

University of Colorado

Infectious Diseases and Antimicrobial Stewardship News



CAUTI: Your Questions Answered and Myths Debunked

Myth: Prophylactic antibiotics are recommended for patients with an indwelling urethral catheter (IUC).

Fact: Unless clinical indications exist (e.g., in patients with bacteriuria upon catheter removal post urologic surgery), systemic antimicrobials are NOT recommended as prophylaxis for UTI.

Myth: All patients with an IUC and a positive urine culture should be treated with antibiotics.

Fact: Urinary catheters frequently become colonized. A true catheter-associated urinary tract infection (CAUTI) must be differentiated from asymptomatic bacteriuria (ASB) on the basis of clinical signs and symptoms of infection. In most circumstances, ASB does not need to be treated with antibiotics. Up to 32% of patients treated for presumed CAUTI are inappropriately receiving antibiotics for ASB.

Myth: Patients with candiduria in the setting of a catheter require treatment with antifungals.

Fact: Candiduria in patients with transurethral catheter is common and generally does not escalate to systemic infection. Treatment of candiduria is rarely necessary and should not be empirically started unless a patient has clear signs and symptoms of infection AND all other sources are ruled out.

Myth: Gross hematuria in a catheter drainage bag indicates the patient has a CAUTI.

Fact: Blood in a catheter drainage bag alone is not indicative of a CAUTI. A more common cause of gross hematuria is urethral, bladder and/or prostate irritation from catheter insertion.

Myth: Transurethral catheters are the best way to protect the skin in incontinent patients.

Fact: The catheter itself can actually cause pressure ulcers just as much as incontinence can. Patients without catheters are more frequently repositioned, decreasing risk of pressure ulcers. Furthermore, patients with long-term transurethral catheter are at risk of urethral erosion.

Myth: Transurethral catheters are indicated in frail, elderly patients with a high fall risk.

Fact: A catheter can actually increase fall risk by acting as a tether. However, in patients with severe immobility, it is reasonable to obtain bladder drainage with a catheter.

Myth: Indwelling urethral catheters are indicated for patients in the ICU.

Fact: ICU \neq IUC! ICU status does not always necessitate a transurethral catheter. Initial catheter insertion was unjustified in 13% of 135 patients in a medical ICU; continued use was inappropriate for 41% of catheterized days.

Myth: My patient recently underwent a partial cystectomy and now has a CAUTI; should the catheter be exchanged?

Fact: Patients with recent lower urinary tract reconstruction surgery require sufficient time with catheter drainage in order to promote healing of the surgical site. Unplanned/early removal of catheters in this situation has the potential to be detrimental to the reconstruction performed. Always discuss with the operative surgeon in this case prior to catheter exchange.

Myth: Clean intermittent catheterization (CIC) has a higher risk of infection than a transurethral catheter.

Fact: CIC is associated with statistically significant lower rates of CAUTI compared to transurethral catheter. Consider CIC as a first-line option for patients with either short- or long-term urinary retention.

Myth: My patient will require long-term bladder catheterization and is unable to perform CIC. Should I place a transurethral catheter?

Fact: SPC (suprapubic catheter) is often preferred in cases requiring extended bladder drainage. In contrast to transurethral catheter, SPC does not cause urethral erosion in the setting of long-term use.

Myth: Suprapubic catheters are more likely to have infectious complications and are uncomfortable.

Fact: SPC has lower rates of UTI than transurethral catheter when bladder drainage is needed for >5 days, and is associated with increased comfort. This is likely due to decreased bacterial colonization around the insertion site in the abdominal wall and the inhibition of bacterial adherence in healthy uroepithelium of the bladder.

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Editors:

Misha Huang, MD, MS
Larissa Pisney, MD
Lakshmi Chauhan, MD
Matthew Miller, PharmD, BCPS

Contributors:

Department of Urology:
Alan Quach, MS-4
David Koslov, MD
Jason Warncke, MD
Nadia V. Halstead, MD, MPH
Brian J. Flynn, MD

Infection Control and Prevention:

Claire Reisenauer, DVM, MPH

Division of Infectious Diseases:

Shelley Kon, MD

CAUTI Prevention: What Can I Do?

12% of all infections reported by acute care hospitals are UTIs. The vast majority of these are associated with indwelling urethral catheters (IUCs).

