# Denver Health Guideline for the Management of Urinary Tract Infection in Non-Pregnant, Adult Outpatients

**Key points**
- *E.coli* remains the most common cause of both simple cystitis and complicated urinary tract infection
- Heavy fluoroquinolone use has led to widespread emergence of quinolone-resistant *E. coli* at DH
- Screen for risk factors for fluoroquinolone resistance when considering their use

**Possible signs and symptoms of urinary tract infection:**
1) Urinary frequency
2) Urgency
3) Dysuria
4) Suprapubic pain
5) Hematuria

Clinical picture suggestive of urinary tract infection?

**Yes** / **No**

**No** → Consider alternative etiologies

**Any complicating factors present? (associated with broader spectrum of bacteria and/or increased risk of complications)**

| | | |
|---|---|---|
| Male gender | Immunosuppression | Azotemia |
| Systemic symptoms | Nephrolithiasis | Urinary catheter |
| Symptoms >7 days | Urinary obstruction | Recent treatment failure |
| Diabetes mellitus | Anatomical GU abnormality | Recent hospitalization |
| Evidence of pyelonephritis | Recent GU instrumentation | |

**No** → **Simple cystitis**

Urine culture generally not indicated†

**Nitrofurantoin 100mg PO BID for 5 days[a]**

(nitrofurantoin contraindicated if creatinine clearance <60 mL/minute)

**Yes** → **Complicated infection**

- Obtain urinalysis and culture
- Blood cultures if systemic signs/symptoms

Clinical evidence of pyelonephritis?
- Fever
- Nausea/vomiting
- Leukocytosis
- Flank pain
- CVA tenderness

**No** → **Complicated UTI**

**Yes** → **Pyelonephritis**

**Risk factors for fluoroquinolone (FQ) resistance present?[b]:**
1) Hospitalization in previous 12 months OR
2) Fluoroquinolone use in previous 12 months OR
3) Prior documented FQ-resistant organism

**Yes** → **Moderate to severe illness**

**Yes** → **Mild illness**

**No** → **Levofloxacin** 500mg daily (use 750mg if risk for FQ resistance)

**If appropriate for outpatient therapy:**
**Ceftriaxone** 1gm IV or IM daily **OR**
**Amikacin** 10mg/kg IV or IM daily if *Pseudomonas* likely or if serious cephalosporin allergy

**Adjust antibiotics based on cultured organism and susceptibilities**

If quinolone-resistant **AND** ceftriaxone-susceptible organism:
**Cefixime** 400mg PO daily
*not for empiric use for *suspected* quinolone resistance

**Treatment duration varies by clinical scenario: 5-14 days***

Disclaimer: 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 doses are for normal renal function; adjust for renal impairment.
†Consider evaluation for gonorrhea and chlamydia in sexually active patients; treat appropriately if confirmed
*5 days of levofloxacin 750mg daily effective for complicated UTI/acute pyelonephritis (*Urology* 2008; 71:17-22)
References: [a]*Arch Intern Med* 2007;167:2207-12; [b]*Am J Med* 2008;121:876-884