

Intermittent Self-Catheterization Patient Education Checklist

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

© 2021 Society of Urologic Nurses and Associates

Newman, D.K. (2021). Intermittent self-catheterization patient education checklist. *Urologic Nursing*, 41(2), 97-109. <https://doi.org/10.7257/1053-816X.2021.41.2.97>

Overview

Intermittent self-catheterization (ISC) is a procedure taught by a health care professional, usually a nurse, with the knowledge, expertise, and skill to perform urinary catheterization. Methods for teaching ISC are integral to the care of patients with urologic conditions, and there are many publications in nursing textbooks and journals describing the different steps of an ISC educational program. A recent survey (Gray et al., 2019) of clinical nurses and other clinicians (respondents = 343) who care for adults with neurogenic or non-neurogenic lower urinary tract dysfunction in any care setting found variability in resources and knowledge about catheter types and characteristics. The objective of this Teaching Tool is to provide nurses with the information needed to teach ISC to patients.

In preparing for teaching ISC, nurses should 1) understand anatomy and physiology of the female and male lower urinary tract; 2) identify indications for intermittent catheterization (IC) in a specific patient; 3) be aware of issues surrounding consent, dignity, and privacy; 4) know the risks and benefits of IC; 5) be knowledgeable about criteria for catheter selection and use; and 6) know how to obtain supplies. To ensure adherence to and understanding of ISC, the nurse's rapport with the patient is important to a successful teaching outcome and for ongoing support. Good communication, a positive attitude, and a private environment are important to learning the challenge of ISC and minimizing embarrassment for the patient.

According to the 6th International Consultation on Incontinence (Apostolidis et al., 2017), a non-traumatizing technique can prevent and reduce complications, making patient education essential. Research that studied patients' views and acceptability of ISC found that 80% perceived ISC to be easy, resulting in little interference in daily activities. However, anxiety has been found in 70% to 80% of home-care patients who regularly perform ISC.

Teaching ISC should be individualized to each patient, with shared decision-making when possible (and as appropriate) over catheter choice and site for performing ISC. In general, the choice of catheter should be the one that the patient finds easiest to pass. Most patients can learn IC in one training session. Involvement of a support-

ive family member or caregiver who is available and/or may be assisting in IC should be encouraged during the teaching session. Many patients may have an initial aversion to or hesitation regarding ISC and whenever possible, should be given the choice of the gender of the person catheterizing or teaching catheterization and the choice of a chaperone of the same sex. Once taught, weekly follow up may be needed until the patient has mastered ISC. Consider the use of an ISC checklist to predict ability for IC, especially in patients with neurologic disease.

The following is a guide for ISC teaching in adult men and women with their natural bladder intact. Teaching ISC to patients with a neobladder or ileal conduit is a separate issue; although many basic principles are the same.

Indications

Intermittent catheterization is the 'gold standard' for patients with bladder dysfunction caused by neurologic or non-neurologic causes, a significant and growing population in the United States. On an annual basis, neurogenic bladders will affect 80% of patients with new spinal cord injuries ($n = 11,000$) (Hamid et al., 2018), 70% of patients diagnosed with multiple sclerosis ($n = 10,000$) (Howard et al., 2016), more than 40% of patients who develop Parkinson's disease ($n = 60,000$) (Hirsch et al., 2016), and 15% of those who suffer a stroke ($n = 800,000$) (Virani et al., 2020). Some degree of neurogenic lower urinary tract dysfunction (NLUTD) is also seen in at least 50% of patients diagnosed with diabetes (Ginsberg, 2012). IC is the recommended method for individuals who are unable to void or completely empty the bladder. According to Committee 10 of the 6th International Consultation on Incontinence (Apostolidis et al., 2017), IC has replaced long-term indwelling catheterization for patients with non-neurogenic or NLUTD resulting in incomplete bladder emptying because it is associated with less urologic and non-urologic complications. Benefits of IC greatly outweigh disadvantages and include:

- Less incidence of catheter-associated urinary tract infections (CAUTIs) compared to indwelling urinary catheters (IUCs) when used long-term. A systematic review by Kinnear and colleagues (2020) yielded low-

Diane K. Newman, DNP, ANP-BC, FAAN, BCB-PMD, is an Adjunct Professor of Urology in Surgery, Research Investigator Senior, Perelman School of Medicine, University of Pennsylvania, and Co-Director, Penn Center for Continence and Pelvic Health, Division of Urology, Penn Medicine, Philadelphia, PA; and Chair, Clinical Practice Procedures, Society of Urologic Nurses and Associates.

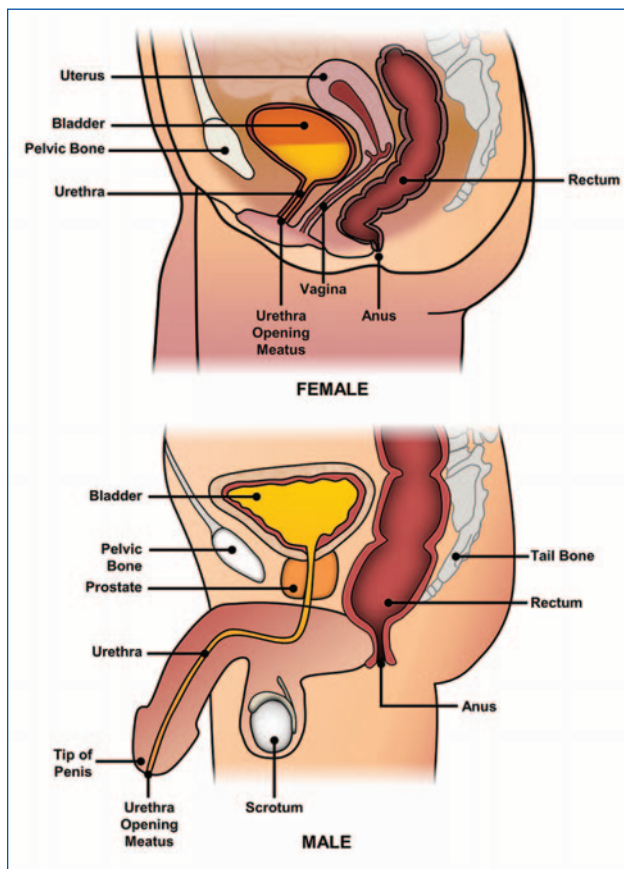
level evidence suggesting the use of ISC is associated with lower rates of UTI than an IUC in patients with neurogenic bladder requiring catheter-based drainage.

- Optimal outcomes in managing and achieving continence in patients with NLUTD and those with non-neurologic voiding dysfunction. Current guidelines for managing the lower urinary tract of patients with IC with a neurological disorder stress the importance of maintaining low pressure in the lower urinary tract, promoting clean technique, and ensuring a minimum of four catheterizations are performed per day and the volume per catheterization does not exceed 400 to 500 mL.
- Reduced risk of IUC-related complications (e.g., infection, blockage, encrustation, pain), bladder neck and urethral trauma and injury.
- Fewer barriers to intimacy and sexual activity when compared to other catheters (IUCs or external collection devices).
- Improves quality of life, body image, self-esteem, and peer relationships; it promotes independence and control of bladder function because the catheterization schedule can be tailored to individual lifestyle.

