Asyntomatic bacteriuria, Urinary Tract Infection
C. Infectious Diseases Society of America Guidelines for the Diagnosis and Treatment of Asyntomatic Bacteriuria in Adults (2005)
Diagnosis

The diagnosis of asymptomatic bacteriuria should be based on results of culture of a urine specimen collected in a manner that minimizes contamination (A-II)

- For asymptomatic women, bacteriuria is defined as 2 consecutive voided urine specimens with isolation of the same bacterial strain in quantitative counts $10^5$ cfu/mL (B-II)

- A single, clean-catch voided urine specimen with 1 bacterial species isolated in a quantitative count $10^5$ cfu/mL identifies bacteriuria in men (BIII)

- A single catheterized urine specimen with 1 bacterial species isolated in a quantitative count $10^2$ cfu/mL identifies bacteriuria in women or men (A-II)

- Pyuria accompanying asymptomatic bacteriuria is not an indication for antimicrobial treatment (A-II)
Premenopausal, Nonpregnant Women

Treatment of asymptomatic bacteriuria neither decreases the frequency of symptomatic infection nor prevents further episodes of asymptomatic bacteriuria.

- No association among asymptomatic bacteriuria and mortality

- Asymptomatic bacteriuria is not associated with long-term adverse outcomes, such as hypertension, chronic kidney disease, genitourinary cancer

- The association of asymptomatic bacteriuria with symptomatic urinary infection is likely attributable to host factors that promote both symptomatic and asymptomatic urinary infection
Immunocompromised Patients and Other Patients

No recommendation can be made for screening for or treatment of asymptomatic bacteriuria in renal transplant or other solid organ transplant recipients (C-III)

- Management of transplantation:
  - routine perioperative prophylaxis
  - minimization of use of indwelling urethral catheters
  - long-term antimicrobial prophylaxis to prevent pneumonia and other infections

These interventions also prevent both asymptomatic bacteriuria and symptomatic urinary infection, screening for bacteriuria is unlikely to provide a benefit

- Women with primary biliary cirrhosis and bacteriuria: no difference
Other populations:

Screening for or treatment of asymptomatic bacteriuria is not indicated in:

- diabetic women (A-I)
- older persons resident in the community (A-II)
- elderly institutionalized residents of long-term care facilities (A-I)
- spinal cord–injured patients (A-II)
Pregnant women should be screened for bacteriuria by urine culture at least once in early pregnancy, and they **should be treated** if the results are positive (A-I).

- In early pregnancy have a 20–30-fold increased risk of developing **pyelonephritis** during pregnancy, compared with women without bacteriuria and more likely to experience **premature delivery** and to have infants of **low birth weight**.

- Prospective, comparative clinical trials: decreases the risk of subsequent pyelonephritis from 20%–35% to 1%–4%; Meta-analyses of cohort studies and randomized clinical: decreases the frequency of low-birth weight infants and preterm delivery.

- More recent reports of implementation of screening and treatment programs: decrease in rates of pyelonephritis for all pregnant women, from 1.8% to 0.6% in a Spanish health care center and 2.1% to 0.5% in a Turkish health care center.
The duration of antimicrobial therapy should be 3–7 days (A-II)

• The optimal duration of antimicrobial therapy for treatment of bacteriuria in pregnant women has not been determined

• A prospective, randomized study of continuous antimicrobial therapy to the end of pregnancy compared with 14 days of nitrofurantoin or sulfamethizole, followed by weekly urine culture screening and re-treatment if bacteriuria recurred, reported similar outcomes for the 2 treatment groups

• A recent Cochrane systematic review concluded that there was insufficient evidence to recommend a duration of antimicrobial therapy for pregnant women among single-dose, 3-day, 4-day, and 7-day treatment regimens
Periodic screening for recurrent bacteriuria should be undertaken following therapy (A-III)

- The appropriate screening test is a urine culture
- Screening for pyuria has a low sensitivity—only ~50% for identification of bacteriuria in pregnant women
- The optimal frequency of screening is not well defined

No recommendation can be made for or against repeated screening of culture-negative women in later pregnancy
Screening for and treatment of asymptomatic bacteriuria before transurethral resection of the prostate is recommended (A-I)

An assessment for the presence of bacteriuria should be obtained, so results will be available to direct antimicrobial therapy prior to the procedure (A-III)

Antimicrobial therapy should be initiated shortly before the procedure (A-II)

Antimicrobial therapy should not be continued beyond the procedure, unless an indwelling catheter remains in place (B-II)

Screening for and treatment of asymptomatic bacteriuria is recommended before other urologic procedures in which mucosal bleeding is anticipated (A-III)

- High rate of post-procedure bacteremia and sepsis
- Bacteremia occurs in up to 60% of bacteriuric patients who undergo transurethral prostatic resection and clinical evidence of sepsis in 6%–10% of these persons
- Antimicrobial treatment in preventing complications in bacteriuric men undergoing transurethral resection of the prostate
C. Urologic Interventions 2

- Little information relevant to other procedures
- Pretreatment of asymptomatic bacteriuria is not beneficial for all invasive procedures (for instance, replacement of a long-term indwelling foley catheter)
- The appropriate timing for initiation of antimicrobial therapy is not well defined: 72 h before the intervention is likely to be excessive and allows the opportunity for superinfection before the procedure. Initiation of therapy the night before or immediately before the procedure is effective
- The optimal time to obtain a sample for culture before the procedure and the duration of antimicrobial therapy are also not addressed in clinical trials
- In the absence of an indwelling catheter, antimicrobial therapy can likely be discontinued immediately after the procedure
- When an indwelling catheter remains in place after a prostatic resection, it has been recommended by some investigators that antimicrobial therapy be continued until the catheter is removed
Patients with Indwelling Urethral Catheters

Asymptomatic bacteriuria or funguria should not be screened for or treated in patients with an indwelling urethral catheter (A-I).

Antimicrobial treatment of asymptomatic women with catheter-acquired bacteriuria that persists 48 h after catheter removal may be considered (B-I).

Short-term catheters:

- Approximately 80% of acute care facility patients with short-term (<30 days) indwelling urethral catheters receive antimicrobial therapy, usually for an indication other than urinary infection.

- Acquisition of bacteriuria with indwelling urethral catheterization increased mortality 3-fold, but the explanation for this association was not clear, and multivariate analysis found that antimicrobial therapy did not alter the association with mortality.

- No differences in eradication of funguria and no clinical benefits of treatment.
Patients with Indwelling Urethral Catheters 2

**Long-term catheters**

- No difference among cephalexin arm therapy versus no antibiotic therapy for bacteriuric patients with long-term indwelling urethral catheters
  - 75% of reinfecting organisms in the control group remained susceptible to cephalexin, compared with only 36% in the cephalexin treatment group.

- no decrease in the number of episodes of fever with treatment, compared with the pretreatment period, and immediate recurrence of bacteriuria after therapy, often with organisms of increasing resistance