

**DADS/DSHS EXECUTIVE FORMULARY COMMITTEE MINUTES
April 11, 2014**

The Executive Formulary Committee convened on Friday, April 11, 2014 in Room 125 - ASH Building 552. The meeting was called to order by Dr. Wright, Chair at 9:40 a.m.

Phillip Balfanz, M.D.	√	Valerie Kipfer, MSN, RN (non-voting)	√
James Baker, M.D.	√	Lilani Muthali, M.D. (non-voting)	√
Mary Bowers RN, BSN	Absent	Nina Muse, M.D. (non-voting)	Absent
Catherine Hall, Pharm.D.	√	Jay Norwood, MSN, RN (non-voting)	Absent
Jeanna Heidel, Pharm.D.	√	Peggy Perry (non-voting)	Absent
Marla Knight, Pharm.D., CGP, FASCP	Absent	Scott Schalchlin (non-voting)	Absent
Jeff Matthews, M.D. (via phone)	√	Mike Maples (non-voting)	Absent
Connie Millhollon, RN	√	Kerry Raymond (non-voting)	Absent
Kenda Pittman, Pharm.D.	√	Vacant Center Position	
Ann L. Richards, Pharm.D.	√	Vacant DADS Physician	
Robert L. Ward, D.O.	√	Vacant DADS Physician	
Jennifer Wright, M.D.	√		

Guests Present: Scott Daniels, M.D., Resident, Chelsie Heesch, Pharm.D., Resident; Lisa Mican, Pharm.D., ASH

Introduction and Other Information

The Committee members and guests were introduced.

Approval of Minutes of January 31, 2014

On a motion of Dr. Heidel, seconded by Ms. Millhollon, the minutes of the January 31st meeting were approved as previously distributed.

Issues from the Clinical Directors' Meeting

Dr. Baker reviewed two ongoing issues. The first is addressing violence reduction where the violence is due to withdrawal from substances (e.g., marijuana, stimulants, nicotine, etc.) and the other is with formulary discrepancies amongst the different organizations/agencies that care for our patients and guidelines. According to Dr. Baker, the vendor drug program is taking exceptions to the foster children guidelines and their recommendations for treatment.

There is an issue with the Patient Assistance Programs (PAP). Many clinics use PAP medications in order to minimize/manage their drug budgets. In the process to utilize the PAP medications to their full extent, some clinics will “dole out” the medication. For example, a patient may receive a 90 day supply of a PAP medication. A thirty day supply will be issued to the patient and then if the medication is discontinued, the other 60 day supply of medication will be issued to another patient. Most PAP programs require an approval process in which the medication is approved

and dispensed for a specific patient. The PAP medication is normally dispensed without the labels being physically attached to the bottle but patient labels accompany the medication. Sometimes the clinic will take this medication and give it to another patient who may or may not be approved for that PAP program. One clinic has contacted three PAP programs for guidance in handling the medications that have been discontinued for a specific patient. Two companies provided nebulous information but the third indicated that the PAP medication was intended for a specific patient. The question arose as to whether or not a pharmacist was involved at the clinic level in the re-labeling of the medication that was dispensed for a specific patient. The Committee recommended that this issue be further investigated to determine the legalities of handling PAP medication.

In another issue, many of the physicians receive drug samples that are then given to the patients. The drug samples are given to and are the property of the physician. The question arises as to what happens to the drug samples once the physician changes employment. Based on the law, the physician in possession of the drug samples may donate the samples to the clinic if the clinic is non-profit.

Conflict of Interest Disclosure Forms

None of the Committee members reported any conflict of interest issues since the last meeting.

Adverse Drug Reaction Reports

The Executive Formulary Committee discussed two adverse drug reaction reports.

In the first case, a 49 year old Hispanic female was admitted to the psychiatric hospital on January 17th. Psychiatric diagnoses included schizoaffective disorder bipolar type, PTSD, and polysubstance abuse (THC since 18 years of age, crack cocaine use since 1999 with a period of sobriety 2004 – 2011 with recent use, past use of LSD). Admission labs including CBC, CMP (Na 135 mEq/L), magnesium, phosphorus, TSH, and G6PD were all within normal limits. The LDL was high at 158 mg/dl. The urine drug screen the following day was negative and the UA was normal. The neurologic assessment on admission physical was normal. At the time of admission, olanzapine (Zyprexa®) 15 mg twice daily was resumed (outpatient medication) and valproic acid (Depakene®) 1,000 mg at bedtime was also prescribed. The valproic acid was refused due to dislike of blood work and the patient reported it was not helpful in the past so oxcarbazepine (Trileptal®) 300 mg was initiated on January 23rd. The dose of oxcarbazepine was increased to 600 mg twice daily on January 27th as she was still noted to be manic with psychotic symptoms. Initially she reported the medication to be helpful for her rapid thoughts and insomnia, but on January 30th she reported an unwitnessed episode of left hemiparesis that spontaneously resolved. On January 31st, the oxcarbazepine dose was increased to 900 mg twice daily due to continued pressured speech, tangential thoughts and grandiose ideations. On February 1st after breakfast, she reported an episode of unsteadiness and slurred speech which was witnessed by nursing staff and resolved after a few minutes. A STAT BMP was within normal limits (Na 135 mEq/L). On February 3rd, she reported that oxcarbazepine was causing entire “body spasms,” lightheadedness and unsteady feeling contributing to fall. She was transferred to a local medical hospital on February 3rd to rule out possible TIAs. At the medical hospital, the neurologic assessment, CT head and CMP were all normal except for a slightly low sodium of 132 mEq/L. Oxcarbazepine was suspected to have contributed to the neurologic adverse event and was discontinued. She remained on olanzapine, with eventual taper and switch to quetiapine (Seroquel®) without further neurologic side effects reported. She was discharged on February 13th.

