

URINARY CATHETER: STRAIGHT AND INDWELLING (FOLEY)

CATHETER INSERTION (FEMALE)

SUMMARY

This skill describes how to insert an intermittent or indwelling urinary catheter in a female patient.

ALERT

The use of indwelling catheters may cause genitourinary injury, trauma, and urinary tract infections (UTIs). Use the smallest size catheter possible to minimize trauma, reduce the risk of infection, and promote adequate drainage.

Some manufacturers pretest their urinary catheter balloons and no longer recommend testing the balloon by injecting fluid from the prefilled sterile water syringe into the balloon port. Follow the manufacturer's instructions and the organization's practice.

If contamination occurs before or during the catheter insertion procedure, start the procedure over with a new catheter.

Indwelling catheters are not recommended for prolonged use, except with a patient who cannot be managed effectively using another method.

OVERVIEW

Urinary catheters are flexible tubes inserted into the urinary bladder. They can either be intermittent (straight) or indwelling (Foley) catheters. A straight catheter is a single-lumen catheter inserted into the bladder through the urethra to empty the bladder, instill medication, determine the amount of residual urine in the bladder, or obtain a urine specimen, and then it is removed. This type of catheter is used on either a one-time basis or intermittently when the patient cannot urinate because of a urinary obstruction or a neurologic disorder such as a spinal cord injury. Patients can learn to insert straight catheters using clean insertion technique in their homes.

Patients who require self-catheterization have various options in catheter products. A single catheter comes prepackaged in a sterile saline solution that serves as a lubricant (called a hydrophilic catheter). In addition, self-contained systems are available, consisting of a catheter prepackaged in sterile saline with a preconnected drainage bag. Intermittent catheterization is becoming the gold standard after surgical interventions and for the management of bladder-emptying dysfunctions. Advantages to intermittent catheterization, including lower associated risks of catheter-associated urinary tract infection (CAUTI) and complications, may make it a more desirable and safer option than indwelling catheterization.

An indwelling (Foley) catheter is inserted via the urethra using a sterile preassembled closed drainage system that acts as a reservoir for urine drained from the bladder. An indwelling catheter has a separate lumen, which is used to inflate a balloon that holds the catheter in the bladder for short- or long-term use. Closed drainage systems and preassembled drainage systems may help reduce the incidence of CAUTIs.

Indications for an indwelling catheter include:

- Measuring urine output accurately in critically ill patients
- Preventing urine retention

- Increasing comfort in terminally or severely ill patients who are incontinent and managing any skin damage caused by incontinence, when all other methods of managing urinary incontinence have failed
- Managing voiding difficulties in patients with neurologic disorders
- Providing immediate treatment of acute urine retention or bladder outlet obstruction
- Managing perineal or sacral open pressure injuries that cannot heal because of continual incontinence

EQUIPMENT

Ensure that all necessary supplies and durable medical equipment are available before the home visit

- Gloves
- Waterproof absorbent pad
- Drape
- Pillows
- Sheet or bath blanket
- Basin with warm water, soap, washcloth, and towel for perineal care
- Additional lighting as needed (e.g., flashlight, ceiling light, table lamp)
- Catheter kit containing these sterile items:
 - Waterproof drapes (including one that is fenestrated) {has an opening in the center of drape}
 - Sterile gloves (extra pair optional)
 - Sterile urine collection system
 - Prefilled syringe with sterile water (to inflate balloon of indwelling catheter only)
 - Appropriate sterile specimen container
 - Antiseptic cleansing agent (e.g., povidone-iodine)
 - Sterile cotton balls or sterile antiseptic swabs
 - Forceps
 - Lubricant
 - Proper-size urinary catheter with preassembled drainage system (indwelling catheter only)
 - Proper-size urinary catheter (intermittent catheter only)
 - Clip to attach tubing to bottom sheet
- Multi-purpose hook-and-loop fastener tube holder or commercial catheter securement device
- Label, biohazard bags, and ice slurry as needed
- Graduated cylinder

PROCEDURE

Catheter Insertion

1. Perform hand hygiene
2. Introduce yourself to the patient
3. Verify the correct patient using two identifiers
4. Explain the procedure to the patient and ensure that she agrees to treatment
5. Verify the practitioner's order and assess the patient for pain
6. Prepare an area in a clean, convenient location and assemble the necessary supplies

