Urinary Catheter, Indwelling (Foley): Inserting in the Female Adult Patient

What is Involved in the Insertion of an Indwelling Foley Urinary Catheter in the Female Adult Patient?

› An indwelling urinary catheter is a flexible tube that is inserted in the bladder via the urethra in a process called transurethral catheterization and left in place for continuous drainage of urine. Foley catheters (FCs) are the most commonly used type of indwelling catheters. The information that follows focuses on Foley catheter insertion in the female adult patient. See other topics in the Nursing Practice & Skill series about urinary catheterization for information about the use of different types of catheters (e.g., condom catheters, Coudé [i.e., angled-tip] catheters), catheter insertion in different patient populations (e.g., male adult patients, male and female pediatric patients), intermittent catheterization, and care of the suprapubic catheter.

• What: An FC is a double-lumen tube that is ~15.7 in/40 cm in length and is constructed of flexible latex, silicone, or polyurethane (Figure 1). FCs are available in a variety of sizes; size is based on catheter diameter and measured in units called French (Fr). The sizes that are most commonly used for adults range from 14 Fr (relatively narrow) to 48 Fr (relatively wide). The proximal end of the primary lumen includes several drainage holes to permit urine to flow from the bladder through the tube. The second, smaller lumen includes a valve on the distal end and a balloon that is commonly made of silicone or natural rubber near the proximal end. Immediately following insertion, the balloon is inflated with sterile water in order to anchor the catheter in the bladder. Some clinicians have found that inflating the balloon with normal saline (NS; i.e., 0.9% sodium chloride in sterile water) is associated with crystal formation in the balloon that impedes removal. Because indwelling catheters permit urine to drain freely, a collection unit is typically attached to the distal end of the catheter.

• How: Transurethral catheterization is performed using aseptic technique. The catheter is inserted in the external urethral orifice (i.e., urinary meatus) and advanced through...
the urethra until the tip extends into the bladder. The catheter is secured in place by inflating the balloon. A drainage bag is attached to the distal end of the drainage lumen and positioned at a level below the bladder to permit drainage by gravity. The procedure is moderately invasive, is commonly perceived by patients as uncomfortable, and can be painful to patients who have inflamed urinary tissue or urethral strictures or other obstructions.

- Transurethral catheterization differs from suprapubic catheterization, which is a surgical procedure that requires anesthesia. Suprapubic catheterization involves insertion of a catheter through an incision in the abdominal wall into the bladder and is indicated when placement of a transurethral catheter is contraindicated or is not possible.

**Where:** Transurethral catheterization is commonly performed in inpatient, outpatient, and homecare settings.

**Who:** Transurethral catheterization can be performed by registered nurses, physicians, nurse practitioners, and physician assistants. Patients can learn to self-perform intermittent catheterization at home when indicated for certain medical conditions and when ordered by the treating clinician. These tasks should not be delegated to assistive healthcare staff. Because of privacy concerns and the need to maintain asepsis, it is usually not appropriate for visitors to be present during urinary catheter insertion in an adult patient.

### What is the Desired Outcome of Inserting an Indwelling Foley Urinary Catheter?

- The desired outcome of inserting an indwelling urinary catheter is to permit urine drainage from the bladder with minimal discomfort and without the development of catheter-related complications (for details, see **Red Flags**, below).

