


Preventing Urinary Tract Infections (UTIs) in Skilled Nursing Facilities (SNFs) Part III

Health Services Advisory Group (HSAG)

Your Speakers

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Objectives

- Describe the risk of healthcare-associated UTIs in SNFs.
- Discuss strategies to reduce healthcare-associated CAUTIs.
- Discuss adherence monitoring and feedback.

CAUTIs = Catheter-associated urinary tract infections

CDC Defined UTIs—High-Level Overview

Asymptomatic Bacteremia UTI (ABUTI)

- Positive culture

BUT

- **No** signs or symptoms

CAUTI

- Indwelling urinary catheter

Plus

- Positive culture

Plus

- Signs and symptoms such as dysuria, fever, costovertebral angle pain, and/or hematuria

https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

CDC Surveillance Criteria—*CAUTI or CA-SUTI*

Criterion	For residents **with** an indwelling catheter in place or removed within 2 calendar days prior to event onset, where day of catheter removal is equal to day 1:
	One or more of the following (Signs and Symptoms and Laboratory and Diagnostic Testing): 1. Fever[+][Single temperature ≥ 37.8°C (>100°F), or >37.2°C (> 99°F) on repeated occasions (more than once), or an increase of >1.1°C (>2°F) over baseline] 2. Rigors 3. New onset hypotension, with no alternate non-infectious cause 4. New onset confusion/functional decline with no alternate diagnosis **AND** Leukocytosis [defined by NHSN as > 10,000 cells/mm^3, or Left shift (> 6% or 1,500 bands/mm^3)] 5. New or marked increase in suprapubic tenderness 6. New or marked increase in costovertebral angle pain or tenderness 7. Acute pain, swelling, or tenderness of the testes, epididymis, or prostate 8. Purulent discharge from around the catheter insertion site **AND** A positive urine culture with no more than 2 species of microorganisms, at least one of which is a bacterium of ≥10^5 CFU/ml **Footnote:** [+] Since fever is a non-specific symptom, it should be used to meet CA-SUTI criteria even if the resident has another possible cause for the fever (for example,

CDC. LTCF UTI Protocol. Available at: https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

CDC Surveillance Criteria—*ABUTI*

Criterion	*Resident **with or without** an indwelling urinary catheter*
	No qualifying fever or signs or symptoms (specifically, no urinary urgency, urinary frequency, acute dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness). *If no catheter is in place, fever alone would not exclude ABUTI if other criteria are met.* **AND** A positive urine culture with no more than 2 species of microorganisms, at least one of which is a bacterium of $\geq 10^5$ CFU/ml **AND** A positive blood culture with at least 1 matching bacteria to the urine culture

CDC. LTCF UTI Protocol. Available at: https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