16% of adult inpatients will have an IUC inserted at some point during their hospital stay.

3%-7% increased risk of developing a catheter-associated urinary tract infection (CAUTI) for *each day* that an IUC is in place.

CAUTIs can result in a range of clinical complications:

- ◆ Bacteremia (4.0%)
- ◆ Urosepsis (12%)
- ◆ Increased hospital length of stay due to urosepsis (5.6 more days in ICU, 5 more days in stepdown)
- ◆ Directly attributable mortality rate 12.7%



The most effective way to reduce CAUTIs is to limit IUC use to those patients for which there are clear medical indications, remove IUCs promptly when they are no longer needed, and consider the use of external devices as opposed to IUCs when possible.

Once an IUC is in place, **CAUTI prevention bundles**, evidence-based best practices for IUC maintenance, are essential for reducing the occurrence of CAUTIs. Bundles include frequent assessments of ongoing catheter need, steps for proper bag and catheter care, and procedures for maintaining a closed system and unobstructed flow.

Appropriate Indications for IUC Use

- Acute urinary retention or bladder outlet obstruction
- Need for accurate measurements of urine output in critically ill patients
- Perioperative use for selected surgical procedures:
 - ◆ Patients undergoing urologic surgery or other surgery on contiguous structures of the GU tract
 - ◆ Anticipated prolonged duration of surgery (remove in PACU)
 - ◆ Patients anticipated to receive large-volume infusions or diuretics during surgery
 - ◆ Need for intraoperative monitoring of urinary output
- To assist healing of open sacral/perineal wounds in incontinent patients
- Prolonged immobilization (e.g., unstable spine, traumatic injuries)
- To improve comfort for end of life care if needed

Inappropriate Uses of Indwelling Catheters

- As a substitute for nursing care of the patient with incontinence
- As a means of obtaining urine for culture or other diagnostic tests when the patient can voluntarily void
- Prolonged post-op duration without appropriate indications (e.g., structural repair of urethra or contiguous structures, prolonged effect of epidural anaesthesia, etc.)

Reference: <https://www.cdc.gov/infectioncontrol/guidelines/cauti/>

Highlights from:

Guideline for Management of Asymptomatic Bacteriuria: 2019 Update by the Infectious Diseases Society of America

✗ DON'T screen for or treat ASB in most patients. There is evidence to support not screening or treating ASB in children, healthy non-pregnant women, functionally impaired residents in long term care facilities, diabetics, renal transplant patients > 1 month out of surgery, other Solid Organ Transplant (SOT) patients, patients with spinal cord injury (SCI), urinary catheters, and those undergoing elective non-urological surgery.

✗ DON'T treat older, functionally or cognitively impaired patients with bacteriuria and only non-localizing symptoms of delirium or falls. Studies suggest bacteriuria is most likely a confounding factor in older patients with delirium and falls. Delirium tends to have fluctuating course, and the panel recommends holding antibiotics and observing patients while evaluating alternative etiologies.

✓ DO screen patients undergoing endoscopic urologic procedures associated with mucosal trauma with urine culture and treat with targeted, rather than empiric, antimicrobial therapy.

✓ DO continue screening and treating ASB in pregnant women. A recent study in the Netherlands suggested that non-treatment may be an option. However, the panel did not feel this was sufficient evidence to counteract the previous (older) data including 11 RCTs which show antibiotics most likely reduce risk of pyelonephritis, low birth weight, and pre-term labor.



Crossword Puzzle

Submit your answers to misha.huang@cuanschutz.edu (include your name, department, and title) for a chance to win a \$10 DazBog giftcard!

May 2019 crossword winner:

Elhum Karimkhani, MSN, MSPH, AGACNP-BC | APP Fellow, Division of Hospital Medicine

Across

2. Most common cause of UTI
4. Frequent cause of altered mental status in the elderly
8. _____ does not equal infection
9. Fluoroquinolone warning (among many)
10. Alternative to IUC or SPC

Down

1. Potential for interstitial lung disease with long-term use
3. >5-10 WBC/HPF
5. Frequent colonizer of indwelling urinary catheters
6. aka, transurethral catheter
7. Should urine culture be performed following UTI treatment as a test of cure?