In the other case, a 31 year old black male was admitted January 3rd to an inpatient psychiatric hospital for the treatment of schizoaffective disorder. At the time of admission, he was continued on divalproex (Depakote®) ER 1,000 mg twice daily. He had been on this medication at similar doses (off and on due to non-adherence) since 2011. In the past, his AST and ALT had been within normal limits with valproic acid levels usually < 100 mcg/mL. During his last admission, he had also been prescribed lurasidone (Latuda®) 120 mg in the evening beginning August 16, 2013 and chlorpromazine (Thorazine®) 100 mg three times daily beginning August 5, 2013. He was continued on these medications as well. Due to a significant exposure during his prior admission, an HIV prophylaxis treatment had been prescribed beginning December 3, 2013 which included raltegravir (Isentress®) 400 mg twice daily, and emtricitabine 200 mg – tenofovir 300 mg (Truvada®) in the morning. At admission January 3rd, it was noted that he had finished the recommended 30 day course of the HIV prophylaxis medication and the medications were discontinued. The first labs

were obtained on January 15th and showed mild leukopenia with a WBC level of 3.2 k/mm³, moderate neutropenia with an ANC 1.0 k/mm³, elevated LFTs (AST 98 U/L, ALT 127 U/L), and a valproic acid level of 106.8 mcg/ml. He was negative for hepatitis A, B, and C. For the following two days, his LFTs continued to rise steadily where on January 16th, his labs were WBC 3.7 k/mm³, ANC 1.3 k/mm³, AST 147 U/L, and ALT 237 U/L. On January 17th, his labs were WBC 4.2 k/mm³, ANC 1.1 k/mm³, AST 180 U/L, ALT 340 U/L, and valproic acid level 124.8 mcg/mL. On January 17th, his divalproex was discontinued for suspicion of being the agent causing the elevation of LFTs and decreasing WBC and ANC. His labs were monitored thereafter, and his LFTs started to decline on January 18th with AST 157 U/L, ALT 334 U/L and on January 19th with AST 109 U/L, ALT 319 U/L. A week later, his labs on January 24th were WBC 5.4 k/mm³, ANC 2.4 k/mm³, AST 57 U/L, ALT 90 U/L, and valproic acid level < 6 mcg/ml. It is not clear if the higher valproic acid levels during this admission or recent use of HIV prophylaxis precipitated this event after tolerating divalproex previously at similar doses.

New Drug Applications

(Please refer to Attachment A for the monograph and application that were considered when determining action by the committee.)

Lubiprostone (Amitiza®) - developed by Ravi Davuluri, Student Pharmacist Intern, presented by Dr. Mican

Lubiprostone is a bicyclic fatty acid analog of prostaglandin E₁ (PGE₁) that locally activates type-2 chloride channels (ClC-2) on the apical membrane of the intestine to increase chloride rich fluid secretion into the intestinal tract without affecting serum concentrations of sodium and potassium. Enhancing intestinal fluid secretion increases intestinal motility and decreases fecal transit time. Opiates decrease intestinal secretion by suppressing secretomotor neuron excitability, but lubiprostone's activation of ClC-2 bypasses this step. Lubiprostone has low oral bioavailability with plasma levels of the parent compound remaining below the level of quantification (<10 pg/ml). Lubiprostone is indicated for chronic idiopathic constipation (CIC) in adults, opioid-induced constipation (OIC) in adults with chronic non-cancer pain (efficacy not established for OIC caused by diphenylheptane opioids – methadone) and irritable bowel syndrome with constipation (IBS-C) in women 18 years of age or older. The dosing of lubiprostone is based on the indication. For CIC and OIC, the dose is 24 mcg twice daily with food and water. For IBS-C the dose is 8 mcg twice daily with food and water. Currently, 18 facilities have lubiprostone in stock.

Following discussion, on motion of Dr. Ward, seconded by Dr. Heidel, the request to add lubiprostone (Amitiza®) to the formulary was approved.

Memantine (Namenda®) Use in Schizophrenia

At the request of Dr. Matthews, the Committee reviewed the use of memantine in schizophrenia. Dr. Heesch recently completed her resident rounds on this topic and agreed to present her findings to the Committee.

The following is a summary of the glutamatergic system.

NMDA Receptor

- Ligand and voltage gated ionotropic glutamate receptor involved in fast excitatory CNS transmission
- Found throughout the CNS. Dense in the hippocampus and cortex - areas associated with memory, cognition, and learning
- Agonists
 - Glycine and D-serine may moderately reduce negative symptoms, with little effect on positive symptoms
 - Excessive activation can induce seizures and neuronal death
- Antagonists
 - Ketamine and phencyclidine induce symptoms similar to schizophrenia: Psychotomimetic and positive symptoms, negative symptoms
 - Phencyclidine induces deficits in cognition: Conceptual disorganization, abstract thinking, attention

Schizophrenia and psychotic disorders

- Glutamate

- Primary excitatory amino acid neurotransmitter for 60% of neurons
- Important for learning and memory
- Frontal lobe cerebrospinal fluid: Decreased glutamate levels in patients with schizophrenia
- Anterior cingulate cortex: Higher glutamate levels in those with increased symptom severity
- NMDA receptor hypofunctioning
 - Results in decreased stimulation of central GABAergic neurons
 - Leads to excessive release of glutamate into synapse
 - May cause neuronal cell death and contribute to pathology of schizophrenia
 - Antagonists of the NMDA receptor may reduce this excitotoxic process
- Glutamatergic and dopaminergic interaction
 - NMDA receptor antagonists increase dopamine release in the frontal cortex and striatum which results in an increase of positive symptoms
 - NMDA receptor hypoactivity may contribute to dopaminergic hyperactivity

The following is a summary of memantine information:

- Receptor Activity
 - NMDA: Non-competitive (open-channel) antagonist with low to moderate affinity
 - Less toxic effects than potent NMDA receptor antagonists: Ketamine, phencyclidine, and MD-801 (dizocilpine)
 - Fast blocking/unblocking kinetics with strong voltage dependence
 - 5-HT₃: Antagonist with similar potency to NMDA receptor
 - Nicotinic acetylcholine: Antagonist with lower potency than that of NMDA receptor
- Indications
 - FDA - Moderate to severe dementia of Alzheimer's disease (modifies progressive symptomatic decline in global status, cognition, function, and behavior)
- Off label uses or investigational use
 - Other dementias (Parkinson's disease, Lewy body, frontotemporal, mild Alzheimer's disease), schizophrenia, bipolar disorder, attention deficit hyperactivity disorder, pervasive developmental disorder, substance abuse (cocaine, alcohol, opioids), major depressive disorder, posttraumatic stress disorder, pathological gambling, binge eating disorder, obsessive compulsive disorder, generalized anxiety disorder, catatonia, pain, and traumatic brain injury

The following is a brief summary of the meta-analyses completed regarding the efficacy of adjunctive NMDA receptor modulators in chronic schizophrenia. See published articles for details.

