ADULT UCSF CATHETER-ASSOCIATED URINARY TRACT INFECTION (CAUTI) PREVENTION GUIDELINES

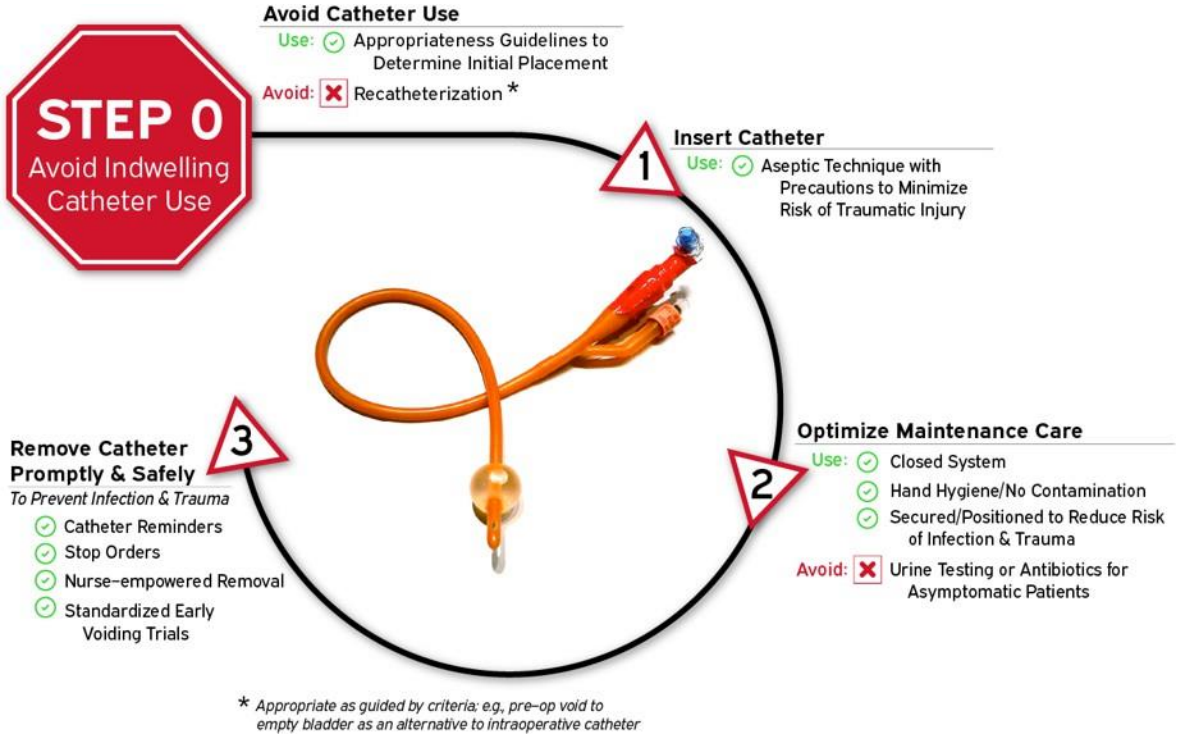
I. Introduction

Urinary tract infections (UTIs) are the most common type of healthcare associated infection accounting for more than 30% of infections reported by acute care hospitals. About half of UTIs among hospitalized patients are attributable to indwelling urinary catheters (IUCs). Catheter-associated UTIs (CAUTIs) contribute to increased morbidity, mortality, hospital cost, and length of stay. In addition, bacteriuria commonly leads to unnecessary antimicrobial use and urinary drainage systems can become reservoirs for pathogens.

Pathogens can enter the urinary tract either by the extraluminal route along the outside of the IUC in the periurethral mucous sheath or by the intraluminal route along the internal lumen of the catheter from a contaminated collection bag, port, or junction. Pathogens can migrate to the bladder along the outside of the IUC or the inside of the catheter lumen after the bag or connections have been contaminated.

Between 12% and 16% of hospitalized patients receive short-term indwelling urinary catheters; studies suggest that up to half are placed without an appropriate clinical indication. Duration of catheterization is directly related to risk of developing a urinary tract infection. The most effective way to reduce the number of these infections is to reduce the number of patients with indwelling urinary catheters and to reduce the number of days urinary catheters are in place. The daily risk of bacteriuria is 3% to 7%. IUC are also associated with non-infectious complications including urethral inflammation and strictures, mechanical trauma, and mobility impairment.