### Why is Insertion of an Indwelling Foley Urinary Catheter Important?

- Insertion and use of an indwelling urinary catheter is important for monitoring and for treatment of numerous medical conditions. In female adult patients, urinary catheters are used:
  - to obtain the precise measurement of urinary output in postoperative, injured, or critically ill patients and for measuring residual bladder volume in patients who have a voiding dysfunction. Precise measurement of urinary output is important to monitor for fluid volume alteration, which can lead to a deterioration in clinical status.
  - for diagnostic purposes that require the catheter to be in place for the duration of a procedure such as imaging studies of the lower urinary tract that require instillation of fluid in the bladder.
  - Intermittent catheterization is typically performed if collection of a sterile urine specimen is the only goal.
  - to deliver medication to the bladder for therapeutic purposes (e.g., treatment of bladder cancer).
  - in the treatment of:
    - urinary retention and to decompress the bladder when it is distended due to acute or chronic obstruction or to neurogenic bladder. Urinary retention can result in hydronephrosis (i.e., distention and dilation of the renal pelvis and calyces due to urine backing up into the kidney), inflammation, and renal failure. **Due to the risk of hydronephrosis, extreme caution should be used when clamping the catheter or tubing and clamping should be done for a brief period of time only.**
    - Typically, an intermittent catheter is used to treat nerve-related bladder dysfunction; however, an indwelling catheter can be used in the immediate acute phase of treatment.
    - incontinence when other methods have proven unsuccessful and when it is important to keep the perineal area clean of urine (e.g., for a patient who is at risk for pressure ulcer development or who has an existing pressure ulcer or other open wound in the perineal or sacral area).

### Facts and Figures

- The Foley catheter was designed in the 1930s by Frederic Foley, a Massachusetts surgeon (Foley, 1937).
- Four to twenty percent of residents of long-term care facilities and 4% of homecare patients have indwelling urinary catheters. Among long-term users of catheters, the most common complications are leakage, catheter-associated urinary tract infection (CAUTI; e.g., caused by bacteria or candida organisms) or sepsis, accidental dislodgement, and catheter blockage due to bladder stones (Hagen et al., 2010; Wilde et al., 2013).
- Researchers who conducted a randomized, controlled study comparing the use of various types of catheters (e.g., standard polyvinyl chloride, hydrophilic, and gel-lubricated catheters) in 10 patients with spinal cord injury reported that the use of hydrophilic and gel-lubricated catheters was associated with reduced trauma to the urethral surfaces and increased rates of patient satisfaction. There were no significant differences in rates of CAUTI among the 3 catheter types (Sarica et al., 2010).
- Patients with an indwelling urinary catheter are at significantly increased risk for development of CAUTI. CAUTI is extremely common; in the United States, over 500,000 cases of CAUTI occur each year and account for over 40% of
healthcare-associated infections; the overall rate of CAUTI in the United States has remained unchanged since 2009 (CDC, 2016; Trautner, 2010; Rebmannet al., 2010)

• Among hospitalized patients in Europe, 15–25% have an indwelling urinary catheter at some point during their hospital stay. Investigators report that cumulative risk for CAUTI increases 3–6% each day that the catheter remains in place (Theofanidis et al., 2011)

• Investigators who used an electronic survey to examine indwelling urinary catheter care practices for CAUTI prevention in 3 areas—equipment and alternatives to insertion; personnel training and policies; and documentation, surveillance, and removal reminders—at 75 acute care hospitals in the U.S. reported that CAUTI prevention practices that were commonly followed included (Fink et al., 2012)
  – wearing gloves (97%)
  – hand hygiene (89%)
  – maintaining a sterile field during insertion (81%)
  – aseptic technique (e.g., aseptic non-touch technique [ANTT]; i.e., the skin should be not touched after it has been prepared with antiseptic cleaner and any item introduced into the patient is sterile prior to insertion) during insertion (73%)
  – clinician training in aseptic technique and strategies for CAUTI prevention at initial hire (64%)
  – catheter removal reminders (56%)
  – annual validated competency in catheter insertion technique (47%)
  – urethral meatal care provided at least daily (43%)

• Researchers who surveyed 30 experienced home care nurses in Japan reported the following (Maeda et al., 2013):
  – CAUTI developed in 73% of home care patients who had an indwelling urinary catheter. Additional complications included
    - skin breakdown secondary to fixation of the catheter (33%)
    - urethral injury (23%)
    - urolithiasis (20%)
    - signs of bladder irritation (20%)
    - cloudy urine (77%)
    - occlusion (63%)
    - leakage (53%)
    - hematuria (50%)
    - fever (40%)
    - accidental dislodgement (33%)

  – Home care nurses had difficulty detecting CAUTI and other complications despite implementing ≥ 80% of guideline practices that were published in the Association of Urology Nurses Guidelines for Catheter Management