- Singh SP, Singh V. Meta-analysis of the efficacy of adjunctive NMDA receptor modulators in chronic schizophrenia. *CNS Drugs*. 2011;25(10):859-885.
 - Purpose: To evaluate the efficacy of NMDA receptor modulators as adjunctive therapy to antipsychotics in treating negative, positive, and total symptoms of schizophrenia
 - Authors' Conclusions: Memantine, in adjunct to clozapine, may improve negative and total symptoms in schizophrenia
 - Strengths:
 - Search method was described, comprehensive, and inclusion criteria were reported
 - Attempted to avoid publication bias
 - Methods to combine findings were reported
 - Conclusion, regarding memantine, was supported by data
 - Limitations:
 - Primary outcome was not defined
 - Small sample size in total
 - Studies included had heterogeneous outcome measures
- Kishi T, Iwata N. NMDA receptor antagonists interventions in schizophrenia: Meta-analysis of randomized, placebo-controlled trials. *J Psychiatr Res*. 2013;47(9):1143-1149. Matsuda Y, Kishi T, Iwata N. Efficacy and safety of NMDA receptor antagonists augmentation therapy for schizophrenia: An updated meta-analysis of

randomized placebo-controlled trials. *J Psychiatr Res.* 2013;47(12):2018-2020.

- Purpose: To evaluate the efficacy of NMDA receptor antagonists (memantine and amantadine) as adjunctive therapy in patients with schizophrenia
- Authors' Conclusion: In patients with schizophrenia, memantine adjunctive therapy may improve overall symptoms, negative symptoms, and may be beneficial with respect to cognition and memantine is well tolerated.
- Strengths:
 - Search method was described, comprehensive, and inclusion criteria was reported
 - Attempted to avoid selection bias and publication bias
 - Methods to combine findings were reported
- Limitations
 - Primary outcome was not defined
 - Criteria for quality were not reported
 - Small sample size in total
 - Studies included had heterogeneous outcome measures
 - Conclusions were not supported by data

The following is a brief summary of the clinical studies completed. See published articles for details of these studies.

- Lieberman JA, Papadakis K, Csernasky J, et al. A randomized, placebo-controlled study of memantine as adjunctive treatment in patients with schizophrenia. *Neuropsychopharmacology.* 2009;34(5):1322-1329.
 - Objective: To assess the efficacy and safety of memantine when added to atypical antipsychotics in the treatment of patients with residual symptoms of schizophrenia
 - Authors' Conclusions: There was no benefit found for memantine in the treatment of residual psychopathology in patients with schizophrenia maintained on atypical antipsychotics
 - Strengths:
 - Study design: Randomized, double blind, placebo-controlled
 - Utilized standard rating scales for assessments
 - Limitations:
 - Doses of psychotropic medications not reported
 - A power analysis was not reported
 - Exclusion criteria; "judged unsuitable by the study investigator"
 - Overall Conclusion: In an 8-week study, memantine 20 mg/day did not demonstrate efficacy in improvements in residual symptoms of schizophrenia and may be associated with worsening hallucinations
- de Lucena D, Fernandes BS, Berk M, et al. Improvement of negative and positive symptoms in treatment-refractory schizophrenia: A double-blind, randomized, placebo-controlled trial with memantine as add-on therapy to clozapine. *J Clin Psychiatry.* 2009;70(10):1416-1423.
 - Objective: To assess the efficacy of memantine for negative symptoms when added to clozapine in patients with refractory schizophrenia
 - Authors' Conclusion: The results support the use of memantine as an adjunct to clozapine in patients with treatment resistant schizophrenia to improve negative and positive symptoms
 - Strengths:
 - Study design: Randomized, double-blind, placebo-controlled, longer study duration
 - Utilized standard rating scales and a blinded, trained evaluator for assessments
 - The reductions in scores were likely clinically significant reductions
 - Limitations:
 - Inclusion criterion of "partial remission of negative symptoms" was not defined
 - Unclear whether clozapine dose could be adjusted during the study
 - Placebo group with slightly worse BPRS score, which may have overestimated efficacy of memantine (corrected for using the ANCOVA)
 - Cannot generalize results to those with less severe symptoms or not using clozapine
 - Overall Conclusion: Memantine may be effective in decreasing total, positive, negative, and cognitive symptoms of schizophrenia in those patients with residual symptoms treated with clozapine and appears safe in this small study

- Lee JG, Lee SW, Lee BJ, Park SW, Kim GM, Kim YH. Adjunctive memantine therapy for cognitive impairment in chronic schizophrenia: A placebo-controlled pilot study. *Psychiatry Investig.* 2012;9(2):166-173.
 - Objective: To assess the effects of memantine on cognitive impairments in patients with schizophrenia treated with typical antipsychotics
 - Authors' Conclusions: The results of this study do not support the hypothesis that memantine improves cognitive functioning nor was memantine associated with improvements in the psychopathology of schizophrenia
 - Strengths:
 - Study design: Randomized, double-blind, placebo-controlled, longer study duration
 - Utilized standard rating scales for psychiatric assessments
 - Limitations:
 - Conducted a wide variety of cognitive assessments
 - Small sample size and a power analysis was not reported
 - Most patients used anticholinergic medications throughout the study
 - Overall Conclusions: In a 12-week study, memantine 20 mg/day did not demonstrate efficacy in improvements of cognitive functioning or residual symptoms of schizophrenia and appears safe in this small study

