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

Purpose

Catheter associated urinary tract infections (CAUTIs) are preventable by the appropriate use of urinary catheters and should never be used solely for the convenience of patient-care personnel (i.e. monitoring urine output) or patient preference (i.e. does not want to use urinal or immobile). The policy is intended to provide infection control guidelines for the proper placement and management of indwelling urinary catheter devices.

Audience

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

CAUTI Prevention Bundle

The key components of a CAUTI prevention bundle are as follows (further discussion below):

- Hand hygiene
- Aseptic technique
- Assess optimal catheter site selection
- Document indication for urinary catheter insertion in the medical record
- Document urinary catheter insertion and removal
- Document urinary catheter necessity and promptly remove when unnecessary
- Urinary catheter management strategies
  - Secure the urinary catheter
  - Maintain a closed drainage system
  - Maintain unobstructed urine flow and keep the catheter and connection tube free from kinking
  - Always keep the urine collection bag below the level of the bladder or hips
  - Empty collection bags regularly using a separate, clean, collection container for each patient

Urinary 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 transurethral catheters must be considered first if suitable in a specific patient. These include the use of external male (condom) catheter and vacuum-assisted female and male catheters (e.g. Purewick catheter), clean intermittent catheterization (CIC) and bladder massage.

B. To avoid urethral strictures, urethral erosion associated with chronic indwelling urethral catheterization, suprapubic catheterization should be considered in patients who need prolonged bladder catheterization for more than 4 weeks (e.g. those with neurogenic bladder, chronic urethral obstruction or ulceration in perineal area). Urinary tract infection associated with suprapubic catheter is not reportable to CDC/NHSN (only transurethral catheter infections are reportable). Consultation with the urology team should be obtained for suprapubic catheter placement plan in either inpatient or

outpatient settings.

Leadership for Appropriate Catheter Use

The clinical unit dyads will oversee and support the safe use of urinary catheters as outlined in this policy.

Indications for Indwelling Transurethral Catheters

A. Indwelling transurethral catheters must be inserted only when there is an indication to do so. Indications include the following but only when an external catheter cannot be used:

1. Acute urinary retention (**refer to Appendix A**)
    a. A urethral catheter should be considered for the purpose of acute urinary retention when at least one (1) of the following criteria are met:
        i. Clean intermittent catheterization has been performed every 4-6 hours for 24 hours and post residual volume has remained above 300 mL.
        ii. If self-voiding has not resumed within 48 hours and intermittent catheterization cannot be continued due to staffing or patient care issues, the urology team should be consulted for diagnosis and advice regarding the duration of catheter use as well as alternate urinary drainage methods.
    b. Transurethral urinary catheter inserted for management of acute urinary retention should not be used for more than 48 hours. The patient should be re-evaluated for ability to self-void or resuming intermittent catheterization.
    c. Use of bladder scanners to assess residual volume (**refer to Appendix A)**
        i. Nursing staff must be trained in their use.
        ii. The equipment must be adequately cleaned and disinfected between patients according to the manufacturer's instructions for use.
        iii. Use a portable bladder scanner to assess urine volume in patients undergoing intermittent catheterization to reduce unnecessary catheter insertions.
        iv. Bladder ultrasound readings should be taken immediately after voiding to get a more accurate assessment of residual volume.
        v. Each bladder ultrasound should be confirmed with a second reading.
        vi. Consecutive readings should be taken until a full view of the bladder is obtained on the scanner
2. Known or suspected chronic urinary retention or obstruction (tumors, strictures, clots)
3. End of life care, IF needed (patient should not be undergoing tests and treatments other than pain control)
4. Critically ill-need accurate input and output measurement
5. Selected surgical procedures-genitourinary or colorectal surgery
6. Urinary diversion (e.g. to assist in healing open sacral or perineal wound in the incontinent patient, open wounds/ pressure ulcers stage 3 or 4 or unstageable sacral pressure ulcer IF cannot be kept

clean with wound dressing or alternative urine collection devices)

