LOGISTICS

FOR HEALTHCARE IMPROVEMENT

A Destiny of Success

IPC

TRAINING

EDUCATION

QUALITY IMPROVEMENT

HEALTHCARE EXCELLENCE

CAUTI PREVENTION

OVERVIEW

- Provide brief explanation of pathogenesis and risk factors for catheter associated urinary tract infections (CAUTI)
- Review evidence based recommendations for preventing CAUTI
- Practice identify system issues that put patients at risk of CAUTI

Catheter Associated Urinary Tract Infections CAUTI

Definition

- Exclude infections that acquired prior to admission

- CAUTIs are classified into two (2) groups:
  - Symptomatic Urinary Tract Infections (SUTI)
  - Asymptomatic Bacteriuria (ASB)
- UTI that occurs in a patient who had an indwelling urethral catheter in place within 24 hours of the onset of the event
- There is NO minimum period of time that the catheter must be in place in order for the UTI to be considered catheter-associated

Use CDC Criteria for Identification

Pathogenesis of Urinary Tract Infections

Urinary Tract

- **Has natural defense mechanisms against infection**
- **Male urethra is longer than female urethra**
- **Micturation (voiding)**

- **Mucosa has antibacterial properties**

- **Mucosa secrets bacteria adhesion inhibitors**
- **Prevents attachment of potential pathogens to uroepithelium**

Urine osmolality, pH and organic acids inhibit growth of most organisms

Pathogenesis of Urinary Tract Infections

Urinary Catheter:

- Interferes with urinary tract's normal defenses
- Clearance of microbes from voiding and bladder mucosa diminished

- Allows colonization and attachment of microorganisms

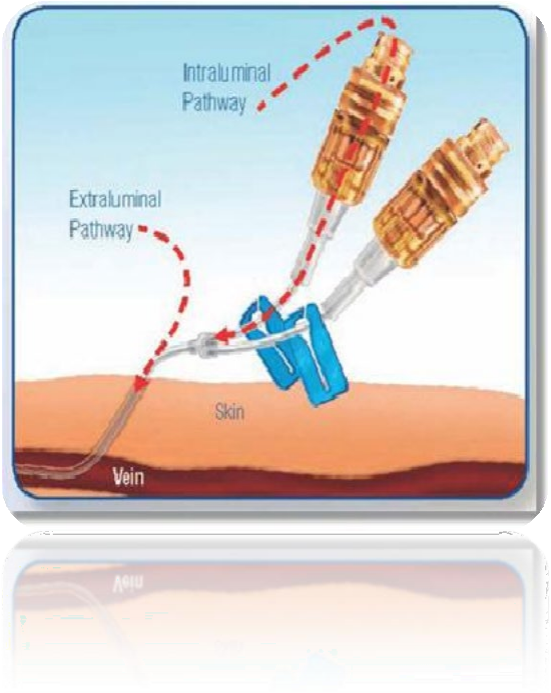
- Can lead to bacteriuria

Bacterial Access to Catheterized Bladder

- **Extraluminal – organisms from patient's rectum or perinium migrate into the bladder from the outside of the catheter**

- **Intraluminal – organisms gain access to internal lumen of catheter due to failure to maintain closed drainage system**

- **Biofilm**
  - **Microorganisms colonize external and internal surfaces of catheter or collection bag**
  - **Bacteria can ascend from the bag in 1 to 3 days after catheterization**

