

# THE UNIVERSITY OF KANSAS HOSPITAL

## **Medications Approved for Automatic Therapeutic Substitution Dosage Conversion Guidelines (revised 10/11)**

### ACE INHIBITORS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Quinapril	Accupril	5 mg, 10 mg, 20 mg, 40 mg	10 mg	q day	Fosinopril (Monopril)	10 mg	q day
Benazepril	Lotensin	5 mg, 10 mg, 20 mg, 40 mg	10 mg	q day	Lisinopril (Prinivil, Zestril)	10 mg	q day
Perindopril	Aceon	2 mg, 4 mg, 8 mg	4 mg	q day		10 mg	q day
Moexipril	Univasc	7.5 mg, 15 mg	7.5 mg	q day		10 mg	q day
Trandolapril	Mavik	1 mg, 2 mg, 4 mg	1 mg	q day		10 mg	q day

Conversion data obtained from Micromedex, Stoysich et al, and Saffel et al.

### ALPHA-BLOCKERS

Medication Ordered	Brand Name	Available Dosage	Equivalent Dosage	Frequency	Formulary Medication	Equivalent Dose	Frequency
Alfuzosin	Uroxatral®	10mg	10mg	Daily	Tamsulosin (Flomax®)	0.4mg	Daily

Conversion data obtained from Lexi-Comp

## ANGIOTENSIN RECEPTOR BLOCKERS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Eprosartan	Teveten	400 mg, 600 mg	600 mg	Daily	Losartan (Cozaar)	50 mg	Daily
Irbesartan	Avapro	75 mg, 150 mg, 300 mg	150 mg	Daily		50 mg	Daily
Telmisartan	Micardis	20 mg, 40 mg, 80 mg	40 mg	Daily		50 mg	Daily
Candesartan	Atacand	4 mg, 8 mg, 16 mg, 32 mg	16 mg	Daily	Valsartan (Diovan)	80 mg	Daily
Olmesartan	Benicar	5 mg, 20 mg, 40 mg	10 mg	Daily		80 mg	Daily

Conversion data obtained from Micromedex, Stoysich et al, and Saffel et al

## ANTIDEPRESSANT AGENTS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Bupropion XL	Wellbutrin XL	150mg	150 mg 300mg	Daily	Bupropion SR	150 mg 150 mg	Daily BID

## BETA-2 ADRENERGIC AGONISTS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Levalbuterol	Xopenex	0.63 mg/3 mL 1.25 mg/3 mL	0.63 mg/3 mL 1.25 mg/3 mL	Q1-4H Q6H Q8H	Albuterol (0.5%)	1.25 mg/0.25 mL 2.5 mg/0.5 mL	Same as ordered Q4H Q6H

Note: As needed (PRN) frequency orders for levalbuterol should be substituted with a respective PRN order for albuterol.

BETA BLOCKERS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Carvedilol CR	Coreg CR	10mg, 20mg 40mg, 80mg	10mg	Qday	Carvedilol (Coreg)	3.125mg	BID
			20mg	Qday		6.25mg	BID
			40mg	Qday		12.5mg	BID
			80mg	Qday		25mg	BID

CALCIUM CARBONATE

Physician's Order*:	To Be Dispensed As:	Clarification Needed In Chart:
Calcium carbonate 600 mg	Calcium carbonate 650 mg	<b>Yes</b>
Calcium carbonate 500 mg	Calcium carbonate 500 mg (Tums)	No
Calcium 500 mg	Calcium carbonate 1250 mg	<b>Yes</b>
Calcium 600 mg	Calcium carbonate 1250 mg	<b>Yes</b>
Calcium + Vitamin D (no strength indicated on order)	Calcium carbonate with Vitamin D (Oystercal-D)	No
Calcium + Vitamin D (strength indicated on order differs from formulary product available)	Calcium carbonate with Vitamin D (Oystercal-D)	<b>Yes</b>

\*All other orders not listed will be clarified with physician. For more information, visit: [Calcium Carbonate rounding policy.doc](#)