7. Intraoperative monitoring
8. Prolonged immobilization

B. Orders for insertion and discontinuation

1. Urethral (Foley) catheters may be inserted in patients only by an order from a physician.
2. When a urethral catheter is ordered by a physician, the physician must check the indication for catheter insertion from a drop-down list of indications in electronic medical record (EMR).
3. The initial insertion order will include the approval to discontinue the catheter based on nursing assessment and discussion with the primary care team.
4. The treating physician will document in patient's progress note the indication(s) and rationale and duration for continued use of the indwelling catheter.
5. The nurse will assess the indications for a urinary catheter during each shift and will document in the EMR. If there is no physician documentation for indication(s), rationale, duration and if the criteria are met per the urinary catheter nurse-driven discontinuation algorithm, the nurse will discontinue the catheter (Refer to Appendix B (UTMB Indwelling Urinary Catheter Nurse Driven Discontinuation Algorithm)).

Indwelling Transurethral Catheters Present on Admission or Placed Emergently

A. If an indwelling urethral catheter is present on admission, it should be removed **immediately if contraindications do not exist (after review with the physician)**, or a new catheter inserted if still warranted. Consider alternatives, including external male and female urinary catheters.

B. If an Indwelling urethral catheter is placed emergently, it must be removed as soon as possible **(within 48 hours**) since adherence to aseptic technique cannot be ensured, a base line urine culture obtained, and a new catheter inserted if still warranted.

Chronic Urinary Catheters

To avoid urethral strictures and urethral erosion associated with chronic indwelling urethral catheterization, suprapubic catheterization should be considered in patients who need prolonged bladder catheterization for more than 4 weeks (e.g. those with neurogenic bladder, chronic urethral obstruction or ulceration in perineal area). Urinary tract infections (UTI) associated with suprapubic catheters are not reportable to CDC/NHSN (only transurethral catheter infections are reportable). Consultation with the urology team should be obtained for management of chronic transurethral catheters which includes a suprapubic catheter placement plan in either inpatient or outpatient settings

Catheter Insertion Technique

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 catheter should be properly secured after insertion to prevent movement and urethral traction and subsequent erosion, making sure it is without traction.

Documentation for Catheter Insertion

A. The following information must be documented in the patient's EMR after catheter
   1. Indication(s) for catheter insertion
   2. Date and time of catheter insertion
   3. Individual who inserted the catheter
   4. The size, type of urethral catheter (silicone vs latex; straight vs Coude), any difficulty, and how many mL filled the balloon.

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

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

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.

Irrigation

A. Bladder irrigation through urethral catheter should be avoided unless continuous or manual bladder irrigation is ordered by a physician. Irrigation is typically done because of hematuria or blood clots and may be indicated following interventions such as surgery, a traumatic urinary catheter insertion, or complex radiation cystitis. Bladder irrigation is not indicated when a catheter is blocked by sediment; instead, the catheter should be replaced. Routine bladder irrigation also should not be done for prevention of infection.

B. Bladder should be irrigated using the same aseptic precautions used for insertion of urethral catheter. The catheter-tubing junction must be disinfected before disconnection.

Specimen

A. If small volumes of fresh urine are needed for examination, The

Collection

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, (**refer to Appendix C** (**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 suprapubic 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).

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. The collection bag should always be kept below the level of the bladder but should never touch the floor. Catheter should be secured using fixation devices without traction.
4. If the catheter becomes obstructed, it should be flushed if it is new (≤ 48 hours) with sterile normal saline or water (60-120 cc). A physician order is required for this procedure. If the procedure fails, then consider inserting a new catheter using the same aseptic technique described above. Catheters that are older than 48 hours should be removed, and a new catheter inserted. The newly inserted catheter must be sealed to a new sterile closed drainage system. For procedures involving bladder irrigation, see section IX above.

Routine Bathing and Perineal Care

A. The perineum should be cleaned daily and as needed with soap and water and dried followed by an application of 2% chlorhexidine gluconate (CHG) to reduce colonization of the perineal skin by bacteria as needed (e.g. cleaning after bowel movements).