• Researchers who initiated a multidisciplinary program to reduce CAUTIs by decreasing urinary catheter use in a 300-bed community hospital in the U.S. state of Connecticut reported a 50% hospital-wide reduction in catheter use and a 70% reduction in CAUTI during a 3-year period. The primary prevention strategy involved implementing a nurse-directed protocol for catheter removal that was linked to the initial order for catheter insertion. Additional prevention strategies included requiring physicians to document catheter insertion criteria, adding a device-specific charting module to physician electronic progress notes, and holding biweekly multidisciplinary meetings focusing on catheter use and CAUTI rates (Parry et al., 2013)

What You Need to Know Before Inserting an Indwelling Foley Urinary Catheter in a Female Adult Patient

› Prior to inserting an FC in a female adult patient, the clinician should be familiar with the following:

• Anatomy and physiology of the female urinary system (Figure 2 Figure 3)
  – The kidneys perform the primary filtering function of the urinary system. The two bean-shaped organs are ~ 4.3 in/11 cm in length and are primarily retroperitoneal (i.e., located behind the peritoneum that lines the abdominal cavity). They are held against the posterior abdominal wall and are partially protected by the lower ribs
  – A ureter drains from the renal pelvis of each kidney to the bladder. Each of the two ureters is 9.8–11 in/25–30 cm long in adults. Urine moves to the bladder via peristaltic wave-like motion of the smooth muscle walls
  – The bladder is a hollow, muscular reservoir that in the average adult stores ~ 500 mL of urine. Most patients state that their bladder feels full when the urine volume reaches 250–300 mL
– The urethra extends from the neck of the bladder through the pelvic diaphragm to the external urethral orifice. When urine volume in the bladder reaches 250–300 mL in a functioning adult bladder, sensory impulses cause a reflex contraction of the bladder and the urethral sphincter relaxes to permit urine flow.

- The urethra in female adults is ~3–4 in/7.6–10.2 cm length, and a sphincter that controls urine flow is located near the bladder. The urethra is embedded in the anterior wall of the vagina and extends from the bladder to the external urethral orifice. Unlike the male urethra, which functions for both the urinary and reproductive systems, the female urethra functions only as an outlet for the urinary system.

![Figure 2: Urinary system. Copyright© Jordi March i Nogué, 2010. Licensed under Creative Commons Attribution-Share Alike 3.0 Unported License.](image)

- Anatomy of the female perineal area (Figure 4)
  – Labial folds surround the female external genitalia, including the labia majora, or outer folds, and the labia minora, or inner folds.
  – A protective hood of skin covers the clitoris, which is a small mass of erectile tissue located at the anterior tip of the genital area.
  – The external urethral orifice (i.e., meatus) is located slightly below and posterior to the clitoris.
  – The vaginal opening is located slightly below and posterior to the external urethral orifice.

![Figure 3: Transverse view of female pelvis. This image is in the public domain in the United States.](image)
• Standard precautions and demonstrated competence in adherence to aseptic technique to prevent microbial contamination of the urinary tract
  – The definition of aseptic technique varies depending on the clinical situation and is generally distinguished as either surgical aseptic technique or general ANTT
  - Surgical aseptic technique is practiced in the operating room (OR) under strict conditions and can be adapted for use outside the OR for situations that require similarly strict application of aseptic technique (e.g., intravascular procedures, including insertion of a central venous catheter; wound care)
  - General ANTT is used for simpler and less invasive procedures; although it refers to a variety of precautions, general ANTT primarily refers to the use of nonsterile gloves coupled with a “no-touch” technique such that sterile items and equipment are used and the sterile part of the item or equipment does not come in contact with anything that is not sterile. Sterile gloves are used during some procedures involving ANTT, including urinary catheterization, if it is necessary to touch sterile equipment that will be inserted into the patient (e.g., during urinary catheterization, the clinician manually advances the catheter through the urethra; the use of sterile gloves maintains the sterility of the catheter)

• Type of urinary catheter to be used for insertion (e.g., FC, triple-lumen [typically used when continuous closed bladder irrigation is needed], silver alloy, antibiotic-impregnated)
  – FC sizes vary widely (14–48 Fr; average adult size is 16–18Fr) and should be selected based on individual patient needs. To minimize discomfort and avoid tissue trauma during insertion, using the smallest size catheter that is appropriate is recommended. The following table provides a general guide to catheter selection:

