

Preventing Catheter Associated Urinary Tract Infections (CAUTI):

What You Need to Know
About Urinary Catheterization

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with Capital Nursing Education



MEDICAL SUPPLIES FOR CARE AT HOME SINCE 1957

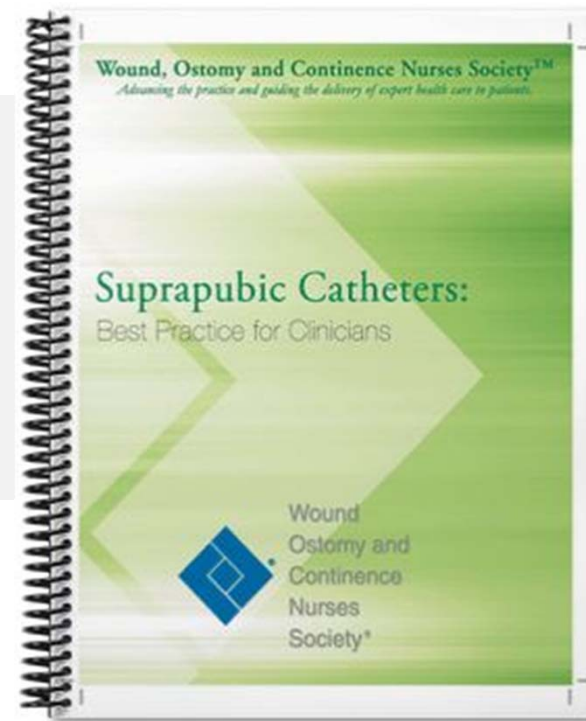
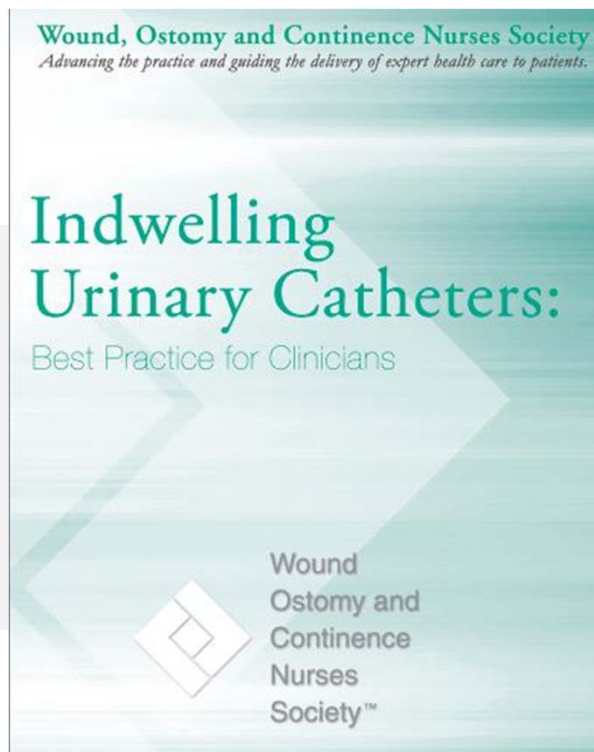
Objectives



- List two (2) advantages of intermittent catheterization over indwelling catheterization
- List two (2) specific clinical conditions that are considered acceptable for the placement of an indwelling urinary catheter



WOCN Best Practices



Can be ordered from WOCN Bookstore @ wocn.org

Urinary Catheterization



Should only be undertaken when all other methods of urinary system management have been deemed inappropriate or have failed.

