HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Infection Prevention and Control Department		
Document:	Multidisciplinary Policy and Procedure (MPP)		
Title:	Care and Prevention of Catheter-Associated Urinary Tract Infection (CAUTI)		
Applies To:	All MCH Department		
Preparation Date:	December 15, 2024	**Index No:**	IPC-MPP-045
Approval Date:	December 29,2024	**Version :**	4
Effective Date:	January 29, 2025	**Replacement No.:**	IPC-MPP-116(3)
Review Date:	January 29, 2028	**No. of Pages:**	11

1. PURPOSE:

1.1 To reduce the risk of developing CAUTI

1.2 To provide and standardize the knowledge and practice related to new and updated evidence-based recommendations for the prevention of catheter-associated urinary tract infection (CAUTI) for all of healthcare professionals in all healthcare settings.

2. DEFINITONS:

2.1 Catheter-Associated Urinary Tract Infection (CAUTI):

- 2.1.1 CAUTI is defined as a symptomatic urinary tract infection (SUTI) or asymptomatic bacteremic UTI (ABUTI) in a patient who had an indwelling urinary catheter.
- 2.1.2 Indwelling urinary catheter has to be in place for >2 days and in place at the date of event or the day before.

2.2 Urinary catheter bundle: Urinary catheter bundle is a group of evidence-based interventions for patients with urinary catheter that, when implemented together, result in better outcomes (reduce CAUTI) than when implemented individually.

2.3 Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.

2.4 Date of event (DOE): It is the date when the FIRST element used to meet the CAUTI criterion occurs for the first time within the 7-day infection window period.

2.5 Methods of catheterization

- 2.5.1 Indwelling urethral catheterization: Inserted via the urethra and remains in situ for a short or prolonged period of time. These devices are also called Foley catheters.
  - 2.5.1.1 Condom or straight in-and-out catheters are not included nor are nephrostomy tubes, ileoconduits, or suprapubic catheters unless a Foley catheter is also present.
  - 2.5.1.2 Indwelling urethral catheters that are used for intermittent or continuous irrigation are included in CAUTI surveillance.
- 2.5.2 Suprapubic catheterization: Inserted via the abdomen for a short or prolonged period of time.
- 2.5.3 Intermittent catheterization: Inserted via the urethra but removed once the bladder has drained.
- 2.5.4 Self-intermittent catheterization: intermittent catheterization performed by the patient.

3. POLICY:

3.1 Surveillance can be done in any inpatient location where denominator data can be collected, this includes • ICUs Note: • NICUs (may participate, but only off plan) • SCA • Other inpatient locations

3.2 Daily review of catheter necessity should be conducted for all patients with urinary catheters. It is the responsibility of assigned staff of critical care units to review for all devices.

3.3 Education and Training:

3.3.1 Annual education and training includes the training of targeted healthcare worker on insertion & maintenance of urinary catheters by implementation of care bundles. Review / track estimated percentage of staff who have received competency-based training.

3.3.2 Education at the orientation of new staff and regular education of HCWs is recommended.

3.4 Surveillance methodology: • Active • Patient based • Prospective • Priority-directed targeted • Yield risk-adjusted incidence rates

3.5 Urinary catheter removal and reinsertion:

3.5.1 If indwelling urinary catheter was removed and reinserted before a full calendar day without a urinary catheter, then continue the day count

3.5.2 Therefore if the patient is without a urinary catheter for at least one full calendar day (NOT to be read as 24 hours), then start a new day count

3.6 IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in the insertion and maintenance of urinary catheters regularly and corrective actions are applied accordingly.

3.7 Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets. bundle forms. and/or elsewhere in the medical record.

3.7.1 An "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. Analysis of data, see appendices 7.1

3.8 Analysis of CAUTI. See appendices 7.2

4. PROCEDURE:

4.1 Components of urinary catheter bundle:

4.1.1 Avoid unnecessary urinary catheters

4.1.1.1 No invasive device should ever be used unless absolutely necessary, including urinary catheters.

4.1.1.2 Following are the indications for placement of urinary catheters:

4.1.1.2.1 Perioperative use for selected surgical procedures

4.1.1.2.2 Urine output monitoring in critically ill patients

4.1.1.2.3 Management of acute urinary retention and urinary obstruction

4.1.1.2.4 Assistance in pressure ulcer healing for incontinent patients

4.1.1.2.5 As an exception, at patient request to improve comfort (SHEA-IDSA) or for comfort during end of life care (CDC).

