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

**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)

**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
- Levofoxacin 250mg daily for 3 days

**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.


---

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

<table>
<thead>
<tr>
<th>Non-verbal children</th>
<th>Verbal children</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Fever (temperature &gt;39 C) and no other source infection</td>
<td>1) Dysuria</td>
</tr>
<tr>
<td>2) Ill-appearing, irritable, poor feeding</td>
<td>2) Abdominal pain</td>
</tr>
<tr>
<td>3) Suprapubic tenderness</td>
<td>3) Back or flank pain</td>
</tr>
<tr>
<td>4) Uncircumcised</td>
<td>4) New onset incontinence</td>
</tr>
<tr>
<td>5) History of UTI</td>
<td></td>
</tr>
<tr>
<td>6) Personal or family history of genitourinary (GU) abnormality</td>
<td></td>
</tr>
</tbody>
</table>

Pyelonephritis is difficult to distinguish from simple cystitis in younger children.

**Hospital admission**

- 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

- Any complicating factors present?
  - Anatomical GU abnormality
  - Immunosuppression or Diabetes
  - Nephrolithiasis or Renal Disease
  - Recent treatment failure
  - Recent GU instrumentation
  - Urinary catheter
  - Recent GU instrumentation

- Culture result
  - Positive
  - Call to discontinue antibiotics
  - Negative

**Note**: This is not recommended for males. Contraindicated in patients with a creatinine clearance of less than 60 mL/min

---

**Hospital admission**

- Yes

**Not covered in this guideline**

---

**Hospital admission**

- Yes