Systemic Fluoroquinolones – Conversion to Levofloxacin

The Medical Staff Pharmacy and Therapeutics Committee, with the support of the Antimicrobial Subcommittee, has approved the removal of intravenous (IV) and oral (PO) ciprofloxacin and moxifloxacin from the inpatient formulary and the addition of IV/PO levofloxacin. The previously approved therapeutic interchange has been updated to reflect the changes in formulary status.

The conversion to levofloxacin as the preferred systemic fluoroquinolone occurred on **February 18th, 2014**. One Chart order sets have been updated to reflect this change. Providers are asked to update their personal preference lists to reflect this formulary change at the time of the conversion.

Key clinical notes related to the use of levofloxacin PO/IV are included below:

- Pathogens reported as susceptible to ciprofloxacin and/or moxifloxacin should generally be considered to be susceptible to levofloxacin
- The bioavailability of oral levofloxacin is 99%. Oral therapy is preferred when clinically appropriate.
- For the treatment of severe *Pseudomonas aeruginosa* infections a beta-lactam is preferred.
- Fluoroquinolones are not recommended for use against *Staphylococcus aureus* and thus use in skin and soft tissues infections outside of specific syndromes such as diabetic foot infections and bite wounds is discouraged.
- Fluoroquinolones should NOT be used empirically at our institution for the treatment intra-abdominal infections or UTI due to high resistance rates among enteric pathogens (*E. coli* resistance to FQ 32% inpatient and 16% outpatient).
    - Fluoroquinolones are also poorly active against Gram-negative pathogens resistant to broad spectrum beta-lactams and are not recommended to be used in combination therapy. See combination antibiogram (http://www.nebraskamed.com/careers/education-programs/asp/antibiograms)
- Levlofloxacin does not have anti-anaerobic activity and if used in infections where anaerobes are present (ex. intra-abdominal infections) should be coupled with an anti-anaerobic agent (ex. metronidazole)

Questions related to this formulary change may be directed to your team pharmacist or the Drug Information Center at 402-559-4114.

Systemic Fluoroquinolones Therapeutic Interchange and Recommended Levofloxacin Dosing by Indication (*Adults*)[1]:

Order written for	Indication	Levofloxacin Dose	Renal Dose Adjustment (CrCl)
Orders written for ciprofloxacin, moxifloxacin, gemifloxacin, norfloxacin or ofloxacin will be converted to levofloxacin at recommended dose based on indication for therapy.	Pseudomonal infections (includes Pseudomonal UTI)	750mg PO/IV daily	≥50ml/min: no dose adjustment needed 20-49ml/min: 750 mg Q48H <20 ml/min, HD/PD: 750mg X 1, then 500mg Q48h
	Intra-abdominal infections*	750mg PO/IV daily	
	Pneumonia	750mg PO/IV daily	
	Bone and Joint Infections including Diabetic Foot Wounds	750mg PO/IV daily	
	Prophylaxis of Febrile Neutropenia	500mg PO/IV daily	≥50 ml/min: no dose adjustment needed 20-49 ml/min: 500 mg x 1, then 250mg Q24h <20 ml/min, HD/PD: 500mg X 1, then 250mg Q48h
	Prostatitis/STDs	500mg PO/IV daily	
	Urinary Tract Infection (non-Pseudomonal)	250mg PO/IV daily	≥20 ml/min: no dose adjustment needed <20 ml/min, HD/PD: 250 mg Q48h[#]
	All other indications	750mg PO/IV daily	See adjustment above

*Should be used in combination with anti-anaerobic agent (ex. metronidazole)

[#]except when ordered duration ≤3 days, then no dose adjustment needed

Recommended Levofloxacin Dosing by Indication (*Pediatrics*):

Order written for	Indication*	Levofloxacin Dose[2]	Renal Dose Adjustment (CrCl)[3]
ciprofloxacin, moxifloxacin, gemifloxacin, norfloxacin or ofloxacin will be converted to levofloxacin at recommended dose based on indication for therapy	Susceptible Infections	< 6 months: use not recommended ≥ 6 months to <5 years: 10 mg/kg/dose PO/IV q12hrs ≥5 years: 10 mg/kg/dose PO/IV q24hrs Maximum daily dose: 750 mg	ALL AGES: ≥ 30ml/min: no adjustment 10-29 ml/min: 10mg/kg q24hrs <10 ml/min, HD/PD: 10mg/kg q48hrs

*Levofloxacin is only FDA approved for the treatment of inhalation anthrax (post-exposure) in pediatric patients