to individual's requirements.
- At night a night bag is attached to the bottom of the leg bag, providing a link system and allowing for greater drainage capacity (Stewart, 1998).
- The leg bag should be disconnected from the catheter, only when the bag is due to be changed or when the catheter needs changing.
- The general recommendation for changing/replacing disposable drainage bags is weekly or before if they become damaged, odorous, have sediment in the bottom or clinically indicated.

Disposable 2 litre plastic bags (night bag)

- For general use in hospital and described as a night bag in community.
- Night bags have longer (120cm) length tubing commonly with an outlet port to allow emptying (models are now available which have a needless sampling port).
- Bags should be changed when they become damaged, contaminated or malodorous and at catheter changes. In community change weekly.

http://www.healthcareimprovementscotland.org/

Disposable 4 litre plastic bags

- Bags with non returnable valve. Used post operatively in urology and for bladder irrigation.
- Usually short term and only changed if damaged, contaminated or malodorous.
- If night urine volume is greater than 2 Litre, Consider a 4 Litre bag in the community, change weekly

Catheter valves

A catheter valve (sometimes described as a flip flow valve) is a small device connected to the catheter in place of a drainage bag. Closing and opening of the valve allows for bladder filling and intermittent bladder emptying rather than continuous drainage into a bag. It can be released when the patient wishes to pass urine i.e. every 3-5 hours.

The catheter valve can be connected to night drainage bag and opened to allow free drainage overnight.

Catheter valves must be changed in accordance with the manufacturers' recommendations.

Valves are generally inappropriate after certain types of surgery e.g. radical prostatectomy and for patients with:

- Poor mobility
- Poor bladder capacity
- Detrusor over activity
- Ureteric reflux
- Renal impairment
- Cognitive impairment

A spigot is not a suitable alternative to a valve as it has to be removed from the catheter to allow drainage and thereby breaking the closed drainage system.

Catheter Securement Devices

These are designed to prevent excessive traction of the catheter against the bladder neck or accidental removal of the catheter. For male/ female catheterisation it is recommended that the catheter be secured to the top of the thigh.

Different types of catheter securement devices (Source: T. Schwennesen)

Module Four: Infection Prevention

Catheter - related infections are the most common hospital-acquired infection. The most common sites where bacteria may enter the system include: on the catheter tip during insertion, space between urethra and catheter, catheter detached from bag, poor technique when obtaining samples and poor technique when emptying catheter bag (Royal Marsden Hospital, 2004).

Risk of infection with catheterisation can be minimised by adherence to standard precautions, including the 5 Moments for Hand Hygiene and using an Aseptic Non-Touch Technique (ANTT).

Risk of Infection

The risk of hospital-acquired urinary tract infection is dependent on a number of factors:

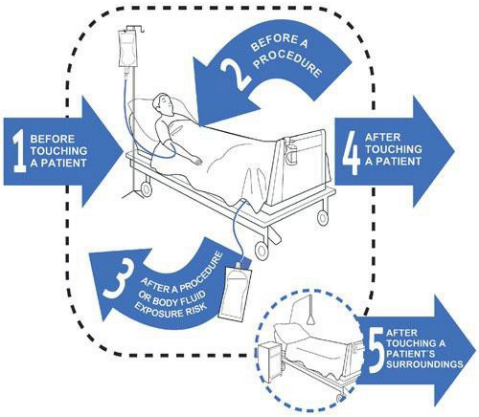
- Gender of patient
- Duration of catheter
- Absence of systemic antibiotics
- Inadequate catheter care

Hand hygiene

Hand hygiene and aseptic technique are the keys to minimizing infection during catheterisation. Effective hand hygiene is achieved by procedural hand washing, which is used before putting on sterile gloves, inserting indwelling devices and aseptic technique.
This requires the use of an antimicrobial liquid soap **or** decontamination of hands using an Alcohol Based Hand Rub (ABHR).

Five Moments of Hand Hygiene

- Moment 1: Before patient contact
- Moment 2: Before a procedure
- Moment 3: after a procedure or contact with body fluid exposure risk
- Moment 4: After patient contact
- Moment 5: After contact with patient's surroundings



Personal Protective Equipment (PPE)

PPE in relation to catheterisation includes the use of sterile gloves and apron.

Fluid Intake

Drinking sufficient fluids dilutes the urine and helps reduce the risk of catheter encrustation and blockage. The amount of fluid needed will differ with each patient depending on size, fluid loss, food intake, circulatory and renal function to prevent the urine from becoming concentrated. Urine output should be maintained between 50-100ml/h (European Association of Urology Nurses, 2012), unless determined otherwise in the patients care plan or care pathway.

Bowel Care

Good bowel care involves assessment of normal bowel habit, avoiding constipation and straining, and discussing dietary intervention. The use of antispasmodic drug eg. oxybutynin, for catheter related bladder irritation, may contribute to constipation and decreased gastrointestinal motility (Medsafe, 2010). Straining in association with emptying bowels contributes to bladder spasm, catheter bypassing and catheter blockage.

Good Hygiene is an integral and important component of a strategy for preventing associated catheter-related Urinary Tract Infections (UTI's)

Catheter Care

Daily bathing or showering is encouraged to maintain personal hygiene and only requires the use of soap and water. Trials have been performed in the use of a number of cleaning agents especially in meatal cleaning and have found to show no reduction in bacterial growth (Kunin, 1997).

Statement	Rationale	How achieved
Indwelling catheters are connected to a closed drainage system and the closed system is maintain as much as possible	Maintaining a closed system reduces the risk of catheter- related infection	Staff need to be familiar with equipment available in their clinical area and the correct assembly and use
Urine drainage bags are emptied regularly (when two-thirds full) and positioned below the level of the bladder (except "belly bags"). When in hospital bags should be supported on a stand above floor level	Ensure flow is maintained by gravity and prevents harmful reflux Trauma to the neck of the bladder may occur by downward pull of the catheter if the bag is too full or not supported correctly	Become familiar with local policy
A separate clean container must be used for each individual for emptying the drainage bag. Avoid contact between drainage tap and container. Gloves must be worn when emptying drainage bags. These are to be changed and hands washed between each individual. Leg bags can be emptied directly into the toilet. Overnight bags (both 2 and 4 litre) are single use only which are then emptied and the leg bag discarded. In community overnight bags are drainable and used for a week.	To reduce the risk of catheter related infection and cross infection	Become familiar with local policy and regular audit of practice

For all procedures observe 5 moments of hand hygiene and assess patient for degree of PPE required.

Catheter Bag Emptying

The purpose in performing this procedure is to empty the bag, monitor urine output and to ensure the drainage system is patent and draining.

Unused urinary drainage bags are sterile items and should not be stored in the sluice or dirty utility areas. The indwelling catheter should be attached to a sterile closed urinary drainage system. Catheter bags should be positioned below the bladder and above floor level to prevent reflux and contamination.

Step	
1	Explain procedure to the patient and ensure privacy.
2	Standard safety precautions are adhered to: - Clean disposable non-sterile gloves and plastic apron
3	Hand hygiene performed before donning gloves or manipulating catheter
4	The urine bag is emptied into a clean separate container (one container per patient).
5	Place disposable paper towel on the floor under the container to prevent spills on floor.
6	Drainage tap of catheter is not to come in contact with drainage container
7	Second disposable towel used to wipe away any residual urine from tap when closed.
8	Ensure the drainage bag is securely fixed to either the leg (leg bags) or urine drainage holder (night bags) to prevent trauma.
9	Measure urine output.
10	Dispose of urine and contaminated paper towel following standard precautions avoiding any splashing.
11	Clean urine drainage container as per standard precautions.
12	Dispose of gloves and perform hand hygiene.
13	Document urine output measurement on fluid balance chart and in clinical notes.

Catheter Bag Change

The changing of catheter drainage bags at fixed intervals or routinely is not recommended and drainage bags should only be changed if there are clinical indications such as infection, obstruction or when the closed system is compromised (EAU, 2012). Although a closed urinary drainage system does not prevent bacteriuria it can be delayed. Unnecessary disconnection of the system increases the risk of bacteriuria developing more rapidly.

Step	
1	Explain the procedure to the patient and ensure privacy.
2	Standard safety precautions are adhered to: - Clean disposable non- sterile gloves and plastic apron.
3	Hand hygiene performed before donning gloves or manipulating catheter
4	Open dressing pack onto cleaned flat surface and pour out cleaning solution onto sterile container.
5	Drape the patient allowing for easy access of the catheter and drainage bag connection site
6	Apply clamp to bottom of catheter but above balloon injection site with plastic clamps or artery forceps
7	Apply sterile gauze to the end of the catheter and the drainage tube at the connection point and disconnect.
8	Clean inside and outside of catheter end with separate gauze swabs impregnated with cleaning fluid.
9	Connect new closed system urinary drainage bag to the catheter.
10	Secure drainage bag to the leg (leg bag) or to urine drainage bag holder (night bag) to prevent trauma.
11	Dispose of used drainage bag and used equipment as per standard • precautions. NDHB Waste management.
12	Dispose of gloves and apron. Perform hand hygiene.
13	Document urine output measurement on fluid balance chart and in clinical notes.

Key Points:

- Frequent vigorous meatal cleaning with antiseptic solutions is unnecessary and may increase the risk of infection
- Daily bathing and showering is encouraged.
- A closed drainage system is maintained as far as possible.
- The use of closed drainage systems which incorporate sample ports is highly recommended.

