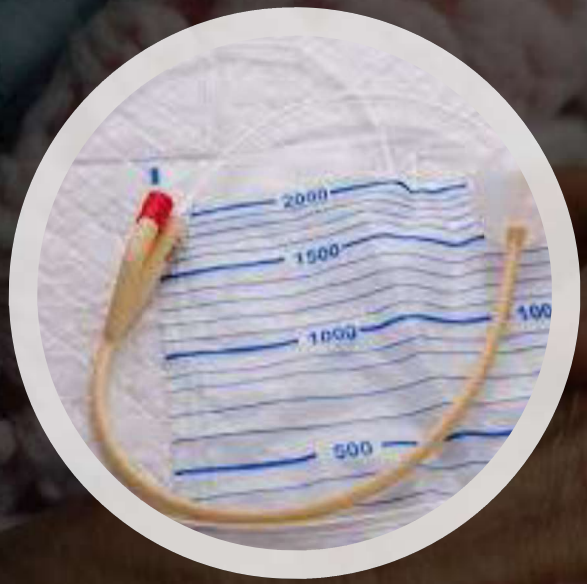


وزارة الصحة
Ministry of Hea

CAUTI oN
CAUTI out of Nation

CAUTI Prevention

Overview

- **Introduction about catheter associated urinary tract infections (CAUTI)**
- **Impact of CAUTI**
- **Methods of catheterization**
- **Risk factors for acquiring CAUTI**
- **Bacterial Access to Catheterized Bladder**

