

CATHETERS (URINARY) MANAGEMENT PROCEDURE[®]

DOCUMENT SUMMARY/KEY POINTS

- Relevant to all nursing staff and medical staff inserting and managing urinary catheters.
- This document contains information on:
 - the insertion and removal procedures and management of:
 - indwelling catheters
 - supra pubic catheters and
 - intermittent catheters
- The collection of urine specimens/samples from urinary catheters and in/out catheters.
- The flushing of catheters and irrigation of the bladder.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st July 2020	Review Period: 3 years
Team Leader:	Clinical Nurse Consultant	Area/Dept: Kids Rehabilitation

CHANGE SUMMARY

- All sections have been revised and modified by a multidisciplinary team across the Network.
- **24/7/20:** Minor change. Wash hands for 1 minute (instead of 3 minutes) – see page 6, Step 10.
- **29/9/20:** Minor review. Added more detail to steps for removal of IDC step 8, pg 23.
- **02/10/20** – Added ANTT hand washing directives across the document. Addition of Alternative Method for Catheter Flushing section – see pg 21 – 22.
- **20/10/20** – Omitted the word Accordion, pg 6 due to change of stock in hospital.
- **23/07/2021** – Added Homecare Guideline link to Supra-pubic Catheter pg 14.

READ ACKNOWLEDGEMENT

- All nursing staff and medical staff inserting urinary catheters should read and acknowledge this document.
- Training required for clinical staff who insert urinary catheters.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

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Introduction – Catheterisation

- Urinary catheterisation is an invasive procedure which has risks to the patient. Consider non-invasive interventions before deciding on urinary catheterisation.
- Patients should void within a 4-8 hour time period (this time period may be variable according to patient condition eg: dehydrated child). If urination has not occurred the patient should be encouraged to pass urine and observed for clinical indications of urinary retention such as discomfort, palpable bladder and urge to void without successful urination. A bladder scan can be performed for an estimate volume of urine in the bladder. The formula for appropriate bladder capacity is as follows:

Children 4-12 years: $(\text{age}) + 1 \times 30 = \text{mls bladder capacity}$

Children >12 years = 390ml capacity (65%-150% acceptable for the first void of the day)

- If urine volume is larger than recommended then consider causes of urinary retention and try some non-invasive strategies to encourage the child to urinate. These include:

➤ Sitting the patient on the toilet or bedpan and running warm and cold water alternatively over the lower abdomen
➤ Running water in the room
➤ Bending forward whilst attempting to void
➤ Exercising – send child for a short walk
➤ Valsalva manoeuvre (pushing as if to open bowels)
➤ Blowing through a straw to simulate valsalva manoeuvre
➤ Drinking whilst attempting to void
➤ Tapping on supra-pubic area (more effective in children <1yr)
➤ Relaxation techniques/distraction

- An **indwelling catheter (IDC)** is placed via the urethra to provide continuous drainage of urine from the bladder for the purpose of ongoing monitoring of urine output; to prevent or relieve urinary retention; to keep urine away from a surgical wound; intra-operatively, and following major surgery to enhance patient comfort.
- A **suprapubic catheter (SPC)** is surgically placed through the abdomen into the bladder to divert urine from the urethra.
- An **intermittent catheter** involves inserting a catheter through the urethra at regular intervals. It is performed to prevent bladder distension and reduce urinary incontinence for the long term management of a neurogenic bladder. It may also be done to collect a sterile specimen, and to measure residual urine output.

- An **appendico-vesicostomy** is a surgically formed channel using the appendix to form a stoma. The stoma can be catheterised to gain access to the bladder from the abdominal wall.
- Registered nurses (RN) may insert intermittent and indwelling catheters in females from newborn onwards and males from 1 year of age. Medical staff or accredited RN's in critical care specialty areas can insert catheters in males under 1 year of age. Staff who require a review of their skills or those performing the procedure for the first time should seek a teaching session and supervision of the procedure. Enrolled nurses may insert intermittent catheters with supervision of a registered nurse experienced in the procedure.
- Nurses experienced in the procedure may irrigate the bladder of a child with a urinary catheter with recommendation from a medical officer.
- Consultation with the parents, and extended family of aboriginal children, should take place prior to the procedure where appropriate. The carer and/or patient's preference regarding the clinician's gender should be considered if appropriate.

1 Indwelling Catheter insertion (IDC)

Length of time indwelling catheter may be left insitu

After 2 weeks of a catheter being in situ consideration should be given to placing a SPC. Long term urethral catheters can lead to strictures in males and incontinence in females. If a SPC is not an option, then an IDC should be replaced at least every 4 weeks.

Equipment:

- Silastic catheter of appropriate size (check expiry). Take two catheters for female catheter insertion in case first attempt unsuccessful.

Approximate size selection guideline (for females choose larger size catheter)

Age	Weight (approx.)	Catheter
Preterm infant or small for gestational age	<2500g	3.5 or 5 Uricath (no balloon)
0-1year	3.5-7kg	Fg 6
1 year	10kg	Fg 6 – 8, preferably 8
2 years	12kg	Fg 8
3 -4 years	14kg	Fg 8-10
5 -6 years	18kg -21kg	Fg 10
7-8 years	27kg	Fg 10-12
9 - >12 years	varies	Fg 12-14

- Catheter pack (includes syringe)
- Sterile gloves (2 pairs)
- Sterile water based lubricant (check expiry)