## CALCIUM CHANNEL BLOCKERS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Felodipine**	Plendil	2.5 mg, 5 mg, 10 mg	5 mg	Daily	Amlodipine (Norvasc)	5 mg	Daily
Nisoldipine	Sular	Old Form: 10, 20, 30, and 40 mg	Old Form: 20 mg	Daily	Amlodipine (Norvasc)	5 mg	Daily
		New Form: 8.5, 17, 25.5, and 34 mg	New Form: 17 mg				

Conversion data obtained from Micromedex

\*\* Note: This is a 1:1 therapeutic substitution

## CORTICOSTEROIDS, INTRANASAL

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Mometasone (Intranasal)	Nasonex	16 g Nasal Spray	1 spray	1 – 2 sprays per nostril once daily	Fluticasone Intranasal Corticosteroid (Flonase)	1 spray	1 – 2 sprays per nostril once daily
Budesonide (Intranasal)	Rhinocort	8.6 g Nasal Spray	1 spray	1 sprays per nostril once daily		2 sprays if > 12 yrs old; otherwise 1 spray	2 sprays per nostril once daily

Data obtained from Drug Information Handbook 2004.

## DIURETICS

Medication Ordered	Brand Name	Available Dosage	Equivalent Dosage	Frequency	Formulary Medication	Equivalent Dose	Frequency
Torseamide	Demadex®	5, 10, 20, and 100mg	20mg	Daily	Furosemide (Lasix®)	40mg	Daily

Conversion data obtained from Lexi-Comp

FACTOR (ANTIHEMOPHILIC) PRODUCT DOSE ROUNDING

Physician's Order*:	To Be Dispensed As:	Clarification Needed In Chart:
Factor VIIa (NovoSeven) 1.2 mg	Factor VIIa (NovoSeven) 1 mg	Yes
Factor VIIa (NovoSeven) 2.4 mg	Factor VIIa (NovoSeven) 2 mg	Yes
Factor VIIa (NovoSeven) 4.8 mg	Factor VIIa (NovoSeven) 5 mg	Yes

\* Note: Orders for all other Factor products (e.g., Factor VIII, Factor IX, von Willebrand Factor Complex, Anti-Inhibitor Coagulant Complex) may be rounded in accordance with the Factor product rounding policy

FIBRATES

Medication Ordered	Brand Name	Available Dosage	Frequency	Formulary Medication	Equivalent Dose	Frequency
Fenofibrate	Antara	43 mg	Daily	Fenofibrate (TriCor)	48 mg	Daily
		130 mg			145 mg	
	Fenoglide	40 mg			48 mg	
		120 mg			145 mg	
	Lipofen	50 mg			48 mg	
		150 mg			145 mg	
	Lofibra Capsule	67 mg			48 mg	
		134 mg			96 mg	
		200 mg			145 mg	
	Lofibra Tablet	54mg			48 mg	
		160 mg			145 mg	
	Triglide	50 mg			48 mg	
		160 mg			145 mg	

Conversion data obtained from Lexi-Comp Online and Micromedex

## HMG-CoA REDUCTASE INHIBITORS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Fluvastatin	Lescol Lescol XL	20 mg, 40mg, 80 mg	40 mg	Daily	Simvastatin (Zocor)	10 mg	Daily
Lovastatin	Mevacor	10 mg, 20 mg, 40 mg, 80 mg	20 mg			10 mg	

Data obtained from Drug Information Handbook 2002.

## H2 RECEPTOR ANTAGONISTS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Ranitidine	Zantac	75 mg, 150 mg, 300 mg	150 mg	BID	Famotidine (Pepcid)	20 mg	BID
Cimetidine	Tagamet	100 mg, 200 mg, 300 mg, 400 mg, 800 mg	400 mg	BID		20 mg	BID
Nizatidine	Axid	75 mg, 150 mg, 300 mg	150 mg	BID		20 mg	BID

Conversion data obtained from Micromedex

## INSULIN - ANALOG

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Insulin lispro	HumaLog	100 units per mL	1 unit	Various	Insulin aspart (NovoLog)	1 unit	Various

