Comprehensive Approaches to Prevent and Manage Urinary Tract Infections (UTIs) in Residents: Asymptomatic Bacteriuria

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Bite-sized Learning

Objectives

- Discuss the prevalence of asymptomatic bacteriuria (ASB) in long-term care population
- Review the clinical implications of ASB
- Describe urine culture stewardship and its relationship to the management of ASB
- Share Alliant Health Solutions quality improvement resources to support UTI prevention initiatives.

Urine Culture Stewardship

- A multifaceted approach to ensure that urine cultures are:
  - Performed only when appropriate indications are present in order to determine if treatment with antibiotics is indicated

AND

  - Collected, stored, and processed in a manner to best prevent contamination with microorganisms such as bacteria
- Essential strategy to prevent misdiagnosis of urinary tract infections and reduce unnecessary testing and inappropriate antibiotic use

Preventing CAUTI: Focus on Culturing Stewardship. Content last reviewed May 2023. Agency for Healthcare Research and Quality, Rockville, MD. https://www.ahrq.gov/hai/cauti-tools/phys-championsgd/section7.html

Asymptomatic Bacteriuria (ASB)

- Presence of one or more species of bacteria growing in the urine at specified quantitative counts ($\geq 10^5$ colony-forming units [CFU]/mL or $\geq 10^8$ CFU/L), irrespective of the presence of pyuria, in the absence of signs or symptoms attributable to urinary tract infection (UTI) (e.g., dysuria, frequency, urgency, fever, flank pain)

- Positive urine culture in a patient with no signs or symptoms of a urinary tract infection, often associated with pyuria (urine containing ≥10 white blood cells per high-powered field)

Population	Prevalence of ASB	Prevalence of Pyuria in Persons With ASB
Healthy premenopausal women	1–5%	32%
Women 70–90 years old	11–16%	
Female long-term care residents	25–50%	90%
Male long-term care residents	15–50%	90%
Women with diabetes	9–27%	70%
Men with diabetes	1–11%	
People receiving hemodialysis	25%	90%
Presence of indwelling urinary catheter	> 90%	50–100%

https://www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/best-practices/ASB-one-page.pdf

Asymptomatic Bacteriuria (ASB)

- The majority of patients/residents with ASB and/or asymptomatic pyuria **SHOULD NOT** be treated.

- Studies have demonstrated that treatment of ASB does not prevent UTIs.
  - Treatment associated with adverse events related to antibiotic use and the development of future UTIs that are antibiotic resistant.

- Exceptions
  - Pregnant patients: treatment prevents preterm labor and pyelonephritis.
  - Patients about to undergo a urologic procedure in which mucosal bleeding is expected (not urinary catheter placement): treatment prevents urosepsis.

TABLE 1

Screening for Asymptomatic Bacteriuria in Adults: Clinical Summary of the USPSTF Recommendation

Population	This applies to adults 18 years and older and pregnant persons of any age without signs and symptoms of a urinary tract infection. It does not apply to persons who have chronic medical or urinary tract conditions or are hospitalized or living in institutions such as nursing homes.	
Recommendation	For pregnant persons: Grade B Screen persons who are pregnant for asymptomatic bacteriuria with a urine culture.	For nonpregnant adults: Grade D Do not screen adults who are not pregnant for asymptomatic bacteriuria.
What's new?	This recommendation is consistent with the 2008 USPSTF recommendation. The USPSTF continues to recommend screening for pregnant persons and recommends against screening for nonpregnant adults.	
How to implement this recommendation?	**Screen.** Screen pregnant persons for asymptomatic bacteriuria using a midstream, clean-catch urine culture at the first prenatal visit or at 12 to 16 weeks of gestation, whichever is earlier. A urine culture showing >100,000 CFU/mL of a single uropathogen or >10,000 CFU/mL if the pathogen is group B streptococcus indicates treatment.	
Where to read the full recommendation statement?	Visit the USPSTF website to read the full recommendation statement. This includes more details on the rationale of the recommendation, including benefits and harms; supporting evidence; and recommendations of others.	