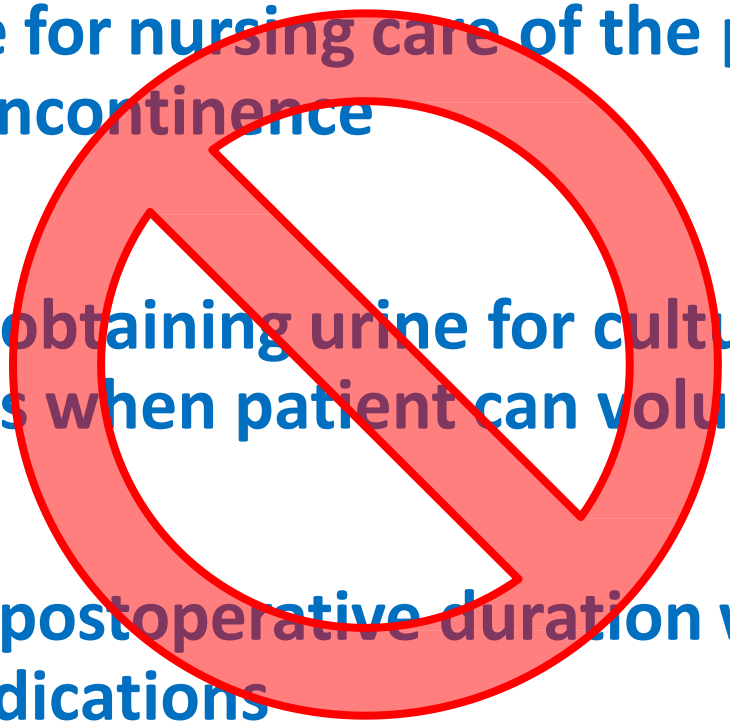


Modifiable Risk Factors

- Presence of urinary catheter
- Duration of catheterization
- Lower professional training of inserter
- Non compliance with aseptic technique during insertion
- Not maintaining a closed drainage system
- Placing the drainage tubing above the level of the bladder

Unacceptable Indications for Indwelling Urinary Catheter Use

- As a substitute for nursing care of the patient or resident with incontinence
- As a means of obtaining urine for culture or other diagnostic tests when patient can voluntarily void
- For prolonged postoperative duration without appropriate indications



Management of Indwelling Catheters

- Secure indwelling catheters after insertion to prevention movement and urethral traction

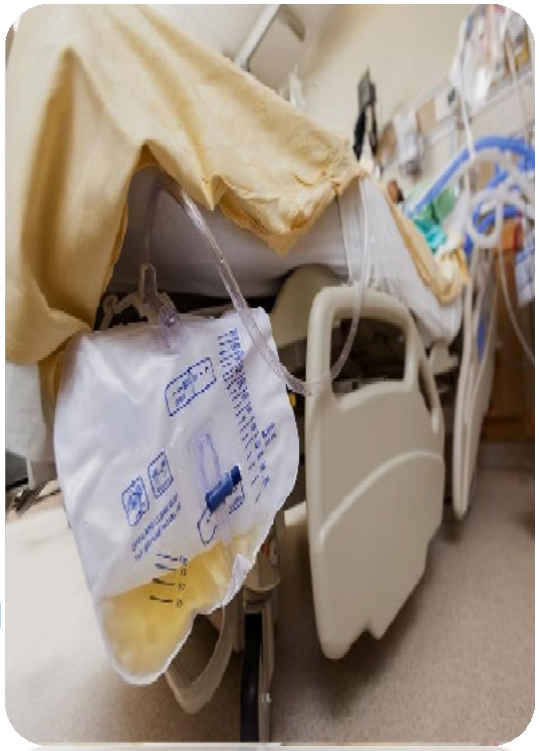
- Prohibit disconnection of the catheter and draina tube unless the catheter must be irrigated

- If contamination, disconnection or leakage occur, disinfect the catheter-tubing junction and then replace the collecting system using aseptic technique

- Routine hygiene (e.g. cleaning of the meatal surface during daily bathing or showering) is appropriate.

