

# CATHETERS: Insertion, tips, and types

## Introduction

Foley catheter insertion is a skill that every doctor should have.

Urinary catheters exist in varying forms and sizes. The unit of measurement is the French. One French equals 1/3 of 1 mm. The sizes can vary from 6 Fr (very small, pediatrics) to 48 (extremely large) Fr in size. The most common sizes are 14-18 Fr and 20-24 Fr for hematuric catheters.

There are a multitude of varieties each with their own unique attributes for special situations. The ones you will most commonly see on this rotation are regular, coude tip, 3-way, and whistle tip.

## Universal precautions

There is the potential for contact with a patient's blood/body fluids when working with catheters, this risk increases with the inexperience of the operator. This is a sterile procedure and should be treated as such.

## Indications

Foley catheter insertion allows us to drain, decompress, obtain a specimen, and irrigate the bladder. This will allow you to treat urinary retention, bladder outlet obstruction, evacuate clot, and monitor urine output.

Urinary output is a sensitive indicator of volume status and renal perfusion (and thus tissue perfusion also) and can be key to appropriate management of ill patients.

In some cases, as in urethral stricture or prostatic hypertrophy, insertion will be difficult and may require consultation with urology.

## Equipment

- Sterile gloves - consider Universal Precautions
- Sterile drapes
- Cleansing solution e.g. Betadine or aqueous chlorhexidine
- Cotton swabs
- Forceps
- Sterile water & syringe (usually 10 cc)
- Foley catheter (usually 16-18 French)
- Lubricant (water based jelly or xylocaine jelly)
  - May require a Urojet for difficult cases
- Collection bag and tubing

## Procedure

1. Gather equipment.
  1. Key to have all equipment ready before starting so that you do not have keep changing gloves and to be more time effective
2. Explain procedure to the patient
  1. The more involved with their care the more patients feel comfortable and relaxed which leads to an easier and higher likelihood of success with insertion
3. Assist patient into supine position with legs spread for men (and patient truly flat) and in women feet together or frog leg
4. Open catheterization kit and catheter
5. If male patient retract foreskin
6. Put on sterile gloves
7. Do not check balloon for patency, it has an extremely low rate of failure and inflating the balloon alters the contour and can make insertion more difficult and uncomfortable.
8. Generously coat the distal portion (2-5 cm) of the catheter with lubricant
9. Remove the cap on the syringe containing sterile water. You can choose to attach to catheter now or after you have successfully inserted.
10. Discard all except two cotton swabs in the kit. You don't need them and they soak up prep. Pour prep on the cotton swabs.
11. There are two ways of preparing the patient for insertion of catheter:
  1. Drape and then apply prep using non-dominant hand (thus it is no longer sterile) which is the common method used or
  2. Apply prep without using the hand and maintaining sterility of both hands and draping after the patient has been prepped. This is universally the way we prepare any other sterile field in medicine but is not the norm for catheter insertion.
12. If female:
  1. Separate labia using non-dominant hand and prep (Method 1) or place prep at vaginal introitus and prep the meatus followed by the labial folds. (Method 2)
13. If male:
  1. Hold the penis with the non-dominant hand. Maintain hand position until preparing to inflate balloon (Method 1) or prep the penis, scrotum and thigh, then place drape (Method 2)
14. Pick up catheter with sterile dominant hand. Place the end if catheter In the sterile tray provided in the kit.

15. In the male, lift the penis to a position perpendicular to patient's body and apply upward traction, ie put on stretch (with non-dominant hand). With stretch the insertion is much easier and comfortable for the patient.

16. Identify the urinary meatus and gently insert.

1. For women - until 2 to 3 inches beyond where urine is noted

2. For men – until the hub of the catheter reaches the meatus, ie to the hilt

17. Inflate balloon, using correct amount of sterile liquid (usually 10 cc but check actual balloon size)

18. GENTLY pull catheter so that inflation balloon is snug against bladder neck

19. Connect catheter to drainage system

20. Secure catheter to thigh, with a bit of slack

21. Remove gloves, dispose of equipment appropriately, wash hands

22. Document size of catheter inserted, amount of water in balloon, and if there was any difficulty

## CATHETERS:

### Regular/Foley (14-18Fr):

General use on the floor, ER, and OR.



### Coude Tip (14-18Fr):

Extremely useful for older male patients with BPH/retention. Used with a “urojet” ie xylocaine jelly, will allow for correct placement in many men with “difficult” catheterizations due to BPH. Key is to note relation of balloon inflation port to curve before beginning insertion. Catheter inserted with curve upwards.



**Whistle Tip (22-26Fr):**

Used for hematuria patients to evacuate clot and irrigate the bladder. Does not have a balloon. Has wide mouth opening +/- multiple large orifices for irrigating clot through.



**3-way Catheter (20-24Fr):**

Various styles. Used post urological procedures where bleeding may occur within the bladder, ie used for trans urethral resection of bladder tumors, benign prostates, or hematuric patients after clot evacuation with a whistle tip.



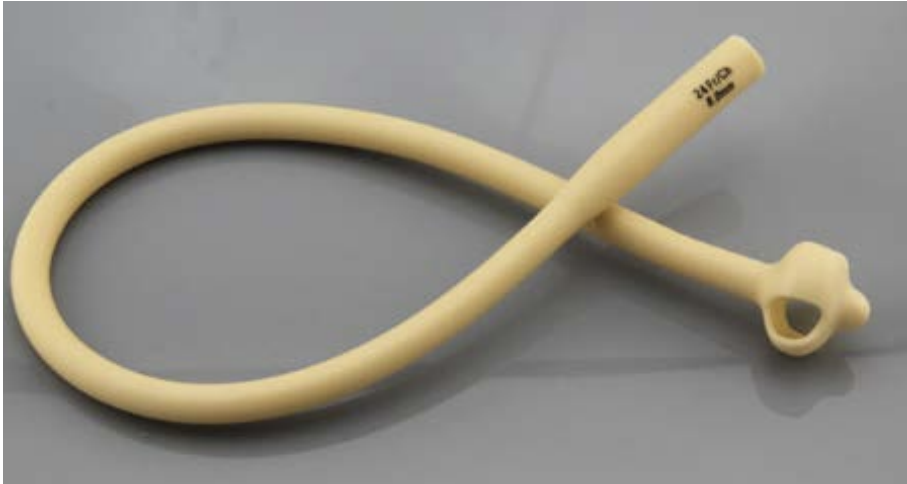
**Silicon Catheter (12-18Fr):**

Stiffer than latex catheter. Can be used for patients with latex allergies. Also can be useful for patients with strictures or long term indwelling catheters.



**Malecot Catheter (24-26Fr):**

Used for certain urinary diversions after cystectomy or as a nephrostomy tube after PCNL.



**CIC Catheter (12-16Fr):**

Used by patients that self catheterize as needed, usually 2-4 times a day. Drains bladder and then is removed. Can be reused or single use. Many patients with spinal chord or "neurogenic" bladders, such as spina bifida do this on an ongoing basis to empty their bladders.