Impact of CAUTI

Most common type of Healthcare-Associated infections

- 30% of HAIs reported to NHSN
- Estimated > 560,000 HAIs-CAUTIs annually

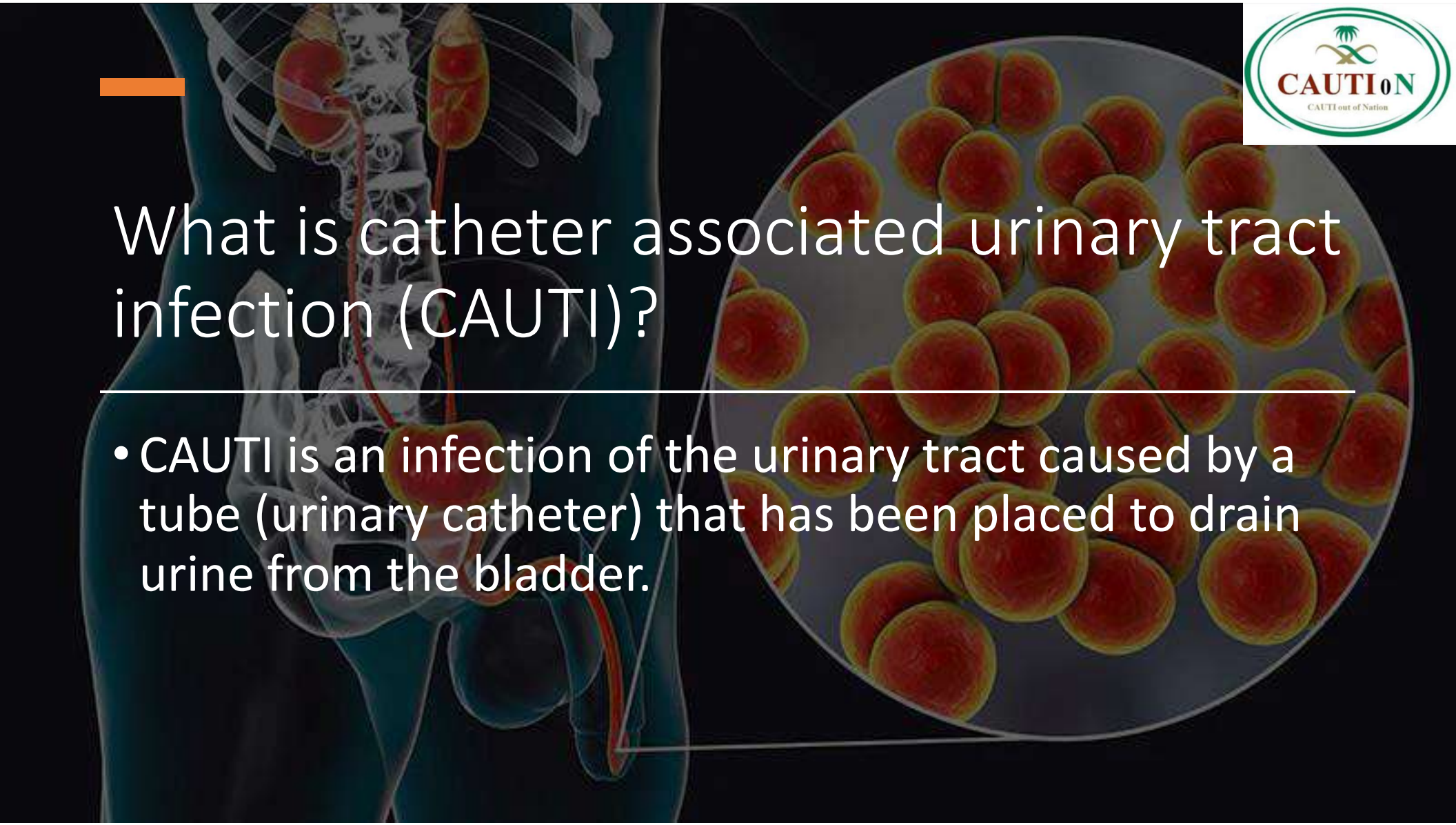
Increased morbidity & mortality

- Estimated 13,000 attributable deaths annually
- Leading cause of secondary BSI with ~10% mortality

Excess length of stay –2-4 days

Increased cost – $0.4-0.5 billion per year

Unnecessary antimicrobial use



What is catheter associated urinary tract infection (CAUTI)?

- CAUTI is an infection of the urinary tract caused by a tube (urinary catheter) that has been placed to drain urine from the bladder.

Methods of Catheterization

Indwelling urethral catheterization: Inserted via the urethra and remains in situ for a short or prolonged period of time.

Suprapubic catheterization: Inserted via the abdomen for a short or prolonged period of time.

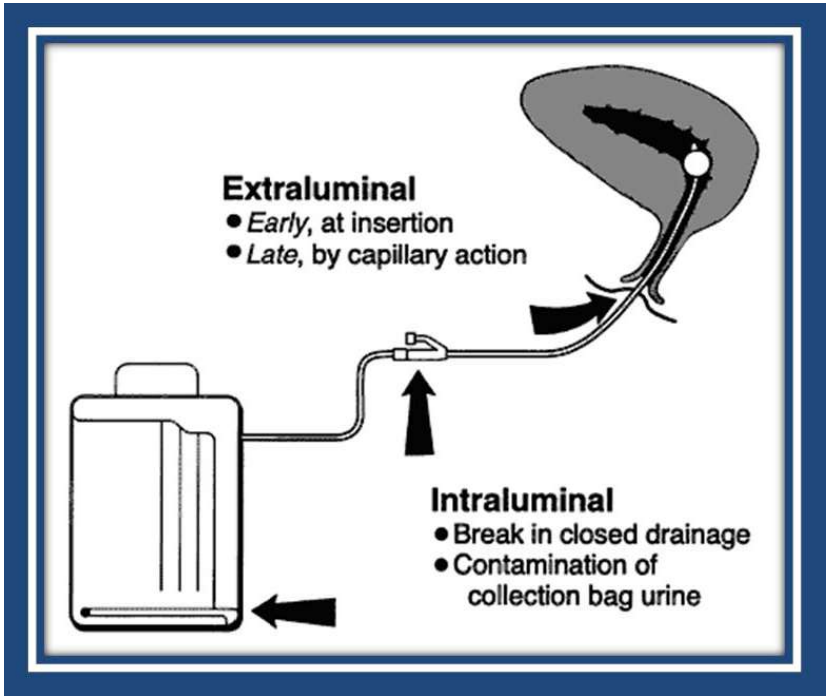
Intermittent catheterization: Inserted via the urethra but removed once the bladder has drained.