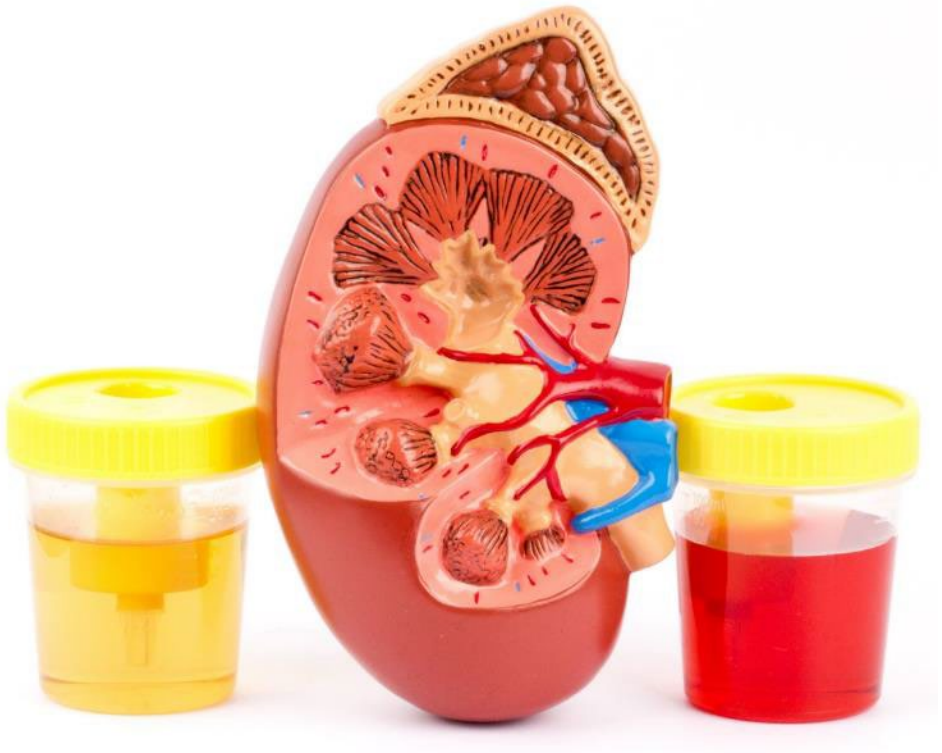
Observing Possible Symptoms

- Flank pain/tenderness
  - Facial grimaces
  - Moans or cries
  - Massages lower back kidney area
- Restlessness, shaking/chills
- Fever
  - >100°F (>37.8°C)
  - >2°F (1.1°C) increase above baseline
- Hypotension
  - Significant change in baseline BP or a systolic BP <90

https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdfBates B. Interpretation of urinalysis and urine culture for UTI treatment. USPharm. 2013;38(11):65-68.

Observing Possible Symptoms (cont.)

- Acute dysuria (painful urination)
- Urinary frequency
- Urinary urgency
- New urinary incontinence
- Gross hematuria
- Change in mental status
  - Altered mental status independent of other symptoms is not an indication to send a urine culture
- Change in intake or output



https://www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf
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Risk Factors for CAUTI

LTC Residents at Risk

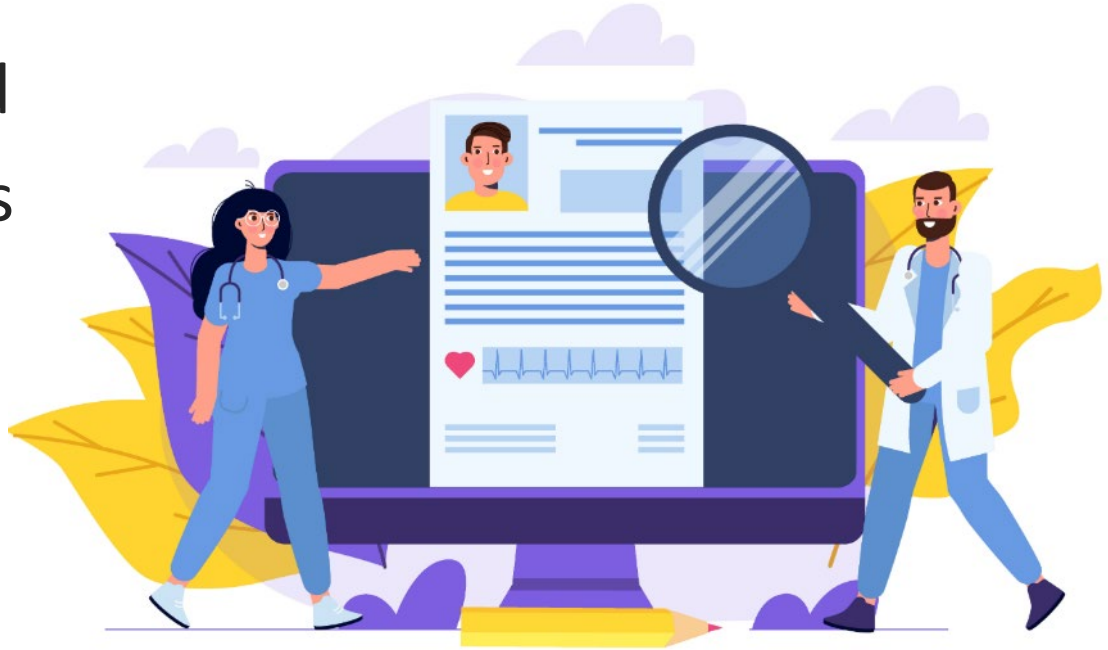
LTC residents at high risk for developing a UTI

- Challenges with activities of daily living (ADLs)
- Mobility challenges
- Chronic conditions
- Cognitive deterioration

CDC. LTCF UTI Protocols. Available at: www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