Short or long-term usage depends on cause of urinary dysfunction (Newman-2008)

- **Indwelling**
 - Urethral
 - Suprapubic

- **Intermittent**

Suprapubic Catheterization



- **Definition:**
 - Inserted surgically through the anterior abdominal wall
2 cm above pubic bone into the bladder
 - Allows for continuous drainage
- **Indications:**
 - Short term use following surgery
 - Alternative to chronic indwelling catheter
 - Option for long-term catheterization
 - To avoid urethral damage in men

Suprapubic Catheters



- **Advantages:**
 - Decreases risk of contamination from organisms from fecal material
 - Decreases risk of infection due to less antimicrobial content on abdomen vs perineum
- **Potential problems:**
 - Urine leakage
 - Skin erosion
 - Hematoma
 - Catheter reinsertion difficulty

Suprapubic Catheter Insertion/Reinsertion



- Initial insertion by physician or specially trained urology specialist
- New suprapubic tract takes 10 days to 4 weeks to become established
- Reinsertion by appropriately trained health care professional when tract is well established
- Interval can range from 2 to 10 weeks

WOCN Best Practice (2009)

Suprapubic Catheter Routine Care



- Dressing around site not routinely required, only if drainage or for personal comfort
- Secure to lower abdomen to prevent erosion of tract
- Annual cystoscopy and ultrasound recommended (i.e., risk of stones and squamous cell carcinoma)



WOCN Best Practice (2009)

Suprapubic Catheters



Collection of urine

- May be connected to a drainage bag
- May be connected to a leg bag using an adapter and a strap



Suprapubic Catheter REMOVAL



- Gently rotate catheter to release any ingrowths around cath
- Deflate catheter balloon
- Hold catheter at point close to insertion and keep fingers at this point on the tube, withdraw catheter and note insertion distance
- Consider clamping prior to removal
 - ensure good volume of urine in bladder with insertion of new catheter
- Permanent removal – cover with dry gauze and it will heal within a few days

Call For Help

- Blocked catheter and urine does not collect in the bag
- Catheter leaks
- Blood or pus in urine
- Pain in back just below rib cage (flank pain)
- Fever, chills, or body aches
- Groin or belly pain
- Cloudy or odor to urine
- Pain, increasing redness, or bleeding at the catheter site
- Swelling around the catheter or in the abdomen



Urinary Catheterization - Indwelling



- **Not an acceptable clinical practice unless specific clinical conditions exist**
- Tend to become colonized in 30 days
- 30 % of patients will develop UTI





Indications for Indwelling Urinary Catheter

- Acute urinary retention/obstruction
- Accurate measurement of urinary output
- Required immobilization for trauma or surgery
- Stage III-IV perineal or sacral pressure ulcers
- Inability to void due to physiological disease states such as neurogenic bladder (Newman-2007)
- Hospice/comfort/palliative care





Inappropriate Use Indwelling Urinary Catheter

- To obtain a urine culture
- For use as a substitute for care of incontinent patient
- During long postoperative periods without meeting the appropriate criteria for use of a catheter





When patients require catheterization, intermittent catheters should be considered first, and indwelling catheters should be left in place for as short a time as possible.

Center for Disease Control
Healthcare Infection Control Practices
Advisory Committee 2009



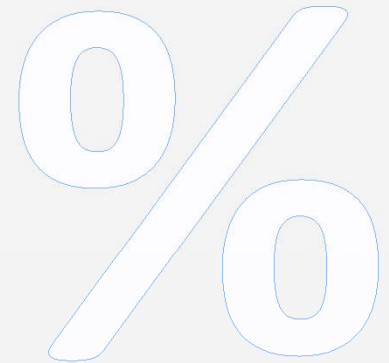
CAUTI

Catheter Associated Urinary Tract Infections

CAUTI



- Hospital acquired infections (HAI) affect **1:20** patients
- According to IHI (2011) **80%** of HAI are attributed to an indwelling urinary catheter
- **12-16%** of adult patient will have a urinary catheter during a hospitalization
- Prevalence rate for CAUTI in hospital ranges from **25-35%**
- CAUTI rates in adult intensive care units ranges from **67-76%** (Gray, 2010)



CAUTI FACTS



- Rates are on the rise!
- Most commonly reported HAI
- More than 560,000 patients develop CAUTIs each year
- 70 % of CAUTIs are preventable
- This could result in about 380,000 fewer infections
- Could result in 9,000 fewer deaths annually