Self-intermittent catheterization: intermittent catheterization performed by the patient.

Bacterial Access to Catheterized Bladder

- Extra luminal – organisms from patient's rectum or perineum 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

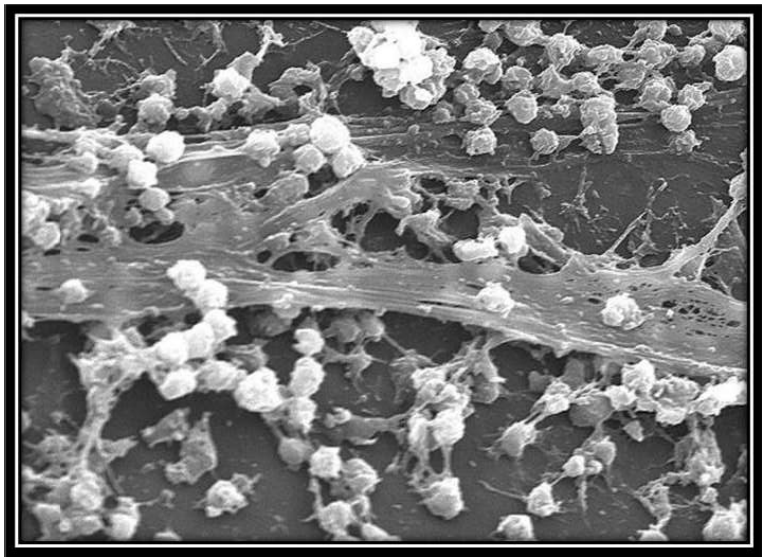


Pathogenesis of CAUTI

Formation of biofilms by urinary pathogens common on the surfaces of catheters and collecting systems.

- Bacteria within biofilms resistant to antimicrobials and host defenses.

- Some novel strategies in CAUTI prevention have targeted biofilms.

