Asymptomatic bacteriuria (ASB)

- To identify it
  - In female → we need 2 consecutive voided urine specimens with isolation of the same bacterial strain in quantitative counts >=10°cfu/mL
  - In male → we need 1 clean-catch voided urine specimen with 1 bacterial species isolated in a quantitative count >=10° cfu/mL
- Escherichia coli remains the single most common organism isolated from bacteriuric women. Characterized by fewer virulence characteristics than are those isolated from women with symptomatic infection.
- The diagnosis of asymptomatic bacteriuria should be based on culture of a urine specimen collected in a manner that minimizes contamination.
- Women identified with ASB in early pregnancy have a 20—30-fold increased risk of developing pyelonephritis during pregnancy. As well as experience premature delivery and to have infants of low birth weight.
- 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.
- ASB or funguria should not screened for or treated in patients with an indwelling urethral catheter.
- Patients with asymptomatic bacteriuria who undergo traumatic genitourinary procedures associated with mucosal bleeding have a high rate of postprocedure bacteremia and sepsis.
- Screening for and treatment of ASB before transurethral resection of the prostate is recommended.
- An untreated urinary tract infection in pregnant patients is associated with an increased risk of several complications including: pyelonephritis, preterm labor, second-trimester abortion, preeclampsia, maternal anemia, and chroioamnionitis.
- Nitrofurantoin or trimethoprim tend to be used first line for empiric treatment and are both safe in pregnancy.
- Uncomplicated UTI is most commonly caused by Escherichia coli and trimethoprim-sulfamethoxazole (TMP-SMX) is the most common first line empiric antibiotic used for treatment whilst awaiting culture results.
- Individualized treatment choice between nitrofurantoin, TMP-SMX, and ciprofloxacin depends largely on clinical picture, allergy, tolerability, compliance and local community resistance patterns.

- Recurrent urinary tract infections despite appropriate antibiotic use, and a urinary pH >8 should clue you into a urease producing organism or a struvite kidney stone. Struvite kidney stones or triple phosphate stones are composed of magnesium, ammonium and phosphate.

Catheter-associated urinary tract infection (CAUTI)

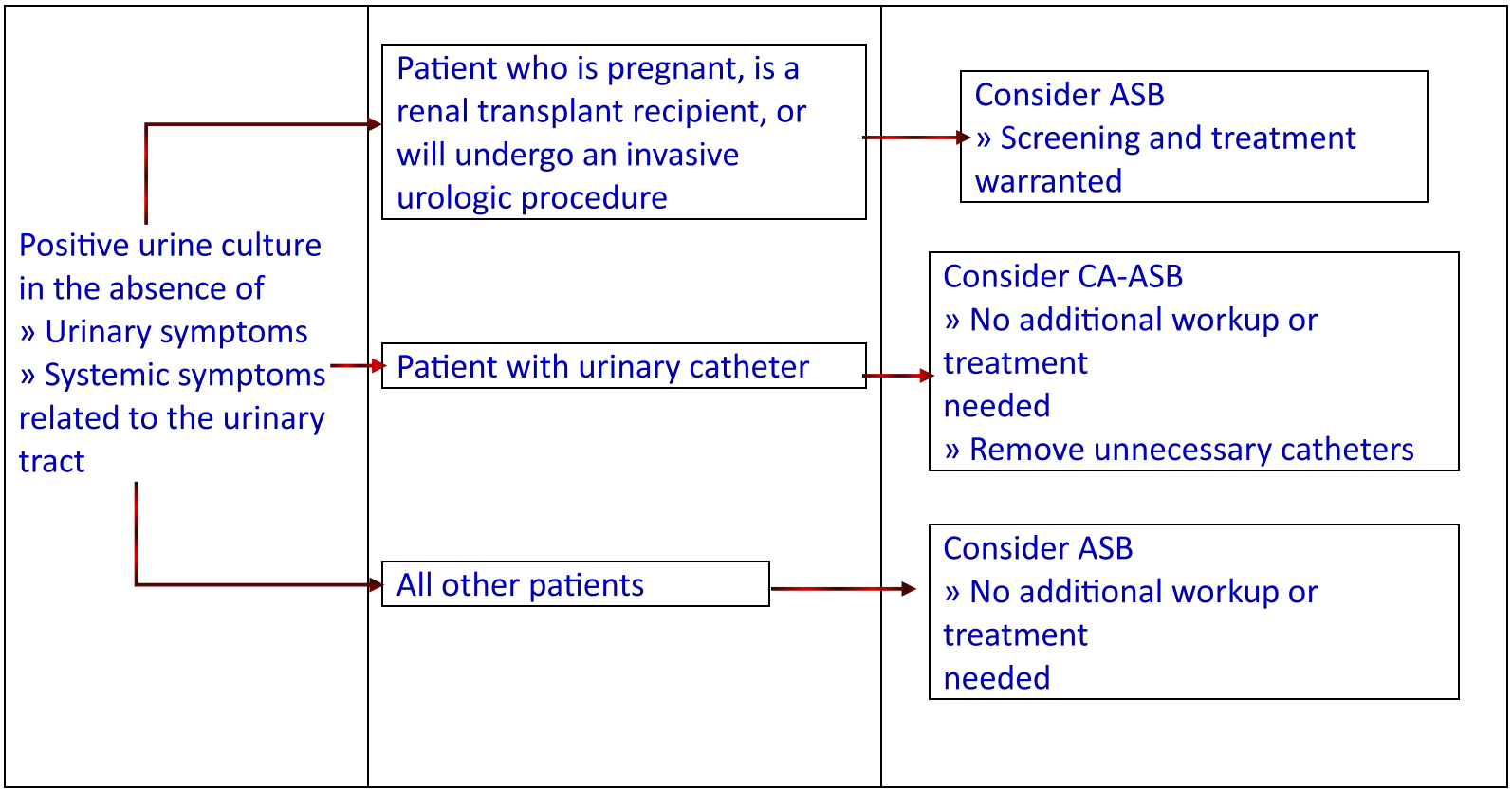
- Patients should be catheterized for clear indications only. Consider alternatives to chronic indwelling catheters, such as intermittent catheterization.
- Bacteria may persist in the catheter biofilm, and it is sensible to remove or replace the catheter.