7. Assess the patient's knowledge of the purpose of catheterization, whether she has had a catheter placed previously, and her concerns about the procedure, including culturally related concerns.
8. If the patient had a previous catheterization, determine the catheter size
9. Perform a patient assessment, including:
 - a) Time of last urination
 - b) Intake and output (I&O)
 - c) Level of awareness or developmental stage
 - d) Mobility and physical limitations
 - e) Age
 - f) Allergies (specifically to latex or povidone-iodine)
10. Provide privacy for the patient
11. Perform hand hygiene and don gloves
12. Assess the bladder for fullness (A distended bladder is palpable above the symphysis pubis)
13. Assess for perineal anatomic landmarks, erythema, drainage, and odor
14. Remove gloves and perform hand hygiene
15. Obtain assistance (if available) to position and support a patient who is weak, frail, obese, or confused.
16. If the patient is using a hospital bed, adjust it to the appropriate working height. Facing the patient, stand on the left side of the bed if right-handed or on the right side if left-handed. If side rails are in use, raise the side rail on the opposite side of the bed and lower the side rail on the working side.

Rationale: Adjusting the bed height promotes proper ergonomics. Use of side rails in this manner promotes the patient's safety
17. Perform hand hygiene and don gloves
18. Assist the patient with removing lower body clothing. Lift the upper-body clothing to the patient's mid-abdomen. Cover the lower extremities with a blanket or sheet, exposing only the genitalia.
19. Place a waterproof pad under the patient
20. Assist the patient to a dorsal recumbent position (supine with knees flexed). Ask the patient to relax her thighs to externally rotate the hip joint.

Rationale: correct positioning provides a good view of perineal structures. This position is optimal because it minimizes the risk for contamination by fecal matter
21. If the patient cannot be supine, assist her to a side-lying (Sims) position with her upper leg flexed at the knee and hip.
 - a) Take extra precautions to cover the rectal area with a drape during the procedure to reduce the risk of cross-contamination
 - b) Support the patient with pillows, if necessary, to maintain the position

Rationale: Pillow support provides joint protection if the patient cannot abduct her leg at the hip joint (e.g., if the patient has arthritic joints). In addition, this position may be more comfortable for the patient.
22. Cover the patient with a bath blanket. Place the blanket in a diamond-shape configuration over the patient, with one corner at the patient's neck, side corners over each arm and side, and the last corner over the perineum.

Rationale: Draping in this manner keeps the patient's legs and lower abdomen covered when the nurse exposes the perineum

23. Cleanse the perineal area with soap and water, locate the urethral meatus, and dry. If available, have the caregiver hold an alternative light source or use additional light sources (e.g., flashlight, ceiling light, table lamp) to illuminate the perineum as needed.
Rationale: cleansing minimizes contamination in the area before catheter insertion. An alternative light source is helpful because seeing a female patient's urethral meatus can be difficult due to individual anatomic differences.
24. Discard supplies, remove gloves, and perform hand hygiene
25. Open the outer wrapping of the indwelling catheterization kit.
- a) Tear the package on the paper-lined edge of the plastic wrap
 - b) Place the inner wrapped box on an easily accessible, clean bedside table (if available) or set it between the patient's legs.
Rationale: the patient's size and positioning dictate exact placement for easy access to supplies and maintenance of aseptic technique during the procedure. Putting the catheter tray between the patient's legs works best with flexible, average-size patients
 - c) Place the empty outer plastic wrap near the end of the bed to use for waste disposal
26. Open the sterile inner package containing the catheter supplies. Using sterile technique, fold back each flap of the sterile package one at a time, with the last flap opened toward the body. The tray is now sitting open on its own sterile field.
27. Place the waterproof sterile drape or fenestrated drape (when packed as the first item in tray)
- a) Sterile drape packed in a tray
 - I. If sterile gloves are packed as first item, don them, and then apply the drape
Rationale: if the sterile drape is packaged before the gloves, the drape must be put in place before sterile gloves are donned
 - II. Remove the square sterile drape from the tray, touching the edges only. Do not touch any other item in the kit
Rationale: Handling the drape in this manner keeps the drape and other items sterile
 - III. Maintain sterility of the drape and let it unfold after removing from the tray. Fold the top edge of the drape away from the patient to form a cuff over both hands
 - IV. Ask the patient to lift her hips, if possible, and slide the drape under the buttocks
 - V. If the patient is unable to lift her hips, place the sterile drape with the plastic (shiny) side down under the patient's buttocks as much as possible
Rationale: the sterile drape provides a sterile field over which the nurse will work during catheterization
 - b) Fenestrated drape packed in tray
 - I. Don sterile gloves if not already in place
 - II. Lift the fenestrated sterile drape out of the tray. Allow it to unfold without touching a nonsterile surface
 - III. Form a cuff from the edges to protect sterile gloves
 - IV. Place the drape over the perineum, exposing the labia; do not touch any contaminated surface

