

## Asymptomatic Bacteriuria

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**Definition:** the presence of one or more species of bacteria growing in the urine ( $\geq 10^5$  colony forming units/mL without indwelling catheters). Pyuria does not need to be present. There are no signs of symptoms of a urinary tract infection.

- Notable urinalysis findings:
  - A high leukocyte count in the UA ( $>5$ /hpf) suggests a true UTI. Bacteriuria without pyuria can suggest colonization rather than infection. However, even if there is bacteriuria with pyuria, patients can still be asymptomatic and therefore not have a true infection.
  - WBC casts in the UA can suggest pyelonephritis in the setting of bacteriuria.
  - Nitrites can be seen on UA, which indicates gram negative bacteria (E. coli, Klebsiella, Enterobacter, Citrobacter, Proteus) in the urine. Negative nitrites on UA does not exclude bacteriuria as it can suggest presence of gram positive and atypical organisms.
  - Bacteria without pyuria in asymptomatic patients is likely contamination.
- Two consecutive urine specimens should be obtained within 2 weeks for women to confirm that the bacteriuria is persistent.
- A single urine specimen is sufficient for men

Studies have shown that asymptomatic bacteriuria is not a predictor of a urinary tract infection

- Chronic indwelling catheters have a high risk for bacterial colonization. The incidence of bacteriuria is 3-7% per day after catheterization.
- If the patient is not symptomatic, guidelines recommend that patients are not treated unless the patient is a pregnant woman or a patient undergoing an invasive urologic procedure
- In assessment of asymptomatic bacteriuria in long-term urinary catheters ( $>30$  days), a prospective, randomized control trial was performed (cephalexin vs no antibiotic control group for asymptomatic bacteriuria in long-term indwelling urethral catheters). There was a similar incidence of fever in the treated and untreated groups, reinfection rates were similar. However, the susceptibility to cephalexin decreased substantially in the treatment group compared with the control group
- Therefore, the IDSA recommends that asymptomatic bacteriuria or funguria should not be screened for or treated in patients with an indwelling urethral catheter.

Studies have also shown that screening and treatment results in increased risk of antimicrobial adverse effects, increase in healthcare costs, and increased risk of antimicrobial resistance

### Which Patients to Screen and Treat for Asymptomatic Bacteriuria

Screen and Treat	Do Not Screen and Treat
Pregnant women	Infants and children
Urologic procedure (short course of treatment with 1-2 doses)	Healthy, premenopausal, nonpregnant women
	Healthy, postmenopausal women
	Older, functionally impaired persons living in the community
	Older persons living in long-term care facilities
	Diabetic patients
	Renal transplant patient who had renal transplant surgery >1 month prior (evidence is insufficient in the first month)
	Nonrenal solid organ transplant
	History of spinal cord injury
	Short-term indwelling urethral or suprapubic catheter
	Elective, non-urologic surgery
	Implantation of a urologic device

- Recommendations for older functionally/cognitively impaired patients with bacteriuria and without localizing genitourinary symptoms or other systemic signs of infection (fever, hemodynamic compromise) who present with delirium or fall: assessment for other causes and careful observation rather than antimicrobial treatment
- Trimethoprim-sulfamethoxazole is used for *Pneumocystis jirovecii* pneumonia prevention during the first 6 months after renal transplant, which also likely decreases frequency of symptomatic urinary tract infections and asymptomatic bacteriuria.
- Atypical symptoms in spinal cord injury that cannot sense dysuria: fever, malaise, worsening urinary incontinence, leaking around catheter, cloudy urine, malodorous urine.

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