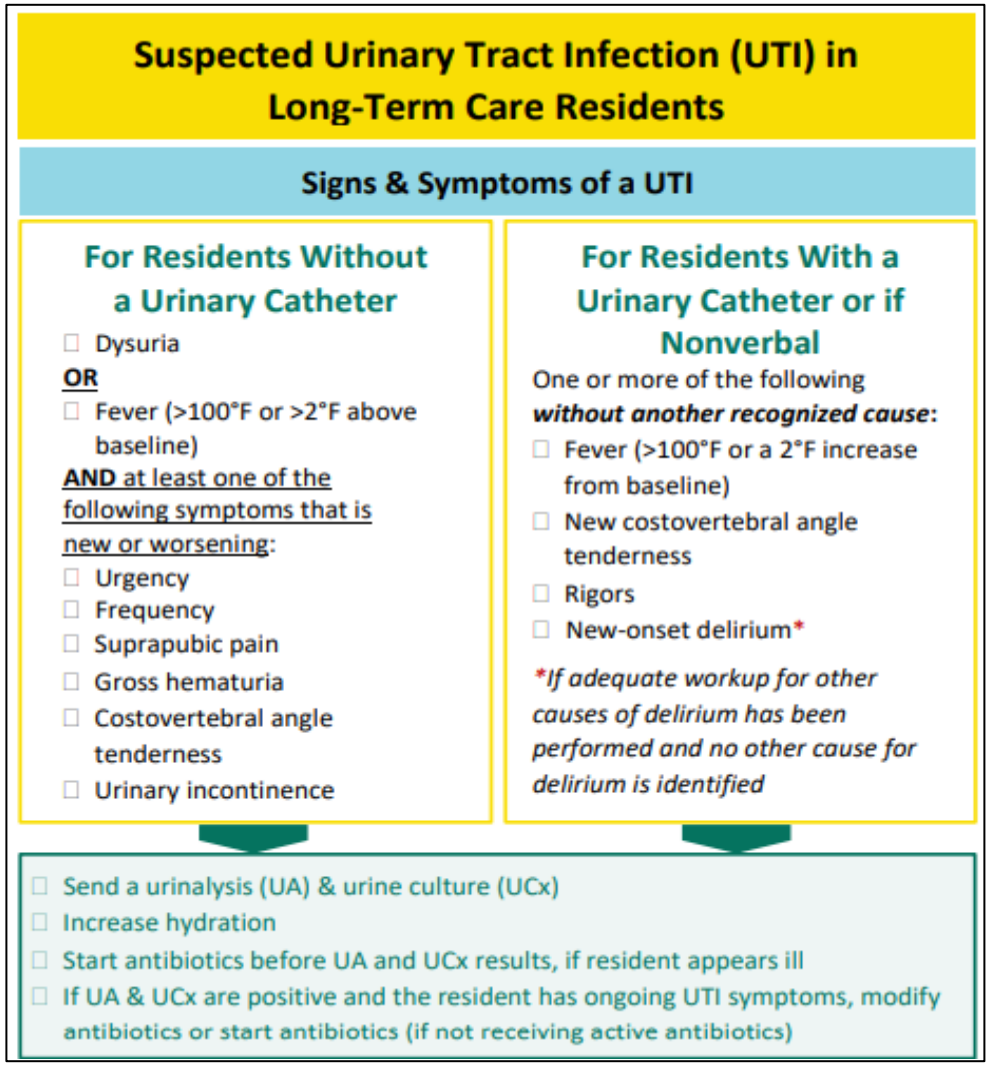
Note: For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, go to https://www.uspreventiveservicestaskforce.org/.

CFU = colony-forming units; USPSTF = U.S. Preventive Services Task Force.

https://www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/best-practices/ASB-one-page.pdf
https://www.aafp.org/pubs/afp/issues/2020/0415/p489.html

How Can I Prevent Unnecessary Treatment of ASB?

- Do not order urine cultures unless your resident has signs and symptoms of a UTI
- Establish urine culture protocols
  - Document appropriate indications
  - Urine culture collection protocol
  - Urine culture collection competency
- Develop tools in the electronic health record to prompt providers to document indications for sending a urine culture
- Work with the lab to determine from where and why urine cultures are being sent to identify targets for improvement
- Consider reflex testing protocols/criteria with the lab and medical director/specialists



https://www.ahrq.gov/sites/default/files/wysiwyg/antibiotic-use/best-practices/ASB-one-page.pdf
https://quality.allianthealth.org/wp-content/uploads/2020/02/UTI-Flyer_12SOW-AHSQIN-QIO-TO1-20-66_508.pdf