B. Routine hygiene (e.g., cleaning of the perimeatal surface during daily bathing) is appropriate.

C. Patients will be bathed daily and as needed (e.g. after bowel movements) with CHG from navel to knees while the indwelling urinary catheter is in place. (**Refer to Appendix D (CHG Bathing Guidelines)).**

Catheter Change Interval

Indwelling urethral catheters should be changed only as clinically indicated and not on a routine basis.

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/7psccauticurrent.pdf

Insertion of urethral catheters in the Emergency Department (ED)

A. All urethral 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 urethral catheter.
   2. The only indications for urethral catheters are listed in section IIIA.
   3. Urethral catheters are not indicated for:
      a. Fall prevention
      b. Routine urine specimens
      c. Staff request
      d. Excoriated skin
      e. Altered mental status

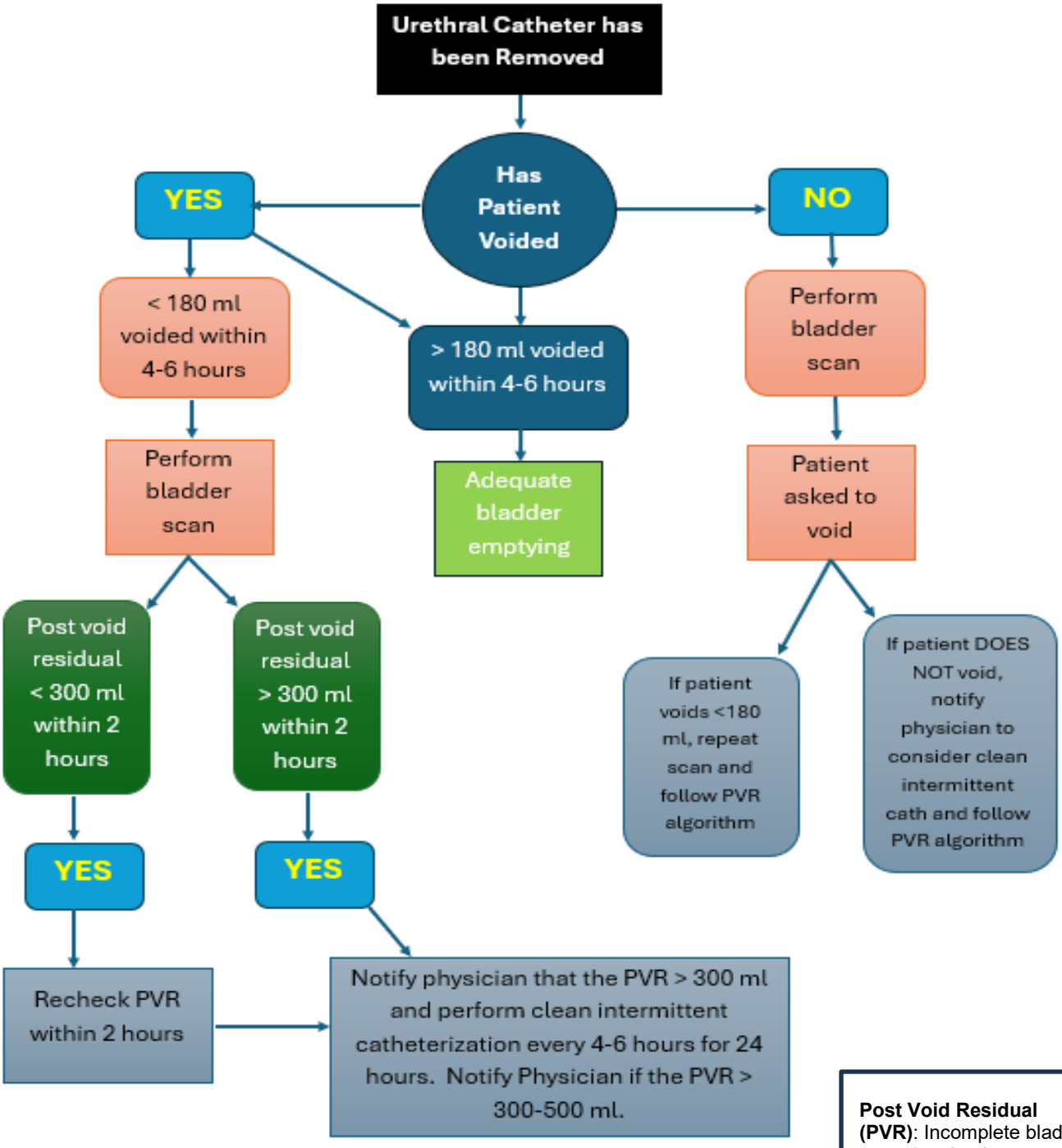
B. Alternatives to indwelling urethral catheters
   1. Unisex urinals may be used by both male and female patients to avoid use of a Urethral catheter.
   2. External male and female urinary catheters should be used when possible.
   3. Bladder scanners should be used to measure post-void residuals rather than straight catheter insertions.