Indications: Signs and symptoms of a urinary tract infection (IDC in situ)

The patient has an indwelling catheter and at least two of the following signs and symptoms:

a. Fever (>38°C) or chills,
b. New or increased burning pain (dysuria) on urination, frequency or urgency,
c. New flank or supra pubic pain or tenderness,
d. Change in character of urine,
e. Worsening of mental or functional status

Urine Sampling from an Indwelling Catheter

Urine samples should only be taken from indwelling catheters for a valid reason, such as suspected infection.

Closed urinary drainage systems should ideally have a sample port for the collection of specimens to prevent a break in the closed system.

Step	
1	Obtain consent and ensure the procedure is explained and performed maintaining patient dignity.
2	Hand hygiene performed before donning gloves or manipulating catheter.
3	Standard safety precautions are adhered to: - Clean disposable non-sterile gloves and plastic apron.
4	If there is no urine visible in the drainage tube then clamp the catheter below the sample port.
5	Once sufficient urine collected above the clamp wipe the sample port with an alcohol swab and allow to dry.
6	Insert sterile syringe directly into sample port and aspirate 3ml urine, a minimum of 1 ml is required for satisfactory testing the port will self-seal when the syringe is withdrawn. Or if using needle and syringe, insert needle at a 45^{o} angle into the catheter above the clamp (avoiding the water channel to the balloon).
7	Transfer specimen into appropriate specimen bottle avoiding contamination.
8	Wipe the sample port area with alcohol swab and allow to dry
9	Unclamp drainage tube.
10	Dispose of all waste as per standard precautions.
11	Hand hygiene performed.
12	Label sample and palace in plastic transport bag with request form and transfer the laboratory.
13	Document in clinical notes.

Key Points:

- The use of sample ports removes the need to break the closed system
- Breaking the closed drainage system to obtain a urine sample increases the risk of catheter-related infections.
- The use of a sample port removes the need to break the closed system.

Module Five: Indwelling Urethral Catheterisation Insertion (Female)

Associated Document: Adult Urethral Catheter – Insertion Guidelines

Catheterisation is an invasive procedure that can cause embarrassment, physical and physiological discomfort. Explaining the procedure and providing the reason for catheterisation will reduce patient anxiety. It is important that the healthcare professional performing the procedure takes time to complete a brief medical history especially about any urological and gynaecological conditions before commencing the procedure.

Procedure: Indwelling Catheter (Female)

Equipment

Sterile catheter pack	Normal saline 0.9% or Chlorhexidine
Sterile gloves x2	Sterile Lignocaine 2% gel
Selection of appropriate catheters x2 (eg. Fr 12 & 14)	Sterile water and syringe to inflate the balloon
Appropriate drainage bag	Flexitrak or fixing tape
Disposal bag	Disposal apron
Antimicrobial liquid soap or Alcohol-Based Hand Rub (ABHR)	Specimen container
Linen-saving pads (ie blueys/greenies)	

Observe 5 moments of hand hygiene throughout the course of the procedures.
Assess patient for degree of PPE required

Action	Rationale
1. Explain and discuss the procedure with the patient.	To ensure the patient understands the procedure and obtains informed consent. Check patient allergies
2. Screen or pull curtains around the procedure area.	To ensure patient privacy.
3. Prepare the trolley	By placing all the equipment on the bottom shelf so that you will be able to perform the procedure without having to leave the patient
4. Assist the patient to get into a supine position with knees bent, hips flexed and feet resting about 60cm apart. *If unable to lay supine a lateral position with 1-2 pillows between legs is suitable.*	To ensure correct position allows for access of catheter and allows genitalia to be seen.
5. Do not over expose the patient at this stage of the procedure	You will still need to set up you equipment and this takes time.

Action	Rationale
6. Put on disposable apron	
7. Clean hands using antimicrobial liquid soap or alcohol-based hand rub (ABHR).	Hands may have become contaminated by handling out packaging of equipment.
8. Using aseptic technique open catheterisation pack and unwrap all required sterile equipment and drop on sterile field and prepare sterile equipment ready for catheterization	Aseptic technique reduces contamination of equipment
9. Draw up sterile water into syringe and fill catheter balloon. Remove water to use later	To ensure balloon inflating correctly before insertion of catheter
10. Maintaining patient's privacy, place a linen-saver pad under the patient's hip	
11. Wash hands and put on sterile gloves.	
12. Place sterile drapes between patient's legs and over thighs.	To create a sterile field.
13. Clean external and internal labia and vulval area. Using your non dominant hand and sterile gauze separate the labia. Identify the urinary meatus. With the dominant hand and the use of and a sterile plastic forceps and normal saline 0.9% soaked cotton balls clean the urinary meatus using the clean to dirty technique.	Reduce risk of infection
14. Remove sterile gloves, perform hand hygiene and put on sterile gloves.	To reduce risk of cross- infection
15. Dip the catheter into the lubricant gel.	Adequate lubrication helps to prevent urethral trauma.
16. Place catheter in sterile receptacle in the tray between patient's legs on the sterile field.	To provide a temporary container for urine as it drains.

Action	Rationale
17. Using dominant (sterile) hand insert the catheter directly into the urethral orifice in an upward forward direction towards the pubic bone. ***NB:*** *if the catheter touches any part of the vulva or any non-sterile it should be discarded and a new catheter used. However, if the catheter enters the vaginal orifice, do not remove it, but leave it as a marker. Use a new catheter to insert into the urethral orifice and then remove the catheter in the vagina.*	The direction of insertion should be in relation to the anatomical structure of the area.
18. Advance the catheter until urine begins to flow then insert for a further 6-8cm.	To ensure the catheter is in the bladder and not the bladder neck when the balloon is inflated.
19. Gently inflate the balloon according to the manufacturer's direction. Gently draw back on catheter until resistance is felt.	Inadvertent inflation of the balloon in the urethra causes pain and urethral trauma
20. Connect the drainage bag, using non-touch technique for the end of the catheter and drainage bag connection. ***NB****: If a first catch or midstream catch IDC specimen is required, collect one, perform a dip stick test and send the urine specimen to the laboratory*	To reduce risk of cross-infection.
21. Remove gloves and wash hands.	To reduce risk of infection.
22. Support the catheter by securing the tubing to the top of the thigh with fixing tape	To prevent catheter being pulled, causing bladder injury.
23. Make the patient comfortable, wiping away any excess moisture and lubricant and ensure that the area is dry.	If this area is left wet and moist, secondary infection skin irritation may occur.
24. Wash hands and draw back the curtains/screen if patient wishes.	
25. Dispose of equipment appropriately in sluice room.	To prevent environmental contamination.

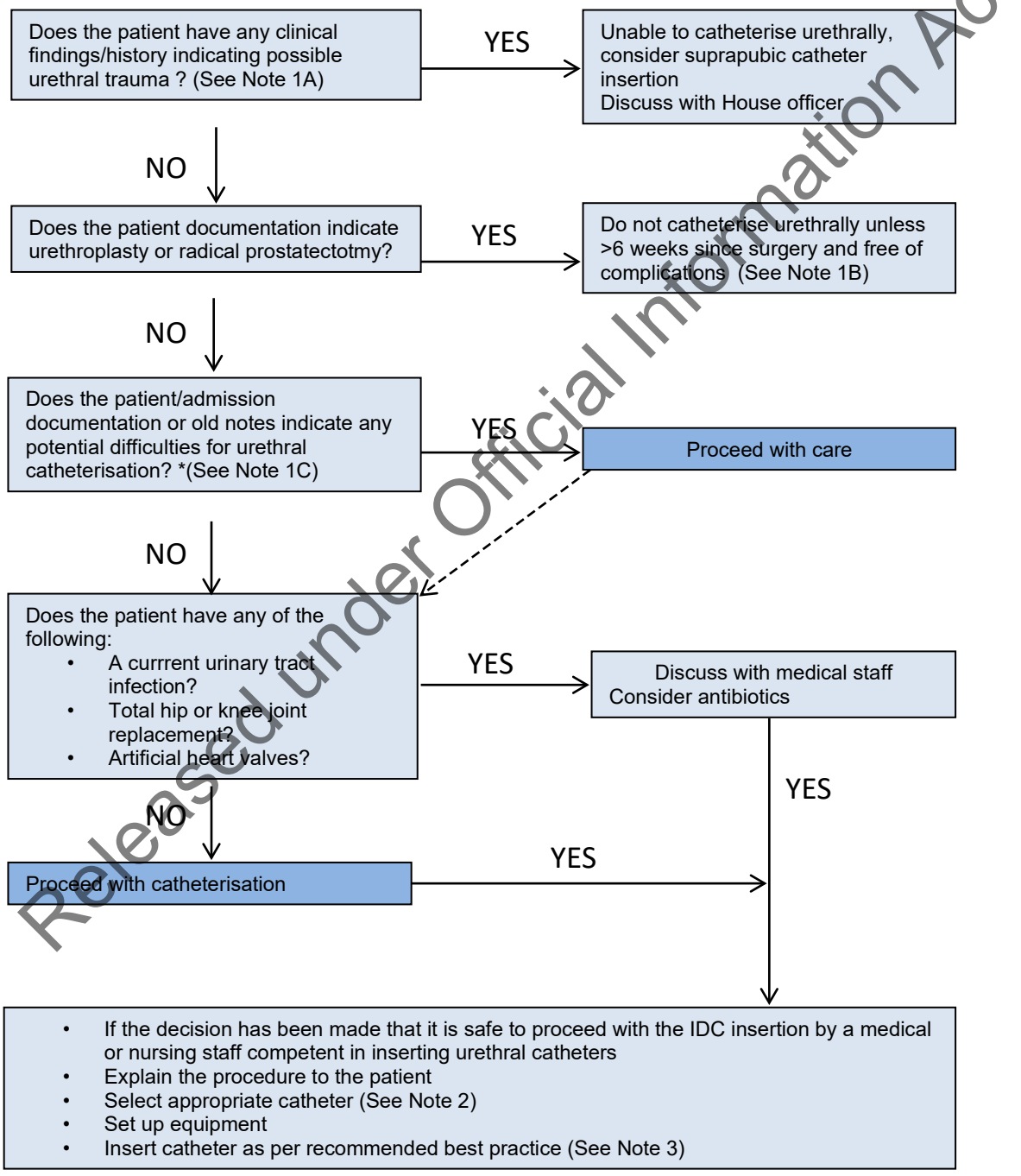
Action	Rationale
26. Measure amount of urine drained.	To monitor renal function and fluid balance.
27. Document in fluid balance chart, EWS chart and progress notes: Date/ consent given, Reason for catheterisation. Catheter type and size. Amount of water in balloon. Any problems with procedure. Urinary drainage. Nature of urine drained (haematuria, cloudy, clear etc.).	To provide a point of reference or comparison in the event of future enquires.
Whether specimen sent for further investigation. Review date / catheter change.	

