

CAUTI Bundle

Evidence-Based Guideline that addresses catheter indication, insertion, and maintenance

The Problem: Urinary Catheter and Hospital Acquired Infections

Urinary tract infections (UTIs) are one of the most common types of healthcare-associated infections (HAIs), accounting for more than 30% of infections reported by acute care hospitals . Virtually all healthcare-associated UTIs are caused by instrumentation of the urinary tract. Each day the indwelling urinary catheter remains, a patient has a 3%-7% increased risk of acquiring a catheter-associated urinary tract infection (CAUTI). Therefore, to prevent CAUTIs from occurring, catheters must be used only for appropriate indications and must be removed as soon as they are no longer needed.

“The Bundle” as a Prevention Strategy

The prevention strategies for CAUTIs have been grouped into this bundle.

The clinical components of reducing CAUTI consist of three parts:

1. Appropriate catheter use.
2. Proper catheter insertion and maintenance.
3. Prompt catheter removal.

The CAUTI Prevention Bundle is intended to be used in all patient care areas in acute care hospitals.

Consider using two staff members to perform all catheter insertions. The second staff member can function as a “helper” assisting with patient positioning or serving as a runner if more supplies are needed during catheter placement.

<i>Prevention Bundle Element</i>	<i>Care Descriptions</i>
APPROPRIATE USE	
Insert catheters <u>only</u> for appropriate indications (Table 1 for guidance), and leave in place only as long as needed	<ul style="list-style-type: none"> • Use urinary catheters in operative patients only as necessary, rather than routinely^φ • Risk Factors - prolonged catheterization, impaired immunity, female sex⁽⁴⁾ • For operative patients who have an indication for an indwelling urinary catheter, remove the catheter as soon as possible postoperatively, preferably within 24 hours, unless there are appropriate indications for continued use^φ
Consider using alternatives to indwelling urethral catheterization in selected patients when appropriate	<ul style="list-style-type: none"> • Consider intermittent catheterization, suprapubic catheters, bedside commode, urinal, incontinence garments • Bladder scanner - Use this tool to assess and confirm urinary retention before placing a catheter to address suspected urinary retention in order to reduce unnecessary catheterization when the bladder’s volume is not the cause of the patient’s symptoms

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INSERTION	
Use aseptic technique and sterile equipment for insertion ^Δ	<ul style="list-style-type: none"> • Perform hand hygiene immediately before and after insertion or any manipulation of the catheter device or site^Φ • Use sterile gloves, drape, sponges, and appropriate antiseptic or sterile solution for per urethral cleaning, and a single packet of lubricant jelly for insertion^Φ
Properly secure indwelling urinary catheters after insertion to prevent movement and urethral traction ^Φ	
Avoid unnecessary catheterization ^Δ	<ul style="list-style-type: none"> • Appropriate indications for catheter use • Only when there is a physician order
MAINTENANCE	
Maintain closed drainage system ^Δ	<ul style="list-style-type: none"> • If breaks in aseptic technique, disconnection, or leakage occur, replace the catheter and collecting system using aseptic technique and sterile equipment^Φ
Maintain hygiene ^Δ	<ul style="list-style-type: none"> • Perform perineal hygiene at minimum daily • Use Standard Precautions, including the use of gloves and gown as appropriate, during any manipulation of the catheter or collecting system^Φ • Do not clean the periurethral area with antiseptics to prevent CAUTI while the catheter is in place^Φ
Keep bag below level of bladder ^Δ	<ul style="list-style-type: none"> • Position drainage bag below bladder level and above the floor to prevent reflux or contamination^Φ
Maintain Unobstructed flow ^Δ	<ul style="list-style-type: none"> • Keep the catheter and collecting tube free from kinking^Φ
Remove catheter when no longer needed ^Δ	<ul style="list-style-type: none"> • Review necessity <u>daily</u> • Document indication <u>daily</u> • Do not change catheters routinely for the purpose of preventing CAUTI. Consider changing the urinary system in the event of infection, obstruction, or a break or leak of the closed system.
Secure Catheter ^Φ	

www.solutionsforpatientsafety.org,
<https://www.cdc.gov/infectioncontrol/pdf/guidelines/cauti-guidelines-H.pdf>

^Δ*Standard Element* → Strong Evidence/Recommendation supported by high to moderate quality evidence suggests that implementation of this element is associated with significant decrease in patient harm.