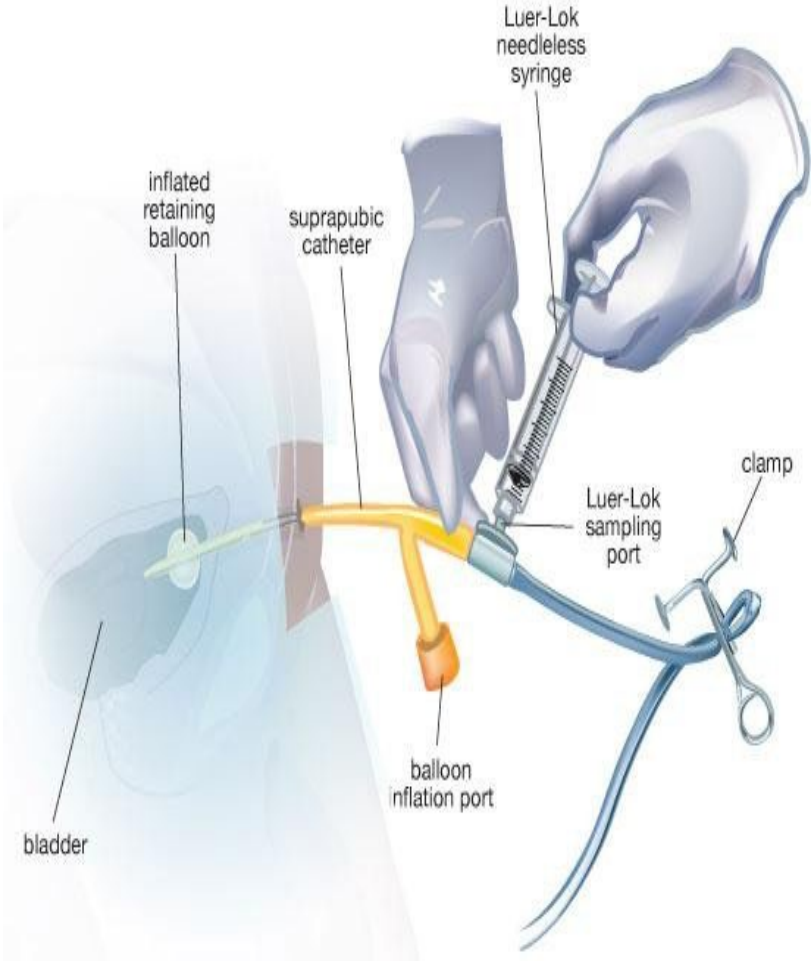
Management of Indwelling Catheters

- Maintain a sterile, continuously closed drainage system
- Keep the collecting bag below the level the bladder at all times
- Empty the collection bag regularly to prevent trauma/traction on the urethra related to the weight of the bag
- Empty the urine bag when ½ to 2/3 or every 3 – 6 hours



Management of Indwelling Catheters

- Collect urine specimens aseptically
- Clean port with an antiseptic
- Clamp tubing if no urine in tubing
- Collect from sampling port; never from a drainage bag



Education to Patient & Families

Educate patients and family members about risk of infection related to urinary catheters and prevention methods

- **Encourage involvement by patient/family :**
- **Continued need for the urinary catheter**
- **Proper maintenance while urinary catheter is in place**

Systems Interventions

Catheter Associated Urinary Tract Infection (CAUTI) Care Bundle

KEY STRATEGIES FOR IMPLEMENTATION

CAUTI Maintenance Bundle

Remove catheters as soon as possible, care for catheters individually

1. Perform a daily review of the need for the urinary catheter.
2. Check the catheter has been continuously connected to the drainage system.
3. Ensure patients are aware of their role in preventing urinary tract infection. (Alternative bundle criterion if the patient is unable to be made aware: Perform routine daily meatal hygiene).
4. Regularly empty urinary drainage bags as separate procedures, each into a clean container.
5. Perform hand hygiene and don gloves and apron prior to each catheter care procedure; on procedure completion, remove gloves and apron and perform hand hygiene again.