Post Obstructive Diuresis may require IV replacement of electrolytes (Walker 1990). This will occur with patients with renal impairment and they require hospital admission and close observation.

Module Six: **Indwelling Urethral Catheterisation (Male)**

Associated Document: Adult Urethral Catheter – Insertion Guidelines

The decision to perform male catheterisation is made after careful and thorough patient assessment and after medical consultation. Assessment must include the age of the patient, past medical history with particular attention to relevant urology history and recent surgeries. Assessment of the patient's fluid balance and hydration status including intravenous fluids administered oral intake, vomiting, blood losses and any urine output is required before making the decision to catheterise.



(NDHB, 2014)

Notes – Algorithm for male urethral catheterisation

Note 1A

- Straddle injury (fall, kick, cycle) or fractured pelvis (car accident, fall, crush). Penile tip blood, lower abdominal pain and inability to pass urine, perineal haematoma.

Note 1B

- History of urethroplasty or radical prostatectomy <5 weeks. (*This surgery indicates the presence of a urethral graft or anastomosis. Catheterisation should therefore be performed by a urology registrar or consultant if available. If unavailable, medical staff to insert SPC as per Suprapubic Catheter: Insertion and Management policy.)*

- History of urethroplasty or radical prostatectomy >6 weeks. *(Referral to urology team maybe required depending on patient's condition and history prior proceeding with urethral catheterisation. If unsuccessful, convert to SPC insertion.)*

Note 1C Potential risk for urethral catheterisation:

- Other prostate or urethral surgery in the last four weeks (e.g. TURP, urethrotomy, bladder neck incision)?
- Urethral trauma in the last four weeks (e.g. traumatic catheter insertion/accidental traumatic removal)?
- Known prostate enlargement?
- Known urethral stricture?
- History of long-term difficulty in passing urine (e.g. urinary retention, poor urinary flow)?
- History of difficult urethral catheterisation previously?

For other situations, seek Consultant advice.

Male Catheterisation Insertion by a Nurse Criterion

Historically there have been gender issues surrounding male catheterisation. Whilst female nurses could catheterise female patients, men were catheterised only by doctors or male nurses. Today it is considered acceptable, with patient consent, for a female nurse to catheterise male patients. Nurses must however acquire the necessary knowledge and skill of male catheterisation to ensure that their male patients receive the same prompt attention as female patients when urethral catheterisation is required.

NDHB Adult Urethral Catheter – Insertion Guidelines (2014) outline the nurse's role and responsibilities as undertake male catheterisation in the following circumstances:

- Routine catheter change, where **NO** previous difficulties in catheterisation have been encountered.
- For the instillation of intravesical bladder therapy (e.g. BCG) **IF ASSESSED AS COMPETENT TO DO SO**
- To teach clean intermittent self-catheterisation.

Needing Direction from the Patients Medical Team

- Initial catheterisation for relief of acute and chronic retention, incontinence or for end of life comfort care.
- To obtain a clean urine sample in the incontinent patient or if it is otherwise difficult to obtain urine sample.
- To assess the residual volume of urine where a bladder scan is not available or unfeasible.
- To insert a three way catheter (or change from a two way catheter) if bladder irrigation is required post TURBT.
- To change a blocked / non draining three way catheter in a patient admitted primarily for haematuria.

Nurses MUST NOT undertake male catheterisation in the following circumstances

- **Where there is any current history of injury or pelvic trauma**
- **Where there is known difficulty in catheterising the patient**
- **Where there has been failure to catheterise at the first attempt/ blood noted on the tip of the withdrawn catheter**
- **Where urethral meatus cannot be visualised**
- **If the patient is within 72 hours of a TURP**
- **If the patient has a known urethral structure**
- **If the patient has had a radical prostatectomy**
- **If the patient does not give consent for the nurse to perform the catheterisation**

PROCEDURE: Indwelling Catheter (Male)

Equipment

Sterile catheter pack	Normal saline 0.9% or Chlorhexidine
Sterile gloves x2	Sterile Lignocaine 2% gel
Selection of appropriate catheters x2 (eg. Fr 12 & 14)	Sterile water and syringe to inflate the balloon
Appropriate drainage bag	Flexitrak or fixing tape
Disposal bag	Disposal apron
Antimicrobial liquid soap or Alcohol-Based Hand Rub (ABHR)	Specimen container
Linen-saving pads (ie blueys/greenies)	

Observe 5 moments of hand hygiene throughout the course of the procedures
Assess patient for degree of PPE required

Action	Rationale
1. Explain and discuss the procedure with the patient.	To ensure the patient understands the procedure and obtains informed consent. Check patient allergies
2. Screen or pull curtains around the procedure area.	To ensure patient privacy.
3. Prepare the trolley	By placing all the equipment on the bottom shelf so that you will be able to perform the procedure without having to leave the patient
4. Assist the patient to get into supine position with legs extended.	Enabling ease of catheter insertion and ensure no undue exposure for patient.
5. Do not over expose the patient at this stage of the procedure	You will still need to set up you equipment and this takes time.
6. Put on disposable apron	
7. Clean hands using antimicrobial liquid soap or alcohol-based hand rub (ABHR).	Hands may have become contaminated by handling out packaging of equipment.
8. Using aseptic technique open catheterisation pack and unwrap all required sterile equipment and drop on sterile field. If container on outside of sterile wrap only touch outside of container to tip out sterile pack, place container to the side. Prepare sterile equipment ready for catheterization	Aseptic technique reduces contamination of equipment Note: Dependent on supplier wraping of supplies may very. Maintain aspetic technique to keep inside aspect of container sterile.
9. Draw up sterile water into syringe and fill catheter balloon. Remove water to use later. Place syringe on edge of sterile field.	To ensure balloon inflating correctly before insertion of catheter
10. Wash hands and put on sterile gloves.	

Action	Rationale
11. Drape the patient's lower abdomen with the sterile fenestrated drape so that only the genital area remains exposed.	To create a sterile field.
12. Using the sterile gauze squares, retract the foreskin (if present) With your dominant hand pick up plastic forceps and the normal saline 0.9% saturated sterile cotton wool balls and in a circular motion swab the meatus outwards. Discard cotton ball after one motion, if required pick up another saturated cotton ball and swab again	To reduce the risk of introducing infection to the urinary tract during catheterisation.
13. Run a bead of lubricate on the lower half of the catheter insuring to cover tip. With the remaining lubricate insert the nozzle of the lubricating gel (lignocaine) into the urethra. Squeeze the gel into the urethra, remove the nozzle and discard the tube.	Adequate lubrication helps prevent urethral trauma. Use of a local anaesthetic minimizes the discomfort experienced by the patient.
14. Remove sterile gloves, perform hand hygiene and put on sterile gloves.	To reduce risk of cross- infection
15. Place catheter in sterile receptacle and plance on the sterile fenestrated drape on the patient's thighs.	To provide a temporary container for urine as it drains.
16. Grasp penis behind the glans, raising it until it is almost totally extended. Insert the catheter 15-25cm gently until urine flows.	The manoeuvre straightens the penile urethra. The male urethra is approximately 18cm long.
17. If resistance is felt at the external sphincter, increase the traction on the penis slightly and apply steady, gentle pressure on the catheter. Ask the patient to strain gently as if passing urine.	Some resistance may be due to spasm of the external sphincter. Straining gently helps to relax the external sphincter. If still resistance seek medical assistance.
18. When urine begins to flow, advance the catheter almost to its bifurcation/ Y-site. Replace foreskin (if present)	Advancing the catheter ensures that it is correctly positioned in the bladder
Action	**Rationale**
19. Gently inflate the balloon according to	Inadvertent inflation of the balloon in the

the manufacturer's direction. Gently draw back on catheter until resistance is felt.	urethra causes pain and urethral trauma
20. Connect the drainage bag, using non-touch technique for the end of the catheter and drainage bag connection. ***NB**: If a first catch or midstream catch IDC specimen is required, collect one, perform a dip stick test and send the urine specimen to the laboratory*	To reduce risk of cross-infection.
21. Remove gloves and wash hands.	To reduce risk of infection.
22. Support the catheter by securing the tubing to the top of the thigh with fixing tape	To prevent catheter being pulled, causing bladder and bladder neck damage.
23. Make the patient comfortable, wiping away any excess moisture and lubricant and ensure that the area is dry.	If this area is left wet and moist, secondary infection skin irritation may occur.
24. Wash hands and draw back curtain/screen if patient wishes	
25. Dispose of equipment appropriately in sluice room. Draw back the curtains/screens if patient wishes.	To prevent environmental contamination.
26. Measure amount of urine drained.	To monitor renal function and fluid balance.
27. Document in fluid balance chart, EWS chart and progress notes: Date/ consent given, Reason for catheterisation. Catheter type and size. Amount of water in balloon. Any problems with procedure. Urinary drainage. Nature of urine drained (haematuria, cloudy, clear etc.).	To provide a point of reference or comparison in the event of future enquires.
Whether specimen sent for further investigation. Review date / catheter change.	