Risk Factors—Co-Morbidities

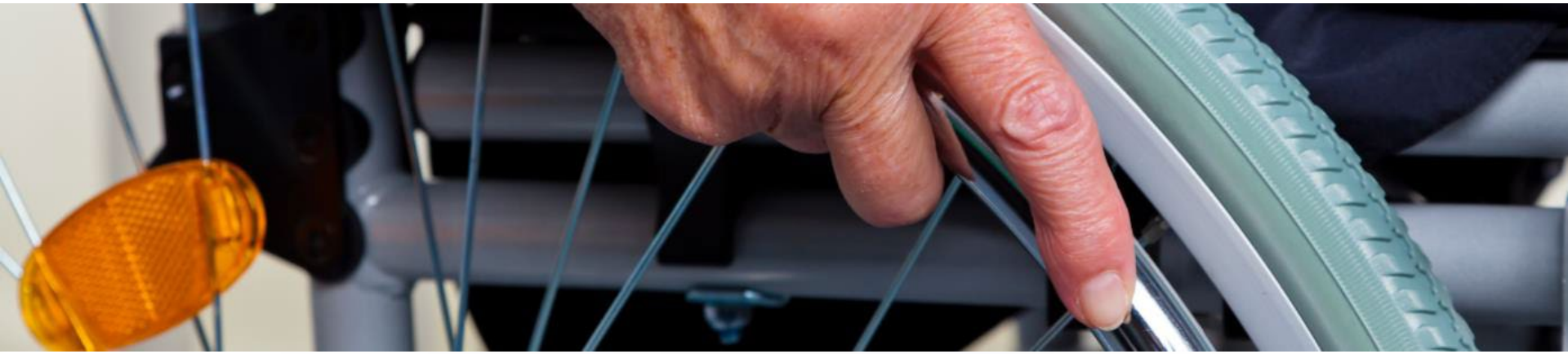
- Diabetes
- Heart disease
- Renal disease
- Immunocompromised
- Dementia/Alzheimer's
- History of UTIs



CDC. LTCF UTI Protocols. Available at: www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

Risk Factors—Aging Related

- Age-related changes to genitourinary tract
- Neurogenic bladder
- Bladder and bowel incontinence
- Mobility issues
- Poor intake; fluids



CDC. LTCF UTI Protocols. Available at: www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

Risk Factors—Device Associated

- Improper **insertion technique**
  - Straight catheter
  - Intermittent catheterization
  - Indwelling urinary catheter
- Use of an indwelling urinary catheter
- Improper maintenance

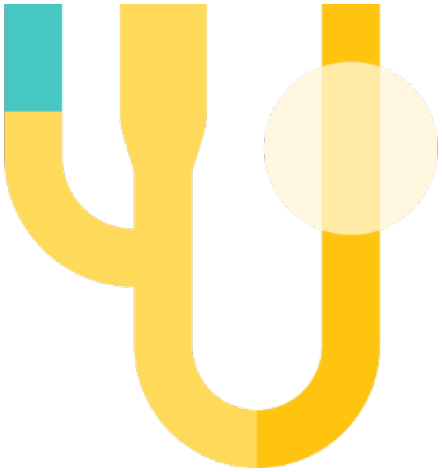
CDC. LTCF UTI Protocols. Available at: www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

Complications of CAUTI

- Persistent/chronic UTIs
- Chronic urinary incontinence
- Urinary calculi
- Pyelonephritis
- Renal abscess
- Chronic prostatitis
- Prostatic abscess
- Renal failure
- Functional decline
- Sepsis
- Hospitalization
- Death

CDC. LTCF UTI Protocols. Available at: www.cdc.gov/nhsn/pdfs/ltc/ltcf-uti-protocol-current.pdf

Indwelling Urinary Catheters



Indwelling Urinary Catheters in LTC

- 7% to 10% of residents have an indwelling urinary catheter
- Predisposes resident to a UTI or CAUTI
- Most common source of bacteriuria
  - May lead to bacteremia
  - May progress to sepsis
  - Urosepsis has a high mortality rate

Appropriate Indications for Urinary Catheters

- Acute urinary retention or obstruction
- Prolonged immobilization due to unstable spine or pelvic fracture
- Neurogenic bladder
- Healing of perineal and sacral wounds in incontinent patients
  - Stage III and IV wounds
- Hospice, comfort care, palliative care for end of life
- Chronic indwelling urinary catheter on admission
  - Evaluate when admitted to confirm necessity

CDC. CAUTI Guidelines. Available at: www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf

CAUTI Prevention

- **Avoid** inserting indwelling urinary catheters unless appropriate criteria is met.
- **Remove** indwelling urinary catheters as soon as possible.