4.1.1.3 Perioperative use for selected surgical procedures

4.1.1.3.1 Patients undergoing urologic surgery or other surgery on contiguous structures of the genitourinary tract

4.1.1.3.2 Anticipated prolonged duration of surgery (catheters inserted for this reason should be removed in post-anesthesia care unit)

4.1.1.3.3 Patients anticipated to receive large-volume infusions or diuretics during surgery

4.1.1.3.4 Need for intraoperative monitoring of urinary output

4.1.1.4 Alternatives to indwelling catheters include the following:

4.1.1.4.1 External condom catheters for male patients without urinary retention or bladder outlet obstruction have been shown to have lower risk of bacteriuria or symptomatic UTI.

4.1.1.4.2 Intermittent catheterization several times per day may have the same or lower risk of infection, yet provide the patient with greater mobility and ensure an indwelling catheter is not left in place longer than necessary

4.1.1.5 Placement of catheters for convenience should be avoided at all times, and nursing personnel should be fully educated about all risks associated with catheters, including infections, decreased mobility, and urethral trauma. Patient preference and comfort is an important consideration.

4.1.2 Insert catheter using aseptic technique

4.1.2.1 Make sure that the catheter is inserted only by trained personnel following aseptic technique. Note the following basic elements for insertion:

4.1.2.1.1 Utilize appropriate hand hygiene practice, immediately before and after insertion of the catheter

4.1.2.1.2 Insert catheters using aseptic technique and sterile equipment, by using:

4.1.2.1.2.1 Gloves, a drape, and sponges;

4.1.2.1.2.2 Sterile or antiseptic solution for cleaning the urethral meatus; and

4.1.2.1.2.3 Single-use packet of sterile lubricant for insertion

4.1.2.1.3 Use appropriate technique for catheter insertion

4.1.2.1.4 Use as small a catheter as possible that is consistent with proper drainage, to minimize urethral trauma.

4.1.2.2 A checklist may be a helpful tool for staff at the time of insertion and may also serve as a data collection tool to assess compliance.

4.1.2.3 Education and training of staff are fundamental. Organizations should train and verify competency of all clinical staff (nurses, physicians, residents, etc.) who may insert urinary catheters.

4.1.3 Maintain catheters based on recommended guidelines (daily care).

4.1.3.1 Appropriate hand hygiene practices are a basic standard of care. Standard precautions, including the use of gloves as appropriate, should be used during manipulation of the catheter site or apparatus.

4.1.3.2 Routine maintenance includes:

4.1.3.2.1 Maintain a sterile, continuously closed drainage system.

4.1.3.2.2 Keep catheter properly secured to prevent movement and urethral traction.

4.1.3.2.3 Keep collection bag below the level of the bladder at all times.

4.1.3.2.4 Maintain unobstructed urine flow.

4.1.3.2.5 Empty collection bag regularly, using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container.

4.1.3.2.6 Routine hygiene (e.g., cleansing of the meatal surface during daily bathing) is appropriate. Do not clean the periurethral area with antiseptics to prevent CAUTI while the catheter is in place.

4.1.3.2.7 Collection of urine samples should be done by aspirating urine from the needleless sampling port with a sterile syringe/cannula.

4.1.3.3 Some practices actually increase the risk of infection or other complications and should be avoided:

4.1.3.3.1 Irrigating catheters, except in cases of catheter obstruction;

4.1.3.3.2 Disconnecting the catheter from the drainage tubing;

4.1.3.3.3 Replacing catheters routinely (in the absence of obstruction or infection); and

4.1.3.3.4 Use aseptic technique to replace the collection system.

4.1.3.4 Appropriate catheter maintenance:

4.1.3.4.1 Maintain a sterile, continuously closed drainage system.

4.1.3.4.2 Keep catheter properly secured to prevent movement and urethral traction.

4.1.3.4.3 Keep collection bag below the level of the bladder at all times.

4.1.3.4.4 Maintain unobstructed urine flow.

4.1.3.4.5 Empty collection bag regularly, using a separate collecting container) for each patient, and avoid allowing the draining spigot to touch the collecting container.

4.1.3.4.6 Maintain meatal care with routine hygiene (bathing).

4.1.3.4.7 Use aseptic technique when the collection system must be replaced (in case of obstruction or infection).

4.1.3.5 Educating all staff and physicians about practices that should occur routinely and those that should be avoided is a fundamental first step.