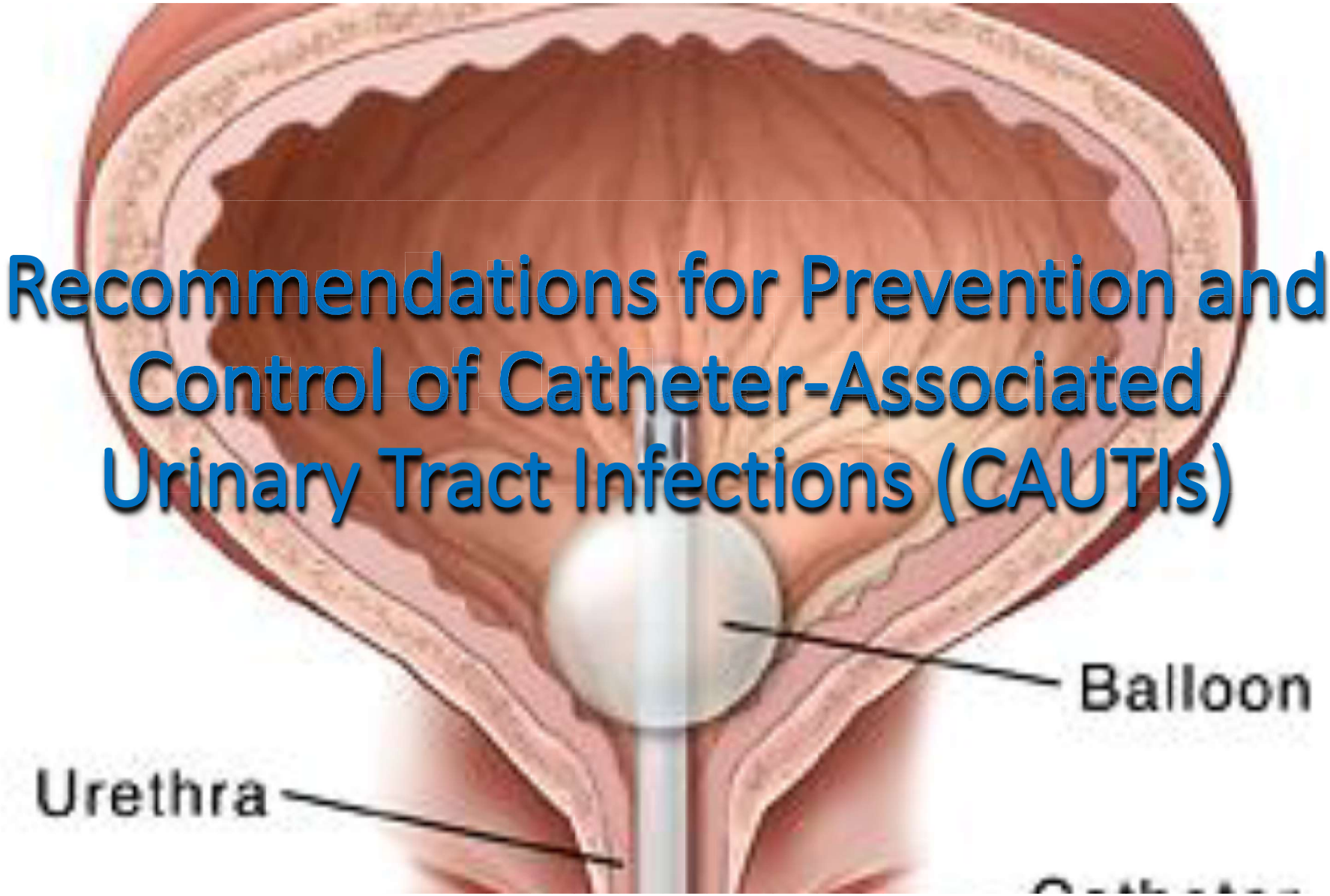


Scanning electron micrograph of S. aureus bacteria on the luminal surface of an indwelling catheter with interwoven complex matrix of extracellular polymeric substances known as a biofilm

