01.46 - Prevention of Catheter-Associated Urinary Tract Infections (CAUTI)

Audience
All employees of UTMB hospitals, clinics, outpatient surgical center, licensed independent practitioners, contract workers, and students.

I. Catheter Use
   A. Urinary catheters should be inserted only when necessary and left in place only for as long as necessary. They should not be used solely for the convenience of patient-care personnel or patient preference.
      1. Alternatives to indwelling catheters must be considered first if suitable in a specific patient. These include the use of external male (‘condom’) catheter and vacuum-assisted female (e.g. ‘Purewick’), intermittent bladder catheterization and bladder massage.
   B. To avoid urethral strictures associated with prolonged transurethral catheterization, suprapubic or transurethral catheterization should be considered in patients who need prolonged bladder catheterization for more than 4 weeks (e.g. those with neurogenic bladder or ulceration in perineal area).

II. Leadership for Appropriate Catheter Use
   A. The clinical unit dyads will oversee and support the safe use of urinary catheters as outlined in this policy.

III. Indications for Indwelling Bladder Catheters
   A. Bladder catheters must be inserted only when there is an indication to do so. Indications include:
      1. Acute urinary retention
      2. End of life care
      3. Critically ill-need accurate I/O measurement
      4. Selected surgical procedures-GU or colorectal surgery
      5. To assist in healing open sacral or perineal wound in the incontinent patient
      6. Intraoperative monitoring
      7. Prolonged immobilization
   B. Orders for insertion and discontinuation
      1. Foley catheters may be inserted in patients only by an order from a physician.
      2. When a Foley catheter is ordered by a physician, the physician must check the indication for catheter insertion from a drop down list of indications in EPIC.
      3. The order will include the approval to discontinue the catheter if the Nursing assessment indicates that the catheter is no longer necessary and the patient’s primary care team is in agreement.
      4. The nurse will discontinue the catheter unless the patient’s primary care team determines that the catheter is needed. The physician will document the indication(s) and rationale for continued use of the indwelling catheter. Please see Appendix 2: UTMB Indwelling Urinary Catheter Nurse Driven Protocol Discontinuation Algorithm.

IV. Indwelling Transurethral Catheters Present on Admission or Placed Emergently
   A. If an indwelling transurethral urinary catheter is present on admission, it should be removed immediately, and a new catheter inserted if still warranted.
Consider alternatives, including external male and female urinary catheters.

B. If an Indwelling transurethral urinary catheter is placed emergently, it must be removed as soon as possible \textit{after no longer than 48 hours} since adherence to aseptic technique cannot be ensured, a baseline urine culture obtained, and a new catheter inserted if still warranted.

V. Catheter Insertion

A. Personnel who insert urinary catheters must be trained in proper insertion technique.

B. Hand hygiene must be performed with an antimicrobial soap and water or an alcohol handrub before insertion and immediately before and after any manipulation of the catheter site or drainage system.

C. Catheters shall be inserted using aseptic technique and sterile equipment.

D. Sterile gloves, drape, sponges, and appropriate antiseptic solution for periurethral cleansing, and a single-use packet of sterile lubricant jelly shall be used for insertion.

E. As small a catheter as possible, consistent with good drainage, should be used to minimize urethral trauma.

F. Only one attempt at insertion is allowed for each catheter; a new catheter must be used for each attempt until the catheter can be inserted without contamination.

G. Indwelling catheters should be properly secured after insertion to prevent movement and urethral traction.

VI. Documentation for Catheter Insertion

A. The following information must be documented in the patient's medical record after catheter insertion
   1. Indication(s) for catheter insertion
   2. Date and time of catheter insertion
   3. Individual who inserted the catheter

B. The date and time of removal of the catheter should also be documented in the patient's medical record.

C. Include documentation in the nursing flow sheet, nursing notes or physician orders.

D. Documentation should be accessible in the patient's medical record and recorded in a standard format for data collection and quality improvement purposes.

VII. Reminders to Nurses to Assess Indications for Catheter.

A. Nurses will assess the indications for a catheter during each shift and will document in EPIC. If indications are not met for ongoing catheterization, the nurse will contact the physician for an order to discontinue the catheter.

B. The physician may also indicate that the catheter be removed and replaced with intermittent catheterization for a postoperative patient or the catheter be removed from a male patient followed by placement of a condom catheter.