<table>
<thead>
<tr>
<th>Type of Urinary Catheter</th>
<th>Recommended Size</th>
</tr>
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<tbody>
<tr>
<td>Adults</td>
<td>FC 14–18 Fr.</td>
</tr>
<tr>
<td>Adults with gross hematuria</td>
<td>FC 20–30 Fr</td>
</tr>
</tbody>
</table>

• Indications for insertion of indwelling urinary catheter (for information, see Why is Insertion of an Indwelling Foley Urinary Catheter Important?, above)
• Contraindications for insertion of indwelling urinary catheter, including traumatic injury to the lower urinary tract (e.g., a urethral tear)
  – Suspected extraperitoneal bladder injury is not a contraindication to urinary catheter insertion. Intraperitoneal bladder injuries typically require surgical repair
• Potential complications of catheter insertion (for details, see Red Flags, below)
  › Prescribed topical anesthesia (e.g., 2% lidocaine gel) can be applied via a gel applicator that is inserted in the urinary meatus prior to FC insertion. Evidence regarding the use of urethral anesthetic in female patients is mixed, and anesthetic should be used only if the patient consents (Tanabe et al., 2004)
Pretesting balloons on silicone catheters by inflating them before final positioning in the bladder is no longer recommended because deflation can create a crease that is associated with urethral trauma during insertion. Some catheter manufacturers discourage preinflation of the balloon due to increased risk of infection. Manufacturer recommendations should be reviewed prior to use of supplies and equipment.

- A protocol developed by Nationwide Children’s Hospital in Columbus, Ohio prohibited the inflation of catheter balloons prior to catheter insertion. The rationale was that inflating the balloon increased the size of the balloon and increased risk of trauma to urethral tissue, which predisposed a patient to CAUTI (Glasgow, 2011).

Preliminary steps that should be performed before inserting an FC in a female adult patient include the following:

- Review the facility/unit protocol for FC insertion in female adults, if one is available.
  - Protocols might require the presence of a chaperone of the same sex as the patient if the patient and clinician inserting the FC are different sexes.
  - Due to sociocultural background, religious beliefs, or personal reasons, some patients might prefer that a clinician of the same sex perform the procedure.
- Review the treating clinician’s order for inserting the FC.
  - Note the type and size of the FC to be inserted and the purpose for which it has been ordered (e.g., urine drainage, diagnostic testing, administration of medication or other agents).
- Review manufacturer instructions for the type of FC to be inserted.
- Verify completion of facility informed consent documents, if appropriate.
  - Typically, the general consent for treatment that is executed by patients at admission to a healthcare facility includes standard provisions that encompass insertion of an FC.
- Review the patient’s medical history/medical record for information about:
  - History of renal-related injury, surgery, and medical conditions.
  - Allergies (e.g., to latex, medications, or other substances); use alternative materials, as appropriate. If the patient is allergic to iodine, select an alternative antiseptic to the commercially available povidone-iodine that is found in most commercially prepared kits.
  - Laboratory test results to check for coagulopathies and blood dyscrasias (e.g., CBC, PTT if the patient is receiving heparin, or PT if the patient is receiving warfarin).
  - Advise the treating clinician if the laboratory test results indicate that the patient is at increased risk for bleeding.

Gather the supplies necessary for inserting the FC, which typically include the following (Figure 5):

