Treatment of Adult Urinary Tract Infections

(NB Provincial Health Authorities Anti-Infective Stewardship Committee, September 2017)

Indication	Empiric Therapy (Tailor regimen based on urine/blood C&S results)	Duration	Comments
Asymptomatic Bacteriuria	Antibiotic therapy only recommended for: -Prophylaxis for urological procedures when mucosal bleeding expected -Treatment in pregnancy (Select antimicrobial therapy according to urine C&S)	Urological procedures: see surgical prophylaxis guideline Pregnancy: 3 – 7 days	• Asymptomatic bacteriuria with pyuria is NOT an indication for antimicrobial therapy **Pregnancy** • Repeat culture and urinalysis 1 week after therapy complete as a test of cure; if positive repeat treatment according to urine C&S • Monthly repeat urine cultures recommended for screening until completion of pregnancy • Consider prophylactic/suppressive antibiotic therapy for persistent bacteriuria • Intrapartum prophylaxis of early-onset Group B Streptococcal (GBS) disease is recommended if GBS is isolated in urine or vaginal swab
Uncomplicated Cystitis (Lower UTI) (Female patients with dysuria, urgency, frequency, or suprapubic pain with no fever or flank pain)	Preferred Regimen: nitrofurantoin monohydrate/macrocrystals 100 mg PO q12h (Not recommended if CrCl less than 40 mL/min; i**n pregnancy**, avoid near term (36-42 weeks) due to risk of haemolytic anemia in the new born) Alternative Regimens: cefuroxime 500 mg PO q8h **OR** fosfomycin 3 g PO once[4] **OR** sulfamethoxazole/trimethoprim 800/160 mg PO q12h[1,3] (Not recommended in pregnant women)	5 days 7 days One dose 3 days	**Pregnancy** • Repeat culture and urinalysis 1 week after therapy complete as a test of cure; if positive repeat treatment according to urine C&S • Monthly repeat urine cultures recommended for screening until completion of pregnancy • Consider prophylactic/suppressive antibiotic therapy for persistent or recurrent cystitis • Intrapartum prophylaxis of early-onset Group B Streptococcal (GBS) disease is recommended if GBS is isolated in urine or vaginal swab
Acute Uncomplicated Pyelonephritis (Upper UTI) (Signs/Sx: fever, flank pain, costovertebral tenderness, abdominal/pelvic pain, nausea, vomiting with or without signs/sx of lower tract UTI) **OR** **Complicated UTI** (Complicating Factors: structural abnormality, obstruction, recent urogenital procedure, male sex, immunosuppression, poorly controlled diabetes, spinal cord injury, catheterization or Signs/Sx greater than 7 days)	**Systemically Well:** Preferred Regimen: cefixime 400 mg PO q24h[3] Alternative Regimens: amoxicillin/clavulanate 875/125 mg PO q12h[3] Additional options if culture confirmed susceptibility: sulfamethoxazole/trimethoprim 800/160 mg PO q12h[1,3] **OR** ciprofloxacin 500 mg PO q12h[1,3] **Systemically Unwell/Pregnant:** cefTRIAXone 1 g IV q24h[2] **OR** ampicillin 2 g IV q6h + (tobramycin **OR** gentamicin) 5 mg/kg IV once daily[2,3,5] **OR** piperacillin/tazobactam 3.375 g IV q6h[2,3]	See Comments	**Acute Uncomplicated Pyelonephritis** • Outpatient management an option if female, not pregnant, no nausea/vomiting, no evidence of dehydration, sepsis or high fever • Treat for 14 days • May treat for 7 days if female, uncomplicated and using ciprofloxacin • For treatment using oral β-lactams, consider an initial single intravenous dose of cefTRIAXone 1 g IV and use a 14 day total duration of antimicrobial therapy **Complicated UTI:** • Treat 7 days if prompt response, female and only lower urinary tract infection • Treat 14 days if male, delayed response, structural abnormality, or upper tract symptoms **Catheter-Associated UTI**: • Pyuria not diagnostic, only treat if symptomatic • Catheters frequently colonized, obtain culture through new catheter • Change catheter if in place for greater than 2 weeks & still required **Pregnancy** • Treat for 10 to 14 days • Prophylactic/suppressive antibiotic therapy recommended for the remainder of the pregnancy • Repeat culture and urinalysis 1 week after therapy complete as a test of cure; if positive repeat treatment according to urine C&S • Monthly repeat urine cultures recommended for screening until completion of the pregnancy • Intrapartum prophylaxis of early-onset Group B Streptococcal (GBS) disease is recommended if GBS is isolated in urine or vaginal swab

Clinical Pearls:

- Cloudy and foul smelling urine alone are NOT considered signs of infection and are NOT an indication for a urine culture and sensitivity
- Urinalysis interpretation:
  - Presence of nitrites and leukocytes (leukocyte esterase positive or WBC) and new UTI symptoms: good positive predictive value of UTI
  - Absence of nitrites and/or leukocytes (negative leukocyte esterase or WBC): good negative predictive value
- Therapy should be adjusted according to culture and sensitivity results
- Blood cultures should be drawn if febrile, septic, signs and symptoms suggestive of pyelonephritis or immunocompromised
- Post-treatment culture not recommended except in case of persistent or recurrent symptoms or pregnancy
- nitrofurantoin and fosfomycin are not appropriate for men, complicated UTI or systemic infections

[1]CAUTION: Significant E.coli resistance (greater than 20%) to fluoroquinolones, sulfamethoxazole/trimethoprim and amoxicillin exist in some areas of the province; check local antibiogram and confirm urine C&S results when available

[2]De-escalate according to urine/blood C&S and switch IV to PO based on conversion criteria

[3]Dose adjustment required in renal impairment

[4]Fosfomycin criteria for use: for multi-drug resistant *E.coli* or *Enterococcus faecalis* with limited oral options OR where recommended alternatives are not appropriate due to allergies, drug interactions, poor renal function or other considerations

[5]Please see aminoglycoside dosing guide for more details on appropriate dosing adjustments and monitoring

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