CAUTI FACTS



- 5 million catheters are inserted each year in USA
 - (50% of the patients do not meet the CDC indications)
- IHI (2011) reported 40% of physicians are not aware their patients have a catheter
- Patients with a urinary catheter are at an increased daily risk of 3-7% (cumulatively) of developing a CAUTI (2013)
- Mortality and LOS is increased if CAUTI develops
- Annually CAUTI may contribute to 90,000 more hospital days
 - \$424-\$451 million US healthcare costs (Gray, 2010)
- Home Care – occur in 8% of patients (Getliffe & Newton, 2006)

CAUTI



- Most common infection in long-term residents
- Determine if there is an approved medical indication for insertion
- CMS identified hospital acquired CAUTI as **one of eight conditions for which hospital will not receive additional reimbursement**
- Long term care-regulatory guidance
 - F-315 Tag
(available from www.cms.hhs.gov)



F-315 Regulations



- **LTC setting – 3 aspects**

- ① a resident who does not have an indwelling cath does not have one inserted unless the clinical condition warrants it
- ② the facility provides appropriate Rx and services to prevent UTI
- ③ the facility attempts to assist the resident to restore as much normal bladder function as possible

CAUTI SYMPTOMS

- Urgency
- Frequency
- Dysuria
- Other suprapubic tenderness
- Fever ($\geq 104^{\circ}$ F or 38° C)
- Urine color or character change indicative of infection, hematuria, or positive culture

APIC, 2008



BEWARE



- Older patients with indwelling catheters may not present with the typical signs and symptoms of infection.
- Change in mental status, particularly in older adults, may be symptomatic of CAUTI
(Parker et al., 2009b).

Any subtle change in physical condition or behavior should lead practitioners to consider the possibility of CAUTI

Diagnosis of CAUTI



- Obtain a urine sample from a freshly inserted catheter or collection port of an indwelling catheter for urine culture and sensitivity
- Then, perform a dipstick urinalysis

Diagnosis of CAUTI is only made when signs and symptoms of CAUTI coexist with microbiologic evidence of bacteriuria and ↑ white blood cell count upon urinalysis (Parker et al., 2009b).

Indwelling Catheter Insertion



- Place ONLY when necessary & remove as quickly as possible
- Inserted by trained person using sterile technique
- Clean skin around area where cath is to be inserted
- 18 Fr or larger can ↑ erosion of bladder neck
- 30 mL balloons NOT recommended
- Consider other methods to drain the urine
 - External catheters (men)
 - Intermittent urethral catheterization

Indwelling Urinary Catheter



- Streamlined Evidence-Based RN Tool:
Catheter Associated Urinary Tract Infection (CAUTI) Prevention
- **Prior to Insertion:**
 - Appropriate per CDC Guidelines?
 - Select smallest appropriate catheter
 - 14 FR, 5 or 10ml balloon
 - Obtain assistance PRN
 - Perform hand hygiene

Indwelling Urinary Catheter



- **Patient Preparation:**
 - Perform peri-care
 - **Re-perform hand hygiene**
 - Maintain strict aseptic technique
 - **Re-perform hand hygiene upon completion**
 - Insert catheter to appropriate length and check urine flow before balloon inflation
 - Inflate balloon correctly (5-10 cc)

Indwelling Urinary Catheter



- **After catheter insertion:**
 - Perform Triple Action for IUC/Drainage System
 - Secure catheter to prevent urethral irritation
 - Position drainage bag below the bladder (not on the floor)
 - Check system for closed connections and no obstructions or kinks

Remember...

Catheter Care



- Hand washing by healthcare provider!!
- Closed drainage system
- Secure catheter to the leg
- Avoid twisting or kinking catheter



- Keep drainage bag lower than the catheter to prevent backflow
- Empty drainage bag frequently
- Educate patient on taking care of catheter prior to discharge to home

Additional Teaching Considerations



- Cotton underwear is recommended
- Stay hydrated
 - 6-8 glasses daily
 - Keep urine a pale yellow
- Avoid bladder irritants
 - Caffeine, colas, alcoholic beverages
- Avoid constipation
 - Increase fiber and ensure adequate fluid intake
 - 25-35 grams per day