- Nonsterile gloves; additional personal protective equipment (PPE; e.g., eye protection, gown, and mask) might be necessary if exposure to body fluids is anticipated.
- Facility-approved pain assessment tool, prescribed analgesia, and means for its administration.
- Bath blanket or clean sheet.
- Waterproof absorbent underpad.
- Bath basin with warm, soapy water and a washcloth.
- Penlight or a gooseneck-style lamp, if desired.
- Topical anesthetic (e.g., 2% lidocaine) with gel applicator, if prescribed.
- Patient label and biohazard bag if urine specimen is required.
- Specimen cup or graduated container to collect urine, if appropriate.
- Commercially available sterile catheter kit that contains an FC of the appropriate size. If a prepackaged kit is unavailable, gather the following items separately:
  - Sterile gloves.
  - FC of the appropriate size.
  - Square drape.
  - Fenestrated drape (i.e., drape with an opening in the center).
  - Facility-approved antiseptic solution. Povidone-iodine is commonly included in sterile catheter kits; follow facility protocols for the type of antiseptic solution to be used and for an appropriate alternative to povidone-iodine (such as chlorhexidine gluconate) for patients with iodine allergy or sensitivity.
  - Sterile swabs or plastic forceps and cotton balls for application of the antiseptic solution.
  - Water-soluble lubricating gel.
  - Specimen container if a urine sample is required for laboratory analysis.
  - 10 mL syringe that is prefilled with sterile water.
Drainage collection bag and facility-approved securement device. A commercial tube holder (e.g., Velcro-type strap) is the preferred method to secure the drainage tube to the patient’s leg. Alternatively, a hydrocolloidal dressing (e.g., Duoderm) and hypoallergenic tape can be used.

**Figure 5:** Supplies required to insert an indwelling Foley urinary catheter. Copyright©2014, EBSCO Information Services

**How to Insert an Indwelling Foley Urinary Catheter in a Female Adult Patient**

› Perform hand hygiene
› Identify the patient according to facility protocol
› Establish privacy by closing the door to the patient’s room and/or drawing the curtain surrounding the patient’s bed
› Introduce yourself to the patient and family member(s), if present, and explain your clinical role; assess for knowledge deficits and anxiety regarding insertion of the FC
  • Determine if the patient/family requires special considerations regarding communication (e.g., due to illiteracy, language barriers, or deafness); make arrangements to meet these needs if they are present
    – Use professional certified medical interpreters, either in person or by telephone, when language barriers exist
  • Explain the procedure for catheterization and its purpose; answer questions and provide emotional support as needed
    – Explain to the patient that you will ask her to immediately cough or bear down when the catheter is initially inserted because these actions allow easier passage of the catheter to the bladder
    – Educate that it is important for the insertion site to remain untouched during the procedure and that she will need to keep her legs apart until the procedure is complete
    – Explain that she might feel some discomfort as the catheter is inserted, but the tube will be lubricated to ease its passage
    – Tell the patient that you will not force insertion of the FC, but some pressure is necessary. Ask the patient to communicate with you if she wants to stop briefly during the insertion
  • As appropriate, request that family members and other visitors leave the patient’s room in order to promote privacy
› Assess the patient’s general health status, including her pain level using a facility-approved pain assessment tool. Administer a prescribed analgesic if appropriate and allow sufficient time for a therapeutic level to be reached before proceeding
› Observe general ANTT throughout the procedure
› Assess the patient to determine if the patient meets the criteria for FC placement (for details, see What You Need to Know Before Inserting an Indwelling Foley Urinary Catheter in a Female Adult Patient, above). Perform the following:
  • Percuss the bladder for distention to assess baseline information. Recall that a dull (i.e., flat) sound without echoes is indicative of fluid, and a tympanic (i.e., higher pitch) sound indicates the presence of air. Because it is usually not possible to percuss the bladder unless it is distended above the symphysis pubis, evaluate how high the bladder rises above the symphysis pubis
  • Assess the patient’s mental status to determine if she will be able to cooperate with FC placement. If the patient will not be able to cooperate, it might be necessary to request assistance from staff members
  • Because you will use your dominant hand to insert the catheter, stand on the patient’s right side if you are right-handed and on the patient’s left side if you are left-handed
› Obtain the patient’s verbal consent prior to beginning the procedure
› Verify that good lighting is available
› Lower the side rail on the side of the bed where the procedure will be performed, and adjust the bed to a comfortable working height
› Position and drape the patient for privacy and accessibility (e.g., cover the upper torso with a bath blanket or a clean sheet). Although the preferred position is the dorsal recumbent position (i.e., supine with knees apart and flexed), many clinicians prefer to have the patient in a “frog-leg” position with the legs apart, knees flexed, and feet together. Alternatively, assist the patient to the Sims’ position (i.e., side-lying with the upper leg flexed at the hip and knee) or have her lie on her side with her knees drawn up to expose the perineal area. Use pillows or rolled blankets to support the patient in the side-lying position.
› Request the assistance of a clinical staff member if the patient is weak, confused, or unable to flex her legs.
› Patients who are confused might need to be gently restrained during the procedure.
› Place a waterproof pad beneath the patient to prevent the bed linen from becoming soiled.
› Don nonsterile gloves and wash the perineum with warm soapy water and rinse thoroughly.
› Identify the location of the urinary meatus.
› Open the outer wrapping of the catheter kit. If not using a catheter kit, use sterile technique to unwrap all items and place them on a sterile field within easy reach.
› Place the inner wrapped container on the bed nearby for easy access; set the outer wrapper near the end of the bed for waste disposal when the procedure is completed.
› Some clinicians place the inner wrapped container between the patient’s legs, but caution must be used because the sterile field can become compromised if the patient closes her legs unexpectedly.
› Using sterile technique, fold back the flaps on the sterile wrap such that the catheter kit supplies are accessible and the tray rests in a sterile field.
› Touching the edges of each drape, remove the sterile drapes from the tray and position the square drape under the patient’s buttocks.
› Apply sterile gloves using sterile technique.
› Position the fenestrated drape over the perineum to expose the labial folds while maintaining sterility of the gloves.
› Remove supplies from the catheter tray and organize them in the sterile field. **(Figure 6)**
› If a urine sample is to be collected, loosen the lid on the collection container.
› Apply antiseptic solution over cotton balls or open the packages of pre-moistened antiseptic swabs.
› Open lubricant and spread it in a small area of the sterile tray.
› If topical anesthesia is ordered, open the prefilled applicator.