Rationale: Draping in this manner creates a sterile field around the perineum with an opening that allows access to it

28. Move the tray or box on the sterile field closer to the patient and organize the remaining items on the sterile field. Form a continuous sterile field with the sterile wrap under the tray or box and the drape under the patient.

Rationale: this arrangement allows manipulation of the sterile catheter without reaching over a nonsterile area

29. Prepare the items for an indwelling catheter with a preassembled closed urinary drainage system

Rationale: a kit for a straight or intermittent catheterization has no drainage bag. Some kits may contain a specimen container.

- a) Check for a secure connection at the tubing and catheter connection site
 - b) If recommended by the manufacturer, test the catheter balloon by injecting fluid from the prefilled sterile water syringe into the balloon port and then inflating and deflating the balloon. Maintain the sterility of the catheter. Place the catheter (connected to the syringe) onto the sterile barrier.
 - c) Loosen the lid on the sterile specimen container if a urine specimen is required; otherwise, discard the container in plastic wrap set aside for that purpose.
 - d) Open the package of sterile antiseptic solution and pour the solution over the sterile cotton balls. If the kit contains sterile antiseptic swabs instead of solution, open the package with the stick ends up for access.
 - e) Open the packet containing lubricant and squeeze the lubricant onto the sterile field. If the lubricant is supplied in a prefilled syringe, remove the protective cap, and spread the lubricant into the sterile tray.
30. Place the catheter tip into the lubricant
- Rationale: Lubricating the catheter minimizes urethral trauma and discomfort when the catheter is inserted.*
31. Cleanse the urethral meatus, explaining to the patient what is being done as each step is performed

- a) Perform these steps with the nondominant hand:

- I. Fully expose the urethral meatus by spreading the labia

Rationale: by fully spreading the labia, the nondominant hand allows an optimal view of the urethral meatus. Fully spreading the labia also helps prevent contamination of the urethral meatus during cleansing.

At this point, consider the nondominant hand contaminated; keep this hand in this position throughout the procedure

- II. If unable to see the meatus with available lighting, ask the caregiver (if present) to use a flashlight or turn on additional room lighting, if available.

- b) Perform these steps with the dominant hand:

- I. Grasp an antiseptic-soaked cotton ball with forceps or pick up an antiseptic swab stick

- II. Cleanse the perineal area, wiping front to back from the clitoris toward the anus

- III. Use a new cotton ball or swab for each area cleansed

- IV. Wipe the distal labial fold first, the proximal labial fold next, and then directly over the center of the urethral meatus.

Rationale: cleansing follows the principles of medical asepsis and reduces the number of microorganisms at the urethral meatus, decreasing the likelihood that flora on the skin is introduced to the urethra or bladder. Cleansing in this manner ensures that the dominant hand remains sterile.

If the labia are allowed to close during the cleansing, repeat the cleaning procedure because the area is now contaminated.

32. With the sterile dominant hand, pick up the catheter. Hold the distal end of the catheter loosely coiled in the palm of the dominant hand.

Rationale: Holding the catheter near the tip allows easier manipulation during insertion into the urethral meatus and prevents the catheter tip from touching any contaminated surface

33. Insert the catheter

- a) Ask the patient to bear down gently as if to void, and slowly insert the catheter through the urethral meatus

Rationale: Relaxation of the external sphincter aid catheter insertion

- b) Advance the catheter until urine flows out of it

- c) As soon as urine flows out of the end of the catheter, advance it approximately 3 to 5 cm (1 to 2 in.)

Rationale: the appearance of urine indicates that the catheter tip is in the bladder or lower urethra. Advancing the catheter ensures that the inflation balloon is in the bladder, not the urethra

If no urine appears, the catheter may be misplaced in the vagina. If this occurs, leave the catheter temporarily in the vagina as a landmark indicating where not to insert the catheter, and insert another sterile catheter.