Expectations

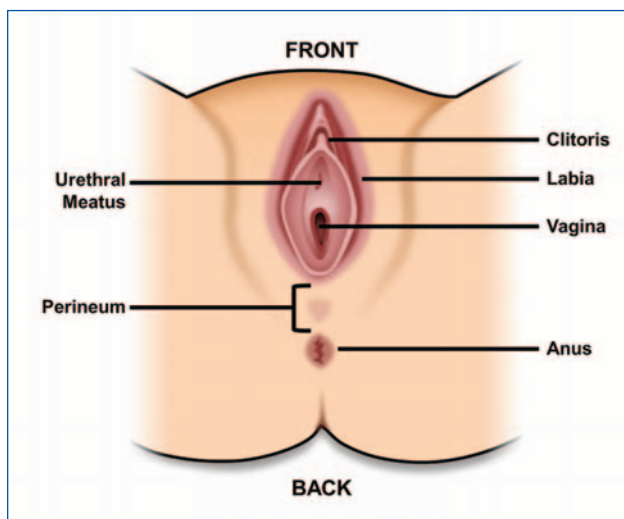
1. Education and review of bladder function and importance of IC:
 - Explain the reason, benefits, and importance of performing ISC to ensure the patient involved in the decision-making understands the need for catheterization. ISC will allow patients to use public restrooms for catheterization, giving them freedom to leave their home, improving quality of life.
 - Assure the patient that IC will not cause internal damage.
 - Teach and review the anatomical structures of the lower urinary tract (Figure 1), function of the bladder and urethra so the patient understands how catheterization works in order to carry out this procedure. Women, especially older women, may not have a clear knowledge of their perineum (Figure 2); many say, “I have not looked at this part of my body.” Men may not have a clear idea of the prostate and its relationship with the bladder.
 - Use of ISC booklets or DVDs can enhance information and be a back-up resource.
 - A simple diagram can help explain ISC to patients who often have little knowledge of the anatomy of the genitourinary system.
 - Describe the preparation and maintenance of hygiene (hand, perineal) before attempts at catheter insertion.
 - Provide an explanation of the ISC procedure and problems that may arise.
 - Demonstrate the best technique for handling the catheter and the method for maintaining a “no touch” technique to avoid contamination.
 - Patients and caregivers may find the procedure complex and struggle to remember the necessary steps. To determine the level of the patient or caregiver’s understanding, use “Teach-Back”: “I

Figure 1.
Side View of the Lower Urinary Tract Structures
Male and Female



Source: Courtesy of Diane K. Newman, DNP.

Figure 2.
Female External Genitalia



Source: Courtesy of Diane K. Newman, DNP.

want to be sure I explained clearly about how you are to do the catheterization. Tell me in your own words the reason why you need to catheterize and the steps to do the catheterization.”

2. Teaching environment.
 - Ensure adequate time and number of teaching sessions, so the patient feels confident to perform the technique unsupervised, whether the teaching is completed at home, prior to discharge, in the clinic or in the practice.
 - Foster a quiet, private environment, when possible. The most relaxing place would be patient's home, as this will provide more privacy and dignity and less risk of cross-infection.
 - Encourage willingness to perform ISC; practical aspects of how the home is set up for ISC may be an influence (e.g., privacy concerns).
3. General assessment: Performing ISC can be technically difficult for most men and women. Initial assessment of factors that can affect successful ISC and contribute to the choice of catheters includes determining a reasonable level of cognition and dexterity; good physical ability; motivation; ability to visualize the urethral meatus (more of a potential barrier with women that can be addressed by use of a mirror); capacity to follow verbal and non-verbal instructions, and read and understand written instructions; awareness of problems associated with ISC; and an understanding of how to avoid problems, such as CAUTIs. Assessment specifics include:
 - Age. Not necessarily a determinant to the success of ISC, although older adult women post-gynecologic surgery may have a more difficult time performing ISC.
 - Determine previous experience with catheterization (e.g., IUC or IC).
 - History of urethral problems. This can include strictures or scarring. In women, pelvic organ prolapse (POP) may be causing symptoms of incomplete emptying. Depending on the degree of prolapse, advise the woman to angle the catheter around the prolapse and choose a more flexible catheter. In men, history of urethral strictures or an enlarged prostate may make catheterization more difficult.
 - Presence of neurologic conditions that affect mobility.
 - Sensory impairment: Anesthesia or impaired sensation of the perineal area.
4. Psychological, emotional, cultural, and social issues can be barriers to a successful IC treatment plan.
 - When introducing ISC, patients may be worried, shocked, frightened, and depressed, so it is important to determine motivation, understanding of the rationale for ISC, and comfort level.
 - Identify fears of ISC, and anxiety about perceived or real discomfort. Men commonly report concern or fear when told they will need to insert a catheter through the penis into the bladder.
 - Determine motivation, willingness to perform ISC, and ability to recognize the importance of regular bladder drainage. This may also be

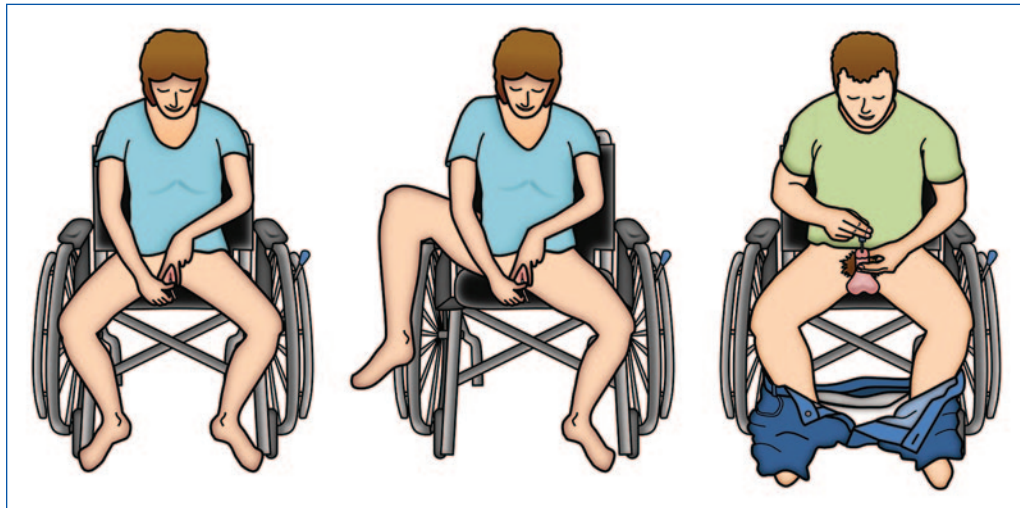
Figure 3.
LoFric® Elle™ L-Shaped Handle



Source: Courtesy of Wellspect.

- assessed in the context of the patient's support system/family to ascertain if there is a family member who may be able to assist.
 - Identify concerns with embarrassment about exposing or touching genitals and concerns relating to religious and cultural beliefs.
 - Prepare for the necessity of an interpreter; the environment may need to accommodate this additional privacy consideration (e.g., interpreter behind a curtain).
5. Vision/eyesight (poor eyesight and/or blindness does not preclude successful ISC).
 - Determine problems with eyesight. If the patient normally wears glasses, make sure they are worn during the teaching session. A magnifying mirror may help women who are short-sighted, while a normal mirror will be more useful if the patient is far-sighted.
 - For those women who are partially sighted or blind, a 'touch technique' or mirror can be used to identify landmarks and the position of the urethral meatus (e.g., proximity to the vagina and clitoris).
 - Packaging can pose issues for individuals with visual impairment.
 - Special devices have been developed to aid insertion (Figure 3).
 6. Cognition: Impaired cognitive function can affect success in being able to carry out the procedure independently. May need specific training, written materials, and pictures. The patient should be asked to perform return demonstration to ensure understanding.
 7. Body habitus.
 - Body mass index (BMI) is one variable that could restrict perineal access because ability to reach the urethra is vital.
 - Arm length may be insufficient to position the catheter in front of the meatus due to abdominal apron/large pannus (a dense layer of subcutaneous fat in the lower abdominal area).
 - Male patients with buried/retracted penis may have difficulty accessing meatus.

Figure 4.
Catheterizing in a Wheelchair



Source: Courtesy of Diane K. Newman, DNP.