Preventing CAUTI: Disrupting the life cycle of the indwelling urinary catheter



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II. Avoid unnecessary use of indwelling urinary catheter (IUCs)

a. IUCs should be inserted only when medically necessary and left in place only for as long as medically indicated.
b. When used, the need for a urinary catheter **should be assessed on at least a daily basis** and the catheter removed when indications are no longer active (see Nurse Driven Protocol below).
c. **Appropriate indications** for inserting and maintaining IUCs:
    i. Need for accurate **hourly** inputs & outputs in **critically ill** patients (e.g., actively adjusting care on an hourly basis based on the I&Os)
    ii. Acute urinary retention or obstruction and unable to perform clean intermittent catheterization
    iii. Healing promotion for perineal/sacral wounds (stage III/IV) without alternative management strategies
    iv. Required prolonged immobilization (e.g., unstable spine)
    v. To use perioperatively for selected surgical procedures:
        1. Urologic surgery or other surgery on contiguous structures of the genitourinary tract
        2. Anticipated long duration of surgery (catheters inserted for this reason should be removed in PACU)
        3. Patients anticipated to receive large-volume infusions or diuretics during surgery
        4. Operative patients for whom urinary incontinence would compromise the wound
        5. Need for intraoperative monitoring of urinary output
    vi. Hazardous material contained in urine (e.g., chemotherapy or radiation) and patient is incontinent
    vii. To improve comfort for end of life care, if needed (culturing and treating UTIs would not be within goals of care)
    viii. Continuous bladder irrigation, IUC medication administration, or bladder pressures
    i. Chronic urinary obstruction and unable to perform clean intermittent catheterization (CIC).
d. Indwelling catheters **should NOT be used:**
    i. As a substitute for urinary incontinence care
    ii. As a means of obtaining urine specimens for diagnostic tests when either the patient can voluntarily void or urine can be collected with external collection devices
    iii. For prolonged postoperative duration without appropriate indications (see appropriate indications above)
    iv. Routine use for patients receiving epidural anesthesia/analgesia
    v. For patient preference
e. Consider using alternatives to indwelling urethral catheterization in selected patients when appropriate
    i. Consider using external urinary collection devices as an alternative to indwelling urethral catheters in cooperative patients without urinary retention or bladder

outlet obstruction. There are products available for both types of external genitalia.

ii. Consider alternatives to chronic indwelling catheters, such as intermittent catheterization, in spinal cord injury patients.

iii. Intermittent catheterization is preferable to indwelling urethral or suprapubic catheters in patients with bladder emptying dysfunction

1. In the acute care setting, use sterile technique and equipment (i.e., single-use catheters) for intermittent catheterization.
2. If intermittent catheterization is used, perform it at regular intervals to prevent bladder over distension.
3. When available, use a portable ultrasound device to assess urine volume for patients undergoing intermittent catheterization to assess urine volume and reduce unnecessary catheter insertions. Please refer to the Post-Urinary Catheter Management Algorithm [insert link to diagram].
    a. If ultrasound bladder scanners are used, indications for use must be clearly stated.
    b. Nursing staff must be trained in their use.
    c. Equipment must be adequately cleaned and disinfected in between patients

III. IUC insertion

a. Maintain a sterile, continuously closed drainage system.
b. Perform hand hygiene immediately before and after insertion of the catheter and before and after any manipulation of the catheter site or apparatus.
c. Ensure that only properly trained persons who are competent in the correct technique of aseptic catheter insertion and maintenance are given this responsibility.
d. Insert catheters using aseptic technique and sterile equipment.
    i. Use sterile gloves, sterile drape, sterile sponges, an approved sterile antiseptic solution for cleaning the urethral meatus, and a sterile single-use packet of lubricant jelly for insertion.
e. Use a catheter with the smallest feasible diameter consistent with proper drainage to minimize urethral trauma; consider other catheter types and sizes when warranted for patients with anticipated difficult catheterization to reduce the likelihood that a patient will experience multiple, sometimes traumatic, catheterization attempts.
f. Properly secure IUCs with a catheter secure device or equivalent after insertion to prevent movement and urethral traction.