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

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



Appropriate Urinary Catheter Use

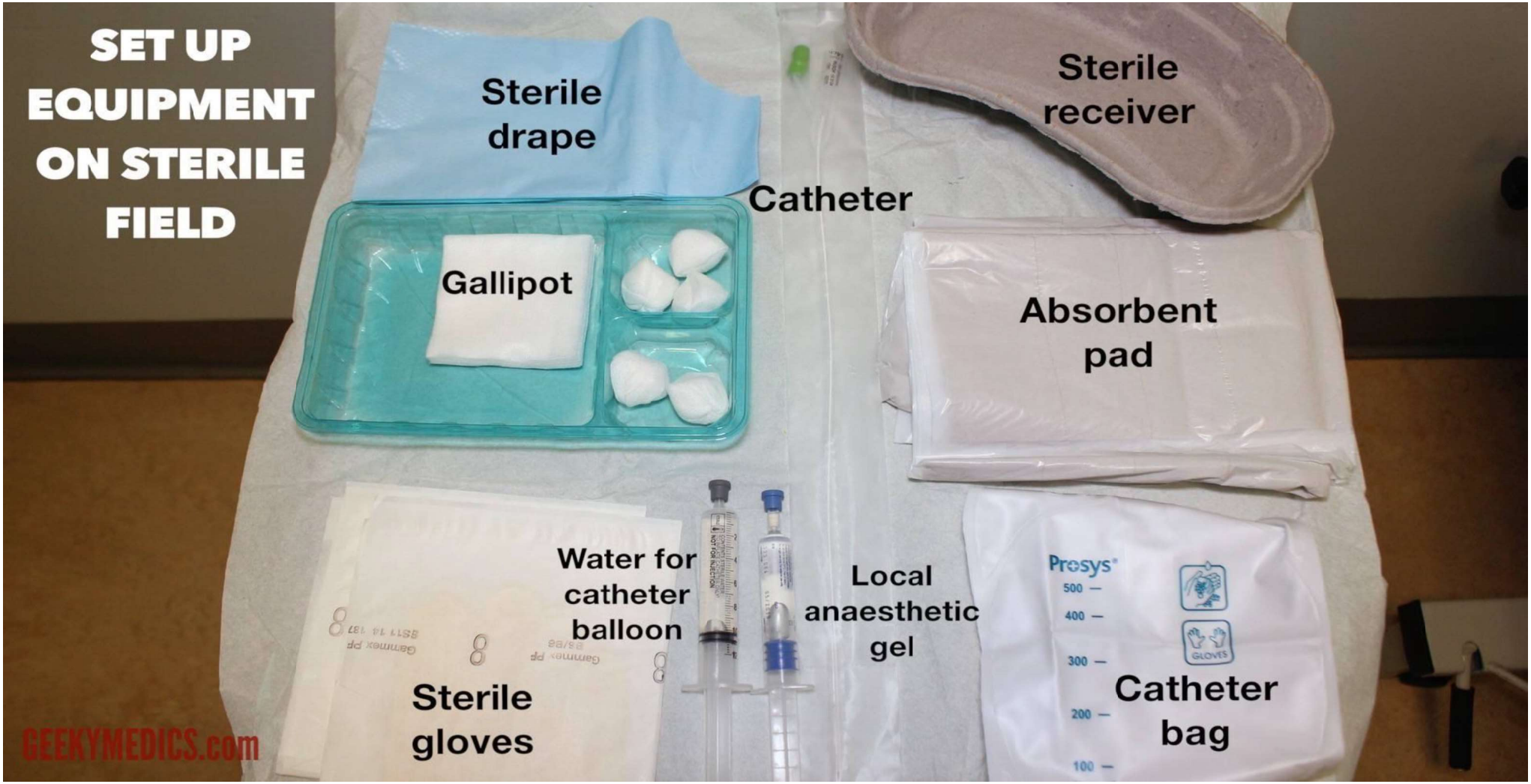
- Avoid catheterization
- Minimize urinary catheter use and duration of use in all patients
- Remove catheters as soon as possible
- Consider using alternatives to indwelling urethral catheterization in selected patients when appropriate.

Remove Catheters as Soon as Possible

Perform	Check	Ensure
Perform a daily review of the need for the urinary catheter.	Check the catheter has been continuously connected to the drainage system.	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).

Proper Techniques for Urinary Catheter Insertion

- Perform hand hygiene immediately before and after insertion.
- Ensure that only properly trained persons who know the correct technique of aseptic catheter insertion and maintenance are given this responsibility.
- insert urinary catheters using an aseptic technique and sterile equipment.
- Use sterile gloves, drapes, sponges, an appropriate antiseptic solution for peri-urethral cleaning, and a single-use packet of lubricant jelly for insertion.
- An aqueous or alcohol-based surgical site disinfectant solution (e.g., chlorhexidine or should be used to disinfect the insertion site prior to insertion


SET UP EQUIPMENT ON STERILE FIELD
Sterile drape
Sterile receiver
Catheter
Gallipot
Absorbent pad
Water for catheter balloon
Local anaesthetic gel
Sterile gloves
Catheter bag
Prosys
GLOVES
GEEKYMEDICS.com

Proper Techniques for Urinary Catheter Insertion

- Properly secure indwelling catheters after insertion to prevent movement and urethral traction.
- Consider using the smallest possible bore catheter, consistent with good drainage, to minimize bladder neck and urethral trauma.
- If intermittent catheterization is used, perform it at regular intervals to prevent bladder over distension.
- If ultrasound bladder scanners are used, ensure that indications for use are clearly statedand equipment is adequately cleaned and disinfected in between patients.