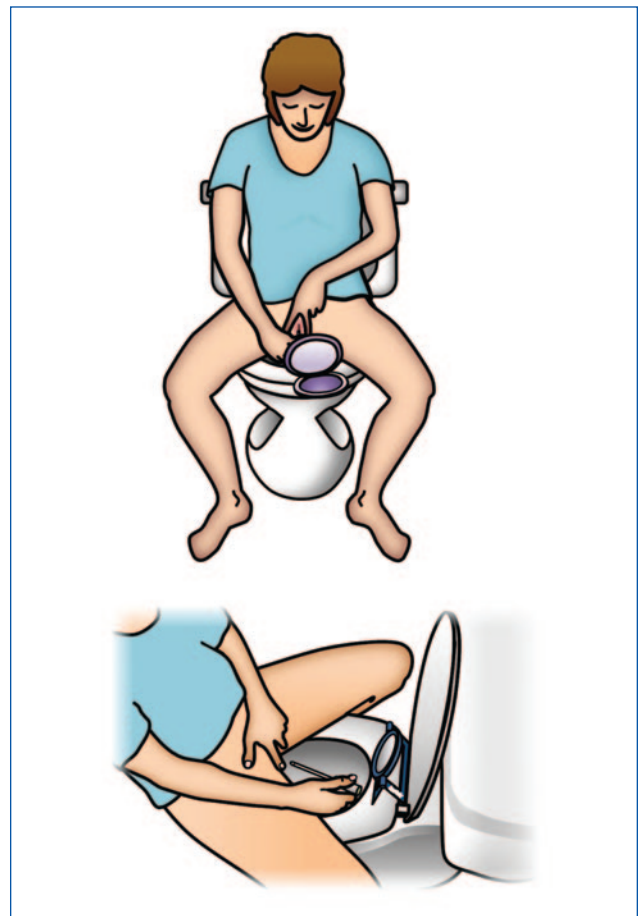
8. Mobility and flexibility may determine where the patient performs IC because deficits will affect ability to position correctly.

- If wheelchair mobile, catheterization can be performed in the chair (Figure 4).
 - Sit on the edge of the wheelchair, so legs are easily separated.
 - Elevate one leg on a chair or step to improve access to the meatus.
- If minimal hip abduction is present, consider an aid to assist with catheterization.
 - Mirrors can help with visualizing the meatus (Figure 5).
 - If a female patient has one-sided hemiplegia, labial separators can be used so the area can be accessed, but the functioning hand is still available to insert the catheter.

9. Fine motor skills.

- Ability to perform other self-care (e.g., dressing, transfers) is a marker for independence in performing ISC.
- Extremities:
 - To assess if hand dexterity or upper extremity strength are barriers to ISC, the ability to do the simple task of using a pencil and paper mimics the ability to open the packaging and handle a catheter.
 - Consider the need for equipment, such as a hand aid (Figure 3), or penis holder.
 - If there is difficulty separating the thighs or upper legs (e.g., above knee amputation), consider use of an inflatable or metal adjustable leg spreader with mirror (Figure 6), and leg thigh board (Figure 7).
 - Intentional hand/arm tremors.
 - To reduce tremor or spasm during ISC, patients should be taught suitable posi-

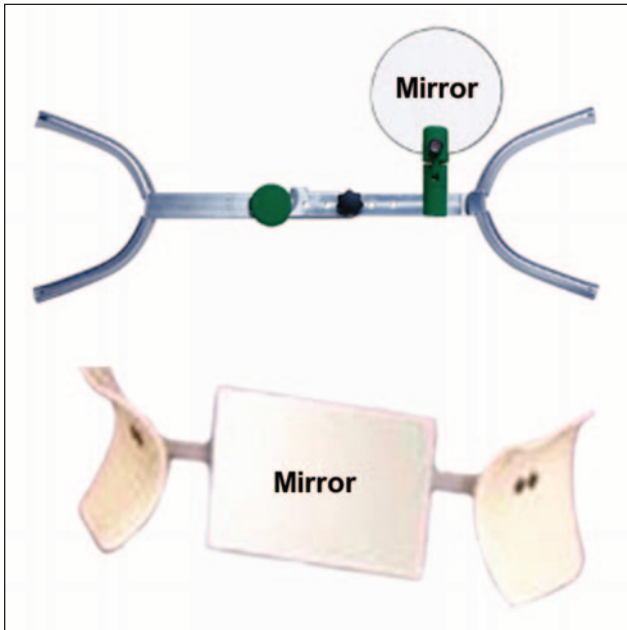
Figure 5.
Female Patient Inserting Catheter with Mirror



Source: Courtesy of Diane K. Newman, DNP.

Figure 6.

Leg spreaders with mirrors for women, end of device is positioned against upper thighs to keep them separated, mirror is positioned so the perineum can be visualized.

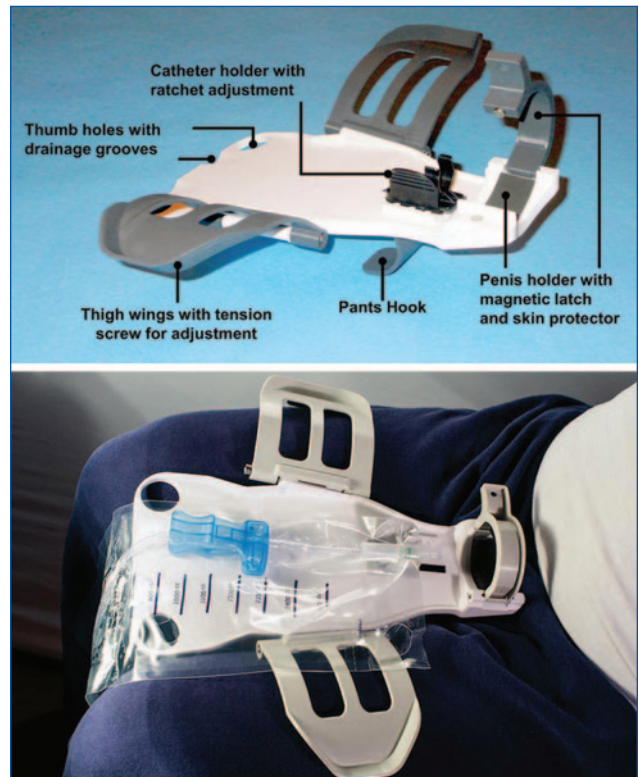


tioning to ensure their arms and legs are fully supported.

- Hand strength: Can the patient open the package and pass the catheter?
 - Assess the need for special hand devices and the motivation of the patient.
 - Leg spasms/decreased flexibility or balance, especially an issue in women. A device that parts or spreads the thighs can assist in keeping the legs separate (Figure 6).
10. Attention to cleanliness, ISC is a clean, non-sterile procedure, and personal hygiene is important in avoiding contamination.
- Hand hygiene, including cleaning nails.
 - Determine lifestyle, and if needing to catheterize outside of the home, identify appropriate environments where catheterization will be performed (e.g., public versus private toilets). Patient may have difficulty finding suitable public toilets for ISC.
11. Catheterization positions.
- Identify the most appropriate position (sitting, standing, lying) and setting (toilet, bed, wheelchair, chair) for catheterization. Women may have difficulty with positioning themselves into a suitable position for performing ISC. Several positions include:
 - Women (Figure 8).
 - Sitting forward on the toilet or facing the back.
 - Squatting or standing over a container on the floor.

Figure 7.

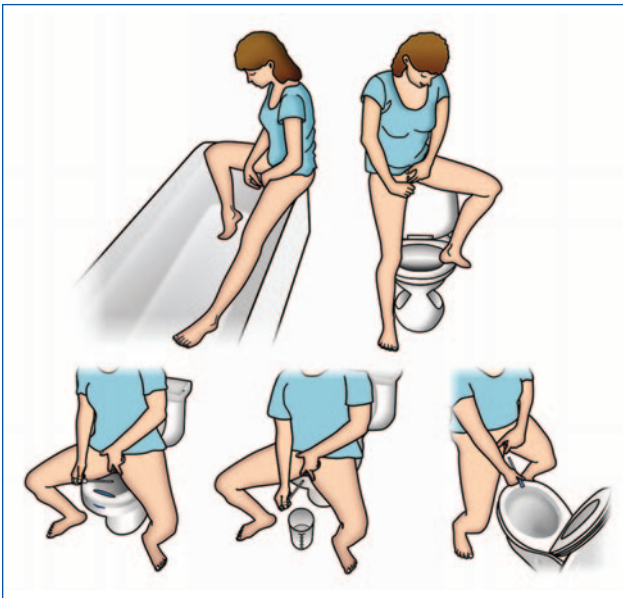
Eagle Board with EZ-Gripper Catheter allows a patient with limited dexterity to self-catheterize.