CDC. CAUTI Guidelines. Available at: www.cdc.gov/infectioncontrol/guidelines/cauti/index.html/CAUTIguideline2009final.pdf

CAUTI Prevention Practices

- Insert catheters only for appropriate indications.
- Leave in place only as long as needed.
- Ensure catheters are inserted and maintained by properly trained staff.
- Perform hand hygiene.
- Use aseptic technique and sterile equipment for insertion.
- Maintain closed drainage system and unobstructed urine flow.
- Use portable ultrasound devices (bladder scanners) to assess urinary retention to reduce unnecessary catheterizations.
- Implement improvement program to achieve appropriate use of catheters.

CDC. CAUTI Guidelines. Available at: www.cdc.gov/infectioncontrol/guidelines/cauti/index.html/CAUTIguideline2009final.pdf

Bundle Approach to CAUTI Prevention

Insertion Bundle

- Verify need prior to insertion.
- Insert urinary catheter using aseptic technique.
- Maintain urinary catheter based on recommended guidelines.

Maintenance Bundle

- Document daily assessment of catheter need.
- Ensure tamper evident seal is intact.
- Secure catheter to patient.
- Perform hand hygiene before patient contact.
- Maintain daily meatal hygiene with soap and water.
- Empty drainage bag using a clean container.
- Maintain unobstructed flow.

Myths—CAUTI Practices

No evidence that these practices prevent UTIs

- X Complex urinary drainage systems
- X Changing catheters or drainage bags routinely
- X Antimicrobial prophylaxis
- X Periurethral area cleansing with antiseptics
- X Antimicrobial irrigation of the bladder
- X Antiseptic/antimicrobial solutions instilled into drainage bags
- X Screening or culturing routinely

Schulz L, Hoffman R, et al. Top Ten Myths Regarding the Diagnosis and Treatment of Urinary Tract Infections. *Journal of Emergency Medicine.* July 2016. 51(1):25-30.

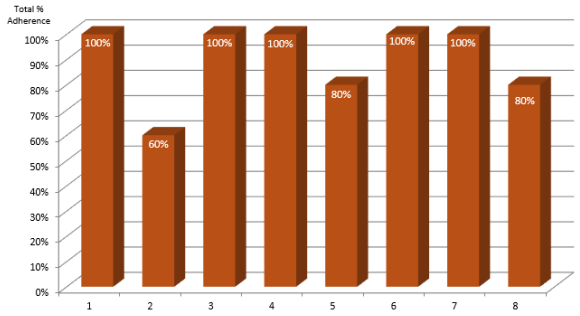
HSAG CAUTI Audit Tool

Foley Catheter Observation and Quality Tool

Date: 4/1/2023 Resident Census: 22 NPC= Not placed correctly
Unit: North Wing Number of Resident with Devices: 5

Complete for each Indwelling Catheter Foley in use:	Foley 1	Foley 2	Foley 3
COMMENTS			
Direct observation ROOM #	101	105	106
1. Is a closed system being maintained?	Yes	Yes	Yes
2. Is the Foley secured to the resident's body to prevent urethral tension?	Yes	No	Yes
3. Is the bag below the level of the Resident's bladder?	Yes	Yes	Yes
4. Is the tubing from the catheter to the bag free of dependent loops?	Yes	Yes	Yes
5. Is the tubing secured to the bed or chair to prevent pulling on the entire system?	Yes	No	Yes
6. Is the bag hanging free without touching the floor?	Yes	Yes	Yes
7. Does the resident have an individual measuring device marked with his/her name and room number?	Yes	Yes	Yes
8. Does the resident have a "dignity bag" in place?	Yes	Yes	Yes

Direct Observation - Foley Catheter Maintenance



Maintenance Indicators

1. Is a closed system being maintained?
2. Is the Foley secured to the resident's body to prevent urethral tension?
3. Is the bag below the level of the resident's bladder?
4. Is the tubing from the catheter to the bag free of dependent loops?
5. Is the tubing secured to the bed or chair to prevent pulling on the entire system?
6. Is the bag hanging free without touching the floor?
7. Does the resident have an individual measuring device marked with his/her name and room number?
8. Does the resident have a "dignity bag" in place?