Key Points:

- After assessing the reason for catheterisation, as small a catheter as possible should be used, allowing for good drainage.
- Whilst aseptic technique should always be used to cleanse the urethral meastus, there is no advantage in using any specific antiseptic solution as cleaning agent.

Key Challenges:

- Ensuring the foreskin is returned to the original position after the catheterisation procedure.
- Ensuring that the penis is held away from the abdomen during catheterisation to allow the smooth passage of the catheter.

COMPLICATIONS IN RELATION TO MALE CATHETERISATION

Complications related to the insertion of urinary catheters in male patients and simple troubleshooting procedures are outlined below.

Associated Document: Adult Urethral Catheter – Nursing Management of Complications Guideline

If symptoms not relieved medical assistance must be sought

Complication	Reason	Simple Solutions
Phimosis Constriction of the foreskin so that is unable to draw back over the glans penis	• Retraction of the foreskin to clean in preparation of catheterisation.	• Ensure foreskin over the glans penis.
Paraphimosis Foreskin becomes oedematous and fixed in the retracted position constricting the penis	• Failure to replace foreskin over the glans penis	• Gently manipulate the foreskin over the glans penis. • May be manipulated by the patient • If unsuccessful alert medical staff
Slight bleeding on insertion of catheter	• The lining of the urethra has been scratched during catheterisation.	• Monitor and alert medical staff if bleeding becomes worse. • Lignocaine gel may alleviate the pain and discomfort
Complication	**Reason**	**Simple Solutions**
Unable to advance catheter past the prostate	• On trying to advance the catheter the patient may	• Encourage patient to relax.

gland	experience discomfort or a strong desire to void.	• Ask the patient to cough. Try to advance the catheter as the patient breathes out. • Try larger catheter (no larger than 16 gauge). • If all else fails alert medical staff
Bladder spasm (detrusor)	• Muscle spasm can cause discomfort to the patient. They are a response to the presence of a foreign body in the bladder. The larger the catheter the bigger the chance of irritability and spasm	• Usually temporary and will settle within 24-48 hours post catheterisation. • Anti-spasmodic drugs may be considered removal of catheter smaller catheter insertion
Pain	• Can vary and may be felt in supra pubic region or referred to the tip of the penis. • Severe pain should be deemed suspicious that the catheter balloon is inflated in the urethra	• Temporary discomfort should settle within 24-48 hours of catheterisation • Mild analgesic or Lignocaine gel. • Deflate the balloon advance the catheter gently then reinflate. If unable to advance catheter alert medical staff. • **Do not removal catheter completely to prevent the risk of urethral swelling**
Urine does not flow when catheter has been inserted	• May be blocked by residue Lignocaine gel	• Wait a few minutes to observe for drainage. • Flush gently with sterile normal saline to remove blockage.
Prostatitis	• Caused by bladder or urinary infection, prostate biopsy, or enlarged prostrate • Presents with chills, perineal pain, and lower abdominal pain.	• Cooling measures. • Alert medical staff. • Increase fluid intake. • Monitor vital signs. • May require antibiotic therapy

Module Seven: Problem Management for Indwelling Catheters

There are a variety of complications associated with indwelling catheters. Regular review for these complications is required to enable timely treatment to prevent pain and discomfort to the patient, this includes the severity and frequency of the complication, any triggers, interventions that have already been used to treat the complication and its effect.
Observation of the patient concentrating on the catheter entry site, catheter position, type and size, support system being used, drainage system, urine colour, volume contents and odour, skin condition and personal hygiene are all required. The following tables identify some catheter related complications, possible reasons and possible solutions as identified by NHS Quality Improvement Scotland (2004).

If symptoms not relieved medical assistance must be sought

Problem	Cause	Suggested Action
Urinary tract infection	• Poor aseptic catheterisation technique • Inadequate urethral cleaning • Contamination of catheter tip • Poor handling of drainage system • Poor hand hygiene practices	• Refer to procedure on obtaining catheter specimen • Review catheterisation and catheter care technique
Urethral mucosal trauma and/or bleeding after catheterisation	• Incorrect catheter size • Poor technique • Movement of the catheter in the urethra • Creation of a false passage as a result of too rapid insertion of catheter	• Re-catheterise using the correct size of catheter • Check the catheter support and apply or reapply as necessary • Check catheter type? latex sensitivity-replace with 100% silicone catheter • Catheter may need to be removed while the mucosa is healing • Ensure the catheter is still draining and increase oral fluid intake to dilute and flush out the blood • If you suspect the catheter is not draining or if the bleeding has not stopped after 24 hours seek medical attention immediately

Problem	Cause	Suggested Action
No drainage after catheterisation See "urine does not drain" flow chart (appendix .1)	• Incorrect identification of external meatus (female) • Blockage of catheter • Drainage bag too full	• Check that catheter has been sited correctly • If the catheter has been inserted in the vagina, leave the catheter in position to act as a guide, re-identify the urethra and catheterize • See "blocking catheter" flow chart (appendix.2) • Check patient's fluid status, to discount dehydration-increase fluid intake
Urine by-passing catheter	• Misplacement of catheter (female) • wrong size catheter	• See "urine by passing" flow chart (appendix.3)
Inability to tolerate catheter	• Urethral mucosal irritation • Psychological trauma • Unstable bladder • Radiation cystitis	• Catheter may need to be removed and seek an alternative means of urine drainage • Explain the need and functioning of the catheter • Consider anticholinergics
Formation of crusts around the urethral meatus	• Increased secretions collect at the meatus and form crusts, due to the irritation of urothelium by the catheter	• Encourage daily meatal wash and after bowel movement-using soap and water or saline
Penile pain on erection	• Not allowing enough length of catheter to accommodate erection • Poor technique and inadequate lubrication with intercourse	• Ensure that an adequate length is available to accommodate erection • Give patient education regards use of water based lubrication and condoms with sexual activity

Problem	Cause	Suggested Action
Catheter falling out	• Bladder spasm • Balloon deflation • Catheter traction • Reduced bladder neck/ urethral tone	• See „bladder and/or • urethral spasm" flow chart (appendix. 4) • Check that balloon is still inflated • Secure catheter to leg to prevent pull. Ensure drainage bag is emptied regularly • Teach pelvic floor exercises as appropriate
Balloon non-deflation Catheter not removable	• Fault in manufacture of catheter • Damage whilst catheter is situ • Kinked catheter tubing • Encrustation around balloon area	• Contact urology registrar. DO NOT CUT OFF BALLOON PORT • If balloon deflates but catheter cannot be removed instill xylocaine jelly around and down side of urethra. Leave 5-10 min and try again. If unsuccessful contact urology registrar.
Catheter becomes disconnected from urinary drainage system	• Pulled apart as not enough length allowing movement • Got caught and pulled apart	• If disconnection witnessed by nurse. Disinfect with >0.5% Chlorhexidine with Alcohole 70 %wipe and reconnect. • If not witnessed, reassess need for catheter. Recatheterise as per protocol

Cutting of catheters along the length is NOT safe practice and can result in the retraction of the catheter into the bladder

DO NOT ATTEMPT A BLADDER WASHOUT this will only distend the bladder further with potentially fatal consequences.

Autonomic Dysreflexia

Autonomic dysreflexia (autonomic hyperreflexia) is a serious life threatening condition relating to patients with a spinal cord lesion above the mid-thoracic level This syndrome develops secondary to any noxious stimulus below the level of the injury. As the spinal cord is damaged preventing signals to be passed to the brain, the body produces abnormal nerve signals in excess. Below the injury blood vessels go into spasm causing the blood pressure to rise. A range of stimuli can cause this but bladder problems are a leading cause of Autonomic Dysreflexia. Bladder related causes include:

- Overfull bladder
- Kidney or bladder stones
- High pressure voiding
- Urinary tract infection
- Blocked catheter
- Defective drainage system

Signs and symptoms

- Pounding headache
- Flushing/or blotching above the level of the cord damage
- Pallor below the injury level
- Slow heart rate
- Profuse sweating above injury level
- Palpitations
- Goosebumps
- Blurred vision or seeing spots
- Stuffy nose
- Feeling of doom and gloom, anxiety and apprehension
- Elevated blood pressure

Treatment

- Identify the source if the noxious stimulus
- Remove the stimulus
- Reduce blood pressure by placing the patient in a sitting position in bed
- Check the bladder for volume and catheterise bladder full
- Check drainage system for kinks, blockage
- Check for infection
- Check for constipation

Key Points:

- Regular review is required to identify complications and introduce timely treatments
- If symptoms not relieved medical advice must be sought
- Do not cut catheters or perform bladder washouts to promote deflation of balloon

Module Eight: Trail Removal of Urethral Catheter (TROC)

Associated Documents: Adult Urethral Catheter- Care, Maintenance and Trial Removal of Catheter (TROC) Guideline

Decision to Remove Indwelling Catheter

Removal of indwelling catheters should be carried out after careful assessment of the patients' ongoing condition and after consultation with the patient and medical staff, or according to care pathway.