Source: Courtesy of Medical Technologies of Georgia (MTG).

- Squatting or standing over the toilet.
 - Standing with one leg on the edge of the toilet or bathtub.
- Men (Figure 9).
 - Sitting on toilet.
 - Standing in front of toilet or sink.
 - Those with a large abdomen may be successful in visualizing the perineum by standing in front of a mirror (men) or using a mirror attached to the toilet seat rim or sitting on bed (women).
12. Identifying the appropriate catheter: One main component of ISC teaching is guiding the patient in choosing the best product because this will ultimately lead to improved compliance. This can be challenging because there is a variety of catheters to choose from. Seven criteria have been identified as important when choosing a catheter for ISC: catheter design, packaging appearance and ease with opening, length of the catheter, comfort of handling the catheter, comfort and ease with introducing the catheter, nurse’s explanations, and easy to use and dispose. The patient’s lifestyle will need to be considered, as well as storage and carrying and disposal of catheters. Offering a maximum selection of three types of catheters is most appropriate at the initial stages of teaching ISC because too many catheter options can overwhelm patients.

Figure 8.
Intermittent Self-Catheterization Positions – Female



Source: Courtesy of Diane K. Newman, DNP.

Figure 9.
Intermittent Self-Catheterization Positions – Male



Source: Courtesy of Diane K. Newman, DNP.

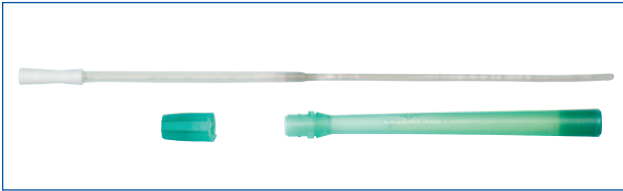
- Catheter type and material (see “Teaching Tool: Methods and Types of Urinary Catheters Used for Indwelling or Intermittent Catheterization”).
 - Lubricated or non-lubricated (external sachet of water-soluble lubricant needed).
 - Hydrophilic and self-lubricating catheters reduce traumatic and infectious complications. Demonstrate how to open, activate (depending on the type of catheter), hold and use the catheter.
 - A compact version that extends like a telescope when used is very popular with men (Figure 10) and for women, there is one the size of a lipstick.
 - Packaging; quiet and easy to open, carrying is discrete and disposal.
 - Catheter costs vary, and cost-effectiveness should be taken into consideration, but this should not be the determining factor in selection.
- Catheter size (gauge) (see Table 1).
 - Single lumen, hollow catheter allowing for unidirectional flow.
 - Gauge or size is measured by the external diameter, in French gauge (Fr = 0.5 mm). Size ranges from 6 to 24 Fr and catheter diameter increase with each size increase. 14 Fr is the preferred size; 16 Fr recommended size for urethral dilation.
 - If draining the bladder is taking too much time, consider increasing the catheter size as catheter diameter increases with each increase in catheter size.

Table 1.
Catheter Characteristics

Gender	Catheter Diameter	Length Type	Tip
Female	12-14 Fr	6 to 8”	Straight
Male	14-16 Fr	16”	Straight or Coudé

- Catheter length.
 - Varying lengths to accommodate users of different ages and gender. Catheter length is important in women who are more successful at managing a shorter length catheter and may have a funnel that is easy to grip and insert (Figure 11).
 - Certain situations may require the longer length catheter (e.g., large pannus, difficulty accessing the perineum, if catheterizing a stoma).
- Catheter tip and funnel.
 - Standard tip is soft and flexible with a straight proximal end containing two drainage eyelets placed on one side or on opposing sides of the catheter. Opposing drainage eyelets generally facilitate better drainage (Figure 12). Tip selection is guided by the indication for insertion and anatomical factors (e.g., enlarged prostate).
 - Coudé or Tiemann has a curved firmer tip, bent upward at a 45-degree angle to navigate through narrow areas of the urethra found in men with benign prostatic hyperplasia, strictures, or scarring (Figure 13).

Figure 10.
Compact Male Catheter (SpeediCath®)



Source: Courtesy of Coloplast.

Figure 11.
Female Catheters, Shorter Length



Sources: Infyna Chic – Courtesy of Hollister, Lofric® Sense – Courtesy of Wellspect, Magic³ Go – Bard Medical

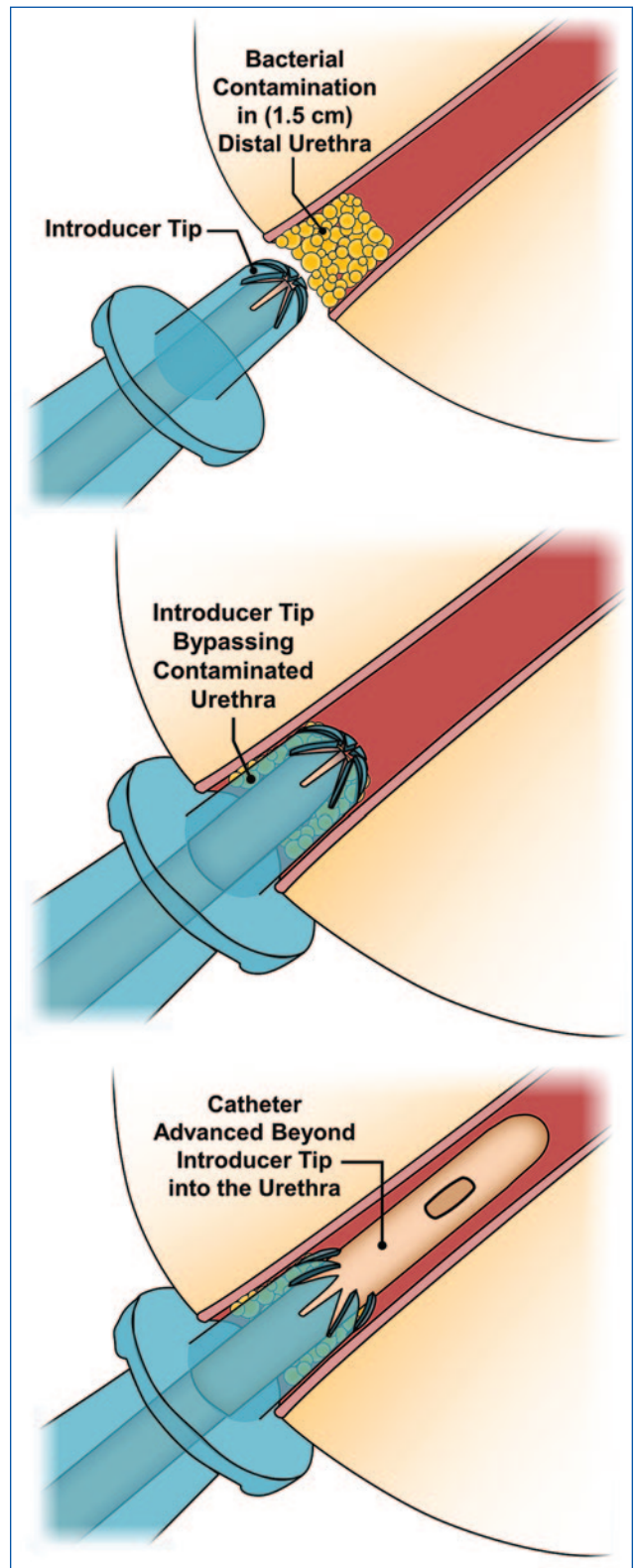
Figure 12.
Straight Tip Catheter with Opposing Eyelets



Figure 13.
Coudé Tip Catheter with Opposing Eyelets



Figure 14.
Description of Introducer Tip



Source: Courtesy of Diane K. Newman, DNP.