Proper Techniques for Urinary Catheter Insertion

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

a. Indication for catheter insertion.

b. Date and time of catheter insertion.

c. Type and size of catheter.

d. Amount of water used to inflate the balloon.

e. Name of HCW who inserted catheter.

Proper Techniques for Urinary Catheter Maintenance

- Maintain a closed drainage system.
- Maintain unobstructed urine flow.

A. Keep the catheter and collecting tube free from kinking.

B. Keep the collecting bag below the level of the bladder at all times. Do not rest the bag on the floor.

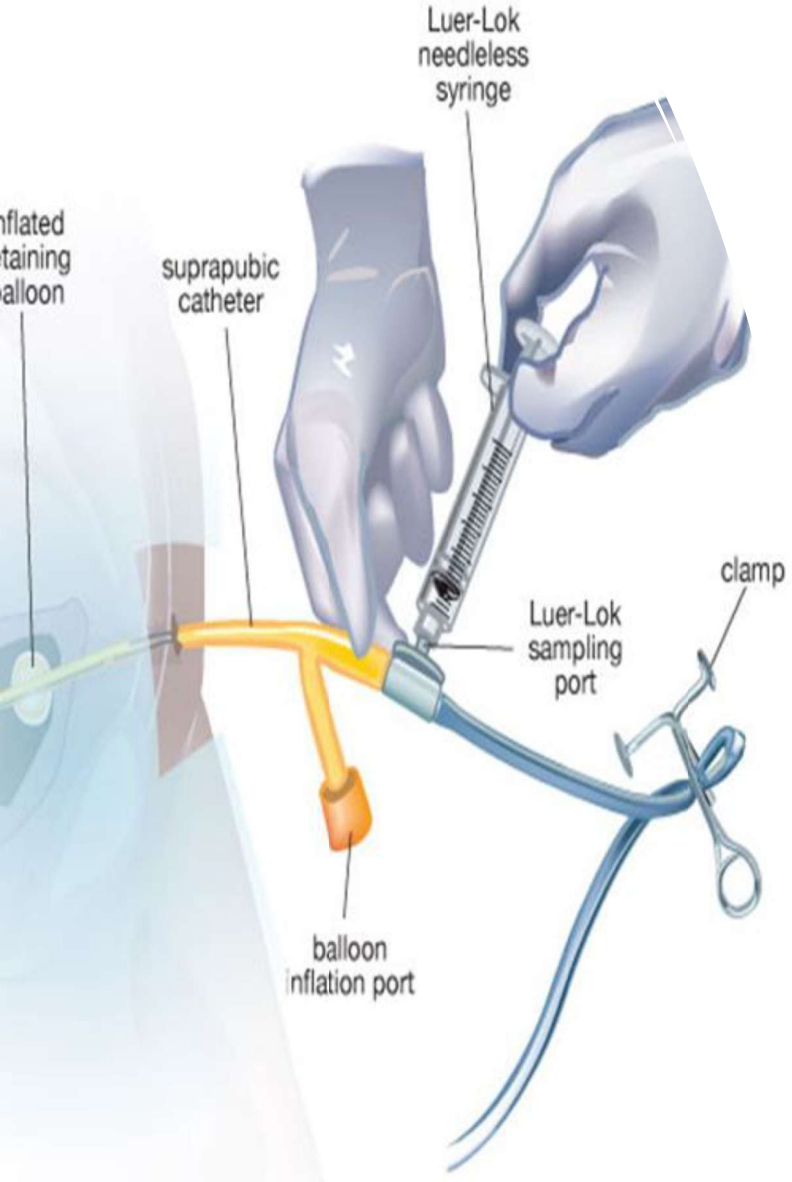
C. Empty the collecting bag regularly using a separate, clean collecting container for each patient; avoid splashing, and prevent contact of the drainage spigot with the nonsterile collecting container.

