DUHS – Emergency Department and Ambulatory
Adult UTI Diagnosis and Treatment Algorithm

Diagnosis

Diagnosis requires **both** microbiologic & symptomatic criteria. **A *positive urinalysis alone does not indicate the need for antibiotic treatment, with exceptions noted below****

Urinalysis Criteria
Pyuria (WBCs ≥ 10/HPF) **OR** (+) leukocyte esterase

*Conditions where asymptomatic bacteriuria may be adequate to initiate treatment for UTI include: pregnancy, traumatic genitourinary procedures associated with mucosal bleeding, and immunosuppressed patients.

UTI Classification, Symptomatic Criteria, and Populations

Terms*	Anatomic location	Clinical Presentation	Population
Uncomplicated UTI (uUTI)	Lower Tract, limited to the bladder 	Cystitis with Lower Urinary Tract symptoms (LUTS) including: • Dysuria • Frequency • Urgency • Suprapubic pain or tenderness Catheter associated UTI (CA-UTI) WITHOUT systemic symptoms. Note: Fever absent (or fever attributed to a non-UTI cause). No flank pain.	Can include: • Female OR male anatomy • Immunocompromised • Persons with diabetes • Persons with urologic abnormalities • Recurrent UTI
Complicated UTI (cUTI)	Upper Tract, above the bladder including kidney and ureters  	Pyelonephritis, including: • Flank pain • Costovertebral angle (CVA) tenderness Febrile or bacteremic UTI Catheter-associated UTI (CA-UTI) WITH systemic symptoms Systemic symptoms include: • Fever • Chills/Rigors • Hemodynamic instability	More commonly will include persons with: • Urinary catheters • Ureteral stents • Percutaneous nephrostomy tubes • Neurogenic bladder

*Management guideline recommendations do not include prostatitis, epididymitis, orchitis. Note: Elevation in serum WBC not included in systemic symptom definition. Urinary retention is not included in definition of lower urinary tract symptoms.

Treatment

Use previous patient urine culture data if present

Uncomplicated UTI (*e.g.*, cystitis, CA-UTI without systemic symptoms)

	Agent	Duration of Therapy	Comments
1st line	Nitrofurantoin~	5 days	Avoid if CrCl < 30 mL/min
2nd line	Cefuroxime	7 days	
3rd line	TMP-SMX~	3 days	Caution, resistance rates at DUHS to *E coli* are > 20% for TMP-SMX and > 10% for quinolones.
	Ciprofloxacin~	3 days	
	Fosfomycin+ (*restricted*)	ONCE	Has activity against VRE, MRSA, ESBL-producing gram-negative rods. Reserve for patients with resistant organisms.

Complicated UTI (*e.g.*, pyelonephritis, CA-UTI with systemic symptoms, febrile UTI)

		Agent	Duration	Comments
Initial◊	1st line	Ceftriaxone IV/IM	1g **once**	*E. coli* resistance rates at DUHS are > 20% for TMP-SMX and >10% for quinolones. Give a one-time dose of either ceftriaxone or gentamicin along with therapy below to cover resistant organisms.
	2nd line	Gentamicin IV/IM	5 mg/kg **once**	
		Agent	**Duration^**	**Comments**
Maintenance	1st line	TMP-SMX~	7 days	
		Ciprofloxacin~	7 days	
	2nd line	Oral beta-lactams	7 days	Amoxicillin/clavulanate or cefuroxime are the preferred oral beta-lactams. Use with caution; other regimens may be more effective.

◊ Initial agent to be used in addition to any maintenance therapy listed above; + Restricted to telephone ID approval (ED only, does not apply to ambulatory patients)
~Pregnancy: Nitrofurantoin: Avoid in third trimester, TMP-SMX: Avoid in third trimester, Ciprofloxacin: Avoid in Pregnancy
^ Reassess for longer course (~10-14 days) if delayed response

Challenging ambulatory case? Consider ID E-consult (order "E-Communication for Adult Infectious) Disease")