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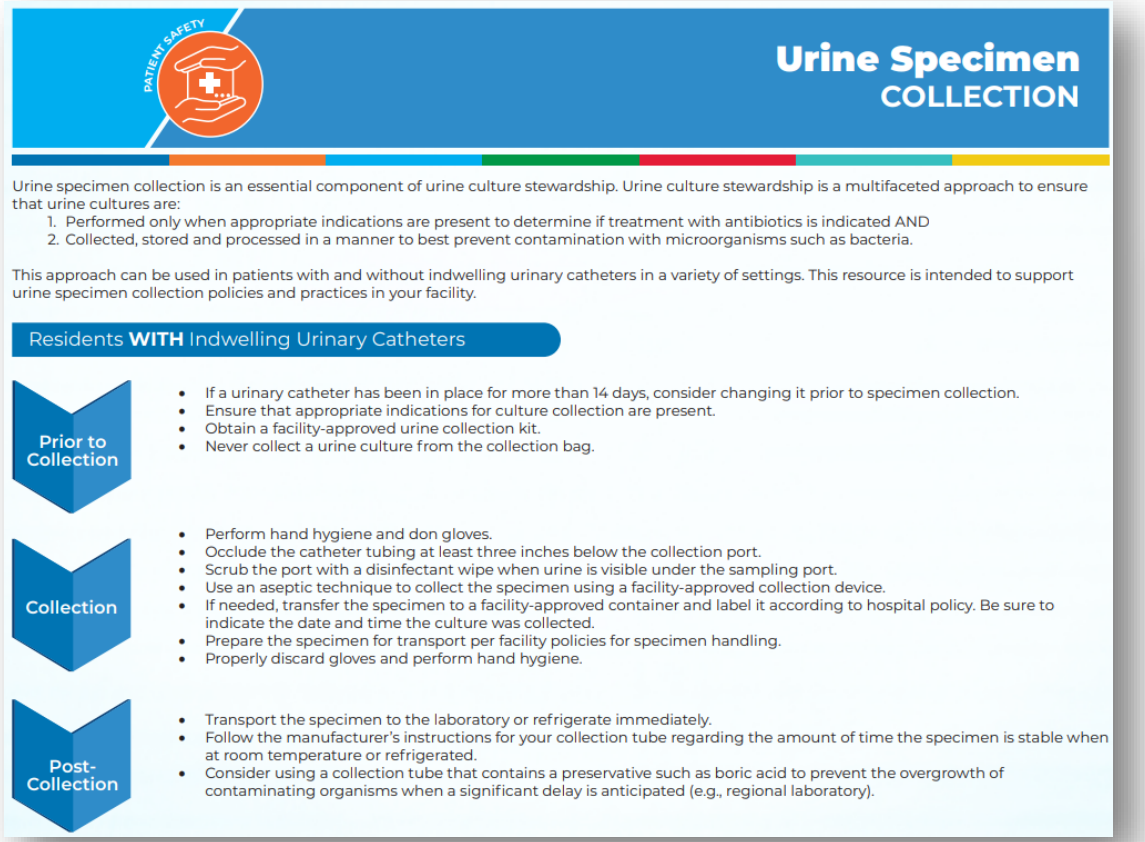
Urine Specimen Collection Resource



PATIENT SAFETY

Urine Specimen COLLECTION

Urine specimen collection is an essential component of urine culture stewardship. Urine culture stewardship is a multifaceted approach to ensure that urine cultures are:

1. Performed only when appropriate indications are present to determine if treatment with antibiotics is indicated AND
2. Collected, stored and processed in a manner to best prevent contamination with microorganisms such as bacteria.

This approach can be used in patients with and without indwelling urinary catheters in a variety of settings. This resource is intended to support urine specimen collection policies and practices in your facility.

Residents **WITH** Indwelling Urinary Catheters

Prior to Collection

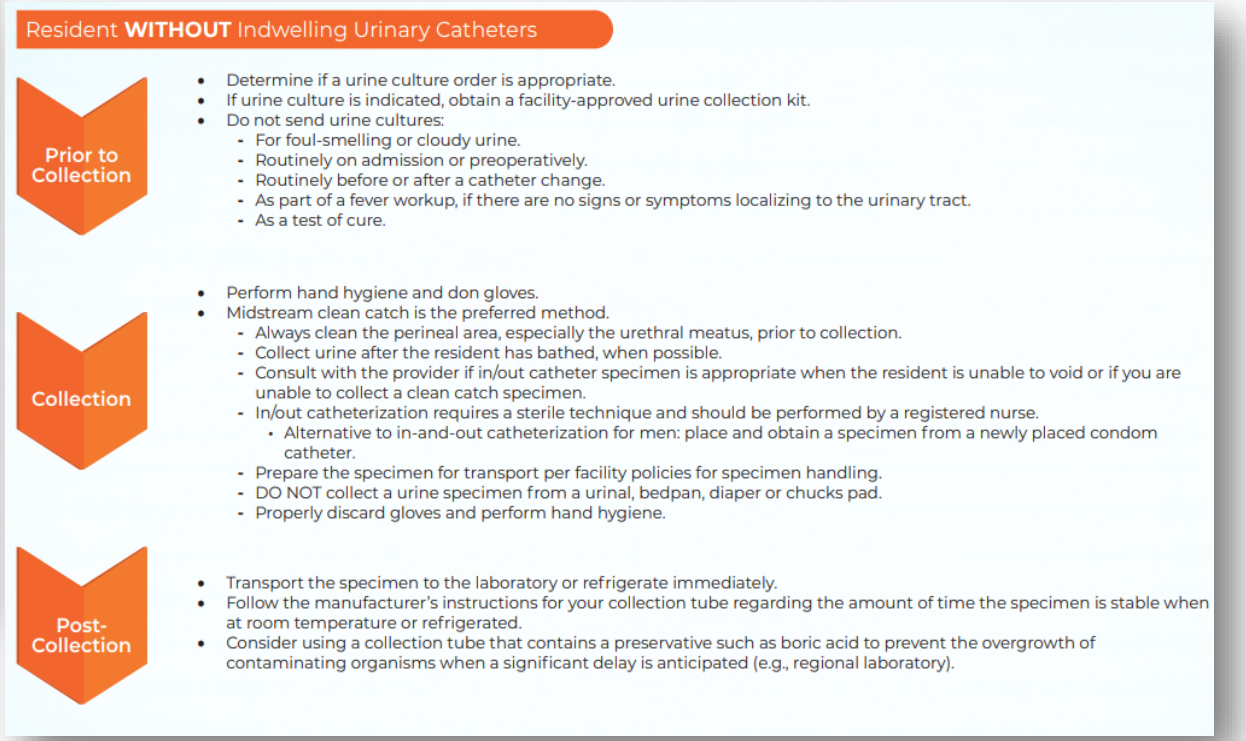
- If a urinary catheter has been in place for more than 14 days, consider changing it prior to specimen collection.
- Ensure that appropriate indications for culture collection are present.
- Obtain a facility-approved urine collection kit.
- Never collect a urine culture from the collection bag.