- Rezaei F, Mohammad-Karimi M, Seddighi S, et al. Memantine add-on to risperidone for treatment of negative symptoms in patients with stable schizophrenia: Randomized, double-blind, placebo-controlled study. *J Clin Psychopharmacol.* 2013;33(3):336-342.
 - Objective: To assess the effects of memantine on negative symptoms in patients with stable schizophrenia treated with risperidone
 - Authors' Conclusion: Memantine is effective in reducing the negative and general psychopathological symptoms of schizophrenia
 - Strengths:
 - Study design: Randomized, double-blind, placebo-controlled
 - Utilized standard rating scales for psychiatric assessments
 - Limitations:
 - Cannot generalize results to those with less severe symptoms or not using risperidone
 - Unclear what dose of risperidone patients were stabilized on prior to study entry
 - Questionable clinical significance in mean decrease in PANSS score
 - Overall Conclusions: Memantine may be minimally effective in decreasing negative symptoms in patients with residual symptoms of schizophrenia treated with risperidone and memantine appears to be safe in this small study

Based on her literature review and presentation, Dr. Heesch developed the following conclusions regarding the role of memantine in schizophrenia treatment:

- Current evidence is limited by the lack of consistent results
- Adjunctive memantine cannot be routinely recommended for negative or cognitive symptoms
- Memantine appears to be safe for use in patients with schizophrenia
- Large, adequately powered studies with well-defined, clinically meaningful outcome measures are desired to determine the role of memantine in the treatment of negative and cognitive symptoms of schizophrenia

Based on Dr. Heesch's presentation, the Committee agreed with her conclusions.

Quetiapine (Seroquel®, Seroquel® XR) Purchases

Dr. Richards reviewed the State Hospital purchases and returns of Seroquel® and Seroquel® XR from January through March. The State Supported Living Centers' purchases were not reviewed since these facilities receive Medicare Part D funding for the majority of their residents. The following is a summary of the State Hospitals' Seroquel® and Seroquel® XR purchases:

Facility	January	February	March	Total	# Patients for Quarter
Kerrville	0	\$1,333.40	-\$666.70	\$666.70	1
Rio Grande	0	0	0	0	1
San Antonio	0	0	0	0	1
Terrell	0	0	0	0	1
Vernon	\$3,683.58	\$1,841.79	0	\$5,525.37	2
Total	\$3,683.58	\$3,175.19	-\$666.70	\$6,192.07	6

The facilities that did not purchase or return Seroquel® or Seroquel® XR are not included in the table. Dr. Richards noted that San Antonio State Hospital had a nurse write an order for Seroquel® XR without getting a verbal order for the drug. The order was discontinued the next day. Currently, there is one patient on Seroquel® or Seroquel® XR in the State Hospitals. The patient resides at Kerrville State Hospital. In this case, the patient refuses the generic version and has gotten into fights in order to get the name brand medication. The Hospital hopes that eventually, he will take generic medication.

The Committee recommended to continue to monitor this information.

Drug Deletions

During the Formulary Sectional Review at the last meeting, it was recommended to remove the following products:

- Tolbutamide (Orinase®)
- Insulin, Lente
- Insulin, Ultralente

The Committee did not receive any feedback regarding this recommendation. On a motion of Dr. Heidel, seconded by Dr. Ward the recommendation to delete these agents from Formulary was approved.

New Dosage Strengths

The Committee did not review any new dosage strengths for addition to the Formulary.

Insulin Safety Recommendations

The American Society of Health-System Pharmacists (ASHP) Research and Education Foundation convened a 21-member panel representing the fields of pharmacy, medicine, and nursing and consumer advocacy groups to develop recommendations to enhance insulin-use safety in hospitals (Am J Health-Syst Pharm. 2013;70:218-27). See attachment B. The panel's consensus recommendations include the following:

- Development of protocol-driven insulin order sets
- Elimination of the routine use of correction/sliding scale insulin doses for management of hyperglycemia
- Eliminate "free text" insulin order in electronic and paper medical records and use protocol driven order sets
- Restrictions on the types of insulin products stored in patient care areas
- Development of hospital-wide standard concentration for insulin infusions
- Policies to restrict the preparation of insulin bolus doses and IV infusions to the pharmacy department
- Policies to insure that insulin pens are used for individual patients
- Hospitals to better coordinate insulin use with meal intake and glucose testing
- Hospitals to prospectively monitor the coordination of insulin delivery and rates of hypoglycemia and

- hyperglycemia
- Hospitals to provide standardized education and competency assessment for all hospital-based health care professionals responsible for insulin use

Even though many of these recommendations are not applicable to the state hospital or state supported living center, on a motion of Dr. Ward, seconded by Dr. Pittman, it was recommended that these recommendations be distributed to the clinical directors, directors of nursing and pharmacy directors. In addition, it was recommended that insulin protocols be developed for use within the facilities.

Psychotropic Audit Criteria & Guidelines - Antidepressants

The Antidepressant Audit Criteria and Guidelines have not been reviewed.

Psychotropic Audit Criteria & Guidelines – Chemical Dependence Adjunct

The Chemical Dependence Adjunct Audit Criteria and Guidelines have not been developed.

Drug Formulary Sectional Review-

Endocrine Agents Osteoporosis Agents Genitourinary Agents

Dr. Hall provided the review on the agents in the Endocrine section. See Attachment C. Dr. Hall recommended the deletion of thyroid, desiccated from the Formulary as it is no longer recommended for use. Currently, the Pharmacy system shows that seven facilities have thyroid in stock. However, there are only two patients (one State Hospital and one State Supported Living Center) currently on this drug. On a motion of Dr. Heidel, seconded by Dr. Pittman, the recommendation to delete desiccated thyroid was approved. Feedback will be obtained from the field regarding this recommendation.

Dr. Hall provided the review on the agents in the Osteoporosis section. See Attachment D. Dr. Hall did not make any recommended changes.

Dr. Hall provided the review on the agents in the Genitourinary section. See Attachment E. Dr. Hall did not make any recommended changes.

FDA Drug Safety Communications

The FDA has issued the following safety communications that may have impact on our facilities.

The FDA is investigating the risk of stroke, heart attack, and death in men taking FDA-approved testosterone products. The FDA has been monitoring this risk and decided to reassess this safety issue based on the recent publication of two separate studies that each suggested an increased risk of cardiovascular events among groups of men prescribed testosterone therapy. The FDA is providing this alert while it continues to evaluate the information from these studies and other available data. The FDA will communicate final conclusions and recommendations when the evaluation is complete.