^Φ*Recommended Element* → A strong recommendation supported by low quality evidence suggesting net clinical benefits or harms or an accepted practice supported by low to very low quality evidence.

Prompt Catheter Removal

Nurses and physicians should be aware of the indications for urinary catheter use and should continually monitor the patient's ongoing need for a catheter. Nurses evaluating their patient's catheter use and finding no current indication should contact the physician to promptly discontinue the catheter or independently remove following the [DCMC Urinary Catheter Removal Algorithm](#).

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Table 1: Appropriate Indwelling Urinary Catheter Use

Insert catheters only for appropriate indications (see list below for guidance), and leave in place only as long as needed.

1. Indications for Catheter Placement

- a. Perioperative use for selected surgical procedures (e.g. urologic surgery, prolonged duration of surgery, receiving large volume infusions or diuretics during surgery, need for intraoperative I&O)
- b. Bladder obstruction/acute urinary retention
- c. Patient requires prolonged immobilization (e.g. unstable thoracic or lumbar spine, pelvic fracture)
- d. Strict intake and output in critically ill patient
- e. Healing of open sacral or perineal wounds in incontinent patients
- f. Improve comfort for end of life care
- g. Catheter inserted by urologist with orders not to remove

2. Catheter placement is **NOT** appropriate for:

- a. A substitute for nursing care of an incontinent patient
- b. As a means of obtaining urine for culture or other diagnostic tests when the patient can perform a clean catch
- c. Prolonged postoperative duration without appropriate indications

References

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5. PolicyStat: Urinary Catheters – Inserting, Maintaining, and Discontinuing – Pediatrics/ NICU Procedure)
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DCMC Evidence-Based Outcomes Center

Pearls

- Indwelling Urinary Catheter dwell time is a significant risk factor for patients who develop CAUTIs
- Prompt removal of IUC at the earliest possibility has been a cornerstone of CAUTI prevention.¹
 - Longer duration of catheterization and female sex are both risk factors for the development of CAUTI.
 - Goudie et al studied healthcare-associated infections in the pediatric population and found that the risk of CAUTIs in girls was more than three times higher than that in boys.²

Evidence-based best practices (American Nurses Association - ANA, 2021):

- Determine if indwelling urinary catheter (IUC) is appropriate per CDC guidelines (CDC, 2009)
- Select smallest appropriate IUC
- Obtain assistance PRN to facilitate appropriate visualization/insertion technique
- Hand hygiene before and after catheter insertion or manipulation
- Perform peri-care and then re-perform hand hygiene
- Maintain strict aseptic technique throughout IUC insertion; re-perform hand hygiene upon completion
- Insert IUC to appropriate length and check urine flow before balloon inflation to prevent urethral trauma
- Inflate IUC balloon correctly
- Perform Triple Action for IUC/Drainage System

Other evidence-based practice recommendations:

- Use urinary catheters only when necessary and for shortest time possible
- Assess catheter use at least daily and remove as soon as possible
- Ensure only properly trained individuals are responsible for insertion and maintenance of catheters
- Empty collection bag regularly using separate container for each patient
- Utilize reminders to remove unnecessary catheters
- Implement guidelines/protocols for nurse-initiated removal of unnecessary catheters
- Provide education and performance feedback to staff regarding appropriate use of catheters, hand hygiene, and catheter care

Catheter Selection:

- Use the smallest urinary catheter bore possible consistent with good drainage, to minimize trauma to the urethra and bladder neck, unless otherwise clinically indicated.
- Guidelines for appropriate catheter SIZE based on weight:

<1000g	1000g-1800g	>1800g-5kg	6-9 kg	10-11 kg	12-14 kg	15-23 kg	24-36 kg	>36 kg
3.5F	5F	6.5F	8F	8-10F	10F	10-12F	12F	14F or >

2016 PALS pocket guide, American Heart Association, American Association of Critical-Care Nurses Policies, Procedures, and Competencies for Neonatal Nursing Care (2011), National Association of Neonatal Nurses

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