Collection

- Perform hand hygiene and don gloves.
- Occlude the catheter tubing at least three inches below the collection port.
- Scrub the port with a disinfectant wipe when urine is visible under the sampling port.
- Use an aseptic technique to collect the specimen using a facility-approved collection device.
- If needed, transfer the specimen to a facility-approved container and label it according to hospital policy. Be sure to indicate the date and time the culture was collected.
- Prepare the specimen for transport per facility policies for specimen handling.
- Properly discard gloves and perform hand hygiene.

Post-Collection

- Transport the specimen to the laboratory or refrigerate immediately.
- Follow the manufacturer's instructions for your collection tube regarding the amount of time the specimen is stable when at room temperature or refrigerated.
- Consider using a collection tube that contains a preservative such as boric acid to prevent the overgrowth of contaminating organisms when a significant delay is anticipated (e.g., regional laboratory).



Resident **WITHOUT** Indwelling Urinary Catheters

Prior to Collection

- Determine if a urine culture order is appropriate.
- If urine culture is indicated, obtain a facility-approved urine collection kit.
- Do not send urine cultures:
  - For foul-smelling or cloudy urine.
  - Routinely on admission or preoperatively.
  - Routinely before or after a catheter change.
  - As part of a fever workup, if there are no signs or symptoms localizing to the urinary tract.
  - As a test of cure.

Collection

- Perform hand hygiene and don gloves.
- Midstream clean catch is the preferred method.
  - Always clean the perineal area, especially the urethral meatus, prior to collection.
  - Collect urine after the resident has bathed, when possible.
  - Consult with the provider if in/out catheter specimen is appropriate when the resident is unable to void or if you are unable to collect a clean catch specimen.
  - In/out catheterization requires a sterile technique and should be performed by a registered nurse.
    - Alternative to in-and-out catheterization for men: place and obtain a specimen from a newly placed condom catheter.
  - Prepare the specimen for transport per facility policies for specimen handling.
  - DO NOT collect a urine specimen from a urinal, bedpan, diaper or chucks pad.
  - Properly discard gloves and perform hand hygiene.

Post-Collection

- Transport the specimen to the laboratory or refrigerate immediately.
- Follow the manufacturer's instructions for your collection tube regarding the amount of time the specimen is stable when at room temperature or refrigerated.
- Consider using a collection tube that contains a preservative such as boric acid to prevent the overgrowth of contaminating organisms when a significant delay is anticipated (e.g., regional laboratory).

https://quality.allianthealth.org/wp-content/uploads/2023/08/Urine-Specimen-Collection-Resource_508.pdf

Agency for Healthcare Research and Quality: UTI Diagnosis and Treatment Best Practices

- Explains how to distinguish ASB from a UTI
- Shares the patient populations who should and should not be tested and treated for ASB
- Recommends empiric treatments for UTIs
- Explores opportunities for de-escalation of antibiotic therapy for UTIs after additional clinical data are available
- Examines reasonable durations of antibiotic therapy for UTIs

https://www.ahrq.gov/antibiotic-use/acute-care/diagnosis/uti.html

Thank You for Your Time!
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