Pfizer Inc. issued a voluntary recall of one lot of 30-count venlafaxine (Effexor® XR) 150 mg extended-release capsules, one lot of 90-count venlafaxine (Effexor® XR) 150 mg extended-release capsules, and one lot of 90-count Greenstone LLC-branded venlafaxine 150 mg extended-release capsules. This action is being taken because of a pharmacist report that one bottle of Pfizer's Effexor® XR contained one capsule of dofenetilide (Tikosyn®) 0.25 mg in addition to the Effexor® XR capsules. The use of dofenetilide by a venlafaxine patient, where the contraindications and drug-

drug interactions with dofetilide have not been considered by the prescribing physician, could cause serious adverse health consequences that could be fatal. This recall is to the patient level and involves Pfizer lot numbers V130142 and V130140, which both expire in October 2015, and Greenstone lot number V130014, which expires in August 2015.

The information regarding the venlafaxine recall was shared with the Pharmacy Directors when it was released.

Quarterly Non-Formulary Drug Justification Report

For the second quarter of fiscal year 2014, all facilities reported use of non-formulary agents. The DADS facilities submitted 765 non-formulary requests and the DSHS facilities had 421 requests. The following were the top non-formulary agents that were prescribed:

- Saliva substitute/dry mouth solution
- Levalbuterol (Xopenex®) solution
- Moxifloxacin (Avelox®) ophthalmic drops
- Ofloxacin (Floxin®) ophthalmic drops
- Lansoprazole (Prevacid®) Solutab

Sectional Review for Next Meeting

The following sections will be reviewed at the next meeting:

- Antiparkinson Agents
- Cardiovascular Agents

Other Issues

The following information was shared with the Committee members:

The Wall Street Journal reported that the FDA gave fast-track designation to Omeros Corp.'s therapy for Huntington's disease. The paper says the therapy, OMS824, selectively inhibits phosphodiesterase 10, an enzyme activity seen in parts of the brain believed to be linked several cognitive-affective diseases such as Huntington's disease and schizophrenia.

Bloomberg News reported that Shire Plc said it stopped "development of its best-selling drug Vyvanse (lisdexamfetamine dimesylate) as a treatment for depression" because it didn't help patients in two studies. The medicine, which is marketed for attention deficit hyperactivity disorder currently, "didn't significantly ease symptoms of major depression after four months in 830 adults," the company said. The article says the results were "the second setback for Shire's research and development efforts since December, when" dry eyes candidate lifitegrast met only one of its primary endpoints.

Medscape reported that according to a study published in the February issue of the journal *Psychiatric Services*, "many patients with treatment-resistant schizophrenia who could benefit from clozapine are not getting it." After analyzing "Medicaid claims data in 45 states for 326,119 individuals with a schizophrenia spectrum disorder who initiated one or more antipsychotic treatment episodes during a four-year period (January 2002 to December 2005)," researchers found "a 'low' initiation rate of clozapine among patients who warrant a trial of the atypical antipsychotic."

Reuters reported positive results from a mid-stage trial for its experimental brain disorder medicine, called PBT2. The company (Prana Biotechnology) pointed out that it improved cognitive function in people suffering from Huntington's disease. The study tested two doses of the PBT2 in 109 patients with Huntington's disease and met the primary goals of safety and tolerability.

The Los Angeles Times "Science Now" blog reported that researchers have "developed a speedy way to identify drugs and chemicals that can disrupt the balance of sex hormones in human beings and influence the development and progress of diseases such as breast cancer." During "a trial screening of 446 drugs in wide circulation, the new assay singled out the popular antidepressant paroxetine (better known by its commercial name, Paxil) as having a weak estrogenic effect that could promote the development and growth of breast tumors in women." Additionally, "The novel screening method...described in a forthcoming issue of the journal Toxicological Sciences...identified two antifungal medications – biconazole and oxyconazole – as having an anti-estrogenic effect similar to that of medications prescribed to prevent breast cancer and its recurrences in women."

HealthDay reported that antidepressant citalopram (Celexa®) "shows promise in easing the agitation that people with Alzheimer's disease often suffer," potentially offering "a safer alternative to antipsychotic drugs," according to a study published in the Journal of the American Medical Association. The new study, headed by Constantine Lyketsos, director of the Johns Hopkins Memory and Alzheimer's Treatment Center in Baltimore, involved 186 Alzheimer's patients "with agitation symptoms such as emotional distress, aggression, irritability, and excessive movement."

HealthDay reported that according to a 138-patient study published online Feb. 14 in the American Journal of Psychiatry, the anti-seizure medication topiramate (Topamax®) may "help problem drinkers reduce their alcohol consumption." Researchers arrived at that conclusion after having half of the study participants take topiramate "for 12 weeks at a maximum dose of 200 milligrams a day, while the other half took an inactive placebo." An additional finding was that "only people with a specific genetic makeup found in 40 percent of European-Americans benefited from treatment with" topiramate.

The Wall Street Journal reported an experimental treatment for a brain disorder slowed the progression of muscle spasms, compared to a placebo. The treatment, code named RP103 (cysteamine bitartrate), met its primary goals in a Phase 2/3 study to treat the genetic disorder Huntington's Disease, according to the pharmaceutical firm Raptor Pharmaceutical Corp.

Medscape reported that according to research presented at the European Congress of Psychiatry meeting, "early weight gain following initiation of atypical antipsychotics or other psychotropic medications may provide a simple, clinically relevant marker of risk for long-term gain and underscores the importance of early weight monitoring." The one-year study of 315 patients on several psychotropic medications revealed that "weight gain of 5% or more at one month predicted further weight gain at three and 12 months."

Medscape reported that according to an article published in the March issue of the Schizophrenia Bulletin, researchers have updated "recommendations for the minimum effective dose for second-generation antipsychotics, also known as atypical antipsychotics." Investigators recommended "the following minimum

effective daily doses/olanzapine equivalents: aripiprazole (Abilify, Otsuka Pharmaceutical Co, Ltd), 10 mg/1.33; asenapine (Saphris, Merck & Co, Inc), 10 mg/1.33; clozapine, 300 mg/40; haloperidol, 4 mg/0.53; iloperidone (Fanapt, Novartis Pharmaceuticals Corporation), 8 mg/1.07; lurasidone (Latuda, Sunovion Pharmaceuticals, Inc), 40 mg/5.33; olanzapine 7.5 mg/1; paliperidone (Invega, Janssen Pharmaceuticals, Inc), 3 mg/0.4; quetiapine (Seroquel, AstraZeneca Pharmaceuticals LP), 150 mg/20; risperidone, 2 mg/0.27; sertindole (Serdolect, H. Lundbeck A/S), 12 mg/1.60; and ziprasidone (Geodon, Pfizer Inc), 40 mg/5.33.”