- Aqueous chlorhexidine 0.1% disposable ampoule (check expiry). Povidine-iodine (eg: Betadine) can be used if child is allergic to Chlorhexidine. No alcohol based prep to be used.
- Urinary drainage bag
- Ampoule of sterile water (check expiry)
- Blunt needle
- Securement tapes (eg: Grip Lok)
- Personal protective equipment (PPE) – gown and eyewear
- (Female) extra cotton balls
- Extra gauze squares (may not be required – open if necessary)
- Rubbish bag and trolley
- Waterproof sheet (bluey)
- Sterile lignocaine 2% gel pre-loaded syringe (check expiry). Not suitable for use in children <1year of age and not required for children with loss of sensation in perianal area, sedated or anaesthetised. Most useful in older males to relax the urethral sphincter. Optional for females as a comfort measure. Dosage guideline for lignocaine gel 2% are as follows:

Age	Weight (approx.)	Dose
1 year	10 kg	1.5-2 ml
2 years	12kg	2-3 ml
3-4 years	14 kg	2.5-3.5 ml
5-6 years	18kg – 21kg	3-4 ml
7-8 years	27 kg	5-6 ml
>9 yrs	varies	Max 10 ml

Note: Two people are required to perform a catheterisation safely.

Initial Procedure for Male and Female indwelling catheterisation

Standard precautions and principles of surgical non-touch technique apply.

Steps	Rationale/For Noting
1. Explain procedure to child and carer and check for allergies. Consider distraction mechanisms and/or play therapy. Ensure privacy for child throughout procedure.	Do not expose or position child until set up is ready. Check for allergies (especially latex and chlorhexidine) – observe for reactions and if this occurs stop the procedure and take action as required.
2. Remove underwear/nappy and wash from lower abdomen to thighs in warm soapy water.	Parents may be able assist with this task whilst you are setting up.
3. Wash hands for one minute.	
4. Clean trolley with hospital grade disinfectant wipes, attach rubbish bag to trolley and gather equipment.	
5. Put on PPE gown and goggles.	Clean hands again if contaminated prior to next step.
6. Open catheter tray onto trolley to provide an aseptic field then open equipment onto aseptic field.	
7. Use yellow forceps to rearrange equipment. Place lubricant into gallipot.	DO NOT inflate balloon prior to insertion as it may distort the balloon and cause pain and/or tissue damage

	during catheter insertion and removal. Inflating and deflating the balloon will make it crumpled.
8. Pour prep solution over gauze or in kidney dish.	
9. (For female – optional step) soak extra cotton balls in lignocaine gel in gallipot.	
10. Wash hands for one (1) minute and don sterile gloves.	
11. With assistant draw up water volume with blunt needle and syringe.	Water is used for balloon inflation as saline may crystalize and prevent balloon deflation.
12. Assistant positions child supine with legs apart. Place waterproof sheet (bluey) under buttocks. Position light.	Do not use a mobile phone torch as parents may be concerned that you are filming the procedure.

a) Then for Males

Steps	Rationale/For Noting
1. Using prep soaked gauze clean from the penis outwards to symphysis pubis, scrotum and inner thighs. Repeat as necessary until you are confident of prep coverage.	Use your gloved hand to prep if child is combative or unable to maintain position. Forceps may scratch or damage the area if child cannot stay still for procedure.
2. Take hold of penis with non-dominant hand. Gently retract foreskin to reveal urethral opening. Swab urethral opening with a circular motion from the tip of the penis radiating outwards.	DO NOT forcefully retract the foreskin. In 60% of males the foreskin is able to be retracted by the age of 6 years. Contact senior advice if the foreskin cannot be retracted to visualise the urethral meatus. Foreskin retraction is not necessary and often difficult in infants and toddlers. Be aware that retraction by force can split the foreskin or tourniquet the penis (paraphimosis).
3. For children >1 year of age with penile sensation, hold penis at a 90 degree right angle to abdomen and insert lignocaine gel into urethra and leave for 3 minutes. Remove gloves.	
4. Wash hands and don new sterile gloves	Prep the area again if unsure of contamination and replace gloves.
5. Drape with fenestrated opening over penis ensuring drape sits under the penis and covers the anus.	
6. Tear off end of catheter plastic wrapping to expose the catheter tip. Continue to hold the catheter in your dominant hand on the remainder of the plastic wrapping and lubricate the catheter tip. Bring the kidney dish and the catheter inside its sterile plastic wrap onto the lower half of the drape.	Avoid touching the catheter itself. 
7. Tear sterile wrap length ways along the perforation as far as is comfortable for you to insert the catheter without obstruction (1-3 cms). Keep connection hub end inside the plastic wrap and in the kidney dish so that urine will flow into the dish after catheter is inserted.	You should hold the catheter on the plastic wrapping – avoid touching the catheter during insertion.
8. Start insertion with the penis at a 90 degree angle then when soft resistance is felt the catheter has reached the posterior urethra. Allow the penis to return to a	If there is continued resistance wait for the urethral sphincter to relax (this may take a few seconds) then retry. Some techniques you may use in older males are: <ul style="list-style-type: none"> • Increase traction on penis and apply gentle