IV. Care and maintenance of IUCs

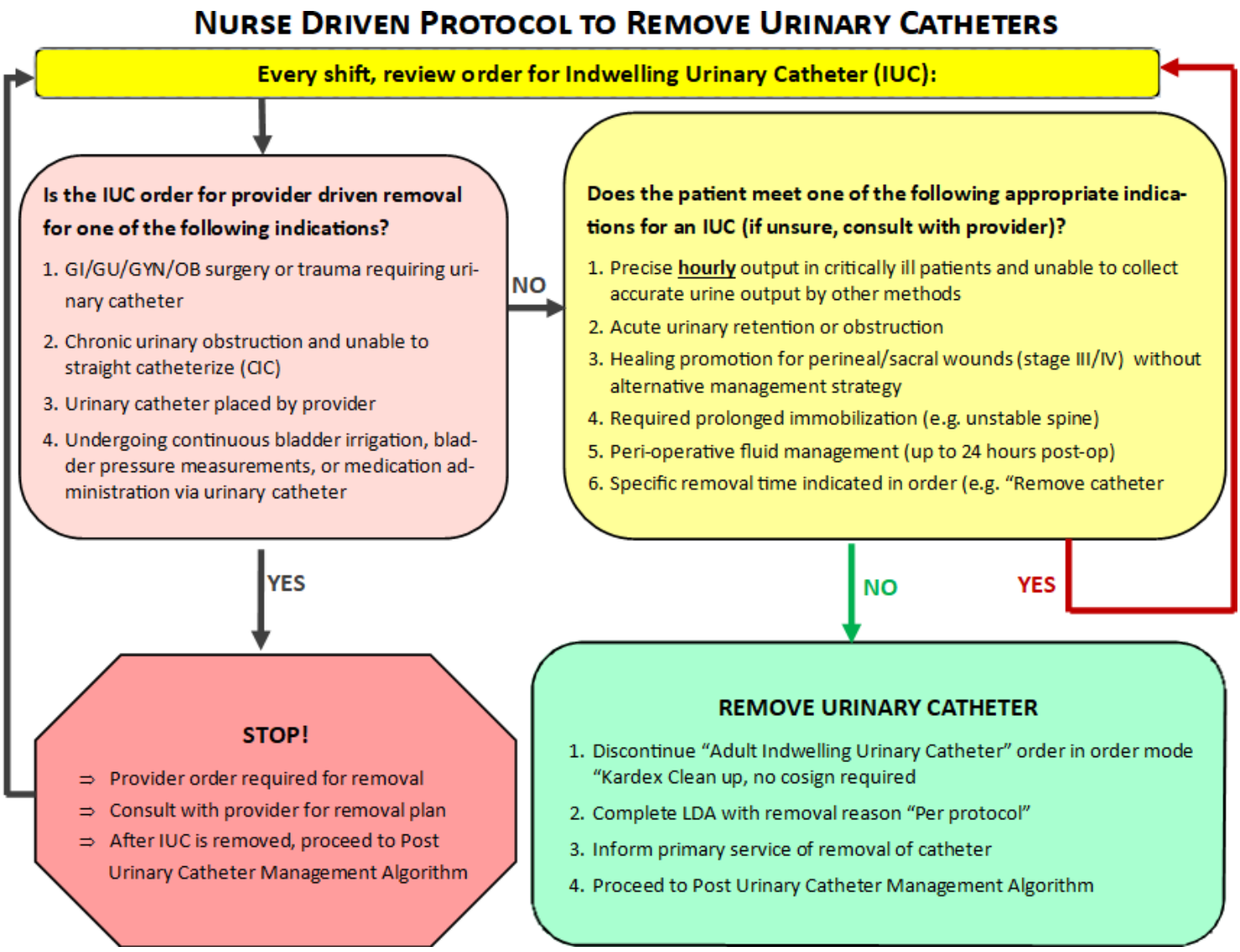
a. Maintain a sterile, continuously closed drainage system.
    i. If breaks in aseptic technique, disconnection, or leakage occur, replace the catheter and collecting system using aseptic technique and sterile equipment.
    ii. Use a urinary catheter system with a preconnected, sealed catheter-tubing junction.
b. Maintain unobstructed urine flow.
    i. Remind bedside caregivers, patients, and transport personnel to always keep the collecting bag below the level of the bladder.
    ii. Do **not** place the bag on the floor.
    iii. Keep the catheter and collecting tube free from kinking.