Figure 15.
Catheter Size (Fr) with Funnel Color










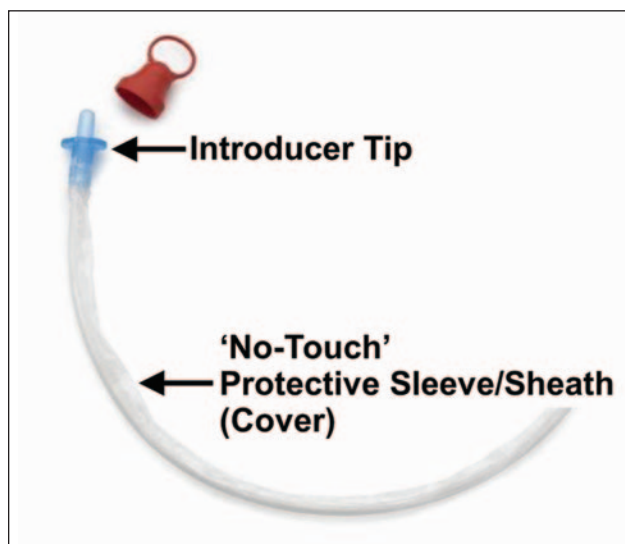
Size	6 FR	8 FR	10 FR	12 FR	14 FR	16 FR	18 FR	20 FR	22 FR
Funnel Color									

Figure 16.
Insertion Aid, Finger Slide (GentleCath™)



Source: Courtesy of Convatec.

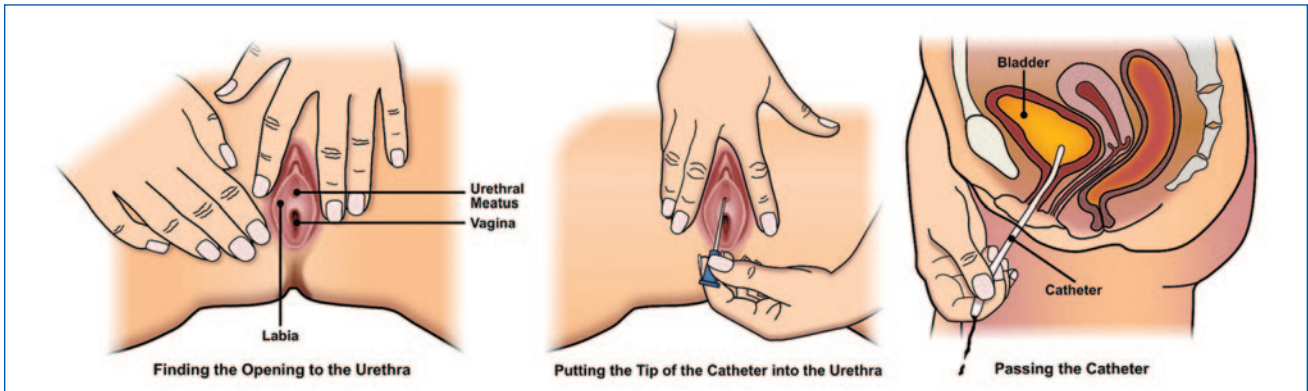
Figure 17.
Catheter with Protective Sleeve/Cover
(VaPro Plus™ No Touch Hydrophilic Catheter with Bag)



Source: Courtesy of Hollister.

- May have an introducer tip, when inserted into the meatus, which helps shield the catheter during insertion from bacteria located within the first 15 mm of the distal urethra (bypasses the part of the urethra that is colonized with bacteria, particularly perineal bacteria *E. coli*) (Figure 14).
 - Catheter funnels are color-coded per catheter gauge (Figure 15). The funnel colors of the newer female short catheters may not indicate the size and have been designed for ease of gripping.
 - Catheter sets.
 - Catheter complete sets (referred to as self-contained “no-touch” systems or kits) contain a catheter, a collection bag, and a lubricant or surface activator if the catheter is hydrophilic.
 - Sterile saline may be in the catheter packaging or in a sachet and used for lubrication; activation occurs in 30 seconds.
 - Kits with a collection bag are useful for patients who cannot easily access a toilet, where facilities are restricted or limited, and for wheelchair users or patients who need to catheterize from a seated or prone position.
 - Unique catheter features: “No-touch” or “touch-free” catheterization.
 - Has an insertion aid, a special guide mechanism (ergonomic finger gripper or “finger grip”) that slides along the catheter, and the surface is not directly touched during insertion (Figure 16).
 - Has a plastic sheath (sleeve) that covers the entire catheter. As the catheter is inserted, the sleeve slides down the catheter, so the person does not touch the catheter surface directly (Figure 17).
 - Compact catheter (only the packaging is compact) is more convenient and more discreet, allowing the patient to lead a more normal social and work life. Many catheters and packaging resemble cosmetic items that can be discreetly stored.
13. Obtaining supplies.
- Once a catheter product is identified, a prescription from a provider is needed.
 - Assisting the patient in identifying a medical supplier is integral to successful compliance.
 - Many insurers require a medical note describing medical necessity (e.g., reason for hydrophilic catheter, necessity for single use). Documentation should include size and type of catheter (manufacturer), catheterization position, any difficulty or adverse effects of catheterization, recommended number of catheterizations per day, person performing catheterization, use of aids, and medical necessity for recommending a specific catheter type or catheterization frequency.

Figure 18.
Female Self-Catheterization



Source: Courtesy of Diane K. Newman, DNP.

14. Catheter use: Single versus multiple reuse.

- Catheters used for intermittent bladder drainage are labeled by the manufacturer for “single-use,” to be discarded after use. Multiple reuses of catheters are considered “off-label” and not supported by legal requirements due to general safety concerns, including changes to physical properties of the catheter material and risk of introducing bacterial contamination because of sub-optimal cleaning and re-sterilization. It is important to note there are only a few corporate-sponsored studies. Further, there is no evidence-based research available to recommend multiple reuse of catheters (Walter & Krassioukov, 2020).
- There are no standards for recommending a cleaning and storage method for multiple-use catheters.
- There are no guidelines/recommendations on number of times a catheter can be reused.
- Always determine if the patient is reusing the same catheter for multiple catheterizations as information on how that patient is disinfecting and storing the catheter and when it is being discarded is part of the educational session and follow-up care.

15. Procedure instructions.

- Assemble all equipment (catheter, urine container, and if needed, water-based lubricating gel, and mirror).
- Wash hands.
- Identify a comfortable position and prepare the catheter as needed (instructions should follow manufacturer’s recommendations).
- Wash (soap and water, antibacterial soap, non-alcoholic wet wipes) genitals if first catheterization of the day or following a bowel movement.
 - Women (Figure 18).
 - Consider using a mirror, so patient can visualize the perineum.
 - Using non-dominant hand, part labia with index and middle finger and wipe from urethra towards anus (front to back) and discard soiled wipe.

- Using the dominant hand, have the woman position the catheter like a dart while directly placing the funnel into the toilet or urine container. Holding the catheter closer to the lubricated end will assist in catheter control.
- The woman may feel a burning or pinch as the catheter passes through the urethra.

◦ Men (Figure 19).

- Using non-dominant hand, cleanse glans around meatus (retract foreskin if present) while holding penis in an upward position towards the stomach (extends the urethra) (Figure 20).
- Using the dominant hand, pick up the catheter without touching the tip and gently insert the catheter while directly placing the funnel into the toilet or urine container.
- If some resistance is felt at the sphincter, the patient should stop advancing the catheter, take a few deep breaths, then exhale while continuing advancing the catheter through this part of the urethra.