PROCEDURE: Removal of Indwelling Catheter

Indwelling catheters are usually removed early in the morning so that any retention problems can be dealt with during the day

Equipment

Disposable gloves	Antimicrobial liquid soap or alcohol-based hand rub (ABHR)
Sterile gauzes	Needle and syringe for specimen collection (optional)
Disposable wash cloth	Specimen container (optional)
Rubbish bag	Syringe to deflate the catheter balloon
Linen-saving pads (ie buleys/greenies)	Saline solution
10 ml syringe	

Observe 5 moments of hand hygiene throughout the course of the procedures
Assess patient for degree of PPE required

Action	Rationale
1. Explain the procedure to the patient and inform of any potential post catheter complications (urgency, frequency or discomfort caused by irritation of the urethra) Explain to patient that you will be monitoring their output for 4-6 hours post TROC	Patient is prepared and can plan daily activities
2. Wash hands with antimicrobial liquid soap or alcohol-based hand rub (ABHR)	To reduce risk of infection
3. Organise trolley and equipment needed, bring trolley to patient's bedside and provide privacy	To ensure you have all equipment required before starting the procedure

Action	Rationale
4. Place the linen saver under patient's thighs	To protect linen from possible spills
5. Hand Hygiene and put on gloves	To reduce risk of infection
6. Clamp below the sampling port if urine sample collection is required Take a catheter specimen of urine using the sample port	To obtain an adequate urine sample and to assess whether post catheter antibiotic therapy is needed (if indicated)
7. Wash hands with antimicrobial liquid soap or alcohol-based hand rub(AHBR)	To reduce risk of infection
8. Release the leg support	For easy removal of catheter
9. Having checked volume of water in catheter balloon (patient medical records). Attach the syringe to the leur-lock and deflate the balloon	To confirm how much water is in the balloon. To ensure balloon is completely deflated before removing catheter
10.Grasp the catheter with the sterile gauze, ask patient to breathe in and then out. As the patient exhales gently quickly remove the catheter.	To relax pelvic floor muscles
11.Clean genitalia, tidy away equipment and make the patient comfortable	
12. Wash hands with antimicrobial liquid soap or alcohol-based hand rub (ABHR)	Reduce risk of infection
13. Encourage the patient to mobilize and drink 2-3 litres of fluid per day	To assess with regular passing of urine
14. Measure and record the amount of urine in the urine bag	To ensure excess urine is not being retained
15. Dispose of used equipment, hand hygiene	
16. Document procedure on fluid balance chart, observation chart and progress notes. Monitor patient	To provide a point of reference or comparison in the event of future enquires.

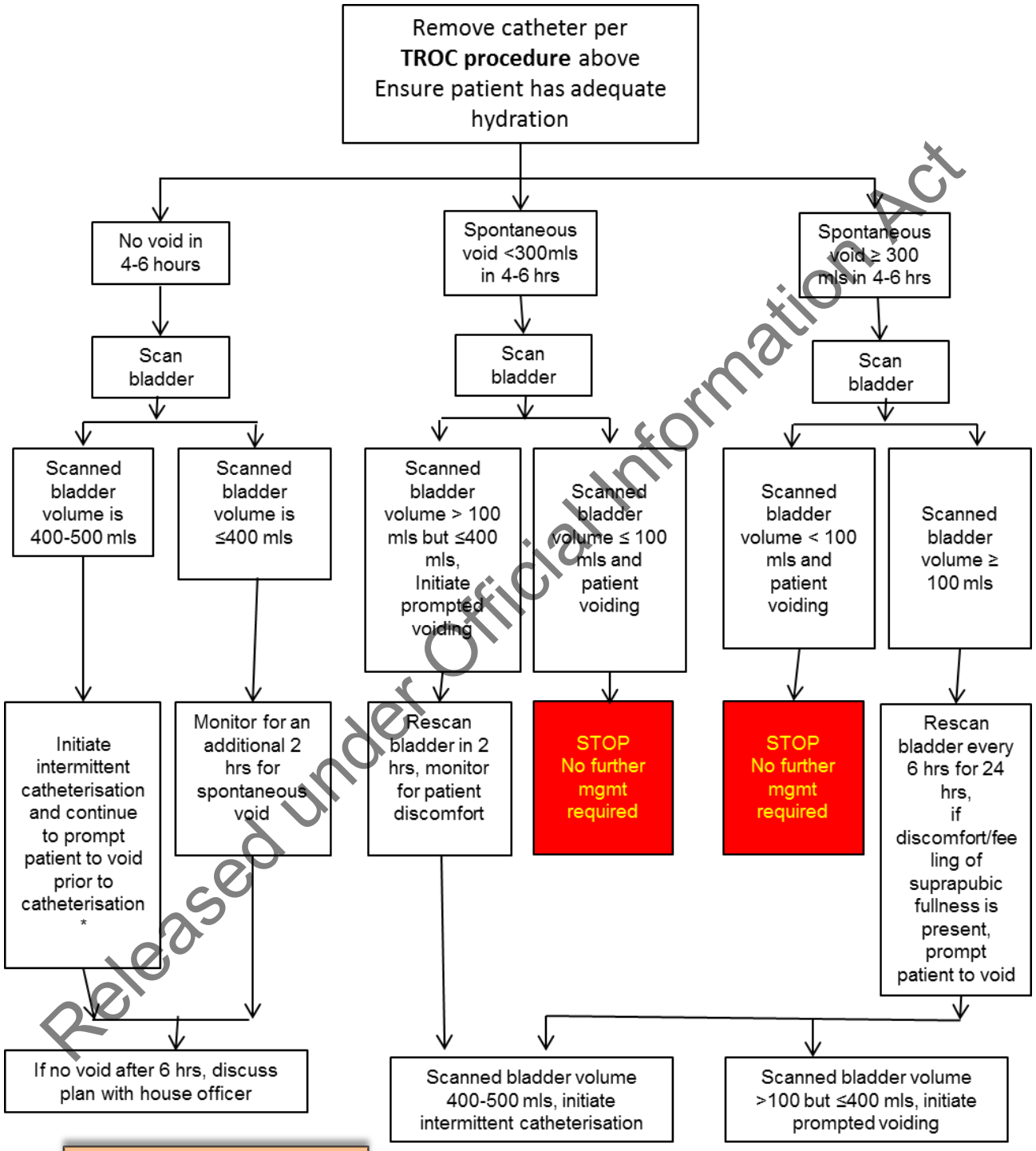
Pain is often experienced on removal of indwelling catheters due to ridge formation on the catheter balloon. This can be reduced by allowing the balloon to passively deflate rather than applying suction.

The patient will need careful monitoring following removal of the catheter, documentation completed and prompt treatment of post catheter complications

Key Points:

- The time frame for removal of an indwelling catheter is dependent on clinical judgement and findings
- Catheters are only removed following thorough assessment of the individuals ongoing condition and needs
- Careful monitoring following removal of catheter is required

Recommended Protocol for Post Trail Removal of Urethral Catheter (TROC):



(European Association of Urology Nursing, 2012

Potential Problems during Removal of Urethral Catheter.

Problem	Cause	Suggested action
1. Unable to deflate balloon.	Damage or faulty valve on the inflation/ deflation arm of the catheter.	• Check the valve for evidence of damage. • Try adding 2-3 ml of sterile water into inflation chamber to dislodge blockage. • If unsuccessful use a syringe and needle to aspirate the fluid from the inflation arm above the valve. • See balloon does not deflate flow chart (appendix 5)
	Channel obstruction	• Attach a syringe to the inflation arm and leave in place for 20-40 minutes. • The effect of gravity will help the deflation process.
		• Squeeze the visible tubing to try and displace crystal formation in the inflation channel.
2. Wrinkling of the balloon following deflation resulting in formation of a cuff.	Balloon unable to return to pre-inflation shape resulting in formation of a ridge	• Withdraw the catheter gently on deflation of the balloon. If resistance felt stop the procedure, using a syringe re insert 1-2mls of water back into the balloon this will prevent cuff formation
3. Pain	Balloon cuffing or sensitivity at the neck of the bladder or within the urethra from the catheter	• Good preparation and support throughout the procedure. • insert anaesthetic gel into drainage port 3-5 minutes before attempting removal

If you experience a product failure or difficulty it is important that the manufacturer is contacted and informed of the problem

Module Nine: Complications and Monitoring following Removal of Indwelling Catheter

There are several problems that might arise following removal of a urethral catheter and it is vital the healthcare professionals are aware of the actions to take to overcome them.

Frequency and dysuria

This can be caused by inflammation of the urethral mucosa. Inform the patient that this is a common effect of catheter removal. This should resolve after three or four micturition events. Encourage the patient to drink 2-3 Litres of fluid per day and inform medical staff if does not resolve.