4.1.4 Review catheter necessity daily and remove promptly

4.1.4.1 "The duration of catheterization is the most important risk factor for development of infection." If use of an indwelling catheter is necessary, the most important strategy is removing the catheter as soon as possible.

4.1.4.2 Risk factors for acquiring CAUTI.The following factors increase the risk of CAUTI occurrence:

4.1.4.2.1 Duration of catheterization

4.1.4.2.2 Underlying neurological disease

4.1.4.2.3. Female gender

4.1.4.2.4 Diabetes mellitus

4.2 Repeat Infection time frame (RIT)

4.2.1 It is 14-day timeframe during which no new CAUTI of the same type are reported.

4.2.2 The date of event is Day 1 of the 14-day RIT.

4.3 Location of attribution:

4.3.1 The inpatient location where the patient was assigned on the date of the CAUTI event, which is further defined as the date when the first element used to meet the CAUTI criterion occurred.

4.3.2 OR/Post Anesthesia Care Unit/Recovery Room/dialysis unit /ERs cannot be considered a location of attribution for CAUTI.

4.4 Transfer Rule:

4.4.1 If the date of event for a CAUTI is the day of transfer or discharge, or the next day, the CAUTI is attributed to the transferring location.

4.4.2 Receiving facilities should share information about such HAIs with the transferring facility to enable reporting. Example:

4.4.2.1 Patient in the SICU with a Foley catheter, which has been in place for 5 days, is transferred to a surgical ward.

4.4.2.2 The next day is determined to be the date of event for a CAUTI.

4.4.2.3 This is reported as a CAUTI for the SICU

4.5 Multiple Transfers:

4.5.1 If the patient has been transferred to more than one location on the date of CAUTI, or the day before, attribute the CAUTI to the first location in which the patient was housed the day before the CAUTI's date of event.

4.5.2 CAUTI is attributed to Unit A since Unit A was the first location in which the patient was housed the day before the date of event.

4.6 Symptomatic UTI (SUTI-1a). See appendices. 7.3

4.7 Symptomatic UTI (SUTI-2). See appendices. 7.4

4.8 Asymptomatic bacteremic urinary tract infection (ABUTI). See appendices. 7.5

4.9 Comments about CAUTI definition

4.9.1 The following excluded organisms cannot be used to meet the UTI definition:

4.9.1.1 Any Candida species as well as a report of "yeast" that is not otherwise specified

4.9.1.2 mold

4.9.1.3 dimorphic fungi or

4.9.1.4 parasites

4.9.2 "Mixed flora" cannot be reported as a pathogen to meet the CAUTI Criteria.

4.9.3 An acceptable urine specimen may include these organisms as long as one bacterium of greater than or equal to 100,000 CFU/ml is also present. Additionally, these non-bacterial organisms identified from blood cannot be deemed secondary to a UTI since they are excluded as organisms in the UTI definition.

4.9.4 Suprapubic tenderness whether elicited by palpation (tenderness-sign) or provided as a subjective complaint of suprapubic pain (pain-symptom), documentation of either found in the medical record is acceptable as a part of SUTI criterion if documented in the medical record during the Infection Window Period.

4.9.5 Lower abdominal pain or bladder or pelvic discomfort are examples of symptoms that can be used as suprapubic tenderness. Generalized "abdominal pain" in the medical record is not to be interpreted as suprapubic tenderness as there are many causes of abdominal pain and this symptom is too general.

4.9.6 Left or right lower back or flank pain are examples of symptoms that can be used as costovertebral angle pain or tenderness. Generalized "low back pain" is not to be interpreted as costovertebral angle pain or tenderness.

4.9.7 Fever and hypothermia are non-specific symptoms of infection and cannot be excluded from CAUTI determination because they are clinically deemed due to another recognized cause.

4.10 Recommendations for Prevention and Control of Catheter-Associated Urinary Tract Infections (CAUTIs):

4.10.1 Appropriate Urinary Catheter Use:

4.10.1.1 Insert catheters only for appropriate indications, and leave in place only as long as needed.

4.10.1.1.1 Avoid catheterization that the decision to catheterize and the type of catheter to use should be based on comprehensive risk assessment and evaluation of the needs of the patient including the expected duration of catheterization.

4.10.1.1.2 Minimize urinary catheter use and duration of use in all patients, particularly those at higher risk for CAUTI or mortality from catheterization such as women, the elderly, and patients with impaired immunity.