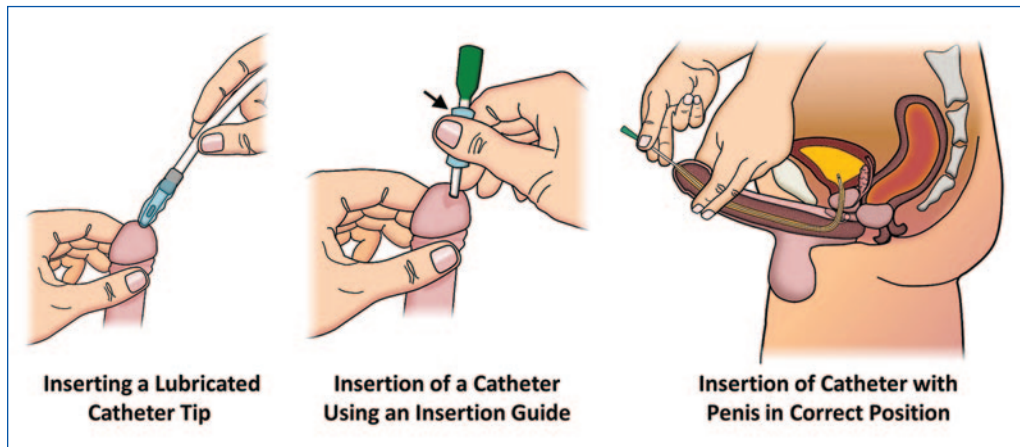
- Catheter should continue to be inserted until urine drains. Once urine flow has stopped, the patient should slowly withdraw the catheter to ensure the bladder is completely empty.

- Introducer tip catheter insertion: Prior to catheterization, demonstrate to patient the parts of the introducer tip (Figure 21).

- To insert, have the patient hold the catheter in one hand, and with the other hand, advance the catheter forward until the tip of the catheter fills the protective tip, taking care the catheter does not protrude from the tip.

- The patient will grasp the catheter below the protective tip plate and insert the protective tip until the base of the protective tip plate comes in contact with the urethral opening.

Figure 19.
Male Self-Catheterization



Source: Courtesy of Diane K. Newman, DNP.

Figure 20.
Correct Position for Male Catheterization



Source: Courtesy of Diane K. Newman, DNP.

Figure 21.
Parts of a Coudé Tip Introducer Tip

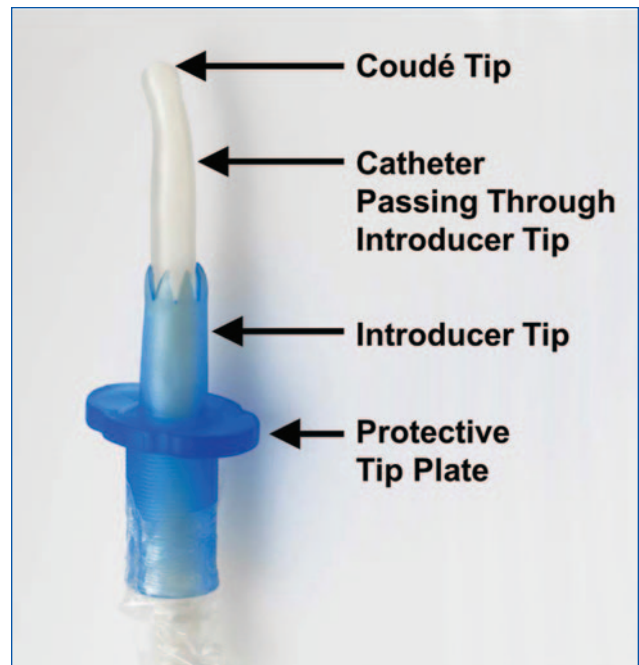


Photo: Courtesy of Diane K. Newman, DNP.

- Keep the protective tip in place and insert the catheter forward until urine starts to flow.
 - Insertion using a “finger gripper or slide”: the patient can either hold gripper tightly while beginning insertion and slightly release it, slide it back toward funnel, and then hold it tightly again to advance the catheter; or keep the gripper “docked” with the funnel and insert the catheter into the urethra (Figure 19).
 - Disposal of catheter products should follow the manufacturer’s recommendations. Many place them in a plastic bag to be disposed in the garbage. Catheters are not to be flushed down the toilet.
16. Travel advice.
- Discrete transport and disposal are a priority for most patients.

- Patient should always carry extra catheters when traveling outside their home.
 - Women can store catheter and supplies in a bag or purse.
 - Men prefer catheters that are ready to use straight from the packet, with an uncomplicated lubrication process, and ones that can be folded to fit in pockets.
17. Fluid intake:
- Provide advice on appropriate volume.
 - Consider ability to access fluids (e.g., if relying on

others to provide adequate fluids to drink, this may affect their bladder function and catheter management schedule) (Box 1).

- Follow-up schedule is also determined by the ease of transition to ISC (Box 2).

Complications

- Urinary tract infection (UTI) is the most common complication seen in patients performing ISC for a long period of time. Women are at increased risk of UTIs owing to a shorter urethra, bacteria can reach the bladder more easily and settle in the bladder wall. Provide patient with a list of the signs and symptoms of a UTI (e.g., fever, chills, hematuria, dysuria, low back pain, cloudy or foul-smelling urine) and what actions to take. Emphasize good catheterization technique, appropriate hand hygiene, and carefully handling of the catheter during insertion (e.g., “no-touch” technique, not touching the catheter tip). If experiencing repeated culture-confirmed, symptomatic UTIs, have the patient demonstrate catheterization technique to confirm technique before adding other modalities to prevent UTI.
- Bleeding: Blood may be present on the catheter following removal but should not be a persisting problem. Persistent bleeding may be a sign of UTIs or urethral trauma.
- Pain and discomfort may occur when ISC is initiated but should reduce in time. It should be a painless procedure. Men who self-catheterize long term report pain and discomfort, occurring either on insertion or withdrawal. Post-menopausal women with hypoestrogenized atrophic genital tissue can experience discomfort with insertion. In both men and women, severe muscle spasm or incomplete pelvic floor relaxation on insertion causing discomfort can occur, which can delay insertion or cause re-attempts. Pain during catheterization that persists can be a predictor for poor quality of life and is also linked to poor continuation with therapy. Hydrophilic catheters minimize pain and discomfort.
- Urine leakage can be due to various causes, but the most common cause is too long of an interval between catheterization or inadequate frequency. Bladder overactivity can cause urgency incontinence. If the patient also has irritative bladder storage symptoms (e.g., urgency, frequency), consider the addition of an overactive bladder medication (e.g., antimuscarinic, beta3 adrenergic agonist).
- Urethral trauma can occur and is a common complication, particularly in men who have been catheterizing long-term. Trauma can be secondary to inadequate catheter lubrication or use of force when catheterizing. Trauma compromises the urethral mucosal barrier of the urethra, which can lead to a UTI. If urethral trauma is an ongoing problem, consider alternative catheter designs or materials to ease passage. Hydrophilic catheters minimize catheter-related trauma.
- Creation of a false passage is rare but is primarily seen in men who catheterize long-term. It occurs when a

Box 1.

Suggested Frequency of Intermittent Self-Catheterization Based on Bladder Volume

The primary goal of ISC is to prevent bladder overdistension.