<p>neutral position and continue to advance the catheter gently.</p>	<p>pressure on the catheter</p> <ul style="list-style-type: none"> • Ask the child to take a deep breath • Ask the child to cough and bear down e.g. try to pass urine • Gently rotate the catheter. <p>If the problem persists remove the catheter and seek senior assistance. Another application of lignocaine gel may be required. It is important that you DO NOT force the catheter through resistance as you will damage the urethra. In some instances urine may not flow, due to hypovolaemia, or catheter tip not being in bladder. Do not inflate the balloon until you are sure the balloon is within the bladder. If in doubt tape the catheter in place with steri-strips placed along the length of the penis (not circumferential) and do not inflate the balloon. Seek senior medical advice.</p>
<p>9. Insert catheter through urethral orifice all the way to the inflation port and check for urine flow then inflate balloon with water.</p>	<p>NOTE: Balloon volume varies with catheter size. Do not over inflate balloon as it may distort and cause pain or tissue damage on removal. Further catheter insertion to hub prevents inflation of balloon in the urethra.</p>
<p>10. Gently withdraw the catheter until resistance is met. This places the balloon at the bladder/urethral junction.</p>	
<p>11. Return the foreskin into non-retracted position.</p>	
<p>12. Remove remainder of plastic wrapping if still on catheter.</p>	
<p>13. Connect urinary drainage bag.</p>	<p>If a urine sample/specimen is required collect at this stage before connecting bag.</p>
<p>14. Rip drape to remove.</p>	
<p>15. Tape catheter securely to the groin or abdomen with tape.</p>	<p>Taping the catheter downwards may risk urethral trauma or iatrogenic hypospadias, especially in neurologically impaired children. Taping to groin or abdomen reduces movement of the catheter when the thigh moves. Ensure there is no tension on the catheter and it is free from twists and kinks.</p>
<p>16. Leave the child clean & comfortable.</p>	
<p>17. Dispose of equipment appropriately.</p>	
<p>18. Measure urine, document and enter in fluid balance chart or iView.</p>	<p>Record catheter size, volume of water in balloon, insertion date and time in the clinical records. For iView create dynamic group in 'lines, tubes and drains' section.</p>

b) Then for Females

Optional step prior to insertion: Place lignocaine gel soaked cotton balls onto urethral meatus and leave for three minutes to numb the area (not suitable for infants under 1 year or for children with reduced sensation in perianal area). Remove cotton balls prior to next step.

Steps	Rationale/For Noting
<p>1. Use forceps to pick up prep soaked gauze and swab from outer labia outwards towards symphysis pubis and inner thighs. Repeat until you are confident of prep coverage.</p>	<p>Use your gloved hand to prep if child is combative or unable to maintain position. Forceps may scratch or damage the area if child cannot stay still for procedure.</p>
<p>2. Using non-dominant gloved hand, open labia to expose urethral orifice. Swab vulva</p>	

with prep soaked gauze from inner labia to outer using a downward motion, using a clean swab each time (at least 3-4 times).	
3. Wash hands and don new sterile gloves.	
4. Drape with opening in fenestrated drape at urethral/vaginal orifice. Drape should cover anus if possible.	
5. Tear off end of catheter plastic wrapping to expose the catheter tip – avoid touching the exposed catheter. Continue to hold the catheter in your dominant hand on the remainder of the plastic wrapping and lubricate catheter tip. Bring the kidney dish and the catheter inside its sterile plastic wrap onto the lower half of the drape.	Avoid touching the catheter itself. 
6. Tear sterile wrap length ways along the perforation as far as is comfortable for you to insert the catheter without obstruction (1-3 cms). Keep connection hub end inside the plastic wrap and in the kidney dish so that urine will flow into the dish after catheter is inserted.	You should hold the catheter on the plastic wrapping – avoid touching the catheter during insertion.
7. With non-dominate hand open labia to expose urethral meatus. Use your dominant hand to insert catheter 5-10cm upward at an approximate 30 degree angle until there is flow of urine	An assistant, who has washed their hands and donned sterile gloves, can retract the labia for you to optimise visualisation of urethral meatus. The urethral meatus is located superiorly to the vagina and looks like a small slit. Approach from a superior aspect to avoid the vagina.
8. If resistance occurs, DO NOT force catheter insertion. Wait for muscles to relax (few seconds) then retry.	Assess if you have placed catheter into the vagina, if so leave the catheter in-situ and retry with a new catheter. Once the catheter has been successfully placed into the urethra remove the catheter from vagina. Contact senior advice if problems persist.
9. Insert the catheter a further 5cm, usually to catheter hub, to ensure the balloon is clear of the urethra and check for urine flow.	If urine is absent, the child may be hypovolemic, you may have catheterised the vagina or the bladder tip may not have passed into the bladder. Further catheter insertion prevents inflation of balloon in the urethra.
10. Inflate balloon with water .	Balloon volume varies with catheter size. Do not over inflate balloon as it may distort and cause pain or tissue damage on removal.
11. Gently withdraw the catheter until resistance is met. This places the balloon at the bladder/urethral junction.	
12. Remove plastic wrapping from catheter and connect urinary drainage bag.	If a urine sample is required collect at this stage before connecting bag.
13. Rip drape to remove.	
14. Tape catheter securely to inner thigh with tape.	Ensure there is no tension on the catheter and is free from twists and kinks.
15. Leave child clean and comfortable.	
16. Dispose of equipment appropriately.	
17. Measure urine, document and enter on fluid balance record or in iView.	Record catheter size, volume of water in balloon, insertion date and time in the clinical records. For iView create dynamic group in 'lines, tubes and

2 Management of an IDC

Routine care:

- The IDC insertion site and securement should be assessed at least once a shift, to ensure the IDC is not pulling on the genitals or twisted.
- IDC drainage bags should be emptied once a shift at a minimum.
- Position drainage bag to prevent backflow of urine or contact with the floor. Gravity is important for drainage and prevention of urine backflow. Ensure the drainage bag is below the level of the bladder, is not kinked or twisted and is secured.
- Consider changing the catheter tube and/or bag based on clinical indicators including infection, contamination, obstruction, disconnection, damage or leakage.
- Hygiene should be maintained with routine bathing/showering, including daily clean IDC insertion site with warm soapy water and more frequently if build-up of secretions is evident.
- Uncircumcised boys (not infants or toddlers) should have the foreskin gently eased back for cleaning and replace to non-retracted position once finished.
- Consider **daily** the need for the IDC to remain in situ. Remove as soon as no longer required to reduce risk of Urinary Tract Infection (UTI).