Retention of urine

This can be caused by patient anxiety or a genuine inability to pass urine. Encourage the patient to increase their fluid intake. Offer warm baths to promote relaxation. If unsuccessful perform manual palpation of the bladder or bladder scan and inform medical staff. If the problem continues the patient may require re-catheterisation.

Bacteriuria/ Urinary Tract Infection

This can result in frequency and dysuria. Encourage fluid intake 2-3 litres per day to promote the flushing of the bladder. Collect a specimen of urine if symptoms persist and inform medical staff.

Small amounts of blood at start, throughout or at the end of the urine stream.

This can be caused by minor damage to the urethra. Encourage an increase in fluid intake. Reassure the patient that this symptom is harmless but to be observant for signs of infection.

Incontinence

Explain to the patient that this should resolve within 24-48 hours. If not it is worth considering taking a urine sample to exclude UTI.

Dribbling incontinence

Explain to the patient that this should subside within a few days. Give the patient pads and encourage pelvic floor exercises. This is a short term complication.

QUESTIONS

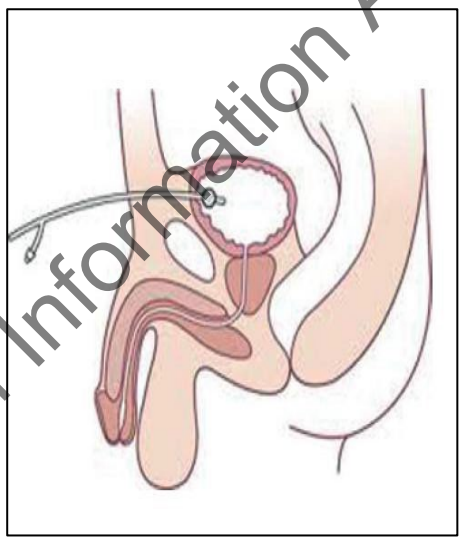
- If completing the workbook only submit to your CNE/CNS or equivalent for marking and assignment of professional development hours.

- If completing male catheterisation clinical skill take workbook and questions to your workshop for marking.

Q1.

Label the diagram using the descriptions provided.

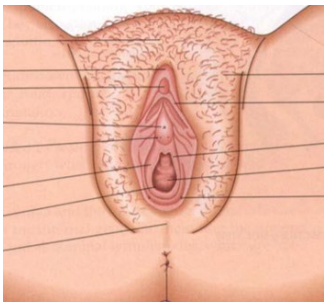
- Penis
- Urinary Bladder
- Urethra
- Rectum
- Prostrate



Q2.

Label the diagrams using the descriptions provided.

- Bladder
- Rectum
- Urethral meatus
- Vagina
- Clitoris



Q3. What type of consent is required for urinary catheterisation?

_____

Q4.List four areas of cultural safety that may help in relation to gaining consent for catheterisation.

1. _____
2. _____
3. _____
4. _____

_____

Q5. List 6 indications for catheterisation within NDHB.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Q6. What are the potential side effects of using a catheter that is too large?

_____
_____
_____

Q7. Why must normal saline not be used to inflate catheter balloons?

_____
_____
_____

Q8. What symptoms might you observe to indicate that the balloon is over inflated?

_____
_____
_____

Q9. Drainage bags are available in a variety of sizes incorporating different features. Identify each drainage system described

Description	Drainage bag
• Non-return valve • Short term use • Used for bladder irrigation	?
• Generally used in hospital • 120cm length tubing • Commonly has an outlet port	?
• Can reduce trauma • Tubing lengths can vary • Sample access port	?

Q10. List the 4 risk factors related to hospital – acquired urinary tract Infection

1. _____
2. _____
3. _____
4. _____

Q11. When you would wash your hands when performing urethral catheterisation?

_____

_____

_____

_____

Q12. Drinking sufficient fluids helps to:

a) Dilute the urine
b) Reduces the risk of catheter encrustation
c) Reduces the risk of catheter blockage
d) All of above

Q13. Are these statements true or false?

- Maintaining a closed bag system reduces the risk of catheter related infection.
- Urine bags are routinely emptied every 4 hours.
- Urine drainage bags can be placed on the floor when in hospital.
- A separate clean container must be used for each individual when emptying drainage bags.

Q14. How long following Urethoplasty or radical prostatectomy may a catheter be inserted?

A) > 4 weeks

B) > 6 weeks

C) > 8 weeks

D) >10weeks

Q15. Complete the table by placing the statements under the correct heading

- Routine catheter change
- Initial catheter for relief of acute & chronic retention
- To insert 3 way catheter for bladder irrigation
- Where urethral meatus cannot be visualised
- Where there is known difficulty in catheterising
- For instillation of intravescial bladder therapy
- Current history of injury or pelvic trauma

NDHB Nurse Role	Needing direction	Must not undertake

Q16. Complete the simple solutions for the potential male catheterisation complication

Complication	Simple solution
Phimosis	
Slight bleeding on catheter insertion	
Unable to advance catheter	
Urine does not flow	

Q17. Name the potential catheter related problem from its description

Description	Name of problem
• Poor aseptic technique • Inadequate urethral cleaning • Contamination of catheter tip	
• Incorrect catheter size • Movement of catheter in urethra	
• Urethral mucosal irritation • Psychological trauma • Unstable bladder	

Q18. What bladder problems can cause Autonomic Dysreflexia?

Q19. List the signs and symptoms of Autonomic Dysreflexia

20. When would be the best time to remove an indwelling catheter and why?

Q21. How could you reduce the level of pain associated with catheter removal?

Q22. State what can cause the following complications after removal of an indwelling catheter

COMPLICATION	CAUSE
Frequency & Dysuria	
Retention of urine	
Small amounts of blood when passing urine	

FOR COMPLETION OF WORKBOOK ONLY	
Candidate name:	Area of work:
Date of completion:	Date of review:
Verified by: Title:	Profession development hours awarded:

Comment/ Feedback

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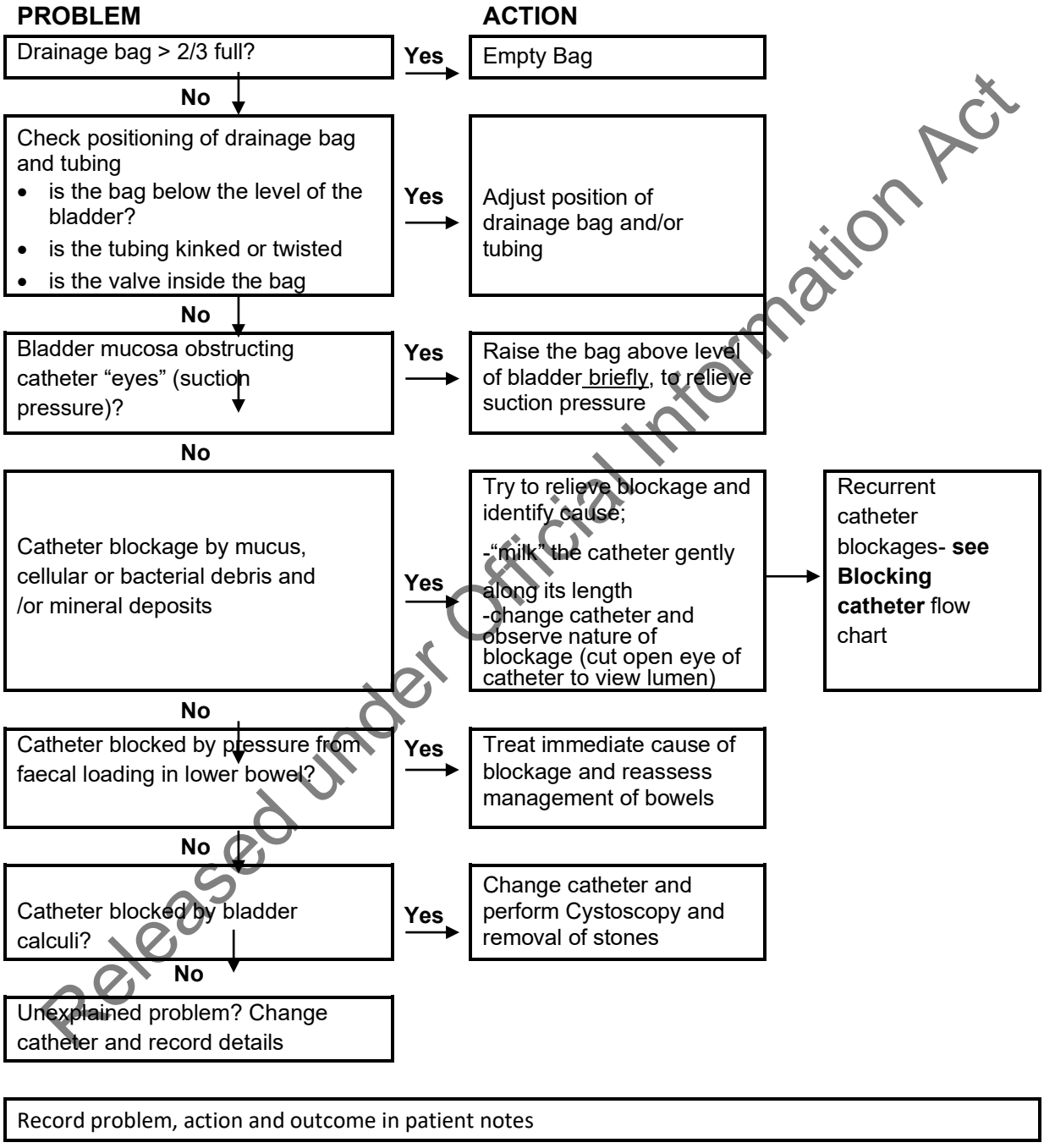
Glossary of Terms