Note: The 75/25 Mix of HumaLog is not included in this automatic therapeutic substitution, as there is not an equivalent product on formulary; any orders for HumaLog 75/25 need to be handled through the non-formulary process

## LEUKOTRIENE RECEPTOR ANTAGONISTS

Medication ordered	Brand name	Available dosage	Frequency	Formulary Medication	Equivalent dose	Frequency
Zafirlukast	Accolate	20mg	Twice daily	Montelukast (Singulair)	10mg	Daily

LOW MOLECULAR WEIGHT HEPARINS

Medication Ordered	Brand Name	Route	Substituted Medication	Criteria for Use		
Enoxaparin 30mg SC Q12H	Lovenox	SC	Enoxaparin 40mg SC q day	Hip-replacement surgery; Extended prophylaxis in hip replacement; Abdominal surgery at risk for thromboembolic complications. (Continued use of enoxaparin 30mg SC Q12H for post knee surgery)		
Enoxaparin dose rounding based on weight**	Lovenox	SC	<b>Wt range (kg)</b>	<b>Dose</b>	<b>Syringe Size to dispense</b>	
			40 - 45	40mg	40 mg	
			46 - 55	50mg	60 mg	
			56 - 65	60 mg	60 mg	
			66 - 75	70 mg	80 mg	
			76 - 85	80 mg	80 mg	
			86 - 95	90 mg	100 mg	
			96 - 105	100 mg	100 mg	
			106 - 115	110 mg	120 mg	
			116 - 1 25	120 mg	120 mg	
			< 40kg	Exact dose will be made by pharmacy in a syringe.		
			>125 to 150kg	Dose will be rounded to the nearest 10mg increment and made by pharmacy in a syringe.		
			>150kg	Insufficient data in ACS and DVT treatment. Physician will be contacted.		

\*\*Dosages were rounded in the ESSENCE trial: Efficacy and Safety of Subcutaneous Enoxaparin in Non-Q Wave Coronary Events

MEGESTEROL ACETATE

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Megestrol Acetate Concentrate Solution	Megace ES	625 mg/ 5mL	625 mg/ 5 mL	daily	Megestrol oral suspension (Megace)	800 mg/ 20 mL administered after meal	daily

## METFORMIN

Medication Ordered	Brand Name	Available Dosage	Equivalent Dosage	Frequency	Formulary Medication	Equivalent Dose	Frequency
Metformin XR	Fortamet	500 and 1000 mg	500 mg	Daily	Metformin (Glucophage)	250 mg	BID
	Glumetza	500 mg	500 mg				
	Glucophage XR	500 and 750 mg	500 mg				
			750 mg			850 mg	Daily

Data above obtained from Drug Facts & Comparisons

## NICOTINE PATCHES

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Nicotine Transdermal	Nicotrol Step 1	15 mg/16 hrs	22.5 mg/ 24 hrs	Daily	Nicotine Transdermal System (generic)	21 mg/24 hrs Step 1	Daily
Nicotine Transdermal	Nicotrol Step 2	10 mg/16 hrs	15 mg/ 24 hrs	Daily		14 mg/24 hrs Step 2	Daily
Nicotine Transdermal	Nicotrol Step 3	5 mg/16 hrs	7.5 mg/ 24 hrs	Daily		7 mg/24 hrs Step 3	Daily

## NSAIDS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Naproxen Sodium (OTC)	Generic or brand	220 mg 200 mg	220 mg 200 mg	Every 8 to 12 hours	Naproxen (prescription strength)	250 mg	Every 8 to 12 hours

## OPHTHALMIC AGENTS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Travoprost	Travatan	0.005%	1 drop to affected eye(s)	q hs	Latanoprost	1 drop to affected eye(s)	q hs
Bimatoprost	Lumigan	0.03%	1 drop to affected eye(s)	q hs			