Proper Techniques for Urinary Catheter Maintenance

- Use Standard Precautions, including the use of gloves and gown as appropriate, during any manipulation of the catheter or collecting system.
- Changing indwelling catheters or drainage bags at routine, fixed intervals is not recommended..
- 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.

Proper Techniques for Urinary Catheter Maintenance

- 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.
- Meatal cleansing involves the mechanical removal of exudate and smegma. Where time allows, the meatal area should be washed with soap and water
- Unless the obstruction is anticipated (e.g., as might occur with bleeding after prostatic or bladder surgery) bladder irrigation is not recommended.
- Routine irrigation of the bladder with antimicrobials is not recommended.
- Routine instillation of antiseptic or antimicrobial solutions into urinary drainage bags is not recommended.
- Clamping indwelling catheters prior to removal is not necessary.



Collection of Urine Specimens

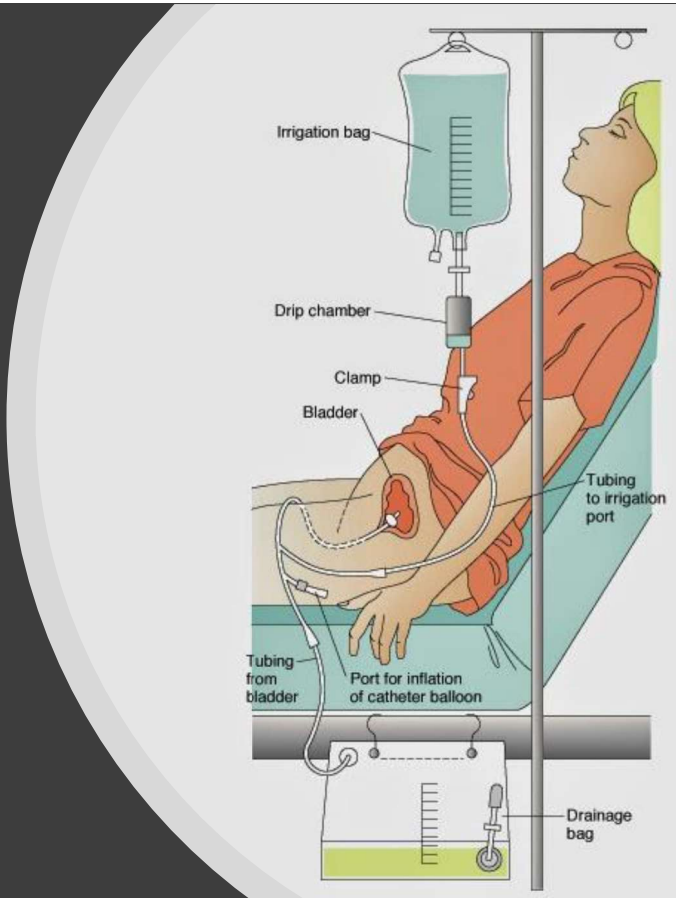
- Clean port with an antiseptic
- Clamp tubing if no urine in tubing
- Collect from sampling port; never from a drainage bag

Management of Urinary Catheter Obstruction

- If obstruction occurs and it is likely that the catheter material is contributing to obstruction, change the catheter.
- 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.
- Catheter blockage causes leakage, bypassing of urine and urinary retention and results in an increased number of catheter changes.
- Encrustation on the external surface of the catheter can cause trauma to the urethra during catheter removal.
- 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.
- 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.