4.10.1.1.3 Avoid use of urinary catheters in patients and nursing home residents for the management of incontinence.

4.10.1.1.4 Use urinary catheters in operative patients only as necessary, rather than routinely.

4.10.1.1.5 For operative patients who have an indication for an indwelling catheter, remove the catheter as soon as possible postoperatively, preferably within 24 hours, unless there are appropriate indications for continued use.

4.10.1.2 Consider using alternatives to indwelling urethral catheterization in selected patients when appropriate. a. Consider using external catheters as an alternative to indwelling urethral catheters in cooperative male patients without urinary retention or bladder outlet obstruction

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

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

4.10.1.2.3 Consider intermittent catheterization in children with myelomeningocele and neurogenic bladder to reduce the risk of urinary tract deterioration.

4.10.2 Proper Techniques for Urinary Catheter Insertion:

4.10.2.1 Perform hand hygiene immediately before and after insertion or any manipulation of the catheter device or site.

4.10.2.2 Ensure that only properly trained persons (e.g., hospital personnel, family members, or patients themselves) who know the correct technique of aseptic catheter insertion and maintenance are given this responsibility.

4.10.2.3 In the acute care hospital setting, insert urinary catheters using an aseptic technique and sterile equipment.

4.10.2.4 Use sterile gloves, drapes, sponges, an appropriate antiseptic solution for peri-urethral cleaning, and a single-use packet of lubricant jelly for insertion.

4.10.2.5 The insertion site should be washed with soap and water and dried thoroughly. An aqueous or alcohol-based surgical site disinfectant solution (e.g., chlorhexidine or povidone-iodine) should be used to disinfect the insertion site prior to insertion and

4.10.2.6 Routine use of antiseptic lubricants is not necessary.

4.10.2.7 In the non-acute care setting, clean (i.e., non-sterile) technique for intermittent catheterization is an acceptable and more practical alternative to sterile technique for patients requiring chronic intermittent catheterization.

4.10.2.8 Properly secure indwelling catheters after insertion to prevent movement and urethral traction.

4.10.2.9 Unless otherwise clinically indicated, consider using the smallest possible bore catheter, consistent with good drainage, to minimize bladder neck and urethral trauma.

4.10.2.10 If intermittent catheterization is used, perform it at regular intervals to prevent bladder over distension.

4.10.2.11 Consider using a portable ultrasound device to assess urine volume in patients undergoing intermittent catheterization and avoid unnecessary catheter insertions.

4.10.2.12 If ultrasound bladder scanners are used, ensure that indications for use are clearly stated, nursing staff are trained in their use, and equipment is adequately cleaned and disinfected in between patients.

4.10.2.13 When a catheter is inserted, each healthcare facility should have a system for documenting the following information in the patient record:

- 4.10.2.13.1 Indication for catheter insertion.
- 4.10.2.13.2 Date and time of catheter insertion.
- 4.10.2.13.3 Type and size of catheter.
- 4.10.2.13.4 Amount of water used to inflate the balloon.
- 4.10.2.13.5 Name of HCW who inserted catheter.

4.10.3 Proper Techniques for Urinary Catheter Maintenance:

4.10.3.1 Following aseptic insertion of the urinary catheter, maintain a closed drainage system.

- 4.10.3.1.1 If breaks in the aseptic technique, disconnection, or leakage occur, replace the catheter and collecting system using the aseptic technique and sterile equipment.
- 4.10.3.1.2 Consider using urinary catheter systems with pre-connected, sealed catheter-tubing junctions

4.10.3.2 Maintain unobstructed urine flow.

- 4.10.3.2.1 Keep the catheter and collecting tube free from kinking.
- 4.10.3.2.2 Keep the collecting bag below the level of the bladder at all times. Do not rest the bag on the floor.
- 4.10.3.2.3 Empty the collecting bag regularly using a separate, clean collecting container for each patient; avoid splashing, and prevent contact of the drainage spigot with the nonsterile collecting container.

4.10.3.3 Use Standard Precautions, including the use of gloves and gown as appropriate, during any manipulation of the catheter or collecting system.

4.10.3.4 Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended. Rather, it is suggested to change catheters and drainage bags based on clinical indications such as infection, obstruction, or when the closed system is compromised.

4.10.3.5 Unless clinical indications exist (e.g., in patients with bacteriuria upon catheter removal post urologic surgery), do not use systemic antimicrobials routinely to prevent CAUTI in patients requiring either short or long-term catheterization.