Report to Healthcare Provider



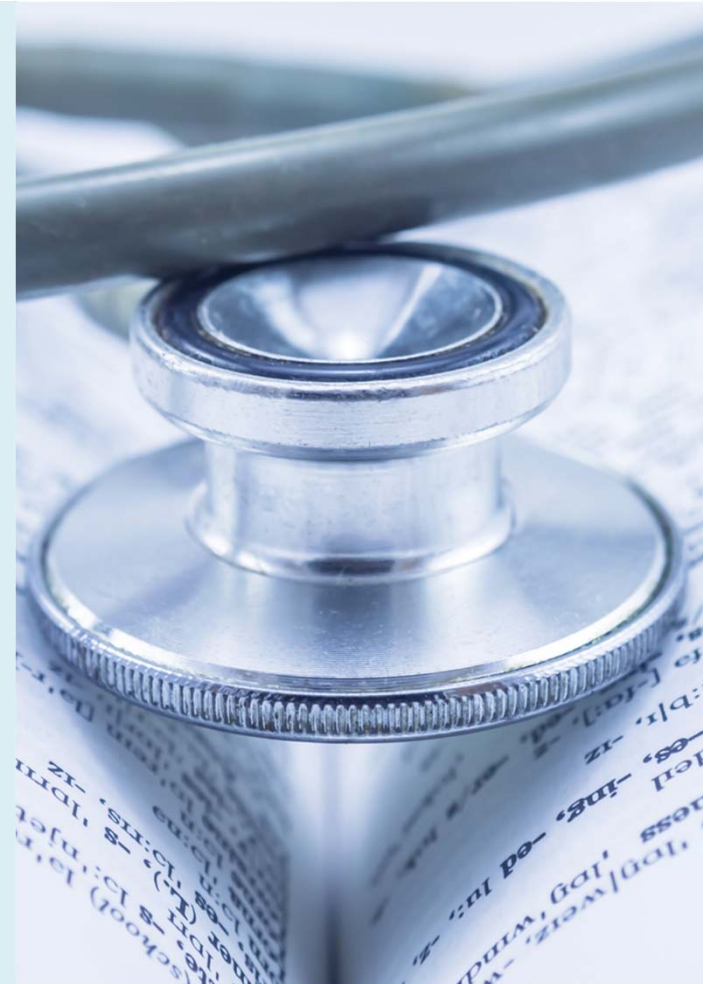
- Fever
- No urine in drainage bag for 2-3 hours
- Nausea or vomiting
- Pain in lower abdomen, pelvis, legs, back
- Appearance of swelling, redness, tenderness at insertion site
- Urine leakage around the catheter



Urinary Catheterization Assessment



- Need for continued usage must be assessed at every visit
- Is it functioning properly?
- Compare the urine output with the patients fluid intake (mechanical problem?)
- Inspect catheter stabilization to decrease risk of infection (Gray, 2008)
- Any excoriation at urethral orifice?
- Any leakage?



Intermittent Catheterization



Safest bladder management to prevent upper and lower urinary tract complications including:

- **Hydronephrosis** (collection of urine in distended pelvis of the kidney)
- **Renal calculi**
- **Bladder calculi**
- **Vesicoureteral reflux** (backward flow of urine into the kidneys)



Intermittent Catheterization



- Becoming the gold standard for bladder emptying
- Brief insertion of a catheter into the bladder to drain urine at regular intervals-removed after drainage
- **Advantages:**
 - ↓ risk of catheter-associated UTI (CAUTI)
 - Minimizes episodes of over distention of the bladder
- **Disadvantages:**
 - Difficult for patients with limited vision, dexterity, and mobility
 - Family members/caregivers may need to learn



ADVANTAGES

of Intermittent over Indwelling Urinary Catheterization



- Improved self-care and independence
- Reduced risk of common indwelling catheter-associated complications
- Reduced need for equipment (such as drainage bags)
- Less barriers to intimacy and sexual activities
- Potential for reduced lower urinary tract symptoms (frequency, urgency, incontinence) between catheterizations