PANCREATIC ENZYMES

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Available Dosages	Equivalent Dose	Frequency
Creon 5	Creon	Lipase: 5,000 units Protease: 18,750 units Amylase: 16,600 units	2 to 4 capsules	Per meal or snack	Creon 6,000 units	Lipase: 6,000 units Protease: 19,000 units Amylase: 30,000 units	2 to 4 capsules	Per meal or snack
Creon 10		Lipase: 10,000 units Protease: 37,500 units Amylase: 33,200 units	1 to 2 capsules		Creon 12,000 units	Lipase: 12,000 units Protease: 38,000 units Amylase: 60,000 units	1 to 2 capsules	
Creon 20		Lipase: 20,000 units Protease: 75,000 units Amylase: 66,400 units	1 capsule		Creon 24,000 units	Lipase: 24,000 units Protease: 76,000 units Amylase: 120,000 units	1 capsule	

PHENOBARBITAL

Medication Ordered	Brand Name	Available Dosage	Frequency	Formulary Medication	Equivalent KUH Dose	Frequency
Phenobarbital	Various	16.2 mg	Various	Phenobarbital	15 mg	Same as ordered
		32.4 mg			30 mg	
		64.8 mg			60 mg	
		97.2 mg			100 mg	

PHOSPHATE SUPPLEMENTATION

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Neutra-Phos-K	Neutra-Phos-K	Phosphorus 250 mg (14.25 mEq or 8 mMol)  Potassium 566 mg/ 14.25 mEq	One tablet:  Phosphorus 250 mg (14.25 mEq or 8 mMol)  Potassium 566 mg/ 14.25 mEq	Daily	K-PHOS Original	Two tablets Each containing:  Phosphorus 114 mg (3.6 mMol)  Potassium 114 mg/ 3.7 mEq	Daily

PROTON PUMP INHIBITORS – ORAL

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Dexlansoprazole	Dexilant	30 mg, 60 mg	60 mg	Daily	Pantoprazole (Protonix)	40 mg	Daily
Esomeprazole	Nexium	20 mg, 40 mg	40 mg	Daily		40 mg	Daily
Omeprazole	Prilosec, Prilosec OTC	10 mg, 20 mg, 40 mg	20 mg	Daily		40 mg	Daily
Lansoprazole	Prevacid	15 mg, 30 mg	30 mg	Daily		40 mg	Daily
Rabeprazole	Aciphex	20 mg	20 mg	Daily		40 mg	Daily

Conversion data obtained from: Pharmacist's Letter/Prescriber's Letter. Proton Pump Inhibitor Dose Comparison. August 2009;25;25801.

PROTON PUMP INHIBITORS – INTRAVENOUS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Lansoprazole	Prevacid	30 mg	30 mg	Daily or BID	Pantoprazole (Protonix)	40 mg	Daily or BID
Esomeprazole	Nexium	40 mg	40 mg	Daily or BID		40 mg	Daily or BID

Conversion data obtained from Micromedex

RIFAMIXIN

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Rifaximin	Xifaxan	200 mg, 400 mg	400 mg	TID	Rifaximin 550 (Xifaxan 550)	550 mg	BID

## SECOND-GENERATION ANTIHISTAMINES

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency	Exceptions
Desloratadine	Clarinet	5mg	5mg	Daily	Loratadine (Claritin)	10 mg	Daily	Loratadine, Desloratadine syrup for pediatric patients
Desloratadine-rapidly disintegrating tablets	Clarinet Reditabs	5 mg	5 mg	Daily		10 mg	Daily	
Fexofenadine	Allegra	30 mg, 60 mg, 180 mg	60 mg or 180 mg	BID q day		10 mg	Daily	
Loratadine-rapidly disintegrating tablets	Claritin Reditabs	10 mg	10 mg	Daily		10 mg	Daily	
<b>Cetirizine/ Pseudoephedrine</b>	<b>Zyrtec-D</b>	<b>5/120 mg</b>	<b>5/120 mg</b>	<b>BID</b>	<b>Loratadine/ Pseudoephedrine (Claritin-D 12 Hour)</b>	<b>5/120 mg</b>	<b>BID</b>	
Fexofenadine/ Pseudoephedrine	Allegra-D	60/120 mg	60/120 mg	BID		5/120 mg	BID	
Loratadine/ Pseudoephedrine	Claritin-D 24 Hour	10/240 mg	10/240mg	Daily		5/120 mg	BID	
Levocetirizine	Xyzal	5 mg	5 mg	Daily	Cetirizine (Zyrtec)	10 mg	Daily	