Urine Output:

- Measure urine output as indicated 1-4 hourly and assess the colour, clarity and concentration of urine output.
- Unless otherwise specified by the treating team, normal paediatric urine output is 0.5-2ml/kg/hr. Report any variation from this to the treating medical team.
- Record fluid balance. Ensuring adequate urine output will lessen the risk of infection.
- Cloudy, offensive smelling or unexplained blood stained urine is not normal and needs further investigation.

Troubleshooting if the catheter is not draining:

- Check catheter/tubing not kinked.
- Check catheter is still secured to patient leg and that it hasn't migrated out of bladder.
- Assess patient's hydration status to ensure they are not dehydrated. Consider performing a bladder scan to assess bladder volume. Escalate to medical team if concerned.
- The patency of a catheter can be checked with a catheter flush (see relevant section of policy).

3 Intermittent catheterisation and in/out catheter for urine specimen

Equipment

- Appropriate male or female catheter

Approximate sizes:

- FG6-8 for 0-5years
- FG8 for 5-10years
- FG10 for 10-12 years
- FG12 for > 12 years
- Sterile gloves (2 pairs)
- Dressing pack
- Aqueous chlorhexidine 0.1%
- Single packaged water based lubricant
- Kidney dish (clean)
- Protective eyewear/PPE
- Specimen jar if required
- Lignocaine gel 2% for male (>1yr of age) in/out urine specimen
- Waterproof sheet (bluey)

Procedure

NOTE: If a child is routinely having intermittent catheters at home please attempt to keep to the same times. The parental Homecare Guidelines differ to what is expected in the hospital setting. (see Clean Intermittent Catheterisation – Boys/Girls below)

1. Explain procedure to child and carer. Ensure privacy of patient.
2. Wash hands, clean trolley with hospital grade disinfectant wipe and gather equipment.
3. Wash hands.
4. Open dressing tray onto trolley ensuring plastic drape provides a sterile field.
5. Open catheter onto sterile field. Place lubricant onto sterile tray.
6. Pour aqueous chlorhexidine 0.1% over cotton balls in tray.
7. Place waterproof sheet (bluey) under buttocks.
8. Put on goggles/PPE.
9. Wash hands for one minute and don sterile gloves.
10. Assistant places child in supine position with legs in appropriate position and positions light.

11. Prep genitalia with chlorhexidine soaked cotton balls.
12. Instil lignocaine gel if required.
13. Remove gloves, wash hands and don new sterile gloves.
14. Position handtowel as a drape close to genitalia and between legs. Assistant to place kidney dish between legs.
15. Lubricate catheter tip.
16. Insert catheter with hub in kidney dish for urine drainage. If a urine specimen is required place hub of catheter in opened jar for urine collection.
17. Reposition the child by assisting into a sitting position to aid the urine flow.
18. When urine flow ceases, slowly withdraw catheter. If further drainage occurs, pause until complete.
19. Leave child clean and comfortable.
20. Measure and record urine output on fluid balance or in iView. Label and send urine specimen immediately if collected.

Homecare Guidelines

[Clean Intermittent Catheterisation - Females](#)

[Clean Intermittent Catheterisation – Males](#)

4 Discharge supplies

Discharge supplies can be provided by the appliance centre or SCH Home Equipment Lending Pool (HELP) using the appropriate form from the internet. A form can be filled out by the RN caring for the child. These supplies need to be paid for by the parents and if there is any financial difficulty, they should be referred to social work. If the child has a long-term catheter and requires regular supplies refer to homecare guidelines for further information.

5 Supra Pubic Catheter

Supra-Pubic Fistulas (SPF) are established surgically when long term catheterisation is required. They are commonly used for people with urinary incontinence, spinal cord pathology or to allow time for the urethra to heal due to disease, surgery and/or injury.

The main advantage of a supra-pubic catheter is that trauma to the urethra is minimised due to the catheter being located on the anterior abdominal wall, rather than via the urethra.

Points of emphasis

- The catheter is initially inserted in the operating theatre. The first change of catheter is 4-6 weeks later and the procedure is performed by a medical officer, usually in theatre. Subsequent changes are at 4-6 weekly intervals and can be changed by a Clinical nurse consultant who has been trained in the procedure.

- If the patient has normal sensation they will require adequate pain relief prior to the procedure – analgesia should be given at least half an hour before.
- The catheter should be clamped half an hour before the change of catheter, as a full bladder makes it easier to insert the new catheter.
- The patient should be placed in a comfortable position that allows best access to the supra-pubic catheter.
- The replacement catheter needs to be inserted as quickly as possible once the old catheter has been removed.
- Explain procedure to patient and family as appropriate.
- Two medical or nursing staff are required for this procedure. Staff should be experienced in this procedure or under direct supervision of experienced staff.

Equipment

- 1 Sterile Catheter Pack
- 1 pair of Sterile Gloves & 2 pairs of clean designated gloves (check for latex allergy)
- Sterile lignocaine 2% gel with chlorhexidine 0.5% in syringe
- Replacement sterile silicone catheter of appropriate size with 10 ml balloon. In children above a normal body weight with a larger abdomen, a guide wire and supracath (open ended balloon catheter) may be required.
- Replacement sterile urine drainage bag
- Aqueous Chlorhexidine for cleaning around fistula
- Extra 10 mL sterile syringe (one already in catheter pack)
- Blunt needle
- 1 x 10mL ampoule sterile water
- Sterile gauze square for final dressing to fistula site
- Tape to secure gauze
- Securement tape or catheter strap to secure tubing to thigh
- Waterproof sheet (bluey)

Procedure

1. Wash hands, clean dressing trolley with hospital grade disinfectant wipes and gather equipment.
2. Wash hands.
3. Open catheter pack, expose aseptic field and add equipment onto aseptic field.
4. Put on clean designated gloves.
5. Expose SPF and remove dressing. Place protective sheet (bluey) under child.
6. Deflate balloon of existing catheter using a 10 mL syringe.