- Ideally, catheterization would occur only during waking hours.
- An individual’s output is based on fluid intake, which needs to be considered when recommending the daily number of catheterizations.
- If the patient is voiding, they should void prior to catheterization.
- Patients are often instructed to catheterize 2 to 6 times per day, but the frequency of ISC will be determined individually according to the volumes of urine drained.
- If the patient is voiding, voided and residual urine volumes should be monitored because this will ensure accuracy and reflect total bladder volume/capacity.
- Individuals with partial emptying may vary the frequency of catheter usage from day to day. Frequency of IC should aim to maintain a bladder volume of no more than 400 to 500 mL to avoid overdistension and potential upper tract reflux.
- With aging, nighttime bladder volumes are increased due to postural diuresis, so older adults should catheterize at bedtime and upon awakening, but they may also need to preform ISC once during the night.
- Frequency of ISC should be individualized according to daily fluid intake, volumes of urine drained, and voiding (if occurring). The following schedule is a guide:
 - Unable to void: Catheterize 4 to 6 times a day to help maintain catheterized volume less than 500 mL.
 - Residual volume 300 to 500 mL: Catheterize 3 to 4 times a day.
 - Residual urine less than 300 mL: Catheterize twice a day.
 - Residual volumes 150 to 300 mL: Catheterize once a day.
 - Residual urine less than 150 mL: Catheterize either daily or alternate days (3 days/week).
 - Residual urine less than 100 mL on three consecutive occasions, discontinue catheterizations and periodically reassess urinary residuals.

Box 2.

Patient Follow Up after Starting Intermittent Self-Catheterization

- Subsequent visits depend on the ability of the patient and/or caregiver to perform catheterization.
- Frequent visits (weekly or every two weeks) may be necessary for the first month to ensure the patient is catheterizing without difficulty and to monitor compliance with recommended catheterization frequency.
- If patients develop complications, follow-up visit and evaluation of technique with possible re-demonstration of catheterization is imperative.

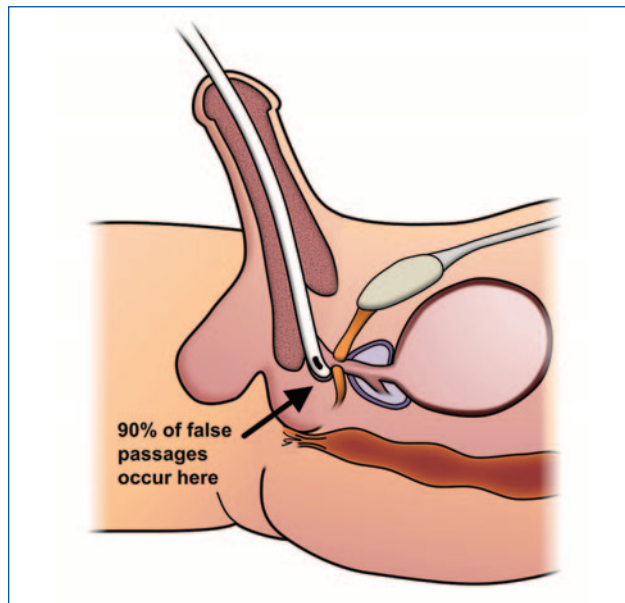
catheter has been inserted through a weak part of the urethra (Figure 22). Signs and symptoms include pain, bleeding, and inability to pass the catheter into the bladder.

- Urethritis is less commonly seen with newer catheter material and coatings and catheterization techniques. Epididymo-orchitis is more common in male patients performing IC, with incidence ranging from 3% to 12% in the short-term to over 40% in the long-term.
- Urethral stricture primarily occurs in men, and prevalence varies within 5% to 25%. A cause may be the use of latex catheters related to cellular toxicity due to elutes from rubber causing urethral erosion over time, particularly in males. These strictures can occur either in the anterior (meatus, penile-pendulous urethra, bulbar urethra) or in the posterior portion (membranous urethra and prostatic urethra) of the urethra (Figure 23). Difficulty with catheter insertion can be a sign of the presence of a urethral stricture. If urethral trauma or stricture formation are ongoing problems, consider alternative catheter designs or materials to ease passage. Hydrophilic catheters minimize catheter-related urethral trauma, stricture formation, and urethritis.
- Bladder stones can develop from introduced pubic hair during catheterization. Instruct patients to keep pubic hair trimmed.
- If the patient is not adapting to self-catheterization and is non-compliant to a recommended catheterization schedule, other bladder drainage methods should be explored. ■

References

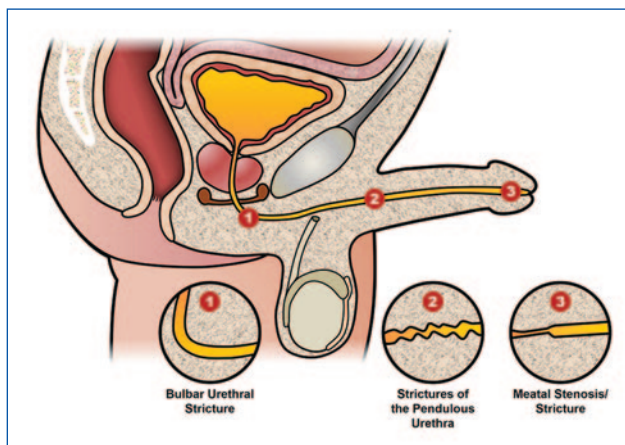
- Apostolidis, A., Drake, M.J., Emmanuel, A., Gajewski, J., Hamid, R., Heesakkers, J., Kessler, T., Madersbacher, H., Mangera, A., Panicker, J., Radziszewski, P., Sakakibara, R., Sievert, K.D., & Wyndaele, J.J. (2017). Neurologic urinary and faecal incontinence. In: P. Abrams, L. Cardozo, A. Wagg, & A. Wein (Eds), *Incontinence* (6th ed., pp. 1093-1308). Health Publications Ltd. https://www.ics.org/publications/ici_6/Incontinence_6th_Edition_2017_eBook_v2.pdf
- Ginsberg, D. (2013). The epidemiology and pathophysiology of neurogenic bladder. *American Journal of Managed Care*, 19(10, Suppl.), S191-S196.
- Gray, M., Wasner, M., & Nichols, T.J. (2019). Nursing practice related to intermittent catheterization: A cross-sectional survey. *Journal of Wound, Ostomy, and Continence Nursing*, 46(5), 418-423. <https://doi.org/10.1097/WON.0000000000000576>
- Hamid, R., Averbach, M.A., Chiang, H., Garcia, A., Al Mousa, R.T., Oh, S. Patel, A., Plata, M., & Del Popolo, G. (2018). Epidemiology and pathophysiology of neurogenic bladder after spinal cord injury. *World Journal of Urology*, 36(10), 1517-1527.
- Hirsch, L., Jette, N., Frolkis, A., Steeves, T., & Pringsheim, T. (2015). The incidence of Parkinson's disease: A systematic review and meta-analysis. *Neuroepidemiology*, 46(4), 292-300. <https://doi.org/10.1159/000445751>
- Howard, J., Trevick, S., & Younger, D.S. (2016). Epidemiology of multiple sclerosis. *Neurologic Clinics*, 34(4), 919-939. <https://doi.org/10.1016/j.ncl.2016.06.016>
- Kinnear, N., Barnett, D., O'Callaghan, M., Horsell, K., Gani, J., & Hennessey, D. (2020). The impact of catheter-based bladder drainage method on urinary tract infection risk in spinal cord injury and neurogenic bladder: A systematic review. *Neurourology and Urodynamics*, 39(2), 854-862. <https://doi.org/10.1002/nau.24253>
- Virani, S.S., Alonso, A., Benjamin, E.J., Bittencourt, M.S., Callaway, C.W., Carson, A.P., Chamberlain, A.M., Chang, A.R., Cheng, S., Delling, F.N., Djousse, L., Elkind, M.S.V., Ferguson, J.F., Fornage, M., Khan, S.S. Kissela, B.M., Knutson, K.L., Kwan, T.W., Lackland, D.T., ... Tsao, C.W. (2020). Heart disease and stroke statistics – 2020 update: A report from the American Heart Association. *Circulation*, 141(9), e139-e596. <https://doi.org/10.1161/CIR.0000000000000757>
- Walter, M., & Krassioukov, A.V. (2020). Single-use versus multi-use catheters: Pro single-use catheters. *European Urology Focus*, 6(5), 807-808. <https://doi.org/10.1016/j.euf.2019.10.001>

Figure 22.
Creation of a False Passage



Source: Courtesy of Diane K. Newman, DNP.