Medscape reported that according to research presented at the annual meeting of the American Association for Geriatric Psychiatry, “the second-generation antipsychotic risperidone (Risperdal, Janssen Pharmaceuticals, Inc) may increase gynecomastia in older men.” Specifically, the “review of national health claims data showed that older men who used risperidone or paliperidone (Invega, Janssen Pharmaceuticals, Inc), which is an active metabolite of risperidone, had a significant 69% higher risk of developing the condition than nonusers.” Further analyses demonstrated that patients “who used risperidone also had a higher risk of developing gynecomastia than did users of olanzapine or quetiapine (Seroquel, AstraZeneca Pharmaceuticals LP).”

A smartphone application can help reduce risky drinking among patients who've completed inpatient alcohol rehab programs, a JAMA Psychiatry study finds. Some 350 adults ending treatment for alcohol dependence at five residential programs were randomized to receive usual care for 12 months, or usual care plus a smartphone with the A-CHESS app for 8 months followed by usual care alone for 4 months. The A-CHESS app provided monitoring and support, with ways for patients to stay in touch with counselors. Over the 12 months, patients in the intervention group reported significantly fewer risky drinking days than those in the control group (1.39 versus 2.75 days per month). Rich Saitz, an addiction medicine specialist with Physician's First Watch, questions the clinical significance of the findings. He also notes that the results "apply only to those who have received a relatively rare form of care -- residential treatment -- and only about 10% of people with alcohol use disorders receive any treatment at all."

The New York Times reported that a study published online March 19 in the BMJ has tied “several common anti-anxiety drugs and sleeping pills to an increased risk of death.” After following some 34,727 people who filled prescriptions for either sleeping aids or medications to combat anxiety for seven years and then comparing them to 69,418 control individuals who did not file any prescriptions for anti-anxiety or sleep medicines, then adjusting for confounding factors, “researchers found that people who took the drugs had more than double the risk of death.”

Medwire reported that according to a study published online March 14 in the journal *European Neuropsychopharmacology*, “patients treated with antipsychotics for chronic schizophrenia only report a slight improvement in their satisfaction with life (SWL), despite the significant clinical benefits of the treatment.” The 753-patient study revealed that “the most significant predictor of improvement in SWL after a year of treatment was baseline SWL level, which accounted for more variation in score changes than other factors including a measure of the clinical severity of disease.”

BBC News reported that in a study including 28 people who were given “doses of ketamine over 40 minutes on up to six occasions,” that “eight showed improvements in reported levels of depression, with four of them improving so much they were no longer classed as depressed.”

Next Meeting Date

The next meeting was scheduled for July 18, 2014.

Adjourn

There being no further business, the meeting was adjourned at 1:30 p.m.

Approved: *Jennifer Wright, M.D.*
Jennifer Wright, M.D., Chairman

Attachments

Attachment A – New Drug Application

Attachment B – Enhancing insulin-use safety in Hospitals: Practical Recommendations from ASHP Foundation

Attachment C – Endocrine Agents Sectional Review

Attachment D – Osteoporosis Agents Sectional Review

Attachment E – Genitourinary Agents Sectional Review

Minutes Prepared by:

Ann L. Richards, Pharm.D., BCPP

APPENDIX 1: NEW DRUG APPLICATION FORM

415 — C
EXHIBIT A

DSHS/DADS

(Formerly: Texas Department of Mental Health and Mental Retardation)

NEW DRUG APPLICATION

(for inclusion in the DSHS/DADS Drug Formulary)

** (THE NEW DRUG APPLICATION PROCESS IS DESCRIBED ON THE BACK OF THIS FORM.) **

Date: 3/20/14

Name of practitioner submitting the application: P&T Committee / Dr Mican

Name of entity with which the practitioner is associated by employment or contract (i.e., state hospital, state supported living center, state center, or local authority (state-operated community services (SOCS) or community MHMR center)):

Austin State Hospital

Information regarding new drug:

Therapeutic Classification	gastrointestinal agent
Generic Name	lubiprostone
Trade Name(s)	Amitiza
Manufacturer(s)	Sucampo Pharm, Inc.
Dosage Form(s)	8mcg & 24mcg gelatin capsules

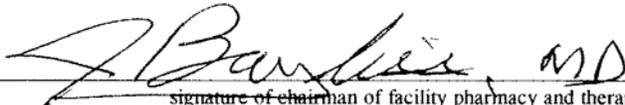
Explain the pharmacological action or use of this drug: Chloride Channel Activator for Chronic Idiopathic Constipation, Opioid Induced Constipation or IBS with constipation in adults

Explain the advantages of this drug over those listed in the formulary: Currently there are no similar agents. Tegaserod had been on the formulary prior to its removal from the market

State which drugs this new drug would replace or supplement:

N/A see above

application is approved


signature of chairman of facility pharmacy and therapeutics committee

OR
 application is appropriate and complete

signature of clinical/medical director or designee

***Enhancing insulin-use safety in Hospitals:
Practical Recommendations from ASHP Foundation***

Prescribing***Recommendation 1***

Develop protocol-driven and evidence-based order sets for specific uses of insulin such as transition of administration route from intravenous to subcutaneous, administration via subcutaneous insulin pumps, post-discharge dosing, diabetic ketoacidosis, hyperosmolar states, hyperkalemia, and post-cardiac surgery care. These order sets should include orders for glucose monitoring and decision - support capabilities that guide insulin use based on the patients' nutrition status. In addition, protocol-driven and evidence-based order sets for the management of hypoglycemia should be developed and integrated into the care of all hospitalized patients who receive insulin.

Recommendation 2

Eliminate the routine administration of correction/sliding scale insulin doses as a primary strategy to treat hyperglycemia.