VIII. Closed Sterile Drainage

A. A sterile, continuously closed drainage system sealed to the catheter must be maintained.

B. If breaks in aseptic technique, disconnection, or leakage occur, the catheter and collecting system sealed to the catheter should be replaced using aseptic technique.

IX. Irrigation

A. Irrigation should be avoided unless continuous bladder irrigation is ordered
by a physician.
B. The catheter-tubing junction must be disinfected before disconnection.

X. Specimen Collection
A. If small volumes of fresh urine are needed for examination, the sampling port should be cleansed with alcohol. After the alcohol has dried, urine should be aspirated with a sterile needle and syringe.
B. Larger volumes of urine for special analyses should be obtained aseptically from the drainage bag.
C. Culture collection
1. Prior to obtaining urine culture, please refer to Appendix 3 (Urine Culture Collection Algorithm) for proper indication and stepwise investigative approach through urinalysis followed by culture.
2. If the indwelling urinary catheter has been in place for at least 7 days, it should be removed and a new catheter be inserted aseptically prior to collection of urine sample for culture.
3. Urinary catheter tips should not be cultured and are not acceptable for diagnosis of a urinary tract infection.
4. Urine cultures must be obtained using appropriate technique, such as clean catch collection or catheterization. Specimens taken from an indwelling catheter must be aspirated from a disinfected sample port.
5. In infants, urine specimens should be collected by catheterization or superpubic aspiration; positive urine cultures from bag specimens are not acceptable.
6. Urine specimens collected for culture will be sent to the laboratory in a tube with a boric acid preservative (gray or yellow-top tube).

XI. Urinary Flow and Collection Bag
A. Unobstructed flow should be maintained.
B. To achieve free flow of urine:
   1. the catheter and collection tubing should be kept from kinking;
   2. the collection bag should be emptied regularly using a separate collection container for each patient (the drainage spigot and nonsterile collection container should never come in contact);
   3. collection bags should always be kept below the level of the bladder but should never touch the floor.
C. If the catheter becomes obstructed, it should be removed. If there is a continuing need for bladder catheterization, a new catheter should be inserted using the same aseptic technique described above. The newly inserted catheter must be sealed to a new sterile closed drainage system.

XII. Perineal Care
A. The perineum should be cleaned daily with soap and water and dried followed by an application of 2% chlorhexidine gluconate to reduce colonization of the perineal skin by bacteria.
B. Do not clean the perimeatal area with antiseptics to prevent CAUTI while the catheter is in place. Routine hygiene (e.g., cleaning of the perimeatal surface during daily bathing) is appropriate.

XIII. Catheter Change Interval: Indwelling catheters should be changed only as clinically indicated.

XIV. Use of Bladder Scanners
A. Refer to Appendix 1 for Bladder Scan Protocol.
B. Nursing staff must be trained in their use.
C. The equipment must be adequately cleaned and disinfected between patients according to the manufacturer’s instructions for use.
D. Use a portable bladder scanner to assess urine volume in patients undergoing intermittent catheterization to reduce unnecessary catheter insertions.
E. Bladder ultrasound readings should be taken immediately after voiding to get a more accurate assessment of residual volume.
F. Each bladder ultrasound should be confirmed with a second reading.
G. Consecutive readings should be taken until a full view of the bladder is obtained on the scanner.

XV. If two straight catheterizations were required, replacing the indwelling catheter should be considered.

XVI. Outcome Measures: Definitions of the National Healthcare Safety Network (NHSN) will be utilized to identify catheter-associated urinary tract infections.
http://www.cdc.gov/nhsn/pdfs/pscmanual/7psccaucitcurrent.pdf

XVII. Insertion of Foley catheters in the Emergency Department (ED)
A. All catheters inserted in the ED must be ordered by a physician.
   1. When the order is entered, it must state the indication for insertion of a Foley catheter.
   2. The only indications for Foley catheters are listed in section IIIA.
   3. Foley catheters are not indicated for:
      a. Fall prevention
      b. Routine urine specimens
      c. Staff request
      d. Excoriated skin
      e. Altered mental status
B. Alternatives to indwelling Foley catheters
   1. Unisex urinals may be used by both male and female patients to avoid use of a Foley catheter.
   2. External male and female urinary catheters should be used when possible.
   3. Bladder scanners should be used to measure post-void residuals rather than straight catheter insertions.
   4. Alternative products need to be stocked.
   5. Need adequate staff for toileting of patients regularly.
   6. More bathrooms may be needed.
C. Catheter insertion technique
   1. Foley catheters may not be inserted by nursing students, medical students or residents unless they are supervised by trained patient care technicians (PCTs) or ED nurses.
   2. For patients who are obese, two nurses should work together for safe insertion of Foley catheters.
   3. The patient’s perineum must be thoroughly cleaned with soap and water followed by application of chlorhexidine gluconate.
   4. Catheters must be inserted using aseptic technique and sterile equipment.
      a. Sterile gloves, drape, sponges, and appropriate aseptic solution for periurethral cleansing, and a single-use packet of sterile lubricant jelly should be used for insertion.
b. As small a catheter as possible, consistent with good drainage, should be used to minimize urethral trauma.