C. Catheter insertion technique
   1. Urethral catheters may not be inserted by nursing students, medical students or untrained residents unless they are supervised by trained Registered Nurses.
   2. For patients who are obese, two nurses should work together to expose the meatus for safe insertion of urethral catheters.
   3. The patient's genital region 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 A

Bladder Scan Protocol



Post Void Residual (PVR): Incomplete bladder emptying that is measured as the volume of urine left in the bladder after voiding

Appendix B:

Indwelling Urinary Catheter Nurse Driven Catheter Discontinuation Algorithm

Does the patient have any of the following conditions that requires <u>physician permission</u> for catheter removal?

- Urology or urogynecology patient
- Known or suspected chronic urinary retention or obstruction (tumors, strictures, clots)
- Unstable spinal/hip fracture
- End of life care, IF needed
- Comfort care, IF cannot self-void or use external catheters
- Open wounds/ pressure ulcers stage 3 or 4 or unstageable sacral pressure ulcer IF cannot be kept clean with wound dressing or alternative external urine collection devices
- Ongoing gross hematuria
- Epidural/regional catheter
- Immediate post-op use (<24 hours)

NO

PROCEED

Discontinue urinary catheter

- Urinary catheter insertion order includes a conditional order for the registered nurse to discontinue the catheter after assessment indicates that the catheter is no longer necessary
- Document discontinuation per hospital policy