4.10.3.6 Do not clean the peri-urethral area with antiseptics to prevent CAUTI while the catheter is in place. Routine hygiene (e.g., cleansing of the meatal surface during daily bathing or showering) is appropriate.

4.10.3.6.1 Meatal cleansing involves the mechanical removal of exudate and smegma. Where time allows, the meatal area should be washed with soap and water

4.10.3.7 Unless the obstruction is anticipated (e.g., as might occur with bleeding after prostatic or bladder surgery) bladder irrigation is not recommended.

4.10.3.7.1 Routine irrigation of the bladder with antimicrobials is not recommended

4.10.3.8 Routine instillation of antiseptic or antimicrobial solutions into urinary drainage bags is not recommended

4.10.3.9 Clamping indwelling catheters prior to removal is not necessary

4.10.4 Specimen Collection:

4.10.4.1 Obtain urine samples aseptically.

4.10.4.1.1 a. If a small volume of fresh urine is needed for examination (i.e., urinalysis or culture), aspirate the urine from the needleless sampling port with a sterile syringe/cannula adapter after cleansing the port with a disinfectant.

4.10.4.1.2 b. Obtain large volumes of urine for special analyses (not culture) aseptically from the drainage bag.

4.10.5 Management of Obstruction:

4.10.5.1 If obstruction occurs and it is likely that the catheter material is contributing to obstruction, change the catheter.

4.10.5.2 Recurrent blockage caused by encrustation of the catheter from deposits of mineral salts is a complication in approximately 50% of all long-term catheterized patients.

4.10.5.3 Catheter blockage causes leakage, bypassing of urine and urinary retention and results in an increased number of catheter changes.

4.10.5.4 Encrustation on the external surface of the catheter can cause trauma to the urethra during catheter removal.

4.10.5.5 Catheter maintenance solutions (CMS) are acidic washout solutions, which are commonly used to prolong catheter life by reducing pH resulting in the dissolution of existing encrustations.

4.10.5.6 Any disruption to the closed system increases the risk of infection. However, where frequent blockage would lead to frequent re-catheterizations, the potential infection risks associated with CMS use may be outweighed by increasing catheter life and reducing patient discomfort

4.10.6 Changing Long-Term Catheters:

4.10.6.1 Long-term catheterization is defined as a catheter in place for greater than 28 days.

4.10.6.2 There is no consensus on how frequently such catheters should be changed.

4.10.6.3 Manufacturer's instructions should be followed in addition to individual patient's requirements (e.g., before blockage occurs or is likely to occur).

4.10.6.4 Regularly review the need for long-term catheterization.

4.10.6.5 Change catheters used for long-term catheterization as per manufacturer's instructions and individual patient requirements (e.g., before blockage occurs or is likely to occur).

4.10.7 Catheter Materials:

4.10.7.1 The selection of catheter material should be based on:

4.10.7.1.1 The expected duration of catheterization.

4.10.7.1.2 Patient comfort.

4.10.7.1.3 Patient history of allergies to the components (e.g., latex allergy).

4.10.7.1.4 The ease of insertion and removal. e. The ability of the catheter material to reduce the likelihood of complications such as colonization with bacteria, encrustations and tissue damage.

4.10.7.2 If the CAUTI rate is not decreasing after implementing a comprehensive strategy to reduce rates of CAUTI, consider using antimicrobial/antiseptic-impregnated catheters.

4.10.7.3 Hydrophilic catheters might be preferable to standard catheters for patients requiring intermittent catheterization.

4.10.7.4 Silicone might be preferable to other catheter materials to reduce the risk of encrustation in long-term catheterized patients who have frequent obstruction.

4.10.8 Deficits in knowledge and practice of HCWs may lead to catheter associated urinary tract infection:

4.10.8.1 Inappropriate use of a drainage bag to collect urine samples.

4.10.82 Inappropriate use of multi–dose lubricant for catheter insertion.

4.10.8.3 Changing catheter bags daily.

4.10.8.4 Poor documentation of care.

5. MATERIALS AND EQUIPMENT:

5.1 **Forms and Records:**

5.1.1 Urinary Catheter Insertion and maintenance bundle.

5.2 **Materials and Equipment**

5.2.1 N/A

6. RESPONSIBILITIES:

6.1 Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.

7. APPENDICES:

7.1 Analysis of data
7.2 Analysis of CAUTI
7.3 Symptomatic UTI (SUTI-1a)
7.4 Symptomatic UTI (SUTI-2)
7.5 Asymptomatic bacteremic urinary tract infection (ABUTI).