Figure 23.
Parts of the Male Urethra at Risk for Strictures



Source: Courtesy of Diane K. Newman, DNP.

Additional Readings

- Amarenco, G., Guinet, A., Jousse, M., Verollet, D., & Ismael, S.S. (2011). Pencil and paper test: A new tool to predict the ability of neurological patients to practice clean intermittent self-catheterization. *The Journal of Urology*, 185(2), 578-82. <https://doi.org/10.1016/j.juro.2010.09.106>
- Avery, M., Prieto, J., Okamoto, I., Cullen, S., Clancy, B., Moore, K.N., Macaulay, M., & Fader M. (2018). Reuse of intermittent catheters: A qualitative study of IC users' perspectives. *BMJ Open*, 8(8), e021554. <https://doi.org/10.1136/bmjopen-2018-021554>
- Australian and New Zealand Nurses Society. (2019). *Catheterisation clinical guidelines*. https://www.anzuns.org/wp-content/uploads/2015/03/ANZUNS-Guidelines_Catheterisation-Clinical-Guidelines.pdf
- Beauchemin, L., Newman, D.K., Le Danseur, M., Jackson, A., & Ritmiller, M. (2018). Best practices for clean intermittent catheterization. *Nursing2021*, 48(9), 49-54. <https://doi.org/10.1097/01.NURSE.0000544216.23783.bc>

- Bladder Health Center of Excellence. (2020). *Library resources. Intermittent urinary catheters*. <https://www.urotoday.com/center-of-excellence/bladder-health.html>
- Cobussen-Boekhorst, H., Beekman, J., van Wijlick, E., Schaafstra, J., van Kuppevelt, D., & Heesakkers, J. (2016). Which factors make clean intermittent (self) catheterisation successful? *Journal of Clinical Nursing, 25*, 1308-1319. <https://doi.org/10.1111/jocn.13187>
- Davis, C., & Rantell, A. (2018). Selecting an intermittent self-catheter: Key considerations. *British Journal of Nursing, 27*(Suppl. 15), S11-S16.
- Engberg, S., Clapper, J., McNichol, L., Thompson, D., Welch, V.W., & Gray, M. (2020). Current evidence related to intermittent catheterization: A scoping review. *Journal of Wound, Ostomy, Continence Nursing, 47*(2), 140-165. <https://doi.org/10.1097/WON.0000000000000625>
- Gamé, X., Phé, V., Castel-Lacanal, E., Forin, V., de Sèze, M., Lam, O., Chartier-Kastler, E., Keppenne, V., Corcos, J., Denys, P., Caremel, R., Loche, C.M., Scheiber-Nogueira, C., Karsenty, G., & Even, A. (2020). Intermittent catheterization: Clinical practice guidelines from Association Française d'Urologie (AFU), Groupe de Neuro-urologie de Langue Française (GENULF), Société Française de Médecine Physique et de Réadaptation (SOFMER) and Société Interdisciplinaire Francophone d'UroDynamique et de Pelvi-Périnéologie (SIFUD-PP). *Progrès en Urologie, 30*(5), 232-251. <https://doi.org/10.1016/j.purol.2020.02.009>
- Groen, J., Pannek, J., Diaz, D.C., Del Popolo, G., Gross, T., Hamid, R., Karsenty, G., Kessler, T.M., Schneider, M., Hoen, L., & Blok, B. (2016). Summary of European Association of Urology (EAU) Guidelines on Neuro-Urology. *European Urology, 69*(2), 324-333. <https://doi.org/10.1016/j.eururo.2015.07.071>
- Guinet-Lacoste, A., Jousse, M., Tan, E., Caillebot, M., Le Breton, F., & Amarenco, G. (2016). Intermittent catheterization difficulty questionnaire (ICDQ): A new tool for the evaluation of patient difficulties with clean intermittent self-catheterization. *Neurourology and Urodynamics, 35*(1), 85-89. <https://doi.org/10.1002/nau.22686>
- Hentzen, C., Haddad, R., Ismael, S.S., Peyronnet, B., Gamé, X., Denys, P., Robain, G., & Amarenco, G. (2018). Intermittent self-catheterization in older adults: Predictors of success for technique learning. *International Neurourology Journal, 22*(1), 65-71. <https://doi.org/10.5213/inj.1835008.504>
- Hentzen, C., Haddad, R., Ismael, S.S., Peyronnet, B., Gamé, X., Denys, P., Robain, G., Amarenco, G., & Manceau P (2019). Predictive factors of adherence to urinary self-catheterization in older adults. *Neuro-urology and Urodynamics, 38*(2), 770-778. <https://doi.org/10.1002/nau.23915>
- Kessler, T.M., Ryu, G., & Burkhard, F.C. (2009). Clean intermittent self-catheterization: A burden for the patient? *Neurourology and Urodynamics, 28*(1), 18-21. <https://doi.org/10.1002/nau.20610>
- Kyuji, K., Maeda, S., Moriyama, M., Shimasaki, T., Kanda, T., & Kohno, Y (2011). [The anxiety and types of problems encountered by homecare patients during an intermittent self-catheterization]. *Gan To Kagaku Ryoho, 38*(Suppl 1), 103-105.
- Logan, K. (2015). The male experience of ISC with a silicone catheter. *British Journal of Nursing, 24*(9), S32-S34. <https://doi.org/10.12968/bjon.2015.24.Sup9.S30>
- Logan, K. (2017). The female experience of ISC with a silicone catheter. *British Journal of Nursing, 26*(2), 82-88. <https://doi.org/10.12968/bjon.2017.26.2.82>
- Logan, K. (2020). An exploration of men's experiences of learning intermittent self-catheterisation with a silicone catheter. *British Journal of Nursing, 29*(2), 84-90. <https://doi.org/10.12968/bjon.2020.29.2.84>
- Mangnall, J. (2015). Managing and teaching intermittent catheterisation. *British Journal of Community Nursing, 20*(2), 82. <https://doi.org/10.12968/bjcn.2015.20.2.82>
- Nurses Specialized in Wound, Ostomy and Continence Canada (NSWCCC), Canadian Nurse Continence Advisors (CNCA), Urology Nurses of Canada (UNC), and Infection Prevention and Control Canada (IPAC Canada). (2020). *Clean intermittent urethral catheterization in adults: Canadian practice recommendations for nurses*. <https://ipac-canada.org/photos/custom/Members/pdf/Clean-Intermittent-Urethral-Catheterization-Adults-for-Nurses-BPR-May2020.pdf>
- Pinder, B., Lloyd, A.J., Elwick, H., Denys, P., Marley, J., & Bonniaud, V. (2012). Development and psychometric validation of the intermittent self-catheterization questionnaire. *Clinical Therapeutics, 34*(12), 2302-2313. <https://doi.org/10.1016/j.clinthera.2012.10.006>
- Ramm, D., & Kane, R. (2011). A qualitative study exploring the emotional responses of female patients learning to perform clean intermittent self-catheterisation. *Journal of Clinical Nursing, 20*(21-22), 3152-62. <https://doi.org/10.1111/j.1365-2702.2011.03779.x>
- Sassani, J.C., Stork, A., Ruppert, K., & Bradley, M.S. (2020). Variables associated with an inability to learn clean intermittent self-catheterization after urogynecologic surgery. *International Urogynecology Journal, 31*(7), 1401-1407. <https://doi.org/10.1007/s00192-019-03974-1>
- Seth, J.H., Haslam, C., & Panicker, J.N. (2014). Ensuring patient adherence to clean intermittent self-catheterization. *Patient Prefer Adherence, 12*(8), 191-198. <https://doi.org/10.2147/PPA.S49060>