c. Only one attempt at insertion is allowed for each catheter; a new catheter must be used for each attempt until the catheter can be inserted without contamination.

d. Indwelling catheters should be properly secured after insertion to prevent movement and urethral traction.
APPENDIX 1: BLADDER SCAN PROTOCOL

Foley Catheter Present

NO

Has Patient Voided Within 4-6 hours

YE S

<180 ml within 4-6 hours

Perform Bladder Scan

YES

Post-Void Residual <300 ml within 2 hours

YES

Recheck PVR within 2 hours

NO

>180 ml within 4-6 hours

Adequate bladder emptying

Prompt Patient to Void

Perform Bladder Scan

YES

Post-Void Residual >300 ml within 2 hours

Notify Physician that the PVR >300 ml Perform Straight Catheterization Repeat scan every 4-6 hours Notify Physician that the PVR >300-500 ml

YES

If patient voids <180 ml repeat scan and follow PVR algorithm

If patient DOES NOT void Notify Physician
APPENDIX 2:

UTMB Indwelling Urinary Catheter – Nurse Driven Protocol Discontinuation Algorithm

Does patient meet any of the following CDC/UTMB approved criteria?

- Chronic indwelling catheter
- Urology or urogynecologic patient
- Known or suspected urinary retention or obstruction (tumors, strictures, clots)
- Unstable spinal/hip fracture
- Comfort measure, end of life care
- Wound healing/sacral pressure ulcer
- Gross hematuria
- Epidural/regional catheter
- Immediate post-op use
- Strict I/O critically ill

Yes

STOP
Do Not Discontinue Urinary Catheter
- Document need for catheter daily
- Follow maintenance interventions per protocol

No

Urinary Catheter insertion order includes approval for RN to discontinue the catheter if the Nursing assessment indicates that the catheter is no longer necessary

No

- If catheter in place, discuss with care team to confirm reason is not one of the above
- If none of above, obtain order to discontinue catheter
- Assess urination and bladder emptying

Yes

- The nurse will discontinue the catheter
- Document discontinuation per hospital policy

Reference:
https://www.utmb.edu/policies_and_procedures/Non-IHOP/Healthcare_Epidemiology/01.46%20%20Prevention%20of%20Catheter-Associated%20Urinary%20Tract%20Infections.pdf
APPENDIX 3:

**Urine Culture Collection Algorithm**

- **Symptoms suggestive of UTI (see Box A)**
- **New onset or worsening of sepsis without other identifiable causes**
- **Fever without other identifiable causes**
- **Spinal cord injury patients: increased spasticity, sense of unease, autonomic dysreflexia**

**Box A**
- Fever (>38.0°C)
- Suprapubic tenderness
- Costovertebral angle pain or tenderness
- New/worsening urinary frequency and/or urgency

**Box B**
- Replace urethral catheter if current one is in place for 7 days or longer
- Aseptically collect specimen by disinfecting catheter sampling port with alcohol prior to drawing urine sample
- Send samples using appropriate specimen tubes:
  - UA – red top
  - UCx – gray or yellow-top

**Box C**
- WBC >10/HPF AND
- Squamous epithelial cells ≤10 HPF (if available)

**Urine Culture (UCx) is not indicated**

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**Collect Urinalysis (see Box B)**

- **Positive (see Box C)**
- **Negative**

**Collect urine culture (See Box B)**

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**YES**

**NO**

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**Does the patient have any one of the following conditions?**
1. Neutropenic patients (ANC <500 cells/mm³) with symptom suggestive of UTI (see Box A)
2. Pregnant women
3. Patients undergoing urologic procedures
References