- d) Do not force the catheter against resistance

- e) Release the labia and hold the catheter securely with the nondominant hand

Rationale: bladder or sphincter contraction may cause accidental catheter expulsion.

34. Fully inflate the balloon of the indwelling catheter with sterile water per the manufacturer's instructions.

Rationale: Occlusion of the drainage eyelet, irritation of the bladder wall, and bladder spasms can result if the balloon is underinflated or overinflated.

- a) While holding the catheter in place at the urethral meatus with the nondominant hand, take the end of the catheter with the dominant hand and place the catheter between the first two fingers of the nondominant hand. Maintain a secure hold on the catheter with the nondominant hand.

Rationale: Holding on to the catheter before inflating the balloon prevents catheter expulsion from the urethra.

- b) With the free dominant hand, connect the inflation syringe to the end of the catheter at the inflation valve and slowly inject the required amount of solution. Follow the manufacturer's instructions regarding the amount of fluid to use for balloon inflation.

- c) If resistance is met when inflating the balloon or if the patient verbalizes or shows nonverbal signs of pain, the balloon may not be entirely in the bladder. Stop inflation; gently aspirate the fluid back into the syringe and advance the catheter slightly before reattempting inflation.

- d) After inflating the balloon, pull gently on the catheter tubing until resistance is felt.
Rationale: Pulling until resistance is met ensures that the catheter tip is anchored and is positioned at the bladder neck.
- 35. Connect the catheter to a large drainage bag or leg bag.
- 36. Do not force connections and avoid workarounds per the organization's practice.
Rationale: Forced connections or workarounds could indicate that the connection should not be made.
- 37. Trace tubing or catheter from the patient to point of origin (1) before connecting or reconnecting any device or infusion, (2) at any transition (e.g., new setting), and (3) as part of the hand-off process.
- 38. Place the drainage bag below the level of the bladder. Do not place the bag on a side rail of the bed. Ensure that the tubing has no dependent loops or kinks.
Rationale: Correct positioning of the drainage bag prevents urine reflux into the bladder and ensures proper drainage by gravity. Dependent loops or kinks prevent the urine from draining. Hanging the bag on a side rail increases the risk for tension on the catheter and for the bag to be inadvertently raised above the level of the bladder.
- 39. Allow the bladder to empty completely unless the organization's practice restricts the maximal volume or urine that may be drained with each catheterization.
Rationale: Complete emptying relieves bladder distention. Some organizations limit the amount of urine that may be drained with catheterization. However, definitive evidence showing benefits from limiting maximal volume drained is not available.
- 40. Anchor the indwelling catheter.
 - a) Secure the catheter tubing to the patient's inner thigh with a securement device.
Rationale: Securing the catheter minimizes accidental catheter dislodgement and the risk for bleeding, trauma, meatal necrosis, and bladder spasms caused by pressure and traction.
 - b) Create slack when securing the catheter so that movement of the thigh does not create tension on the catheter
 - c) Clip the drainage tubing to the edge of the mattress
- 41. Ensure that the tubing has no obstruction. Coil any excess tubing on the bed and fasten it to the bottom sheet with a clip from the kit.
- 42. Palpate the bladder for distention
- 43. Assist the patient to a comfortable position. Lower the bed and return the side rails to the original positions.
- 44. Ask the patient to describe her comfort level
- 45. Observe the characteristics and amount of urine in the drainage system
- 46. Verify that no urine is leaking from the catheter or tubing connections
- 47. Discard supplies, remove gloves, and perform hand hygiene
- 48. Maintain an accurate I&O record
- 49. Notify the practitioner about unresolved pain and obtain an order for pain relief as needed. Treat pain per the practitioner's order
- 50. Document the procedure in the patient's record