![Figure 6: Supplies prepared for insertion of indwelling urinary catheter. Copyright©2014, EBSCO Information Services](image_url)

› If the catheter has a cover, remove it.
› Check the condition of the FC for obvious defects (e.g., intact, rough edges).
› Attach the prefilled syringe to the inflation valve of the appropriate lumen but do not inflate the balloon.
› Verify that the distal end of the catheter is attached to a drainage collection bag because urine in the bladder will drain from the catheter when it is inserted. If a urine specimen is needed, do not attach the drainage bag at this time and have the specimen container within reach.
› Set the catheter aside on the sterile field.
Maintaining general ANTT, clean the external urethral orifice. Although the Healthcare Infection Control Practices Advisory Committee (HICPAC) did not issue a recommendation in favor of antiseptic solutions vs. sterile water or saline for periurethral cleaning prior to FC insertion in its most recent guidelines (Gould et al., 2009), most clinicians use antiseptic solution to clean the external urethral orifice as follows (Figure 7):

- Using the nondominant hand, expose the urinary meatus by spreading the labial folds
  - When the external urinary orifice is exposed do not release the labia, especially after the antiseptic cleaning agent has been applied. If the labia close after cleaning, the skin is considered contaminated and must be recleaned
  - Keep the nondominant hand in this position for the remainder of the procedure because this hand is now considered unsterile. It can be helpful if an assistant illuminates the meatus with a penlight
- With the dominant hand, use forceps to apply antiseptic-soaked cotton balls or use the antiseptic swabs to clean from anterior to posterior
  - Clean the right side of the vulva and perineal area using one swipe that begins to the right of the clitoris; continues along the labia majora, labia minora, and adipose tissue; and ends before the perianal area. Discard the cotton ball or swab
  - Clean the left side of the vulva and perianal area using one swipe that begins to the left of the clitoris; continues along the labia majora, labia minora, and adipose tissue; and ends before the perianal area. Discard the cotton ball or swab
  - Clean the center of the vulva using one swipe beginning above the clitoris, continuing directly over the urethral meatus, and ending before the perianal area. Discard the cotton ball or swab
- Do not reuse cotton balls or swabs on previously cleaned tissue

If prescribed and if the patient has consented, insert the catheter tip of the syringe containing the 2% lidocaine in the external urinary orifice and inject 5–10 mL; allow 2–3 minutes for the topical anesthetic to take effect before proceeding with the FC insertion

