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Urinalysis			
Parameter	Normal Value (Reference Range)	Abnormal Value (Suggestive of inflammation)	
Appearance	Yellow/Clear	Cloudy	
рН	4.5-8.5	Usually alkaline	
Protein	Negative	± Positive	
Nitrite	Negative	± Positive	
Red Blood Cells	Negative	Positive	
White Blood Cells	0-5 cells/mL urine	≥ 10 cells/mL urine	
Leukocyte esterase	Negative	Positive	















Empiric treatment for cystitis			
Regimen	Clinical Efficacy	Comment	
First line therapy			
Nitrofurantoin (Macrobid®) 100 mg PO BID x 5 days	93% (84-95%) for 5-7 day regimen Minimal <i>in vitro</i> resistance	Avoid if any suspicion of pyelonephritis	
<b>TMP-SMX 160/800mg (DS)**</b> 1 tab PO BID x 3 days	93% (90-100%) for 3 day regimen	AE: N/V, rash, BMS, photosensitivity	
Fosfomycin 3g PO x1 dose	91% (single randomized trial) Minimal <i>in vitro</i> resistance (±susceptibility testing)	Avoid if any suspicion of pyelonephritis	
Second line therapy			
Fluoroquinolone** Ciprofloxacin 250mg PO BID x3 days Levofloxacin 250-500mg PO daily x 3 days	90% (85-98%) for 3 day regimen Resistance rate is rising Should be reserved for indications other than cystitis	High risk for ecologic adverse effects AE: N/V, diarrhea, HA, drowsiness, insomnia	
Beta-lactam Amoxicillin/clavulanic acid 500mg PO q8h x5-7 days Cefpodoxime 200mg PO BID x5-7 days	89% (79-98%) for 3-5 day regimen Shown to be less effective compared to TMP/SMX and fluoroquinolones Avoid empiric amoxicillin or ampicillin	Fewer ecologic adverse effects vs. parenteral broad- spectrum cephalosporins	



















Study	Methodology	Intervention	Results/Conclusions
Talan et al. (2000)	Randomized, double- blind, comparative trial <u>Patient population</u> : Avg age: 23-25 years 9% pts in each group were in otherwise excellent/good health 5% pts +blood cx's	Ciprofloxacin 500mg PO BID x 7 days ys. TMP/SMX 1DS tab PO BID x 14 days *± initial dose of IV ciprofloxacin or ceftriaxone	N = 255 women w/acute pyelonephritis <u>Primary outcome</u> : Early bacteriologic cure: 99% (C) vs. 89% (T/S); p = 0.004 Early clinical cure: 96% (C)vs. 83% (T/S), p = 0.002 <u>Conclusions</u> : 7 day ciprofloxacin regimen associated with greater bacteriologic and clinical cure rates compared to 14 day TMP/SMX regimens
Sandberg et al. Multi-cente (2012) prospective randomizee bind, place controlled, trial (10% NI <u>Patient pop</u> Avg age: 4 14/248 pt s infections (f 17% pts +bi	Multi-center, prospective, randomized, double bind, placebo controlled, non-inferiority trial (10% NI margin) <u>Patient population</u> : Avg age: 41-45 years 14/248 pts +complicated infections (9 pts +DM) 17% pts +blood cx's	Ciprofloxacin 500mg PO BID* x7 days vs. Ciprofloxacin 500mg PO BID* x14 days	N =248 women w/acute pyelonephritis <u>Primary outcome</u> : Short term (2 week) clinical & bacteriologic cure post-tx: 97% (7-day) vs. 96% (14-day) diff-0.9% (90%CI:65-4.8%), p = 0.004 <u>Secondary outcomes</u> : Long term cumulative clinical & bacteriologic cure: 93% in both groups diff-0.3% (90% CI: -7.4-7.2%), p = 0.015 Safety: AE < 6% in both treatment groups, 5 pt in 14-day group developed mucosal candida infection versus 0 pt in 7 day group (p = .036) <u>Conclusions;</u>



















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	PK: drugs utilized in lower UTIs				
Antibiotic	Oral dosing (mg)	Peak serum concentrati on (mg/mL)	eak uring concentrati on (mg/mL)	Serum half- life (hours)	
Amoxicillin	250	3.5-5	305-500	0.7-1.4	
	500	5.5-11	772		
Cephalexin	250	9	830	0.5-1.2	
	500	15-18	1100		
IMP/SMX	160/800	1-2/40-60	72-190	8-15/7-12	
Nitrofurantoin	100	< 2	50-250	0.3	
Fosfomycin	3000	26	1053-4415	5.7	
Ciprofloxacin	250	0.8-1.9	200	3-5	
	500	1.6-2.9	350		
Levofloxacin	500	5.7	521-771	6-8	

Short	-course (3 d	ay) therapy
	Treatment duration 3 days	Treatment duration 5+ days
Types of UTI	Uncomplicated cystitis (Healthy adult 9 ages 18-45)	Pyelonephritis Complicated UTI's History of UTI w/MDR pathogen
Antibiotics	Fluoroquinolones* TPM/SMX	Nitrofurantoin Beta-lactams
Advantage o Increase o Less ant o Lower c	es to short course therapy ed compliance & tolerabi ibiotic exposure → less risk ost	: lity c for emergence of resistance
<ul> <li>Less ant</li> <li>Lower c</li> </ul>	lolotic exposure → less fisk ost	tor emergence of resistance