Recommendation 3

Eliminate the use of "free text" insulin order in electronic and paper medical records and replace them with protocol driven and evidence-based order sets that allow for the prescribing of complex insulin regimens.

Storing and dispensing***Recommendation 4***

Store only U-100 concentration insulin and U-100 administration devices (e.g., syringes, pens) in patient care areas and ensure that they are stored in a secure fashion and segregated from other medications.

Recommendation 5

Develop hospital-wide standard concentrations for insulin infusions to be adopted and used in all patient care areas.

Administering***Recommendation 6***

Limit preparation, including for procedural areas, of all intravenous bolus insulin doses and intravenous insulin infusions to the pharmacy department.

Recommendation 7

Hospitals must develop policies and procedures to ensure that insulin pens are used for individual patients only. In addition, hospitals must establish policies and educational programs to ensure the safe use of insulin pens and disposable needle tips.

Monitoring***Recommendation 8***

Ensure that insulin use is linked directly to patients' nutrition status. Meal delivery, point-of-care glucose testing and insulin administration should be well coordinated and standardized. Patients and their family caregivers should be educated to request administration of rapid-acting insulin when the patient begins her/his meal. In patients with variable nutritional intake, prandial insulin administration should be delayed until completion of the meal. Protocol-driven and evidence-based order sets should be developed for insulin-use and blood glucose monitoring during planned and unplanned interruptions of enteral nutrition or total parenteral nutrition.

Evaluating***Recommendation 9***

Every hospital should prospectively monitor/measure rates of hypoglycemia and hyperglycemia; insulin use; and coordination of insulin administration, glucose testing, and nutrition delivery. Real-time, institution-wide glucose reports should be provided to health care team members to ensure appropriate surveillance and management of patients with unexpected hypoglycemia and hyperglycemia.

Planning***Recommendation 10***

Provide standardized education, including competency assessment, to all hospital-based health professionals who are responsible for the use (e.g., prescribing, compounding, dispensing, administering, monitoring) of insulin.

MEMORANDUM

To: Executive Formulary Committee
From: Catherine S. Hall, Pharm.D., BCPP
Through: Ann L. Richards, Pharm.D., BCPP
Subject: Class Review – Endocrine Agents
Date: April 11, 2014

Recommendation: delete thyroid, desiccated

Endocrine Agents**Estrogens**

Estradiol (Estrace, Vivelle, Alora, Climara, Estraderm)	\$ - \$\$\$\$\$\$
Estrogens, Conjugated (Premarin)	\$\$

Progesterones

medroxyPROGESTERone (Provera)	\$ - \$\$
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Combination Products

<i>All commercially available birth control agents are considered to be formulary agents</i>	
Estrogen/medroxyPROGESTERone (PremPro Premphase)	\$\$ - \$\$
Ethinyl Estradiol/Norethindrone (Loestrin, , Ortho-Novum 777)	\$\$\$\$\$\$\$
Ethinyl Estradiol/Norgestrel (Ovral, Lo-Ovral)	\$\$\$\$\$\$\$
Levonorgestrel/Ethinyl Estradiol (Tri-Levlen, Triphasil)	\$\$\$\$\$\$\$
Norgestimate/Ethinyl Estradiol (Ortho Tri-Cyclen)	\$\$\$\$\$\$\$

Androgens

Testosterone (Androlan) C-IV	\$\$ - \$\$\$
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Adrenal Cortical Steroids

Dexamethasone (Decadron)	\$ - \$\$
Fludrocortisone (Florinef)	\$ - \$\$
Hydrocortisone	\$\$ - \$\$\$\$\$
Methylprednisolone (Medrol, Depo-Medrol)	\$ - \$\$\$\$
prednisoLONE (Delta-Cortef)	\$ - \$\$
predniSONE (Meticorten, Deltasone)	\$ - \$\$\$\$
Triamcinolone (Aristocort, Kenacort)	\$ - \$\$\$\$\$

Thyroid Agents

Levothyroxine (Synthroid, Levoxyl)	\$
Methimazole (Tapazole)	\$\$ - \$\$
Propylthiouracil	\$
Thyroid, Desiccated (Thyroid)	\$

Miscellaneous Endocrine Agents

Allopurinol (Zyloprim)	\$
Colchicine	\$
Desmopressin (DDAVP, Stimate)	\$\$\$ - \$\$\$\$

Estradiol (Estrace, Vivelle, Alora, Climara, Estraderm, Vagifem)

Cream, vaginal: 43 gm

Systems, transdermal: 0.025 mg, 0.0375 mg, 0.05 mg, 0.075 mg, 0.1 mg per 24 hr

Tablet: 0.5 mg, 1 mg, 2 mg

Tablet, vaginal: 25 mg

Estrogens, Conjugated (Premarin)

Cream, vaginal: 0.625 mg/g

Injection: 25 mg

Tablet: 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, 2.5 mg

medroxyPROGESTERone (Provera)

Injection, suspension: 100 mg/mL, 150 mg/mL, 400 mg/mL

Tablet: 2.5 mg, 5 mg, 10 mg

Estrogen/medroxyPROGESTERone (PremPro, Premphase)

Tablet: Conjugated estrogen 0.3 mg/medroxyPROGESTERone 1.5 mg

Tablet: Conjugated estrogen 0.45 mg/medroxyPROGESTERone 1.5 mg

Tablet: Conjugated estrogen 0.625 mg/medroxyPROGESTERone 2.5 mg

Tablet: Conjugated estrogen 0.625 mg/medroxyPROGESTERone 5 mg

Ethinyl Estradiol/Norethindrone (Loestrin, , Ortho-Novum 777)

Loestrin:

1/20: Ethinyl Estradiol 0.02 mg/Norethindrone 1 mg

1.5/30: Ethinyl Estradiol 0.03 mg/Norethindrone 1.5 mg

Ortho-Novum 777: Phase 1 (Ethinyl Estradiol 0.035 mg/Norethindrone 0.5 mg), Phase 2 (Ethinyl Estradiol 0.035 mg/Norethindrone 0.75 mg), Phase 3 (Ethinyl Estradiol 0.035 mg/Norethindrone 1 mg)

Ethinyl Estradiol/Norgestrel (Ovral, Lo-Ovral)