ABHR	Alcohol Based Hand Rub
ANTT	Aseptic Non-Touch Technique
Anti-cholinergic	Medication that reduces bladder spasm.
Assessment	Thorough review of the patient's condition, physical examination and investigations.
Autonomic Dysreflexia	A syndrome that affects those with a spinal cord lesion above the mid-thoracic level.
Bacteraemia	Bacteria present in the blood stream
Bacteriuria	Bacteria present in the urine
Calculi	The accumulation of salts/debris to form 'stones' in the bladder
Decontamination	Process of removing or destroying contamination to prevent or reduce the risk of infection
Haematuria	Blood in the urine
pH	A scale which gives the acidity or alkalinity of the urine
PPE	Personal Protective Equipment

Appendix 1:

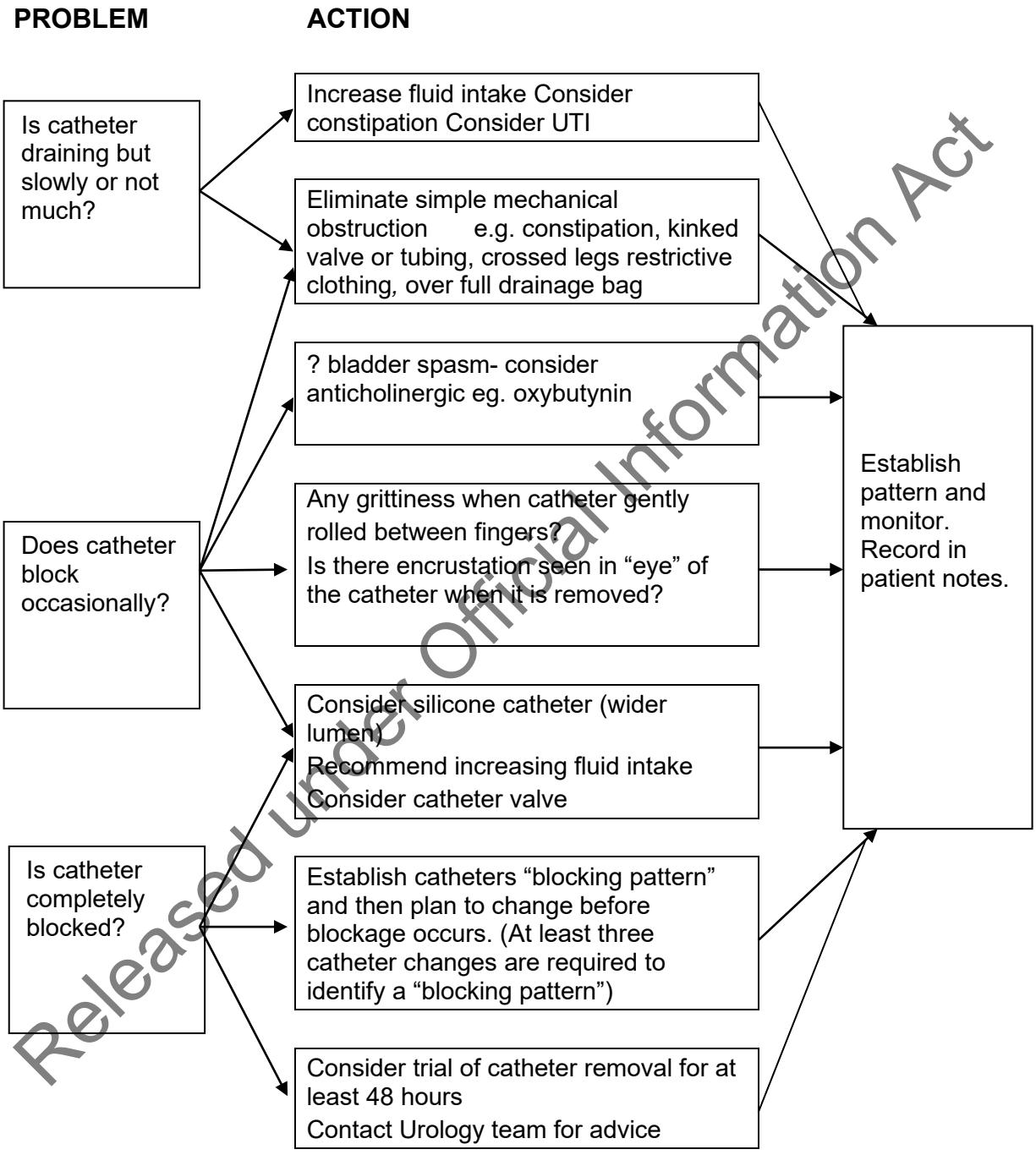
CATHETER PROBLEM SOLVING FLOW CHART: URINE DOES NOT DRAIN



Acknowledgement ICS, 2009

Appendix 2:

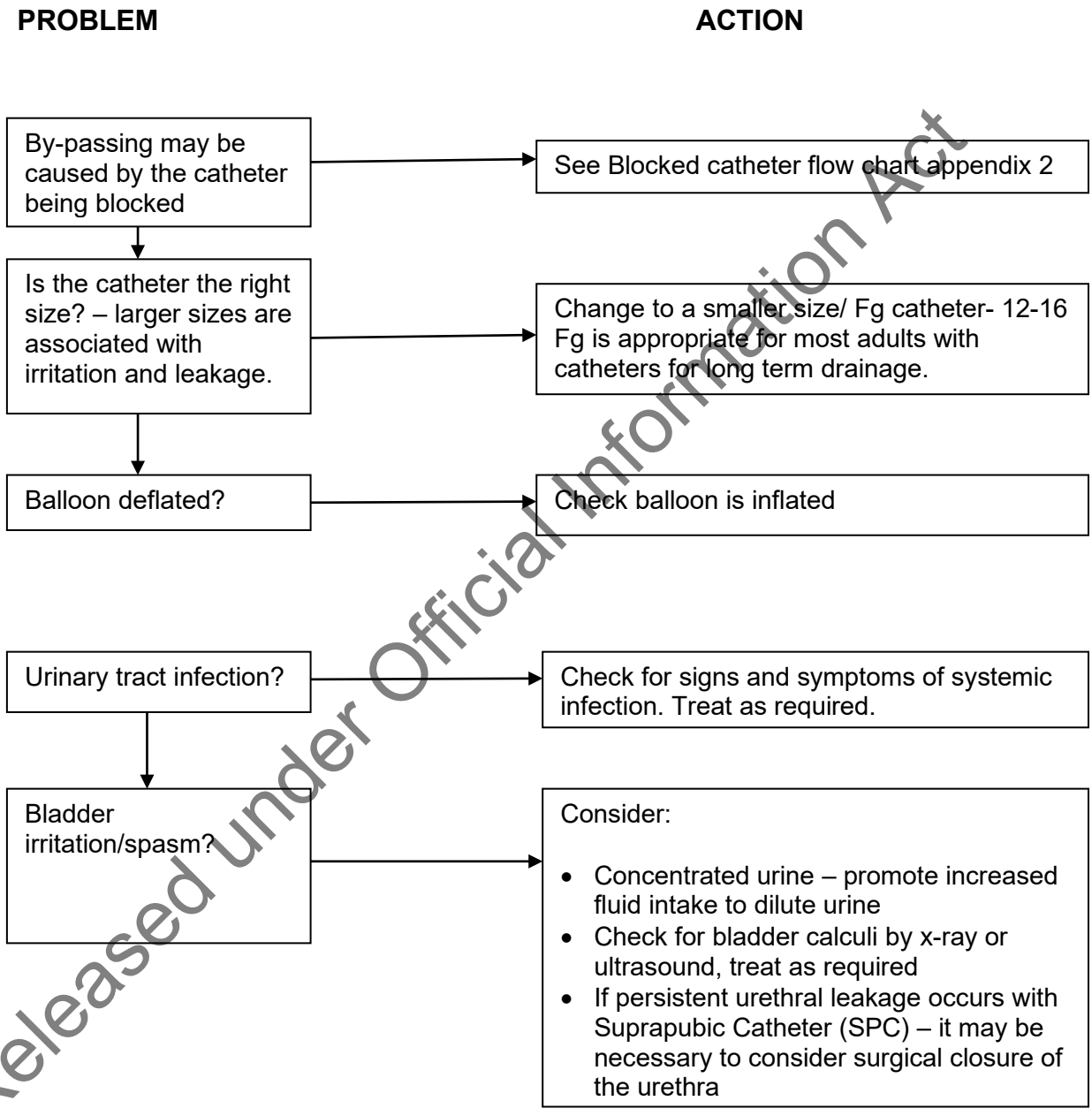
CATHETER PROBLEM-SOLVING FLOW CHARTS: BLOCKED CATHETER



Acknowledgement NMA, 2010

Appendix 3:

CATHETER PROBLEM-SOLVING FLOW CHART: URINE BY-PASSING

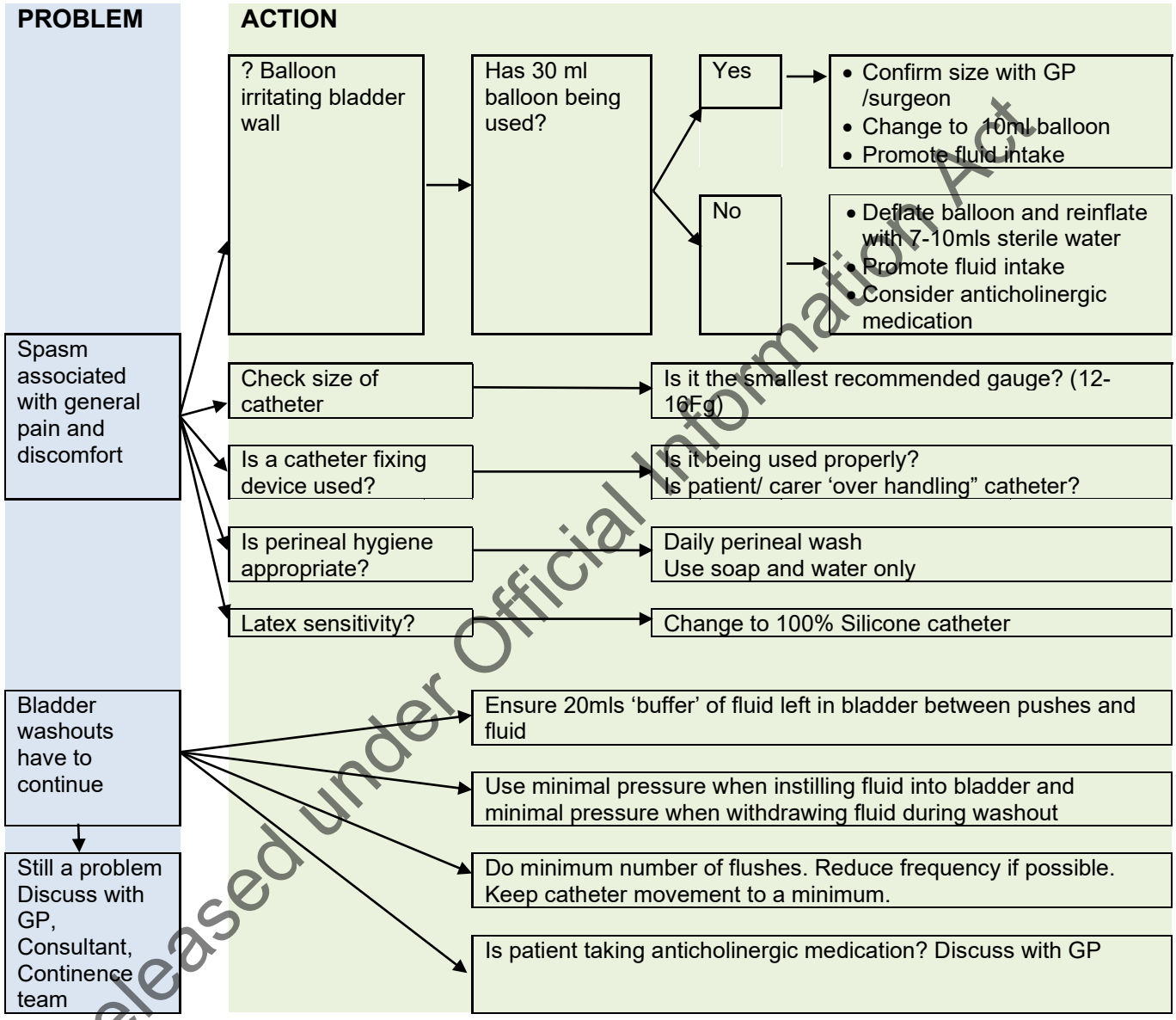


Record problem, action and outcome in patient notes

Acknowledgement NMA, 2010

Appendix 4:

CATHETER PROBLEM SOLVING FLOW CHART: BLADDER AND/OR URETHRAL SPASM



Acknowledgement NMA, 2010

Appendix 5:

CATHETER PROBLEM SOLVING FLOW CHART: BALLOON DOES NOT DEFLATE

PROBLEM	ACTION
Ridge/cuff formed by deflated balloon	• Using a sterile syringe try inserting 0.5 – 1 ml sterile water into inflation lumen to "soften" balloon ridge/ cuff • Gently twist/rotate catheter
Blocked deflation lumen/channel?	• Try to remove or dislodge debris blocking the inflation lumen by gently "milking " the catheter along the length of the catheter
Faulty inflation valve or syringe?	• Try a different syringe, withdraw water very slowly or leave syringe in place- the water may seep out over a period of time • Insert a sterile needle from a 10ml syringe into the balloon inflation lumen just about the inflation valve. If the valve is faulty, the water may be withdrawn gently via the syringe
Constipation present? May cause pressure on inflation lumen	• Resolve/ relieve constipation
Consult local policy for further advice or seek medical help	• **Do not cut the catheter** (it may recoil inside urethra) • **Do not cut the inflation valve off** (if the balloon does not deflate it will no longer be possible to try alternative methods) • **Do not attempt to burst the balloon** by over inflation it. A cystoscopy will be required to remove catheter balloon fragments and remaining fragments may result in calculi

Record problem, actions and outcome in patient notes. Record catheter details, batch number/ expiry date etc and report to supplier/ manufacturer

Acknowledgement ICS, 2009

Male Catheterisation

Clinical Skill Achievement

Completed by CNS/CNE or equivalent

Name of nurse completing self-directed learning package

Surname	First Name/s	Ward/ Dept

Indicated sections completed by nurse

1. Female Catheterisation self-learning

Print name (CNE/CNS or equivalent	Signature	Date

2. Male Catheterisation self-learning

Print name (CNE/CNS or equivalent	Signature	Date

3. Completion of workshop

Print name (CNE/CNS or equivalent	Signature	Date

4. Practical Skills Assessment Form Completed

Print name (CNE/CNS or equivalent	Signature	Date

NAME and DESIGNATION _____

AREA OF WORK _____

Male Urinary Catheterisation Competency

COMPETENCY STATEMENT

Following completion of the Self Directed Learning Package all health professionals involved in patient catheterisation will perform this clinical skill competently and with confidence, whilst reducing the risk of infection or undue discomfort to the patient.

STANDARD

Nursing Council NZ Competency: All

Midwifery Council of New Zealand Competency: All

Policy/Guidelines: (key word search): Catheter

PERFORMANCE OUTCOMES

- Be able to provide necessary information and ensures patient safety.
- Communicate with the patient in a way, which reduces anxiety.
- Understand the rationale for catheterisation.
- Understand the importance of aseptic technique and infection prevention.
- Be able to identify potential problems when performing catheterisation and remedial action to be taken.
- Discuss catheter care and maintenance.
- Understand the rationale for the decision to remove an indwelling catheter.
- Be aware of comprehensive documentation relating to the procedure of catheterisation.

LEARNING RESOURCES

- Urinary Catherisation & Catheter Care Self Directed learning Package

	COMPETENCE CRITERIA	ACHIEVED Sign/date
1.	Explain and discuss the procedure with the patient and obtain verbal consent.	
2.	Screen the procedure area.	
3.	Assist the patient into a comfortable position in a supine position with legs extended.	
4.	Wash hands using antimicrobial liquid soap or alcohol-based hand scrub (ABHR)	
5.	Using aseptic technique open catheterisation pack and prepare sterile equipment	
6.	Wash hands and put on sterile gloves	
7.	Drape the patient's lower abdomen with the sterile fenestrated drape so that only the genital area remains exposed.	
8.	Using the sterile gauze squares, retract the foreskin (if present) and clean the glans penis with the normal saline 0.9%, forceps and sterile cotton balls	
9.	Run a bead of lubricant along catheter including the tip. With remaining lubricant insert the nozzle of the lubricating gel (lignocaine) into the urethra.	

10.	Remove sterile gloves, perform hand hygiene and put on sterile gloves.	
11.	Draw up sterile water into syringe and fill catheter balloon. Remove water to use later.	
12.	Organise the contents of your catheterization pack. Dip the catheter into the lubricant gel.	
13.	Place catheter in sterile receptacle containing the catheter on the sterile fenestrated drape on the patient's thighs.	
14.	Insert the catheter 15-25cm gently until urine flows.	
15.	If resistance is felt at the external sphincter, increase the traction on the penis slightly and apply steady, gentle pressure on the catheter. Ask the patient to strain gently as if passing urine.	
16.	When urine begins to flow, advance the catheter almost to its bifurcation/ Y-site. Replace foreskin (if present)	
17.	Gently inflate the balloon according to the manufacturer's direction. Gently draw back on catheter until resistance is felt.	
18.	Connect the drainage bag, using non-touch technique for the end of the catheter and drainage bag connection. ***NB**: If a first catch or midstream catch IDC specimen is required, collect one, perform a dip stick test and send the urine specimen to the laboratory*	
19.	Remove apron, gloves and wash hands.	
20.	Support the catheter by securing the tubing to the top of the thigh with fixing tape	
21.	Make the patient comfortable, wiping away any excess moisture and lubricant and ensure that the area is dry.	
22.	Wash hands and draw back the curtains/screen if patient wishes	
23.	Dispose of equipment appropriately in sluice room	
24.	Measure amount of urine drained.	
25.	Document in fluid balance chart, EWS chart and progress notes: Date/ consent given, Reason for catheterisation. Catheter type and size. Amount of water in balloon. Any problems with procedure. Urinary drainage. Nature of urine drained (haematuria, cloudy, clear etc.).	

Assessors Name & Signature:_____

Date:_____

This documentation can be included as evidence for PDRP.