

CHI MEMORIAL

Guidelines for Empiric Therapy: Hospitalized Adults

Urinary Tract Infection

Overview:

- A urine culture must be interpreted in the context of patient symptoms and urinalysis
- If a patient has no symptoms of infection, but a positive urine culture, the patient has asymptomatic bacteriuria
- Typically, catheterized patients will become colonized within 48 hours of catheterization
- Patients with chronically indwelling catheters will almost always have a positive urine culture but may not be truly infected
- In patients who are severely ill due to urosepsis, consider obtaining an imaging study

Specimen Collection		Urine Culture	
<ul style="list-style-type: none">• Urethral area should be cleaned with an antiseptic cloth and the urine sample should be collected midstream or obtained by fresh catheterization• Specimens collected using a drainage bag are not reliable and should not be sent		<ul style="list-style-type: none">• Without urinary catheter: Positive cultures with pyuria are defined as $\geq 100,000$ CFUs• With urine catheter: $\geq 100,000$ CFUs is the most specific for CAUTI<ul style="list-style-type: none">○ Some experts state that $\geq 1,000$ CFUs represent significant bacteriuria. If this count is used, there should be a strong clinical suspicion of CAUTI based on symptoms and the absence of infection at another site	
Organisms			
<p><i>Enterococcus</i> spp.</p> <ul style="list-style-type: none">• Often colonization• 85% are <i>Enterococcus faecalis</i>• IV Ampicillin, PO Amoxicillin, or PO Nitrofurantoin (If CrCl >40mL/min)	<p><i>Candida</i> spp.</p> <ul style="list-style-type: none">• Often colonization• IV micafungin: not effective for UTI• Fluconazole does not cover <i>C. krusei</i> and may not cover <i>C. glabrata</i>	<p><i>Staphylococcus aureus</i></p> <ul style="list-style-type: none">• Not a common cause of UTI• Typically a descending pathogen• Consider checking blood cultures	

All recommendations are for empiric treatment: Narrow coverage based on susceptibilities

Category	Definition	Empiric Treatment
Asymptomatic bacteriuria	<ul style="list-style-type: none"> Positive urine culture No signs or symptoms 	No treatment unless patient is: <ul style="list-style-type: none"> Pregnant About to undergo a urologic procedure Post-renal transplant
Acute cystitis	<ul style="list-style-type: none"> Positive urine culture Signs and symptoms: dysuria, urgency, frequency, suprapubic pain 	Uncomplicated: female with no urologic abnormalities <ul style="list-style-type: none"> PO Cefuroxime PO Nitrofurantoin if CrCl > 40mL/min Complicated: male, urologic abnormalities, stones <ul style="list-style-type: none"> Same regimen as above (longer duration)
Acute pyelonephritis	<ul style="list-style-type: none"> Positive urine culture Signs and symptoms: ± cystitis symptoms & systemic signs (CVA tenderness, flank pain, fever, chills, nausea/vomiting) 	<ul style="list-style-type: none"> IV Ceftriaxone If hospitalized >48h <ul style="list-style-type: none"> IV Piperacillin-tazobactam <u>OR</u> cefepime Severe PCN allergy <ul style="list-style-type: none"> IV Aztreonam <u>OR</u> Tobramycin
Catheter-associated UTI	<ul style="list-style-type: none"> Signs and symptoms and positive urine culture 	Remove or replace catheter in all patients. Patients who are stable with no evidence of upper tract disease: <ul style="list-style-type: none"> Consider observation alone Patient severely ill and/or evidence of upper tract disease: <ul style="list-style-type: none"> IV Ceftriaxone If hospitalized >48h <ul style="list-style-type: none"> IV Piperacillin-tazobactam <u>OR</u> Cefepime Severe PCN allergy <ul style="list-style-type: none"> IV Aztreonam <u>OR</u> Tobramycin

* Levofloxacin and TMP-SMX are not listed as an empiric treatment recommendation due to the low rate of E.coli susceptibility, 58% for levofloxacin and 67% for TMP-SMX