Standard Operating Procedure

CAUTI Maintenance Bundle –Standard Operating Procedure		
Statement	UCs are used frequently in healthcare, however, their use can lead to serious life-threatening complications. UCs cause urinary tract infections and are the second leading cause of blood stream infections. Complications arise directly from their use and in particular if the care is sub-optimal. The risk of infectious complications increases the longer they are in use. We have a duty to our patients to optimise UC care and to ensure that our UC care does not cause the patients harm. Monitoring our UC care will assist us to optimise procedures, reduce the risk to patients and demonstrate the quality of care we provide.	
Objective	Objectives: 1.To optimise CAUTI Maintenance procedures in OUR ward and thereby minimise the risk of catheter associated urinary tract infections and secondary bacteraemias. 2. To be able to demonstrate quality UC care in OUR ward.	
Requirements	Before the CAUTI Bundle Procedure can be considered Signed commitment from the clinical team: consultants; junior doctors, ward manager and nurse team to optimising UC care. Signed agreement from all consultants that named individuals on a weekly/named basis will undertake a CAUTI maintenance bundle, including agreement from the clinical team for the actions within the bundle. Named individuals competent in performing the bundle as written.	
Procedure	Perform hand hygiene..1 2.Collect a bundle form and complete the top boxes: name, location, etc. 3.Identify all patients in the ward/clinical area who have a urinary catheter. 4. Proceed to the first patient with a urinary catheter (if possible be accompanied by the patient's nurse). 5.Introduce yourself to the patient and explain that you are checking all patients with urinary catheters to see if any catheters can be removed. 6.To get the bundle data: 1.Perform hand hygiene. Confirm from the patient's documentation that the need for the UC has been reviewed daily and is still required. If the continuing need for the catheter has not been documented, check with the patient's nurse/doctor whether the urinary catheter can be removed. 2. Ask the patient or a nurse whether the catheter has been disconnected – find out whether the disconnection was appropriate. 3. Ask the patient if they know what they can do to minimise the risk of infection – if they are not aware, inform the patient how to minimise the infection risks. If the patient cannot perform self-catheter care, confirm with the nurse that daily meatal hygiene has been performed. 4.Confirm that the urinary catheter bag has been emptied regularly, as a *separate procedure*, into a clean container. (The use of 'separately' here implies that the same container has not been used to empty more than one catheter bag - without appropriate decontamination of the container, change of personal protective equipment and performing hand hygiene. If the container is for single use it must not be reused – with or without decontamination.) 5. Confirm with patient/nurses that hand hygiene has been done before and after all UC procedures by healthcare workers (HCWs) wearing disposable plastic aprons and gloves. 1. Perform hand hygiene between patient observations. 2. Record actions in the bundle against the appropriate number – make arrangements for removal of urinary catheter if necessary. 3. Go to the next patient with a urinary catheter perform hand hygiene and repeat steps 5-9 until all patients with a urinary catheter have been visited.	
After care	Complete form. Discuss results with nurse in charge.	Give completed form to: Discuss and display the data when it has been returned. Keep Bundle forms for XX time

Bundle Checklist

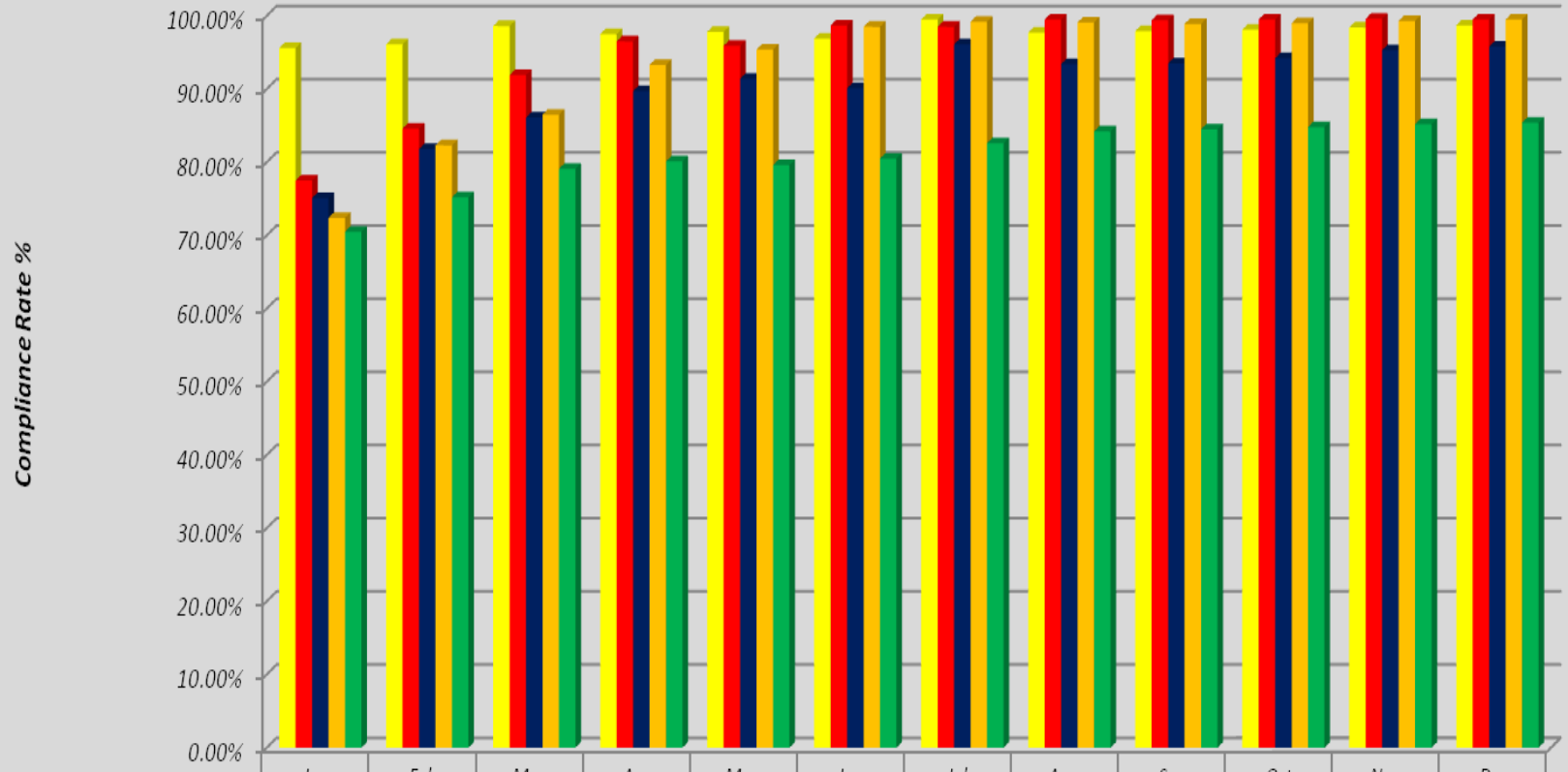
Ward		**Named individual performing bundle**	
Date		**This bundle criteria aims at ensuring the daily hygiene is performed either by the patient, if able, or by the nurse if the patient is unable**	