Management of Urinary Catheter Obstruction

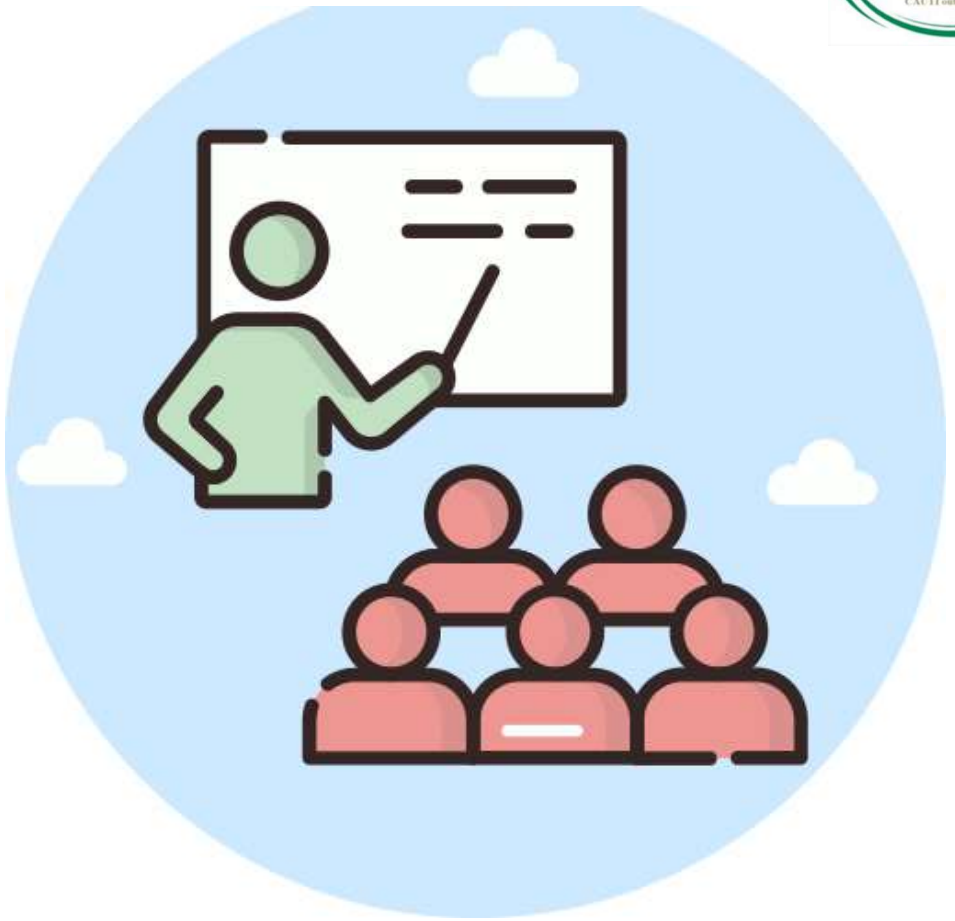
- Catheter maintenance solutions (CMS) are acidic washout solutions, which are commonly used to prolong catheter life by reducing pH resulting in the dissolution of existing encrustations.



ontinuous bladder irrigation (CBI) setup.

Education and Training

- Ensure that healthcare personnel and others who take care of catheters are given periodic in-service training regarding techniques and procedures for urinary catheter insertion, maintenance, and removal. Provide education about CAUTI, other complications of urinary catheterization, and alternatives to indwelling catheters.
- When feasible, consider providing performance feedback to this personnel on what proportion of catheters they have placed meet facility-based criteria and other aspects related to catheter care and maintenance.
- Education at the orientation of new staff and regular education of HCWs is recommended.



Summary of CAUTI Prevention Measures

Core Measures

- Insert catheters only for appropriate indications
- Leave catheters in place only as long as needed
- Only properly trained persons insert and maintain catheters
- Insert catheters using aseptic technique and sterile equipment
- Maintain a closed drainage system
- Catheter fixation to the thigh
- Maintain unobstructed urine flow
- Hand hygiene and standard precautions
- Alternatives to indwelling urinary catheterization

Strategy for CAUTI Prevention Bundle Implementation

CAUTI0N

CAUTI out of Nation

وَمَنْ أَحْيَاهَا فَكَأَنَّمَا أَحْيَا النَّاسَ جَمِيعًا

and that if a person saves a man from death, it will be as if he had saved the whole of mankind

سورة : المائدة

Thank you