7. Wash hands for one minute and don sterile gloves.
8. **ASSISTANT** to wash hands and put on clean designated gloves ready to remove existing catheter.
9. With assistant fill 10 mL syringe with sterile water using blunt needle.
10. Using forceps clean around fistula site with cleaning solution.
11. Squeeze a small amount of lignocaine gel around fistula site.
12. Place fenestrated drape over SPF site.
13. Lubricate tip of replacement catheter with lignocaine gel.
14. Place kidney dish on lower half of drape between patient legs.
15. **ASSISTANT** to remove existing catheter gently and firmly (there may be some resistance due to ridge around tip of catheter, but catheter should come out easily as balloon is deflated).
16. As soon as catheter is removed, insert 2-3mL of lignocaine gel into fistula and then **immediately insert the replacement catheter** into the fistula. Place sterile kidney dish to receive urine draining from catheter.
17. Fill catheter balloon with 10mls sterile water, gently draw the catheter back until resistance is felt to ensure balloon is inflated and catheter is secure.
18. Connect catheter to sterile urine drainage bag.
19. Apply sterile gauze square around fistula site and secure with tape. Tape tubing to inner thigh with tape or catheter strap if available. **Note:** If child is paraplegic or has limited sensation, please use caution with tapes to maintain skin integrity.
20. Leave patient clean and comfortable.
21. Discard equipment appropriately.
22. Remove gloves and wash hands.
23. Document procedure.

Homecare Guideline

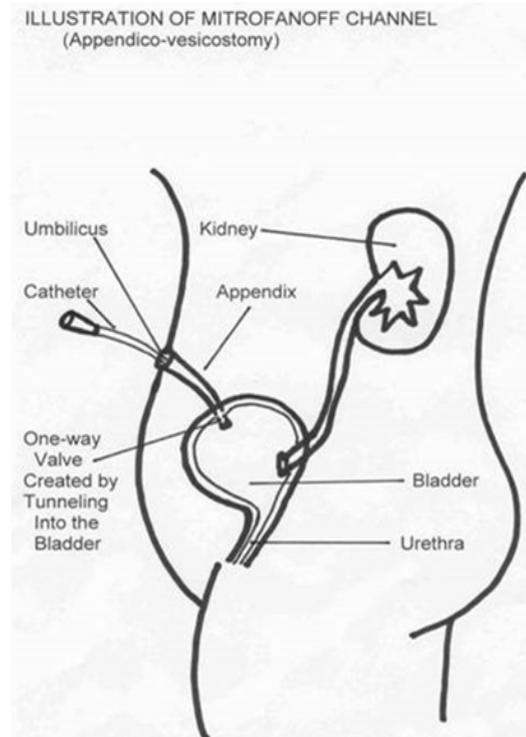
[Supra-Pubic Catheter Homecare Guideline](#)

Note: If there is any doubt about correct placement of the catheter contact a Medical Officer to review the patient and organise a cystogram. A small amount of haemo-serous ooze from around the stoma or into the catheter itself may occur following this procedure. If bleeding continues, the patient should also be reviewed by a medical officer.

6 Clean Intermittent catheterisation via appendico-vesicostomy or Mitrofanoff catheterisable urinary channel

This is a procedure that has been developed to enhance the quality of life for people who for a variety of reasons are unable to perform self-clean intermittent catheterisation urethrally. In 1980, Paul Mitrofanoff used the appendix to create a channel to access to the bladder from the abdominal wall. A Mitrofanoff stoma can also be created using a small part of the ileum where the appendix is absent or is an insufficient length to be of use. The colonic end is brought to the skin and used as a stoma for catheterisation. The stoma is usually located in the umbilicus.

The recommended method for catheterising the Mitrofanoff channel or appendico-vesicostomy is the clean technique used for urethral intermittent catheterisation. This procedure is usually performed independently by the person with the stoma (usually every 3-4 hours or as required), but some assistance may be required to lubricate the catheter or hold the urine collecting bottle or container. Older children can be taught to stand over toilet to drain urine.



Adapted by Julie Dicker CNC from illustration by Kurtz, M et al 1996.

Equipment

- Nelaton PVC longer (male) length catheter of appropriate size (or pre lubricated catheter).
- Water based gel to lubricate catheter
- Dressing pack
- Kidney dish to collect urine
- Aqueous chlorhexidine (Use a clean disposable cloth and water in an established stoma)
- Sterile gloves (for clinicians)

Procedure

1. Wash hands, clean trolley with hospital grade disinfectant wipes and gather equipment. Apply PPE.
2. Wash hands and open equipment.
3. Ensure access to the stoma, wash hands for one minute and apply sterile gloves.

4. Clean stoma with chlorhexidine (or moistened cloth for established stoma).
5. Lubricate catheter.
6. Insert catheter into stoma channel until urine appears and collect in kidney dish.
7. Change child's position and/or insert catheter in a further 1cm to ensure bladder is drained.
8. Remove catheter using gentle rotational whilst pulling catheter out.
9. Discard equipment and discard urine appropriately.
10. Wash hands and document in patient notes

Homecare Guideline

[Clean Intermittent Catheterisation via an appendico-vesicostomy or Mitrofanoff Catheterisable Urinary Channel](#)

Patients eligible for ongoing supplies from Stoma Appliance Scheme – need STN assistance.