Bundle Criteria	**Use a single column for each catheterised patient. Put a tick ✓ if achieved, or '*x*' if not achieved, in each box.**							
	Sample	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
There is daily documented assessment of the need for the UC	✓							
The UC has been continuously connected	✓							
The patient is aware of his/her role in minimising the risk of developing a urinary tract infection, ***or*** daily meatal hygiene has been performed by nurses*	✓							
Empty UC bag often, as a separate procedure, into a clean container	X							
Hand hygiene performed and disposable apron and gloves worn before & after procedure	✓							
Action: Request Removal/Leave in situ	Leave in situ							

BUT, DOES IT WORK?

PERFORMANCE MEASURES
COMPLIANCE WITH BUNDLE ELEMENTS

Trend of Compliance of CAUTI Prevention Bundle in Critical Care Areas Over the Year 2011



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
The need for Ucs	95.60%	96.10%	98.60%	97.50%	97.80%	96.90%	99.50%	97.70%	97.90%	98.10%	98.40%	98.70%
Closed Drainage System	77.50%	84.60%	91.90%	96.50%	95.90%	98.70%	98.50%	99.50%	99.40%	99.50%	99.60%	99.50%
Daily Meatal Hygienel	75.10%	81.80%	86.10%	89.70%	91.40%	90.10%	96.10%	93.40%	93.50%	94.20%	95.30%	95.80%
Regular & Separate Bags Drainge	72.40%	82.30%	86.50%	93.30%	95.40%	98.50%	99.20%	99.10%	98.90%	99.00%	99.30%	99.50%
Hand Hygiene	70.50%	75.20%	79.10%	80.10%	79.60%	80.50%	82.60%	84.20%	84.50%	84.80%	85.20%	85.40%