- Rapid instillation of the entire amount of prescribed lidocaine can cause a burning sensation and tissue irritation. Some clinicians prefer to place a small amount of lidocaine on a cotton ball, hold it against the tissue of the urinary orifice for 1–2 minutes, and then inject the remaining medication in the external urinary orifice. Although the male urethra is longer than the female urethra, the total amount of medication instilled is the same for males and females
- Generously lubricate the proximal tip of the catheter ~ 2 in/5 cm; some clinicians use the remaining lidocaine to lubricate the catheter tip
- Using the dominant hand, grasp the catheter 3–4 in/8–10 cm from its insertion tip and insert the catheter as follows:
  - Ask the patient to cough or bear down as the catheter is initially inserted, and then slowly advance the catheter in a slightly downward direction to track the slight curve of the urethra, which is 3–4 in/8–10cm in adult females, until urine begins to flow. You might feel a slight resistance as the FC passes the urethral sphincter. When urine appears, continue to advance the catheter an additional 1–2 in/2.5–5 cm to make certain that the catheter tip rests in the bladder
  - Never force the catheter if obstruction is present. Encourage the patient to breathe deeply to promote relaxation in order to reduce the incidence of spasm or stricture; stop the procedure and contact the treating clinician if obstruction remains
• Release the labia and use the nondominant hand to hold the catheter in place
  – If a urine specimen has been ordered, position the external end of the catheter in the specimen cup or graduated container, allow an appropriate amount of urine to drain, and then pinch the FC with the nondominant hand to temporarily stop the flow of urine until the drainage bag is attached
• Using the dominant hand, slowly instill the sterile water in the catheter to inflate the balloon and secure the catheter in the bladder. **Never instill more than the recommended volume shown on the inflation valve**
  – Slowly inflate the balloon to ascertain if it is in the urethra instead of the bladder. Urethral tearing can occur if the balloon is inflated in the urethra
  – If the patient complains of pain during balloon inflation, the balloon is probably in the urethra. In this case, withdraw the fluid, advance the catheter, and slowly reinflate the fluid
  – After the fluid has been instilled, apply gentle traction to the catheter using the nondominant hand until resistance is met to verify that the balloon is adequately inflated and the indwelling catheter will not be expelled
• Attach the drainage bag to the FC if necessary and place the drainage bag below the level of the bladder to allow urine to flow out of the bladder by gravity
• **Do not attach the drainage bag to the bed rails because the bag and catheter can be pulled when the rails are adjusted**
• Clean the excess antiseptic and lubricant from the patient’s genital area
• Secure the catheter and tubing to prevent movement and traction against the urethra that could damage urethral tissue.
  Typically the catheter is strapped to the patient’s inner thigh using a commercial tube holder (e.g., Universal Tubing Securement Kit for Foley Catheters) and the drainage tubing is clipped to the mattress or to the bed frame. Avoid dependent loops or kinks to permit unobstructed urine drainage. Allow for enough slack in the drainage tubing so the patient can move her thigh without pulling the catheter
• If a commercial securement device is unavailable, utilize one of following methods:
  – Create a reverse “gutter” with tape to reduce tubing tension against the skin. The reverse gutter technique can be prepared with three pieces of tape as follows, (Figure 8):
    - Center one piece of tape over the catheter/drainage bag tubing and pinch the edges together to create a short tab, and extend the ends of the tape over the patient’s thigh. The reverse gutter created by elevating the catheter/tubing above the thigh with tape reduces traction against the skin and the urethra
    - Place the two remaining pieces of tape over the tape on the patient’s skin
  - Apply a piece of hydrocolloidal dressing (e.g., DuoDerm) to the skin. Hold the hydrocolloid material against the skin for a brief period to allow the gel to mold to the skin, place the FC tubing over the dressing, and use tape or an occlusive bandage to secure the tube to the dressing. (Figure 9)
Figure 9: Secure the Foley catheter and drainage tube to the patient’s leg with hydrocolloidal dressing and tape/occlusive bandage. Copyright©2014, EBSCO Information Services

– Reassess the patient’s bladder to verify that distention has resolved, as appropriate
– Remove the underpad and assist the patient to a comfortable position. Raise the bed rail and lower the bed to a safe position
– As appropriate, arrange for transport of the labeled urine specimen to the laboratory in a biohazard bag
– Discard used procedure materials appropriately
– Discard PPE and perform hand hygiene