7 Open Catheter Drainage

At the medical officer's discretion, the catheter may not have a urinary drainage bag attached to it and instead be draining into a nappy. Surgeons may ask for a single nappy or double nappy system for the catheter to drain into. If a double nappy system then the child is placed in two nappies, the first nappy is the child's appropriate size and the second overlapping nappy is one size larger. The IDC is placed to free drain by bringing the catheter through the leg opening of the first nappy into the second nappy to collect urine. The catheter must be checked regularly for tension on genitalia or kinks in the catheter. The second nappy can be weighed for fluid balance as required. The nappy that collects the stool (the inner nappy in a double nappy system) needs to be checked regularly (2-3 hourly) to prevent contamination of the catheter. Parents/carers should be educated and supported regarding nappy changes and how to manage cleanliness of the catheter.

8 Catheter valve

The catheter valve is used at the end of the catheter when the urologist wants the bladder to fill normally rather than being continuously drained. This may occur in children who have had hypospadias repair when the catheter is protecting the operative site, or bladder augmentation to slowly increase bladder capacity. The catheter valve should be released at least 4 hourly or when the child feels that they have a full bladder. The voiding plan should be clarified with the treating team prior to attaching a catheter valve.

Tapered end to
insert into
catheter hub



Silastic end for
drainage bag
attachment if
required.

Flip-flo catheter valve in open position (hospital stock may vary)

Equipment:

- Waterproof sheet (bluey)
- dressing pack
- Aqueous Chlorhexidine 1%
- catheter valve
- PPE
- 1 pair of sterile gloves.

Procedure:

1. Wash hands clean a trolley using hospital grade disinfectant wipes, gather equipment and apply PPE.
2. Wash hands and open dressing pack. Apply Chlorhexidine aqueous 1% to gauze. Open catheter valve onto aseptic field.
3. Explain the procedure to the child and gain consent from carer. Place protective sheet (bluey) under catheter connection hub.
4. Wash hands for one minute and apply sterile gloves.
5. Clean the connection of catheter with prep soaked gauze.
6. Clamp the urinary catheter with your non-dominant hand close to the catheter hub and disconnect catheter from drainage bag.
7. Apply hard tapered end of catheter valve into the catheter hub.
8. Ensure catheter lever is in closed position (lever upwards towards the catheter).
9. Unclamp catheter by releasing your grip on catheter hub.
10. Leave child clean and comfortable.
11. Dispose of equipment appropriately and document in patient notes.

Post procedure:

- The catheter valve needs to be changed if contaminated and/or replaced with catheter changes.
- The child/carers should be educated on the voiding plan and how to empty the bladder. The catheter valve can be opened by moving the lever downwards to create an open

channel for urine flow. This may be done into the toilet or a receptacle if urine volumes need to be measured.

- The silicone end of the catheter valve allows for application of a urine drainage bag for overnight urine drainage. To do this follow the above procedure, however use a drainage bag instead of the catheter valve and insert the drainage bag tapered tip into silicone end of catheter valve.
- Catheter valves are available from the appliance centre at CHW and HELP at SCH for home supplies.

9 Bladder Scanner

The BARD bladder scan BVI3000 is used to prevent unnecessary catheterisation, assess for urinary retention, measure pre/post void bladder volumes and to assist in bladder training programs. Within 4-8 hours of IDC removal the patient should be encouraged to pass urine and observe for clinical indications of urinary retention such as discomfort, palpable bladder, urge to void without successful urination (see introduction section for strategies). This time period may be variable according to patient condition (eg: dehydrated child). If the patient has not passed urine a bladder scan can be performed for an estimate volume of urine in the bladder. Scanning should only be used and results interpreted by nurses experienced in the procedure or with direct supervision. If bladder contents are equal to or greater than recommended bladder capacity (as per table in introduction section) contact a medical officer immediately.

Equipment:

- Bladder scanner
- ultrasound gel (non-sterile)
- disposable wipes for cleaning abdomen

Procedure:

1. Ensure patient privacy and explain procedure to child and carer. Wash hands. Expose abdomen and have patient lay as flat as possible.
2. Turn on Bladder scan and press SCAN.
3. Select appropriate MALE/FEMALE icon.
4. Put gel on scan head.
5. Make sure scan head icon marking has head of the icon pointing towards head of patient.
6. Find the symphysis pubis and place the scan head about 2.5cm superior to the symphysis pubis pointing toward the expected bladder location.
7. Press the scan head button and hold the scan head steady until you hear a beep.
8. The aiming icon and screen will display the bladder position and volume. Reposition the probe and scan until the bladder is in the crosshairs of the aiming screen. The largest measurement will be saved.

9. Press DONE when finished.
10. Wipe gel from patient's abdomen with disposable wipes and leave patient comfortable.
11. Clean scan head with hospital grade disinfectant wipes.
12. Wash hands.
13. Record findings in patient notes and notify medical officer of result as appropriate.

10 Obtaining a Urine Sample/Specimen from a Catheter

Specimens of urine must be fresh and need to be collected aseptically to prevent contamination. Specimens should not be collected by disconnecting the catheter from the bag or from the drainage bag itself. However, large specimens, such as 24 hour urine collections, may be taken from the drainage bag.

During catheterisation:

Following insertion of the catheter, place yellow top container under draining catheter using an aseptic technique. Label and send specimen immediately.

