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PHARMACY AND THERAPEUTICS NEWSLETTER

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In This Issue...

Changes to Formulary

Additions

Clinicians should review medication information prior to administering any unfamiliar medication. Resources include: VCH PDTM, Lexicomp®, or UpToDate®.

1. Levofloxacin tablets (Levaquin®)

- Broad-spectrum quinolone antibiotic

Deletions

1. Trandolapril tablets (Mavik®)

- See Therapeutic Interchange Policy to Ramipril (page 1)

2. Homatropine 2%, 5% eye drops

- Discontinued by manufacturer

3. Diazepam in Emulsion (Diazemuls®)

- Discontinued by manufacturer

Changes to Formulary

1. METHADONE PRESCRIBING CHANGES

- Any prescriber may order methadone for their in-patients who were on methadone prior to admission.
  - ⇒ For Pain: the methadone dose ordered may either be the same, or adjusted
  - ⇒ For Addiction: the methadone dose ordered must be the same
- New start (*de novo)* prescriptions, either for pain or addiction, must be written by an authorized VA prescriber with full methadone exemption.
- The Medication Reconciliation Form will be revised to remove the comment "Physician to obtain a Methadone Temporary Exemption".
- Prescribers must review the most recent methadone dose and frequency with the patient prior to ordering.

2. THERAPEUTIC INTERCHANGE: ACE-INHIBITORS TO RAMIPRIL

All angiotensin-converting enzyme inhibitors (ACEI), other than captopril and perindopril, will be converted to ramipril once daily.

Table 1. ACEI Therapeutic Interchange

ACEI	Equivalent Ramipril Dose
Benazepril 10 mg	Ramipril 2.5 mg
Captopril 12.5 mg TID	No Interchange
Cilazapril 2.5 mg	Ramipril 2.5 mg
Enalapril maleate 5 mg	
Enalapril sodium 4 mg	
Fosinopril 10 mg	
Lisinopril 10 mg	
Perindopril 2 mg	No Interchange
Quinapril 10 mg	Ramipril 2.5 mg
Trandolapril 1 mg	

3. NITROGLYCERIN DOSAGE UNITS: mcg/min

As part of CST and regionalization, nitroglycerin dosing units have been changed to mcg/min (from mcg/kg/min). All PPOs with nitroglycerin infusions have been revised accordingly.

4. *HELICOBACTER PYLORI* REVISED TREATMENT REGIMENS

There are new Canadian *Helicobacter pylori* (*H. pylori*) treatment guidelines based on European data.[1] The main changes are as follows: :

- quadruple regimens are now preferred for initial treatment
- a 14-day duration is used for all regimens (replacing the previous 7-day duration)

Table 2. *H. pylori* Treatment Regimens

First Line Therapy x 14 days	
Regimen # 1 Quadruple Therapy	Amoxicillin 1000 mg PO BID Clarithromycin XL 1000 mg PO daily Metronidazole 500 mg PO BID Pantoprazole 40 mg PO BID
Regimen # 2 Quadruple Therapy	Bismuth subsalicylate 262 mg – 2 tablets PO QID Metronidazole 500 mg PO QID Tetracycline 500 mg PO QID Pantoprazole 40 mg PO BID (Use this regimen for patients with severe penicillin allergy)
Second Line Therapy x 14 days	
Regimen # 3 Triple Therapy	Clarithromycin XL 1000 mg PO daily Metronidazole 500 mg PO BID Pantoprazole 40 mg PO BID
Third Line Therapy x 14 days	
Regimen # 3 Triple Therapy	Amoxicillin 1000 mg PO BID Levofloxacin 500 mg PO daily Pantoprazole 40 mg PO BID

[1] Fallone CA *et al*. The Toronto Consensus for the treatment of *H. pylori* infection in adults. Gastroenterology 2016;151:51–69.

5. PHARMACIST AUTHORITY: GENTAMICIN IV TO TOBRAMYCIN IV

Historically, tobramycin has been reserved for the treatment of *Pseudomonas* infections due to greater susceptibility rates and higher cost compared to gentamicin. However, the susceptibility profile for *Pseudomonas* spp. is now similar (tobramycin 98% vs gentamicin 95%), and the cost of tobramycin is substantially lower than gentamicin for the multi-dose vials used by Pharmacy in drug preparation. Tobramycin also has less manufacturer supply issues. Replacing gentamicin with tobramycin would result in a cost savings of ~$200,000/year at VA.

On Nov 22, 2017 all orders for gentamicin, with the exception of dialysis and ophthalmology, will be therapeutically interchanged to the same dose of tobramycin, unless “do not substitute” is written. All PPOs have been revised accordingly.

Pharmacy Awards

- **Greg Egan, Pharm.D.** has received a New *Preceptor of the Year* Award by the 2016-17 LMPS Residents.

Drug Review

FOSFOMYCIN (MONUROL®)

Fosfomycin is a bactericidal (phosphoenolpyruvate analogue) oral antibiotic used in the treatment of uncomplicated urinary tract infections/acute cystitis, including multi-drug resistant organisms.

Mechanism of Action and Spectrum of Activity
Fosfomycin interferes with bacterial cell wall synthesis. It exhibits activity against both Gram (+) (*Enterococcus* spp. (including VRE), *Staph aureus* (including MRSA), *S. epidermidis,* and *Aerococcus urinae)* and Gram (-) pathogens (*E. coli*, *Klebsiella* spp., *Serratia* spp., *Citrobacter* spp., and *Proteus mirabilis).* Fosfomycin is inactive against *S. saprophyticus*, *Pseudomonas* spp, *Acinetobacter* spp, *Stenotrophomonas maltophilia*, *Burkholderia cepacia*, and *Bacteroides* spp.

Dosage Regimen and Pharmacokinetics
Fosfomycin is given as a one-time dose of 3 g in 125 mL (half cup) of water, taken on an empty stomach. For complicated cystitis, 3 g Q48 to 72H x 3 doses is recommended based on expert opinion. High urine and bladder tissue concentrations are maintained for 1 to 2 days, which is effective in eradicating most urinary pathogens. The drug is primarily excreted unchanged in the urine with a half-life of 3-8 hours, extending to 40-50 hours in patients with reduced renal function.

Drug Interactions and Adverse Effects
Metoclopramide, by increasing motility, reduces the absorption of fosfomycin by 25%. Side effects are mild and include self-limited GI symptoms (diarrhea, nausea, abdominal pain and dyspepsia).

Formulary Restriction:
Fosfomycin is restricted to the treatment of acute uncomplicated cystitis caused by susceptible organisms with demonstrated resistance and/or intolerance to other oral agents.