Source: Adapted from Newman & Wein, 2009

ADDITIONAL RECOMMENDATIONS

Intermittent Catheterization



- Non-acute setting – may use clean technique
 - (Newman-2008)
- Perform at regular intervals to avoid bladder distension
- Bladder volume should not exceed 400 cc
 - (Newman-2008)
- Consider hydrophilic catheters over standard
 - (HICPAC, 2009)



RECOMMENDATIONS FOR SINGLE USE Intermittent Catheterization



- **Clinicians should follow** manufacturer's instructions for catheter use, which recommend single-use devices should NOT be re-used in any setting
- **Patients should be provided** with an adequate number of catheters to allow the *use of a single catheter for each catheterization*
- **Clinicians should inform** patients, family members, and care givers that catheters are for single use only
- **CMS** has not made a recommendation on re-use of catheters, but in the Spring 2008, **increased monthly catheter utilization up to 200 catheters**

Intermittent Catheterization

TECHNIQUES



Aseptic (sterile) Intermittent Catheterization (IC)

-May be “No Touch” catheterization

Clean Intermittent Self-Catheterization (CIC)

Intermittent Self-Catheterization (ISC)

NURSING CONSIDERATIONS

Intermittent Self-Catheterization (ISC)



- **Ideal/Successful Candidate**

- Unobstructed urethra
- Good vision
- Good perineal hygiene
- Compliant, motivated patient or caregiver
- Able to perform other self-care (dressing, transfers)



- **Problem Patient**

- Obesity or large abdominal girth
- Women with abductor spasms

BARRIERS

to Intermittent Self-Catheterization (ISC)

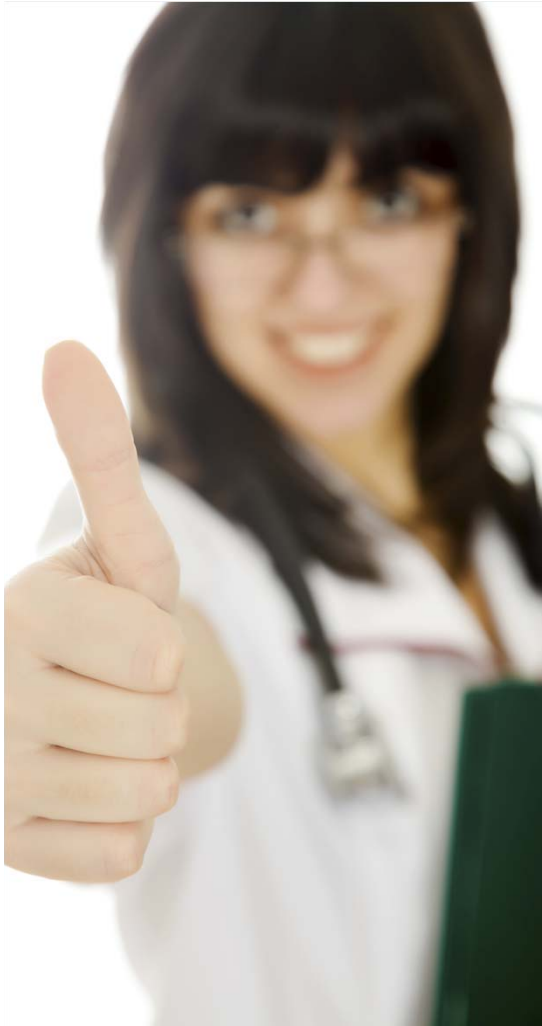


- FEAR – reservations based on fear of inability to perform
- Age – should not be a barrier
- Decreased perineal sensation
- Spasm of the leg, decreased flexibility or balance
- Decreased hand/finger dexterity
- Intentional hand/arm tremors
- Children – may exhibit anger, frustration, non-compliance and may need close adult supervision



TEACHING

Intermittent Self-Catheterization (ISC)



- Identify someone who can assist
 - Needs to be available several times per day
 - For extended period of time in the beginning
- Pay attention to patient's personal hygiene
 - Hand washing!!
 - Cleaning of genitalia
 - Handling of the catheter prior to insertion
- Good hygiene is important to help avoid UTIs
- Teach signs and symptoms of UTI, both common and uncommon