8. REFERENCES:

8.1 Healthcare Associated Infections (HAIs) Second Edition. MOH Surveillance Manual. Last updated: November 2023

8.2 General Directorate of Infection Prevention and Control in Healthcare Facilities (GDIPC) Guidelines for Prevention of Catheter Associated Urinary Tract Infections (CAUTI) January-2023 Version 1.0

9. APPROVALS:

	Name	Title	Signature	Date
Prepared by:	Ms. Marilou C. Magallano	IPC Practitioner		December 15, 2024
Prepared by:	Ms. Wadha Mohd Al Shammari	IPC Coordinator		December 15, 2024
Reviewed by:	Ms. Awatif Hamoud Al Harbi	IPC Director		December 16, 2024
Reviewed by:	Mr. Sabah Turayhib Al Harbi	Nursing Director		December 17, 2024
Reviewed by:	Mr. Abdulellah Ayed Al Mutairi	QM & PS Director		December 22, 2024
Reviewed by:	Dr. Thamer Naguib	Medical Director		December 24, 2024
Approved by	Mr. Fahad Hazam Al Shammari	Hospital Director & IPC Committee Chairman		December 29,2024

Forms and Records:

5.1.1 Urinary Catheter Insertion and maintenance bundle.

A. PATIENT'S INFORMATION

Patient name:	**MRN:**	**Unit:**	**Bed No.**	**Age:**	**M/F:**
Admission date:	**Admission diagnosis:**				
IFC insertion date:	**Place of Insertion:**				
IFC removal date:					

B. URINARY CATHETER INSERTION BUNDLE

	Yes	No	Not Applicable
1. Avoid unnecessary urinary catheters			
2. Insert using aseptic technique: a. Hand hygiene before insertion of UC b. Use sterile equipment (Gloves, a drape, and sponges, Sterile or antiseptic solution for cleaning the urethral meatus and single-use packet of sterile lubricant for insertion) c. Use of small catheter as possible			

Urinary Catheter insertion and maintenance

Date	Hand Hygiene			Maintain catheters based on recommended guidelines*			Review urinary catheter necessity daily and remove promptly		
	Y	N	N/A	Y	N	N/A	Y	N	N/A

7.1 Analysis of data

$$\text{Urinary catheter Bundle compliance} = \frac{\text{Total number of patients with all compliant applicable bundle components}}{\text{Total number of patients reviewed for the bundle compliance}} \times 100$$

7.2 Analysis of CAUTI

$$\text{CAUTI Rates} = \frac{\text{The number of CAUTIs for a location}}{\text{The number of urinary catheter days for that location}} \times 1000$$

7.3 Symptomatic UTI (SUTI-1a)

Patient must meet 1, 2, and 3 below:

1. Patient of any age had an indwelling urinary catheter that had been in place for > 2 days on the date of event AND was either:
   • Present for any portion of the calendar day on the date of event OR • Removed the day before the date of event
2. Patient has at least one of the following signs or symptoms:
   • Fever (>38.0°c) • Suprapubic pain or tenderness • Costovertebral angle pain or tenderness
   • Urinary urgency (only if catheter is not in place) • Urinary frequency (only if catheter is not in place)
   • Dysuria (only if catheter is not in place)
3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium $\geq 10^5$ CFU/ml.

7.4 Symptomatic UTI (SUTI-2)

Patient must meet 1, 2, and 3 below:

1. Patient is ≤1 year and had an indwelling urinary catheter that had been in place for > 2 days on the date of event AND was either:
   • Present for any portion of the calendar day on the date of event OR • Removed the day before the date of event
2. Patient has at least one of the following signs or symptoms:
   • fever (>38.0°C) • hypothermia (<36.0°C) • apnea* • bradycardia* • lethargy* • vomiting*
   • suprapubic tenderness* (*With no other recognized cause)
3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium ≥105 CFU/ml.

7.5 Asymptomatic bacteremic urinary tract infection (ABUTI).

Patient must meet 1, 2, and 3 below:

1. Patient of any age with an indwelling urinary catheter has no signs or symptoms of SUTI 1 or 2 according to age
2. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium ≥105 CFU/ml
3. Patient has organism identified from blood specimen with at least one matching bacterium to the bacterium identified in the urine specimen, or meets LCBI criterion 2 (without fever) and matching common commensal(s) in the urine.

Note: All elements of the ABUTI criterion must occur during the Infection Window Period