

Urinary Tract Infection in Children and Adolescents (age >= 3 months)

Key points

- *E.coli* is the predominant cause of UTI in children and adolescents
- UTI can present with nonspecific symptoms or fever alone in younger children
- Undiagnosed UTI can lead to renal scarring and future sequelae
- Do not culture bag specimens (high false positive rate) – perform catheterization or suprapubic aspirate if too young to do clean catch
- Obtain clean-catch sample if toilet-trained
- Consider chlamydia and other sexually transmitted infections in adolescents

Signs, symptoms, and risk factors for urinary tract infection:

Non-verbal children

- 1) Fever (temperature >39 C) and no other source infection
- 2) Ill-appearing, irritable, poor feeding
- 3) Suprapubic tenderness
- 4) Uncircumcised
- 5) History of UTI
- 6) Personal or family history of genitourinary (GU) abnormality

Verbal children

- 1) Dysuria
- 2) Abdominal pain
- 3) Back or flank pain
- 4) New onset incontinence

Pyelonephritis is difficult to distinguish from simple cystitis in younger children

Any complicating factors present?

Anatomical GU abnormality Immunosuppression or Diabetes
Nephrolithiasis or Renal Disease Urinary catheter
Recent treatment failure Recent GU instrumentation

Yes

Not covered in this guideline

Any of the following present?

- Ill-appearing → clinical urosepsis or potential bacteremia
- Vomiting or inability to tolerate oral medication
- Failure to respond to outpatient therapy
- Lack of adequate outpatient follow-up

Yes

Hospital admission

Diagnostic evaluation

- **Culture should be performed in most cases**
- Dipstick analysis 88% sensitivity for UTI – UTI less likely if dip negative, culture if clinically suspicious
- If leukocyte esterase-positive bag specimen, perform catheterization or suprapubic aspiration
- WBC, ESR, CRP do not reliably distinguish upper tract from lower tract infection

Treatment options (choice varies with local resistance rates*)

Amoxicillin-clavulanate: 40 mg/kg/day divided BID (max 875mg BID) OR

Cephalexin 50 mg/kg/day divided BID-TID (max 500mg TID) OR

Cefixime 8 mg/kg/day divided BID (max 400mg/day) OR

Cefpodoxime 10 mg/kg/day divided BID (max 400mg BID) OR

TMP-SMX 6-12 mg/kg/day TMP divided BID (max 1 DS tab BID)

*for pyelonephritis, use an agent with >90% susceptibility in *E. coli*

Total duration of therapy: 7-10 days

In children >13 years with cystitis and no upper tract signs:

Nitrofurantoin** 5 to 7 mg/kg/day divided 4 times/day (max 200mg/day) for 7 days OR

Levofloxacin 250mg daily for 3 days

Complete therapy - consider further evaluation in appropriate patients

Positive

Culture result

Negative

Call to discontinue antibiotics

Note: This is intended only as a guide for evidence-based decision-making; it is not intended to replace clinical judgment. Assess for antibiotic allergies and use alternative agents as appropriate. Suggested antibiotic doses are for normal renal function; adjust for renal impairment when necessary.

**Not recommended for males. Contraindicated in patients with a creatinine clearance of less than 60 mL/min

References: *Pediatrics* 1999; 103:843-52; American Academy of Pediatrics. *Red Book 2009: Report of the Committee on Infectious Diseases*, 28th ed.