iv. Empty the collecting bag regularly using a separate, clean collecting container for each patient. Avoid touching the drainage spigot to the collecting container.

c. Use 2% CHG wipes for meatal and catheter cleaning twice a day.
   i. Assess urethral meatus and surrounding tissues for inflammation, swelling, erosion and discharge.
   ii. Clean the genitalia and perineum with CHG. Then use CHG cloth to cleanse catheter by wiping from urethral opening down tubing six inches.
   iii. Avoid vigorous meatal cleansing as this may increase risk of infection
d. Do not routinely use systemic antimicrobials to prevent CAUTI.
e. Do not use bladder irrigation as a strategy to prevent infection.
   i. If continuous irrigation is being used to prevent obstruction, maintain a closed system.
   ii. Do not perform continuous irrigation of the bladder with antimicrobials as a routine infection prevention measure.
f. <u>Do not change IUCs or drainage bags at routine, fixed intervals. Catheters and drainage bags should be changed based on clinical indications such as infection, obstruction, or when the closed system is compromised.</u>
   i. <u>In the case of a patient with a catheter in place for more than 7 days, the catheter must be replaced (unless contraindicated) prior to urine culture specimen collection to obtain a fresh sample.</u>

V. Remove indwelling urinary catheters as soon as no longer clinically needed

a. Use the **Nurse Driven Protocol (NDP)** for IUC removal
   i. Nurse Driven Protocol is set as the default order for IUC insertion
   ii. Provider Driven Protocol can be selected at the time of the IUC insertion order for selected patients:
      1. GI/GU/OB/GYN surgery or trauma requiring an IUC
      2. Chronic urinary obstruction requiring outpatient management prior to admission and unable to straight catheterize
      3. Urinary catheter placed by a Urology provider
      4. Undergoing continuous bladder irrigation, bladder pressure measurements, or medications administered through the urinary catheter
b. For patients with a NDP order, nursing staff assess the presence or absence of clinical indications for IUC during each shift and should remove the IUC if indications are no longer active



VI. Avoid unnecessary reinsertion of IUCs

a. Refer to Bladder Care Protocol

VII. Order urine cultures only when clinically appropriate

a. **Appropriate** reasons to order a urine culture
   i. Presence of symptoms suggestive of a urinary tract infection such as:
      1. Flank pain or costovertebral angle tenderness
      2. New hematuria
      3. New pelvic discomfort
   ii. New onset or worsening sepsis without evidence of another source on history, physical examination, or laboratory testing
   iii. Fever or altered mental status without evidence of another source on history, physical examination, or laboratory testing
   iv. In spinal cord injury patients and other highly complex patients (e.g., patient

with over 40% total body burn, kidney transplant recipients with graft failure): increased spasticity, autonomic dysreflexia, sense of unease.

b. **Inappropriate** reasons to order a urine culture
    i. Odorous, cloudy, or discolored urine in the absence of other localizing signs/symptoms
    ii. Pyuria in the absence of other indications
    iii. Urine culture to document response to therapy unless symptoms fail to resolve
c. If UTI is not suspected and a urinalysis is needed for non-infectious evaluation, select "urinalysis with microscopy".
d. Select "urine culture if urinalysis abnormal" for most patients
    i. Completion of urine culture will be contingent on a urinalysis with >10 WBC/hpf
    ii. UTI is very unlikely in the absence of pyuria
e. Can consider selecting "urine culture restricted to high-risk populations (with the option to also perform a urinalysis)" for these patient populations with UTI is clinically suspected:
    i. Pregnant women
    ii. Positive point of care urinalysis
    iii. Children <24 months of age
    iv. Neutropenia with absolute neutrophil count (ANC) <500 (or anticipated drop to <500 in 24 hours)
    v. Renal transplant within 3 months or needing augmented immunosuppression
    vi. Inability to mount an inflammatory response in the urinary tract due to immunocompromised state
    vii. Patients undergoing urologic procedures in which mucosal bleeding is expected
    viii. Suspected complete urinary tract obstruction
    ix. Urine collected surgically
    x. Other high-risk population (must be specific)
f. Protocol for urine sample collection for patients with an IUC
    i. Collect a small sample by aspirating urine from the needleless sampling port with a sterile syringe/cannula adaptor after cleansing the port with disinfectant