From an indwelling catheter:

Equipment:

- Designated clean gloves
- 2x10mL syringe
- yellow top specimen jar
- chlorhexidine swabs.
- PPE
- Sterile plastic drape for trolley
- Waterproof sheet (bluey)

Procedure:

- Wash hands, clean trolley with hospital grade disinfectant wipes and gather equipment. Open plastic drape to create an aseptic field and open equipment onto aseptic field.
- Clamp catheter below sample port using outer part of 10ml syringe (plunger removed) and place kinked tubing inside of it. Place waterproof sheet (bluey) under specimen port – situated close to connection between drainage system and catheter hub.
- Wash hands for one minute and don gloves.
- Swab specimen port (see picture) with a chlorhexidine swab for 20 seconds and allow to air dry.
- Attach syringe to specimen port and gently aspirate urine into syringe.



- Transfer urine to yellow top specimen container.
- Remove kinked tubing from outer syringe casing to unclamp.
- Dispose of equipment appropriately.
- Remove gloves and wash hands.
- **Label, bag and send specimen immediately.**

11 Catheter Flush and Bladder Irrigation

Catheter flush

An indwelling catheter may require flushing if it becomes blocked or following specific urological procedures. The primary solutions used for catheter flushing are sterile water or normal saline. Clarify the required solution with the treating team. Check with the treating team if the child has had a urological procedure prior to flushing a catheter.

Equipment:

- Catheter pack
- Catheter tip syringe (60ml)
- Chlorhexidine swabs
- Appropriate irrigation solution (clarified and ordered by medical officer)
- New catheter drainage bag
- Sterile gloves
- PPE
- Protective sheet (bluey)

Procedure:

1. Explain procedure to child and parent and explain that the procedure may cause slight discomfort. Gain verbal consent from parent/carer.
2. Wash hands, clean trolley with hospital grade disinfectant wipes and assemble equipment. Don PPE.
3. Wash hands and open dressing pack. Open rest of equipment onto aseptic field. Use yellow forceps to rearrange equipment. Pour irrigation solution into gallipot.
4. Position child to access catheter and place protective sheet (bluey) under connection of catheter to drainage system.
5. Wash hands for one minute and don sterile gloves.
6. Draw up required amount of solution into syringe.
7. Place sterile hand towel under catheter at connection site.
8. Swab around catheter connection using chlorhexidine swabs.

9. Using sterile gauze hold the catheter hub with your non-dominant hand and pinch the catheter closed, then disconnect catheter from drainage bag.
10. Attach syringe, release pressure on catheter hub to unclamp catheter and instil solution gently. Some resistance may be felt if catheter is blocked - **Do not use excessive force.**
11. Pinch the catheter hub closed again to clamp it and withdraw syringe.
12. Connect new drainage bag.
13. Release grip on catheter to unclamp it and check that catheter is draining.
14. Remove handtowel and dispose of equipment appropriately. Wash hands.
15. Record relevant observations in patient's notes and on fluid balance chart noting volume of solution used and result from flush.

Alternative method for catheter flushes using specimen port

This technique may be helpful for multiple, regular flushes per day to reduce breaking the catheter drainage system multiple times in a day.

NOTE: The smaller bore of the specimen port may not allow for adequate pressure and/or sufficient flushing action in the catheter. **This flushing method must be approved by the treating team beforehand.**

Equipment:

- Posi flush if flush is <10mls
- Luer syringe (size according to flush volume >10mls)
- Blunt needle if not using posi flush
- Saline (or other ordered flush solution) if not using posi flush
- Red cap if not using a posi flush
- 10ml syringe to use as a tube clamp
- 2% Chlorhexidine gluconate in 70% alcohol (large) swab
- Green tray
- Clean designated gloves and PPE
- Waterproof sheet (bluey)

Procedure:

- Gather equipment, wash hands and clean trolley and tray with hospital grade disinfectant wipes. If not using a posi flush, using ANTT technique, aspirate flush solution into syringe using the blunt needle and then replace needle with the red cap. Place syringe or posi flush into green tray.
- Clamp catheter below sample port using outer part of 10ml syringe (plunger removed) and place kinked tubing inside of it. Expose specimen port and place waterproof sheet

(bluey) under specimen port – situated close to connection between drainage system and catheter hub.

- Wash hands for 1 minute and don clean designated gloves
- Vigorously clean the specimen port with a chlorhexidine swab for 20 seconds and allow to air dry
- Attach syringe to specimen port and instil solution gently. **Do not use excessive force.**
- Detach syringe from specimen port
- Unclamp catheter tubing by removing syringe casing and observe for urine flow
- Remove drape and bluey
- Dispose of equipment appropriately and wash hands
- Record relevant observations in patient's notes and in fluid balance noting volume of solution used and result from flush.

Bladder Irrigation

Bladder irrigations are sometimes required when there is excess sediment within the bladder, blood clots or when there is mucous in the bladder following specific urological procedures. If an antibiotic is prescribed for bladder instillation to treat ongoing infection, please consult the urological team for further instruction, education and demonstration. An assistant is required to perform this procedure to refill irrigation solution onto the aseptic field. Bladder irrigations need to be ordered by the treating team. Irrigation volumes are usually 25% of the expected bladder capacity.

Equipment: Same as catheter flush (above).

Procedure: Follow the catheter flush steps above from 1-9 then:

1. Attach syringe, release pressure on catheter hub to unclamp catheter and instil solution (max 50ml) with gentle, pulsating pressure, then withdraw. Discard solution into a kidney dish.
2. Repeat step 9 with additional solution until ordered volume is delivered and withdrawn (for example: If 150mL bladder irrigation is ordered, repeat step 9 until urine becomes clear). **To prevent damage to the bladder if you feel resistance when instilling solution, consult treating team for further advice.**
3. Pinch the catheter hub closed again to clamp it and withdraw syringe.
4. Connect new drainage bag.
5. Release grip on catheter to unclamp it and check that catheter is draining.
6. Leave child clean and comfortable.
7. Dispose of equipment appropriately. Wash hands.
8. Record relevant observations in patient's notes and on fluid balance chart noting volume of solution used and result from flush.