Intermittent Self-Catheterization (ISC)

POSITIONS



WOMEN

- Lying on a bed in a semi-sitting position
- Sitting on the toilet and leaning back
- Squatting or standing over the toilet
- Standing with one leg on the toilet or bath tub
- Teach by “touch” – mirrors cumbersome to use

MEN

- Sitting on toilet
- Standing in front of toilet or sink
- Hold penis in upright position to straighten the S-shape



Catheterization Schedule



- Based on the urine volume –
general rule not to exceed 400 cc
- Usual – 4-6 times per day
- Catheterize:
 - Before going to sleep
 - Upon awakening
 - This will probably be the largest catheterized urine volume



Living With A Catheter

- **Takes about one year** for a person to adjust to living with a catheter
- May experience many **worries & fears:**
 - Fear of catheter falling out
 - Concerns of urine odor
 - Being wet in public
 - Visibility of catheter/drainage bag
 - Inability to express feelings about the catheter
 - Difficulties with sexual expression





PREVENTION OF UTI:

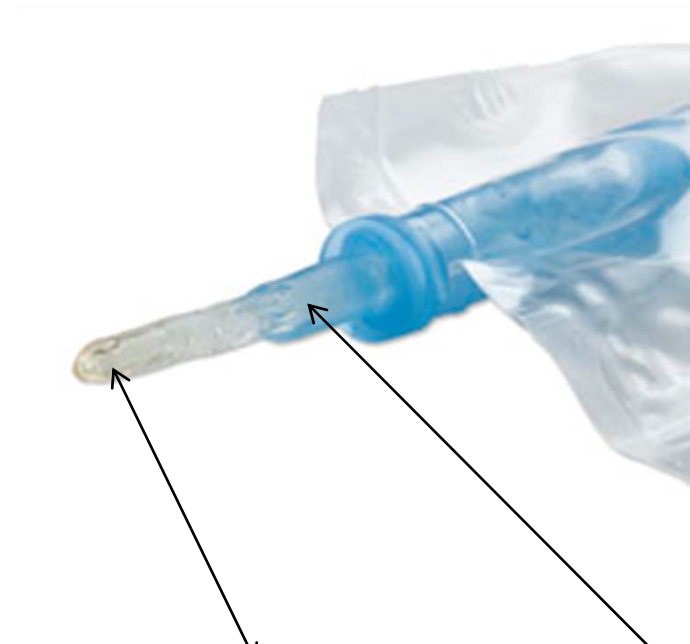
Use of Introducer Tip and Sleeve

- Catheters with “introducer tip” which bypasses the colonized 1.5 cm of the distal urethra
 - May decrease incidence of UTI



catheter

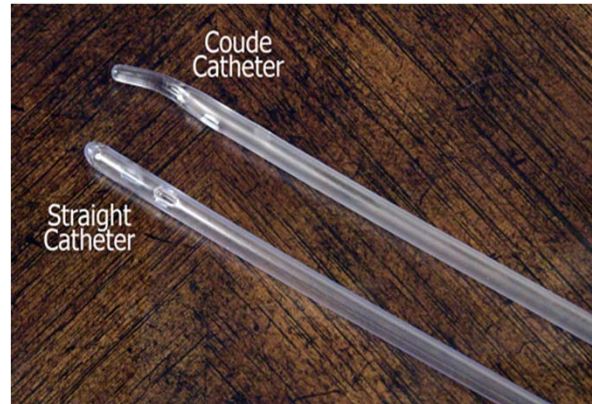
Introducer tip



catheter

Introducer tip

TYPES of Intermittent Catheters



EDUCATION & TRAINING



- Train patients and caregivers in proper techniques for catheter insertion and care
- Train on trouble shooting common problems:
 - Obstruction
 - Leakage
 - Bladder spasms
 - Encrustations
 - Balloon malfunction
- Educate on symptoms of CAUTI and when to call medical practitioner

TOGETHER...



we can all strive to PROVIDE the
BEST POSSIBLE OUTCOMES
for the catheterized patient!!





This concludes our presentation. Thank you for joining us.



Questions?

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