› Update the patient’s plan of care, as appropriate, and document performing FC insertion in the patient’s medical record, including the following information:
  • Date and time of FC insertion
  • Description of the procedure, including the size of the FC inserted, volume of sterile water instilled in the balloon, and administration of topical anesthetic, if applicable
  • Assessment findings such as
    – patient’s level of pain, if prescribed analgesic was administered, and treatment efficacy
    – volume and characteristics of urine drainage (e.g., color, clarity, odor, presence of sediment or clots); record output in the Intake/Output (I & O) section of the patient’s medical record
    – a change in bladder distention
    – patient’s tolerance of the procedure
  • Time the specimen was forwarded to laboratory for analysis, if applicable
  • Any unexpected patient events, interventions performed, whether or not the treating clinician was notified, and patient outcome
  • All patient/family education provided, including topics presented, response to education, plan for follow-up education, barriers to communication, and techniques that promoted successful communication
Other Tests, Treatments, or Procedures That Can Be Necessary Before or After Inserting an Indwelling Foley Urinary Catheter

› Routine catheter care will be performed to confirm that the system is intact and to prevent proliferation of bacteria, which can lead to CAUTI. (For more information, see Nursing Practice & Skill ... Urinary Catheter: Care)
› Bacterial culture and antibiotic sensitivity testing will be performed on the urine specimen if CAUTI is suspected, and antibiotics will be prescribed if CAUTI is diagnosed
› If the catheter becomes blocked or the area around the insertion site becomes painful, the catheter might need to be replaced
› For prompt detection and treatment of abnormalities, laboratory results should be reviewed as soon as they become available
› Bladder irrigation can be performed if urinary catheter obstruction occurs or following certain surgical procedures if ordered by the treating clinician

What to Expect After Insertion of an Indwelling a Foley Urinary Catheter

› The FC will be inserted using aseptic technique with minimal patient discomfort and avoidance of trauma
› The bladder will be completely emptied of urine
› The patient will not develop complications, including CAUTI; alternatively, signs or symptoms of infection or other complications of urinary catheterization will be promptly identified and treated

Red Flags

› Potential complications of urinary catheter use include
  • bladder stones due to accumulation of urinary crystals, which can result in catheter blockage
  • hematuria due to inadvertent tugging on the catheter
  • skin breakdown in the urethral meatus or lower extremities due to friction from the catheter or urinary drainage bag tubing
  • urethral injury, which can occur during catheter insertion or due to pulling on the catheter
  • CAUTI and septicemia due to a break in aseptic technique or due to insufficient or improper catheter care
    -- Prolonged use of indwelling catheters is linked to renal inflammation, pyelonephritis (i.e., kidney infection), and nephro-cysto-lithiasis (i.e., kidney and bladder stones)
    - In the U.S., the Centers for Medicare and Medicaid Services no longer reimburses hospitals for costs associated with treatment of hospital-acquired CAUTI
  • displacement of the catheter due to deflation of the catheter balloon, which is indicated by an increase in the length of the catheter that is visible outside the urethral meatus
› Fever, abdominal pain, foul-smelling urine, and/or hematuria can be indicative of a CAUTI, in which bacteria can ascend rapidly through the ureters to the kidneys and potentially cause damage to the kidneys and in some cases, septicemia. Signs and symptoms of CAUTI should be reported promptly to the treating clinician
› Prophylactic antibiotics are commonly ordered for patients who have an artificial urethral sphincter or a prosthetic heart valve

What Do I Need to Tell the Patient/Patient’s Family?

› Educate regarding indications for catheter placement, details regarding the procedure, risks and benefits of the procedure, and potential discomfort the patient might experience
› If laboratory testing or other diagnostic procedures are ordered, explain how these procedures are performed and when the results will likely become available
› Educate about clinical signs and symptoms that can indicate infection (for details, see Red Flags, above) or other complications, and emphasize the importance of reporting these signs and symptoms promptly to the treating clinician

Note

Recent review of the literature has found no updated research evidence on this topic since previous publication on November 11, 2016.
References