## SEDATIVE HYPNOTICS

Medication Ordered	Brand Name	Available Dosages	Usual Dose & Frequency	Formulary Medication	Usual Dose & Frequency
Ramelteon	Rozerem	8 mg	8 mg QHS	Zolpidem (Immediate Release)	5mg QHS* may repeat x 1 dose
Triazolam	Halcion	0.125mg 0.25mg	0.25mg QHS		
Zolpidem	Ambien CR	6.25 mg, 12.5 mg	12.5 mg QHS		
Zaleplon	Sonata	5 mg, 10 mg	10 mg QHS		
Eszopiclone	Lunesta	1mg, 2mg, 3mg	2 mg QHS		

Conversion data obtained from J Clin Psychopharmacol. 1996 Apr; 16(2): 146-57; conversion data for zolpidem CR and ramelteon obtained from Micromedex.

\*Dosage in the elderly or debilitated patients, it is recommended that therapy be reduced to zolpidem 5mg.

## TOPICAL ANESTHETIC THROAT SPRAY

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Benzocaine 20%	Hurricane	60 mL spray	1 spray	As Directed	Phenol 1.4% Sore Throat Spray	1 spray	As Directed

## URINARY ANTICHOLINERGICS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Darifenacin	Enablex	7.5 mg, 15 mg	7.5 mg	Q day	Oxybutynin chloride ER (Ditropan XL)	5 mg	Q day
			15 mg			10mg	
Fesoterodine	Toviaz	4 mg, 8 mg	4 mg	Daily	Oxybutynin XL (Ditropan XL)	5 mg	Daily
Tolterodine	Detrol	1 mg, 2 mg	2 mg	BID	Oxybutynin (Ditropan)	5 mg	BID-TID*
Tolterodine	Detrol LA	2 mg, 4 mg	4 mg	q day	Oxybutynin ER (Ditropan XL)	10mg	q day **
Solifenacin Succinate	Vesicare	5mg, 10mg	5mg	q day		5mg	Qday

Dose conversion obtained from Micromedex

\* 20mg daily maximum for adults and children >6 years (Drug Information Handbook, 12<sup>th</sup> Edition, Lexi-Comp)

\*\* 30mg daily maximum for adults (Drug Information Handbook, 12<sup>th</sup> Edition, Lexi-Comp)

## URSODIOL

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Ursodiol	Actigall	300 mg	300 mg	BID	Ursodiol (Urso)	250 mg	BID-TID

For more information, visit: [Ursodiol auto sub.doc](#)

VALACYCLOVIR

Medication Ordered (Indication)	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Famciclovir (Herpes Zoster)	Famvir	125mg, 250mg, 500mg, 1gm	500 mg	Q8H	Valacyclovir (Valtrex)	1 gm	TID
Famciclovir (Recurrent genital herpes)	Famvir	125mg, 250mg, 500mg, 1gm	125 mg	BID	Valacyclovir (Valtrex)	500 mg	BID

VITAMINS

Medication Ordered	Brand Name	Available Dosages	Equivalent Dose	Frequency	Formulary Medication	Equivalent Dose	Frequency
Vitamins ADEK	ADEKs	1 tab	1 tab	1 to 2 tabs QDay	Vitamax	1 tab	1 to 2 tabs QDay

	ADEKs - 1 tablet	Vitamax - 1 tablet
Vitamin A (IU)	9,000	5,000
Vitamin B1 (mg)	1.2	1.5
Vitamin B2 (mg)	1.3	1.7
Vitamin B6 (mg)	1.5	2
Vitamin B12 (mcg)	12	6
Vitamin C (mg)	60	60
Vitamin D (IU)	400	400
Vitamin E (IU)	150	200
Vitamin K (mcg)	150	200
Biotin (mcg)	50	300
Folic Acid (mg)	0.2	0.2
Niacinamide (mg)	10	20
Pantothenic Acid (mg)	10	10
Zinc (mg)	7.5	7.5