Chart Review--Foley Catheter

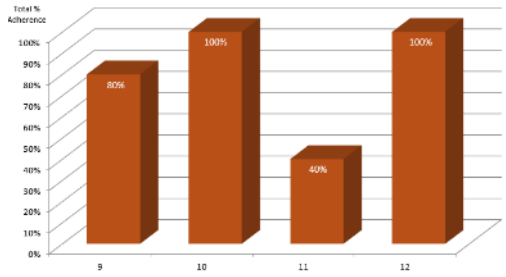


Chart Review Indicators

9. Is there documentation available indicating which department inserted the Foley and is perineal care performed daily?
10. Is there documentation available indicating Foley necessity?
11. Is there documentation available for completion of the insertion bundle?
12. Has there been a check for Foley catheter necessity today?

Testing and Treatment of CAUTIs

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Common UTI Myths

Myth 1: Urine is cloudy and smells bad → UTI

Myth 2: Urine has bacteria → UTI

Myth 3: urine has a positive leukocyte esterase (for WBCs) → UTI

Myth 4: Urine contains WBCs → UTI

Myth 5: Urine has nitrates (for bacteria) → UTI

Myth 6: Bacteria in a catheterized urine sample → UTI

Myth 7: Asymptomatic bacteriuria will progress to a UTI

Myth 8: Falls and acute altered mental status change → UTI

www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/reliability-of-nonlocalizing-signs-and-symptoms-as-indicators-of-the-presence-of-infection-in-nursinghome-residents/7293386E2E61A4224C7F71C66D48B835

Urine Culture Don'ts—Indwelling Catheter

- Do **not** perform routine urine cultures:
  - After catheter change
  - On admission
  - Test to cure
  - Independent altered mental status
- **Never** draw a urine culture from the collection bag
  - Biofilm will contaminate the sample
- **Never** store urine sample at room temperature
  - Must refrigerate
  - Improper storage can affect the viability of the sample

www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/long-term-care/poster-8x11-UTI.pdf

Tips for Urine Culture Sample—Foley

- **Always** follow your facility's policies and procedures.
- Confirm order and resident identity.
- Perform hand hygiene.
- Always maintain aseptic technique.
- You can clamp tubing below port for 10–15 minutes to ensure adequate urine in the tubing.
- Scrub the hub!
- Use leur-lock, vacutainer, or 10 cc syringe to withdraw sample.
- Do not touch the sides of the sterile specimen cup with the syringe to avoid contamination.

Wisconsin Technical College. Checklist for Maintaining a Urine Specimen From a Foley Catheter. Available at: wtcs.pressbooks.pub/nursingskills/chapter/21-12-checklist-obtain-a-urine-specimen-from-a-foley-catheter

Tips for Clean-Catch Mid-Stream Urine Sample

- **Always** following your facility's policies and procedures.
- Confirm order and resident identity.
- Assist the resident, do not just provide instructions.
- Perform hand hygiene.
- Always maintain aseptic technique.
- Use all the disinfectant wipes provided in the kit.
- Use proper technique for male and female residents.
- Catch mid-stream to decrease contamination.

www.mskcc.org/cancer-care/patient-education/clean-catch-urine-collection-instructions-males
www.mskcc.org/cancer-care/patient-education/clean-catch-urine-collection-instructions-females

Treatment Decisions for CAUTIs

- Avoid culturing urine of asymptomatic persons unless other signs and symptoms are present
  - Cultures are not needed for cloudy or foul-smelling urine unless symptomatic
- **Avoid antibiotics for asymptomatic bacteriuria**
- Symptoms that suggest culture of urine and treatment is indicated
  - Fever
  - Pain (costovertebral angle, suprapubic)
  - Hematuria
  - For non-catheterized residents:
    - Dysuria, urgency, and frequency

www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/long-term-care/poster-8x11-UTI.pdf

Key Take-Aways

- A CAUTI in nursing home residents can be a serious, but it is a preventable condition.
- If left untreated, a UTI can progress to urosepsis.
  - High morality rate
- It is critical to recognize and act upon the symptoms associated with CAUTI.
- Indwelling urinary catheters significantly increase the risk of UTI, know as CAUTI.
- Improper testing for UTI can lead to overuse of antibiotics to treat ABUTI.

Questions?

Thank you!

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