



Pharmacy Pearls

Pediatric urinary tract infection treatment options

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General Treatment Principles:

Children >1 month to <2 years

- Difficult to distinguish between cystitis and pyelonephritis
 - Consider treating as pyelonephritis if unable to differentiate
- Early initiation of antimicrobial therapy (within 72h) is important, especially for those at increased risk for kidney scarring:
 - Fever ($\geq 39^{\circ}\text{C}$ or >48 hrs), ill appearance, immune deficiency, urologic abnormality
- **Duration: 5 days** (afebrile); **10 days** (febrile)

Children ≥ 2 yrs and adolescents

- Consider treating **only if the urine culture is positive** in afebrile, immunocompetent, well-appearing children without indwelling catheter, structural abnormalities, or history of UTI who have evidence of pyuria but not bacteriuria on dipstick or urine analysis.
- **Duration: 5 days** (first episode, afebrile, uncomplicated); **7-10 days** (recurrent, febrile, or complicated)

Common Pathogens: *E. coli* (~90%), *Proteus*, *Klebsiella*, *S. saprophyticus*, *enterococci***Indications for hospitalization and/or parenteral therapy:**

- Clinical urosepsis (i.e., toxic appearance, hypotension, poor capillary refill)
- Immunocompromised febrile patients
- Vomiting/inability to tolerate oral
- Lack of adequate outpatient follow-up
- Failure to respond to outpatient therapy

UpToDate links for more details on presentation, diagnosis, lab analysis, and treatment: [1 month to <2 years old](#); [2+ years old](#)

Pharmacotherapy:

-The choice of empiric antibiotic therapy is guided by clinical features, age, local resistance patterns, and urine Gram stain, if performed. When urine culture results are available, antibiotic therapy can be tailored according to susceptibilities of the identified uropathogen.

-Factors that increase the likelihood of a resistant isolate include immunocompromise, underlying medical problems (eg, neurogenic bladder), and antibiotic prophylaxis (for urinary tract or other medical problems). Please also see 2024 URMCAntibiograms reference below for details on increasing *E. coli* resistance in our region.

Drug	Dose	Max Dose	Clinical Considerations
Empiric Options:			
Nitrofurantoin	5-7 mg/kg/day divided Q6H	100 mg	<ul style="list-style-type: none">• Avoid if <2 years old and febrile or pyelonephritis suspected
Amoxicillin-clavulanate	25-50 mg/kg/day of amox divided Q8-12H	875 mg of amox	<ul style="list-style-type: none">• Dose based on amoxicillin component• Avoid if known penicillin allergy
Cefdinir	14 mg/kg/day divided Q12-24H	600 mg	
Cefpodoxime	5 mg/kg BID	200 mg	
Cefprozil	15 mg/kg BID	500 mg	
Cefuroxime	15 mg/kg BID	500 mg	
Cephalexin*	50-100 mg/kg/day divided Q6-8H	1,000 mg	<ul style="list-style-type: none">• Local <i>E. coli</i> resistance rate increasing, see antibiogram link below. Consider 2nd or 3rd gen cephalosporin.
Trimethoprim-sulfamethoxazole*	4-6 mg/kg of trimethoprim BID	160 mg of TMP	<ul style="list-style-type: none">• Dose based on trimethoprim component• Local <i>E. coli</i> resistance rate increasing, see antibiogram link below. Consider alternative.
Patient-specific Alternatives:			
Ciprofloxacin	10-20 mg/kg BID	750 mg	<ul style="list-style-type: none">• Routine use of fluoroquinolones should be avoided due to the potential risk of musculoskeletal toxicity
Amoxicillin	50-100 mg/kg/day divided Q8-12H	500 mg	<ul style="list-style-type: none">• Do not use for empiric therapy due to resistance

* Local *E. coli* resistance rate increasing. [2024 URMCAntibiograms](#)