URINE COLLECTION WITH AN INTERMITTENT (STRAIGHT) CATHETER

1. Perform hand hygiene
2. Introduce yourself to the patient

3. Verify the correct patient using two identifiers
4. Explain the procedure to the patient and ensure that she agrees to treatment
5. Verify the practitioner's order and assess the patient for pain
6. Prepare an area in a clean, convenient location and assemble the necessary supplies
7. Once the catheter is in the bladder, as indicated by the flow of urine, allow urine to drain out of the end of the catheter into the sterile urine receptacle.
Rationale: The aim is to fully drain the bladder and maintain the catheter in the bladder as long as necessary
8. Hold the catheter in the nondominant hand as urine continues to drain to prevent early removal of the catheter.
9. Collect a urine specimen per the practitioner's order by holding the end of the catheter in the dominant hand over the specimen container. Collect an adequate amount of urine to perform the ordered laboratory tests. After collection, allow the remaining urine to flow into the container. Use a sterile container if additional urine is needed for culture analysis.
10. In the presence of the patient, label the specimen per the organization's practice.
11. Prepare the specimen for transport
 - a) Place the labeled specimen in a biohazard bag
 - b) If the specimen requires ice for transport, place the specimen in a biohazard bag, then place the bag with the specimen into a second biohazard bag filled with ice slurry.
Rationale: Placing the specimen in a separate bag protects the label from being damaged
12. Transport the specimen to the laboratory immediately after leaving the patient's home.
Rationale: Sending the specimen immediately to the laboratory helps ensure accurate results.
13. Withdraw the catheter slowly and smoothly, while gently palpating over the patient's bladder with the nonsterile (nondominant) hand.
Rationale: Palpating allows the nurse to assess for complete emptying of the bladder
14. Pour the urine from the receptacle into a graduated cylinder to measure. Record the amount in the sterile specimen container as well.
Rationale: Recording all of the urine removed provides an accurate measurement of urine output.
15. Assist the patient to a comfortable position. Lower the bed and return the side rails to the original position.
16. Ask the patient to describe her comfort level
17. Observe the characteristics and amount of urine
18. Discard the urine in the toilet and clean the collection container
19. Discard supplies, remove gloves, and perform hand hygiene
20. Maintain an accurate I&O record
21. Notify the practitioner about unresolved pain and obtain an order for pain relief as needed. Treat pain per the practitioner's order.
22. Document the procedure in the patient's record.

PATIENT AND FAMILY TEACHING

- Explain the procedure to the patient and how she can participate and cooperate during the procedure

- Inform the patient that burning and pressure sensations during catheter insertion are normal
- Instruct the patient and caregiver on how to identify the size of the catheter and balloon
- Explain to the patient and caregiver the reason for catheter placement, the anatomy of the genitourinary tract, and the steps involved in catheter insertion
- Teach the patient how to position the catheter tubing while in bed
 - When the patient is in the side-lying position facing the drainage system, the tubing should drape over the thigh
 - When the patient is in the side-lying position facing away from the drainage system, the tubing should extend between the legs
- Teach the patient and caregiver how to care for the catheter and drainage system
- Instruct the patient and caregiver on the importance of adequate fluid intake to dilute urine and prevent catheter blockage
- Teach the patient and caregiver proper hand hygiene
- Teach the patient and caregiver proper insertion techniques for intermittent catheters to minimize CAUTIs
- Teach the patient and caregiver the signs and symptoms of a UTI to report to the nurse or practitioner
- Instruct the patient and caregiver to observe for signs of bladder leakage or bypassing and to report these signs
- Instruct the patient and caregiver on emergency catheter removal
- Teach the patient and caregiver how to change the urinary drainage bag
- Instruct the patient and caregiver to keep the catheter and drainage bag tubing free of kinks
- Teach the patient and caregiver how to empty the urinary drainage bag and how to measure urine output
- Instruct the patient and caregiver to keep the drainage bag below the level of the bladder and off the floor at all times
- Instruct the patient and caregiver to use a large drainage bag at bedtime and to use a leg bag when ambulating
- Teach the patient and caregiver how to order and store catheters and supplies
- Instruct the patient and caregiver on the need to maintain a closed catheter system whenever possible. If the patient changes from a leg bag to a large drainage bag, teach the importance of washing the hands and cleaning the connection ports with alcohol before changing bags
- Teach the patient and caregiver about the daily care of collection bags.
 - Cleaning methods vary, but the most commonly recommended cleaning agents are one-part vinegar to three parts water, or one tablespoon of bleach in 4 ounces of water. Place the cleaning solution in the drainage bag, agitate briefly, and allow it to soak for 20 minutes before emptying the bag and letting it air-dry. Instruct the patient to wear gloves and avoid eye contact with the solution.
 - Inform the patient and caregiver that bleach can be damaging to clothing and irritating to the skin or eyes
- Encourage questions and answer them as they arise

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