Routes of entry via the urinary catheter →

→ Intraluminal route:	Extraluminal route:
inside of the catheter "when there is a break in the closed drainage system and/or when asepsis is defective. This can occur during specimen collection or when the bag is disconnected.	outside of the catheter "between the catheter and the uroepithelial surface (urethral surface)". Early, at insertion. Late, by capillary action.

- Patients with indwelling urinary catheters do not need antibiotics (including for asymptomatic bacteriuria), unless they have a documented infection.
- Catheter-associated urinary tract infection (CAUTI) → urosepsis →
  We should remove the indwelling Foley catheter and then commence empiric antibiotic therapy.

Clinical Presentation	Patient Characteristics	Diagnostic and Management Considerations
Acute onset of urinary symptoms » Dysuria » Urinalysis and culture » Urgency	healthy woman who is not pregnant, clear history	Consider uncomplicated cystitis » No urine culture needed » Consider telephone management
	Woman with unclear history or risk factors for STD	Consider uncomplicated cystitis or STD » Dipstick, urinalysis, and culture » STD evaluation, pelvic exam
	Male with perineal, pelvic, or prostatic pain	Consider acute prostatitis » Urinalysis and culture » Consider urology evaluation
	All other patients	Consider complicated UTI » Urinalysis and culture » Address any modifiable anatomic or functional abnormalities
Acute onset of » Back pain » Nausea/vomiting » Fever » Cystitis symptoms	healthy woman who is not pregnant	Consider uncomplicated pyelonephritis » Urine culture » Consider outpatient management
	All other patients	Consider pyelonephritis »Urine culture » Blood cultures
Non-localizing systemic symptoms of infection » Fever » Altered mental status » Leukocytosis	No obvious non-urinary cause	Consider complicated UTI, CAUTI, or pyelonephritis » Urine culture » Blood cultures » Exchange or remove catheter if present


Positive urine culture in the absence of
» Urinary symptoms
» Systemic symptoms related to the urinary tract
Patient who is pregnant, is a renal transplant recipient, or will undergo an invasive urologic procedure
Patient with urinary catheter
All other patients
Consider ASB
» Screening and treatment warranted
Consider CA-ASB
» No additional workup or treatment needed
» Remove unnecessary catheters
Consider ASB
» No additional workup or treatment needed