12 Removal of a catheter

Supra Pubic Catheter

Equipment:

- Dressing pack
- 0.9% saline
- Clean designated gloves
- Combine
- Tape
- 5-10ml slip syringe (depending on catheter balloon size)
- Waterproof sheet (bluey)
- Suture cutter
- PPE

Procedure:

1. Ensure order for removal has been documented.
2. Check SPC type and if it is a foleys catheter, check balloon size. Pigtail type SPC have a disc on the skin and do not have a balloon.
3. Explain procedure to patient and carer. Obtain verbal consent for procedure. Position child flat and remove dressing/tapes.
4. Wash hands . Clean trolley with hospital grade disinfectant wipes. Apply PPE. Open equipment onto trolley using aseptic non-touch technique.
5. Wash hands for 1 minute and apply gloves.
6. Clean insertion site with saline soaked gauze in a circular motion from insertion site outwards. Repeat with a clean gauze until confident of coverage and area is clean.
7. Remove suture/s if present.
8. Deflate balloon if it is a foleys catheter. If the balloon will not deflate seek senior medical assistance.
9. Firmly grip catheter and remove with a straight steady movement. The pigtail SPC type catheter may have some gentle resistance, however it will straighten as it is removed. If there is continued resistance, stop the procedure and seek senior medical advice.
10. Inspect the site for redness, excoriation or signs of infection. Cleanse with saline soaked gauze if necessary.
11. Cover with dry combine and secure with tape.
12. Reassure patient and carer/s that there may be some leakage over the next 24 hours.
13. Document removal, site condition and leakage in patient notes.
14. Monitor for voiding via the urethra and document time and volume of urine volume. Continue to monitor for infection and need for combine changes if soaked with urine.

Urethral Catheter

The risk of a urinary tract infection is greater with increased duration of catheterisation. Therefore, it is critical that indwelling catheters are removed as soon as they are no longer required.

Before catheter removal

Assess patients for the following factors:

- Constipation should be resolved prior to catheter removal as this can cause urinary retention.
- Medications or epidural infusions that may cause urinary retention.
- Clinical conditions that may affect catheter removal such as sacral or perineal wounds, low platelets or haematuria.

Catheters that have been inserted for urinary retention should have the cause of the retention resolved prior to IDC removal. IDC removal should be performed overnight or early in the morning so that troubleshooting of urinary retention can occur within day time hours. Explain the procedure and plan for trial of void post removal to the patient and carer. Obtain verbal or written order from a medical officer and obtain verbal consent from patient and/or carer. Ensure privacy during procedure.

Equipment:

- Clean designated gloves
- Adhesive remover
- 5-10ml syringe
- Protective sheet (bluey)
- Disposable cloths
- PPE
- Rubbish bag

Procedure:

1. If there is no carer present take another staff member with you.
2. Wash hands. Don PPE.
3. Inspect the balloon port to establish amount of water in the catheter balloon (may be in child's documentation)
4. Remove underwear or nappy for easier access to catheter and place protective sheet under buttocks.
5. Use adhesive remover on tapes and remove. Ensure there is no tension on tubing once tape is removed.
6. Position patient ready for catheter removal.
7. Wash hands and don gloves.
8. Before inserting syringe to balloon port, slide the plunger back and forth to loosen it up. Leave the plunger at the 0.5ml mark to prevent adherence. Insert the syringe into the balloon port and allow the syringe to auto fill with the water rather than pulling back on the plunger. Wait at least 30 seconds to allow the water to fully drain from the balloon. If the water does not flow into the syringe gently pull back on the plunger to aspirate the

balloon. Quick or forceful deflation of the balloon will cause it to ridge and cause pain on removal. Assess the contents of the syringe for fluid volume and colour. If it has an appearance of urine the balloon may have burst. The volume of water should be similar to the amount on the catheter hub or what has been documented in the notes. If there is a no water or minimal water withdrawn there may be a blockage. **DO NOT** instil more water or air as this may damage the urethra or the catheter. Give the catheter a gentle pull to see if catheter moves easily. If so then proceed with IDC removal.

9. Warn the patient if appropriate then pull the IDC out in a firm steady manner.
If there is resistance at any time during removal stop the procedure and reassess. You can reposition the patient and/or leave the catheter to fall out on its own once the child is more relaxed. **DO NOT** push the catheter back inside the urethra. Contact a senior medical officer if the catheter cannot be removed.
10. Place catheter and drainage bag into rubbish bag after identifying urine volume in drainage bag if applicable.
11. Clean patient with moistened disposable cloths and assist to put on underwear or nappy.
12. Dispose of equipment appropriately and remove PPE. Wash hands.
13. Document IDC removal, time of removal and any other relevant information connected with the procedure.

After IDC removal:

Ensure machines connected to patient lines are on a mobile IV pole so that child can mobilise easily to the bathroom if required. Or provide a urine receptacle in an accessible place if appropriate. Inform the child and/or carer of need to collect or measure urine if required and provide necessary equipment to facilitate this. Continue to observe for urinary retention. The child should be assisted to a successful trial of void within 4-8 hours post IDC removal. Strategies to encourage voiding are in the introduction section of the policy.

Homecare Guideline

[Indwelling Urinary Catheter Care at home](#)

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