

Management of Urinary Tract Infections

CHI Memorial Hospital



Does the patient have symptoms of a urinary tract infection?

- Urgency, frequency, dysuria
- Suprapubic pain or tenderness
- Costovertebral pain or tenderness
- Spasticity or autonomic dysreflexia in patients with spinal cord injury
- New onset mental status changes with systemic signs of infection and no other cause identified

SYMPTOM FREE, LET IT BE!

Expected Practice at CHI Memorial: Patients with asymptomatic bacteriuria (ASB) should not be treated unless pregnant or undergoing an invasive urologic procedure (IDSA 2019). Studies have shown a lack of benefit and increased risk for harm with treatment. In order to deliver quality care and minimize harm, it is the expected practice that we do not treat ASB in most patients (Policy:18840048). This is supported by CHI Memorial Leadership.

- Smartphrase Available for Documentation as needed: ".ASB"

If Pregnant:

- Nitrofurantoin² 100mg PO BID x 5d
OR
- Cefuroxime 500mg PO BID x 5d

If prior to planned urologic procedure

- 1-2 doses prior to procedure targeted against identified organism

Treatment: Evaluate prior urine cultures, severity of illness, local urinary antibiogram (next page), and patient comorbidities (renal function, allergies etc.) when selecting an agent

Discharge from ED:

	Definition	Empiric treatment (may need renal dose adjustments)
Uncomplicated UTI	Infection confined to the bladder in afebrile women or men	No prior resistance history: <ol style="list-style-type: none"> 1. Nitrofurantoin¹ 100mg PO BID x 5d 2. Cefuroxime 500mg PO BID x 5d 3. Tobramycin 5mg/kg x 1 dose
		If history of <i>Pseudomonas aeruginosa</i> (past 1 year), select one of the below based on previous sensitivity <ol style="list-style-type: none"> 1. Ciprofloxacin 500mg PO q12 x 3d 2. Tobramycin 5mg/kg x 1 dose If history of an ESBL producing organism (past 1 year), consider one of the below based on previous sensitivity <ol style="list-style-type: none"> 1. Nitrofurantoin¹ 100mg PO BID x 5d 2. Trimethoprim-sulfamethoxazole 1DS tab PO BID x 3d 3. Levofloxacin 750mg PO q24 x 3d 4. Tobramycin 5mg/kg x 1 dose 5. Fosfomycin 3g x 1 dose may be a reasonable option if the organism is <i>Escherichia coli</i>
Complicated UTI²	Infection beyond the bladder <ul style="list-style-type: none"> • Pyelonephritis • Febrile or bacteremic • Catheter-associated 	Ceftriaxone 1g x 1 dose, then one of the below <ol style="list-style-type: none"> 1. Cefuroxime 500mg PO BID x 6-9d (total 7-10d) 2. Trimethoprim-sulfamethoxazole 1DS tab PO BID x 6d (total 7d) 3. Levofloxacin 750mg PO q24x 4-6d (total 5-7d)
		If prior history of resistant organisms, non-susceptible to levofloxacin or trimethoprim-sulfamethoxazole, may require empiric IV antibiotics

¹Nitrofurantoin: contraindicated if CrCl <30mL/min

²Prostatitis: may benefit from a longer treatment duration

Admitting inpatient:

	Definition	Empiric treatment (may need dose adjustments in renal insufficiency)
Uncomplicated UTI¹	Infection confined to the bladder in afebrile women or men	<ol style="list-style-type: none"> Cefazolin 1 g IV q8h x 3-5d Nitrofurantoin² 100mg PO BID x 5d Cefuroxime 500mg PO BID x 5d Tobramycin 5mg/kg IV x 1 dose
Complicated UTI^{1,3}	Infection beyond the bladder <ul style="list-style-type: none"> Pyelonephritis Febrile or bacteremic Catheter-associated 	<ul style="list-style-type: none"> Ceftriaxone 1g IV q24 x 7d If septic shock: <ul style="list-style-type: none"> Add tobramycin pharmacy to dose x 1 dose

¹Prior cultures with resistant organisms in the past 1 year: Adjust empiric coverage to account for organism. If prior history of *Pseudomonas aeruginosa*, consider ceftazidime or piperacillin-tazobactam. If prior history of an ESBL producing organism, consider ertapenem.

²Nitrofurantoin: contraindicated if CrCl <30mL/min

³Prostatitis: may benefit from a longer treatment duration

Urinary Antibiogram 2024

	Total Isolates	AMP	A/S	CZOL	CTRX	CFPM	P/T	MER	AZT	FQ	GEN	TOB	T/S	NIT	VAN
GRAM NEGATIVE ORGANISMS															
Escherichia coli	1186	49	58	84	86	86	99	99	85	76	89	87	75	95	
Klebsiella pneumoniae	355		76	83	84	84	96	100	84	86	95	94	79	52	
Pseudomonas aeruginosa	158					89	92	94	84	77		94			
Proteus mirabilis	145	77	88	86	90	90	100	99	89	75	88	84	82		
Enterobacter cloacae	67					75	78	99	58	90	94	93	81		
Klebsiella oxytoca	60		62	65	97	98	98	100	97	97	95	98	92	85	
GRAM POSITIVE ORGANISMS															
Enterococcus faecalis	136	100								76				100	99

AMP - ampicillin, A/S - ampicillin-sulbactam, CZOL - cefazolin, CTRX - ceftriaxone, CFPM - ceftazidime, P/T - piperacillin/tazobactam, MER - meropenem, AZT - aztreonam, FQ - fluoroquinolone, GEN - gentamicin, TOB - tobramycin, T/S - trimethoprim/sulfamethoxazole, NIT - nitrofurantoin, VAN - vancomycin