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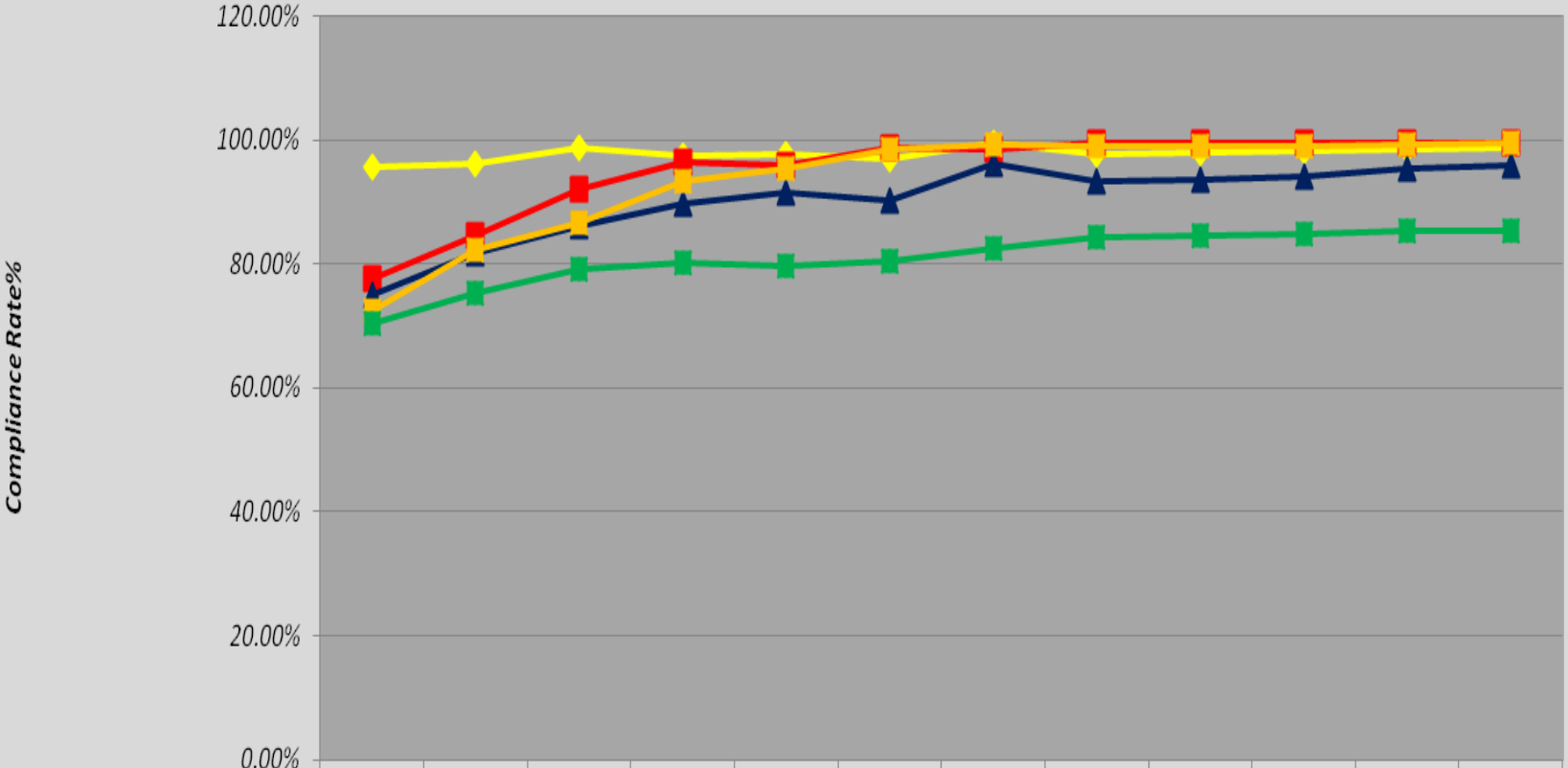

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CAUTI Prevention

IPC.41

The hospital implements evidence-based interventions to prevent catheter associated urinary tract infection.

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To optimize urinary catheter (UC) insertion and maintenance procedures in patient care areas and thereby minimize the risk of catheter associated urinary tract infections (CAUTI).To be able to verify patient safety and demonstrate quality UC cares. The hospital should have a policy for CAUTI prevention & care bundle, the concerned hospital staff must be fully educated about the elements of adopted care bundle. The hospital should regularly collect and analyze the data and assess bundle compliance rate for performance improvement.

IPC.41

Relevant sub-standards	
IPC.41.1	The hospital adopts and implements care bundle for prevention of catheter-associated urinary tract infection consistent with recognized professional practices.
IPC.41.2	Data on the care bundle for prevention of catheter-associated urinary tract infection are regularly collected, analyzed, and evaluated. Improvement interventions are taken accordingly.

Thank you