YES

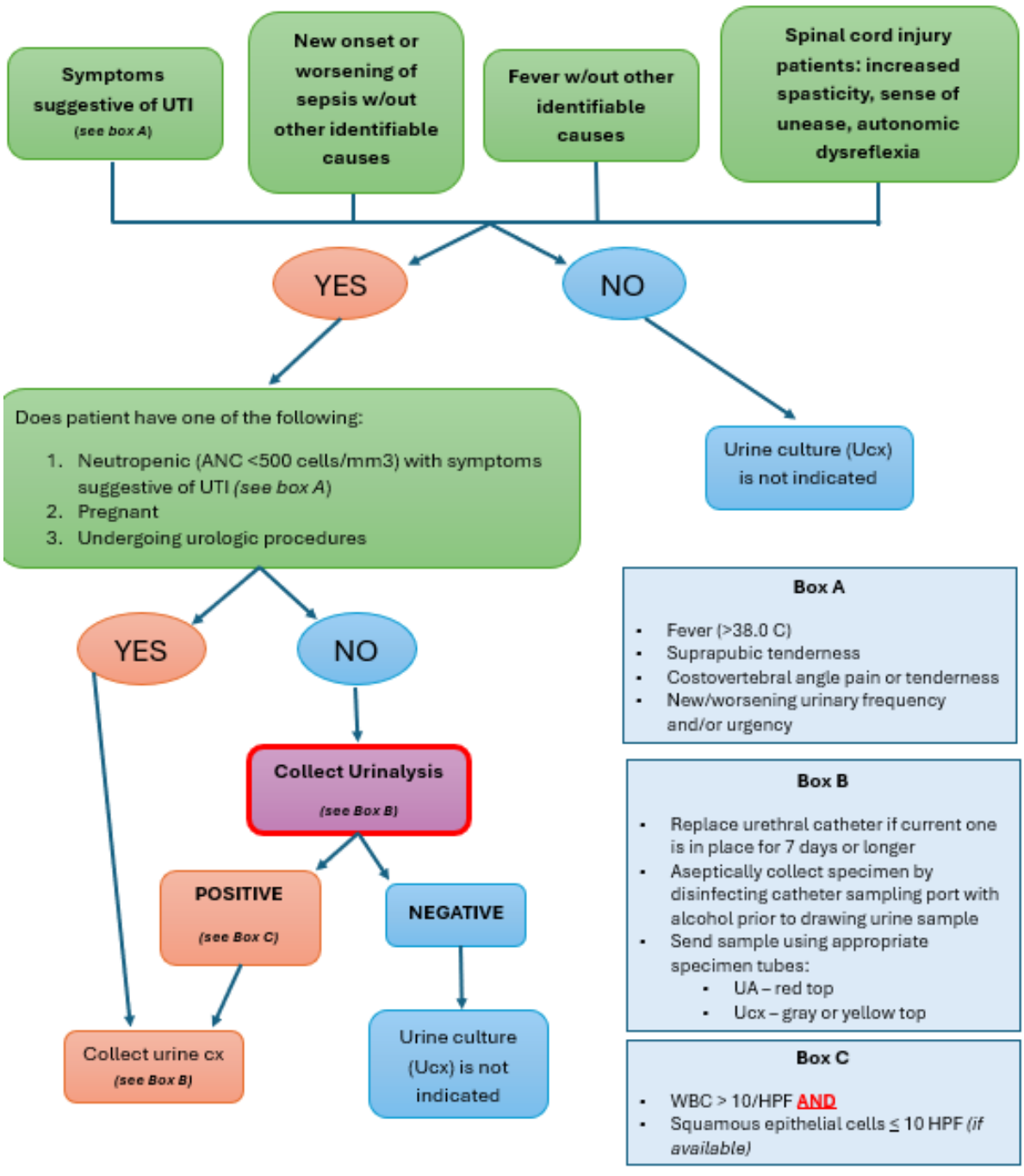
STOP

Do not discontinue urinary catheter

- Document need for catheter daily
- Follow maintenance interventions per protocol

Appendix C:

Urinary Culture Collection Algorithm



Appendix D:

Navel to Knees with Chlorhexidine Gluconate (CHG):

Preventing Catheter-Associated Urinary Tract Infections (CAUTI)

What is the "Navel to Knees with CHG" Campaign?

Extending catheter care and peri -care from the navel to knees with CHG wipes to prevent bacteria from migrating towards the catheter.

Supplies & Frequency:

- Clean pair of Gloves and 6 CHG wipes per each treatment.
- Daily and as needed (e.g. cleaning after bowel movements).

Schmuddle, Y., Olson-Sitki, K., Bond, J., & Chamberlain, J. (2019). Navel to Knees With Chlorhexidine Gluconate. Dimensions of Critical Care Nursing, 38(5), 236–240.

5 STEPS IN "NAVEL TO KNEES WITH CHG" TREATMENT

1 Perform hand hygiene and don clean gloves.

2 Use **wipe #1** to clean the indwelling urinary catheter tubing.

- Start with the tubing at the urethra and wipe down the tubing at the urethra and wipe down the tubing to include the bifurcated tubing at the statlock device.

3 Use **wipe #2** to perform perineal care on one side.

Female anatomy: wipe labia away from urinary meatus down towards the anus.

Male anatomy: wipe away from the urethra along the shaft of one side of the penis, then down along the perineum on the same side towards the anus.

Repeat action on the other side with wipe #3.

4 Use **wipe #4** to clean the abdomen and abdominal folds - wiping up in a zigzag (right to left) pattern away from the groin area to the navel.

5 Use **wipe #5** to clean one upper thigh leg - wiping down and away from the groin.

Repeat with wipe #6 to clean the other upper thigh.

Discard Gloves & CHG wipes. Perform hand hygiene.

Document NTK CHG treatment in I/O flowsheet within the Urethral Catheter LDA assessment

Urethral Catheter	
Urethral Catheter Properties	
Daily review of necessity	
Urine Catheter Maintenance	**Perineal/Cath**
Urine color	
Urine description	
Output (mL)	

utmb Health.

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