Lo-Ovral: Ethinyl Estradiol 0.03 mg/Norgestrel 0.3 mg

Ovral: Ethinyl Estradiol 0.05 mg/Norgestrel 0.5 mg

Levonorgestrel/Ethinyl Estradiol (Tri-Levlen, Triphasil)

Tablet: Phase I (Levonorgestrel 0.05 mg/Ethinyl Estradiol 30 mcg), Phase 2 (Levonorgestrel 0.075 mg/Ethinyl Estradiol 40 mg), Phase 3 (Levonorgestrel 0.125 mg/ Ethinyl Estradiol 30 mg)

Norgestimate/Ethinyl Estradiol (Ortho Tri-Cyclen)

Tablet: 21 day, 28 day

Testosterone (Androlan) C-IV

Injection, in oil, as cypionate: 100 mg/mL, 200 mg/mL

Dexamethasone (Decadron)

Injection, as sodium phosphate: 4 mg/mL, 10 mg/mL, 20 mg/mL, 24 mg/mL

Solution, oral: 0.5 mg/5 mL

Tablet: 0.25 mg, 0.5 mg, 0.75 mg, 1 mg, 1.5 mg, 2 mg, 4 mg, 6 mg

Fludrocortisone (Florinef)

Tablet: 0.1 mg

Hydrocortisone

Injection, as sodium succinate: 100 mg, 250 mg, 500 mg, 1000 mg

Suspension, oral, as cypionate: 10 mg/5 mL

Hydrocortisone base:

Tablet, oral: 5 mg, 10 mg, 20 mg

methylPREDNISolone (Medrol, Depo-Medrol)

Injection, as acetate: 20 mg/mL, 40 mg/mL, 80 mg/mL

Injection, as sodium succinate: 40 mg, 125 mg, 500 mg, 1000 mg, 2000 mg

Tablet: 2 mg, 4 mg, 8 mg, 16 mg, 24 mg, 32 mg

prednisoLONE (Delta-Cortef, Pred Mild, Pred Forte)

Solution, oral: 5mg/5ml

Syrup: 15 mg/5 mL

Tablet: 5 mg

predniSONE (Meticorten, Deltasone)

Syrup: 5 mg/5 mL

Tablet: 1 mg, 2.5 mg, 5 mg, 10 mg, 20 mg, 50 mg

Triamcinolone (Aristocort, Kenacort, Azmacort, Nasacort)

Aerosol, oral, inhalation: 100 mcg/metered spray

Aerosol, topical: 0.2 mg/2 second spray

Cream, topical: 0.025%, 0.1%, 0.5%

Lotion, topical: 0.025%, 0.1%

Ointment, topical: 0.025%, 0.1%, 0.5%

Spray, intranasal: 55 mcg/actuation [100 sprays/canister]

Levothyroxine (Synthroid, Levoxyl)

Powder for injection: 200 mcg/mL, 500 mcg/mL

Tablet: 25 mcg, 50 mcg, 75 mcg, 88 mcg, 100 mcg, 112 mcg, 125 mcg, 150 mcg, 175 mcg, 200 mcg, 300 mcg

Methimazole (Tapazole)

Tablet: 5 mg, 10 mg

Propylthiouracil

Tablet: 50 mg

Thyroid, Desiccated (Thyroid)

Capsule (pork source): 60 mg, 120 mg, 180 mg, 300 mg

Tablet:

Armour: 15 mg, 30 mg, 60 mg, 90 mg, 120 mg, 180 mg, 240 mg, 300 mg

Thyrolar (bovine source): 30 mg, 60 mg, 120 mg

Thyroid Strong (60 mg is equivalent to 90 mg thyroid, USP)

Thyroid, USP: 15 mg, 30 mg, 60 mg, 120 mg, 180 mg, 300 mg

Allopurinol (Zyloprim)

Tablet: 100 mg, 300 mg

Colchicine

Tablet: 0.5 mg, 0.6 mg

Desmopressin (DDAVP, Stimate)

Injection: 4mcg/ml

Solution, nasal: 100 mcg/mL, 1.5 mg/mL

Tablet: 0.1 mg, 0.2 mg

MEMORANDUM

To: Executive Formulary Committee
From: Catherine S. Hall, Pharm.D., BCPP
Through: Ann L. Richards, Pharm.D., BCPP
Subject: Class Review – Osteoporosis Agents
Date: April 11, 2014

No recommended changes**Osteoporosis Agents**

Alendronate (Fosamax)	\$ - \$\$
Calcitonin-Salmon (Miacalcin)	\$\$\$
Denosumab (Prolia)	\$\$\$\$\$\$\$
Ibandronate (Boniva)	\$\$\$\$\$\$\$
Raloxifene (Evista)	\$\$
Risedronate (Actonel)	\$\$\$\$\$
Zoledronic Acid (Reclast Zometa)	\$\$\$\$\$\$\$

Alendronate (Fosamax)

Solution, oral: 70 mg/5 mL

Tablet: 5 mg, 10 mg, 35 mg, 40 mg, 70 mg

Calcitonin-Salmon (Miacalcin)

Nasal spray: 200 IU/activation

Denosumab (Prolia)

Injection: 60mg

Ibandronate (Boniva)

Tab: 2.5 mg, 150 mg

Injection: 3 mg/3 mL

Raloxifene (Evista)

Tablet: 60 mg

Risedronate (Actonel)

Tablet: 5 mg, 30 mg, 35 mg

Zoledronic Acid (Reclast, Zometa)

Injection: 5 mg/100 mL

MEMORANDUM

To: Executive Formulary Committee
From: Catherine S. Hall, Pharm.D., BCPP
Through: Ann L. Richards, Pharm.D., BCPP
Subject: Class Review – Genitourinary Agents
Date: April 11, 2014

No recommended changes***Genitourinary Agents******Interstitial Cystitis Agents***

Phenazopyridine (Pyridium)	\$ - \$\$
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Genitourinary Irrigants

Sodium Chloride	\$\$\$
Water for Irrigation	\$ - \$\$

Medications for BPH

Finasteride (Proscar)	\$\$
Tamsulosin (Flomax)	\$\$

Urinary Alkalinizers

Potassium Citrate (Urocit K)	\$ - \$\$\$\$
Potassium Citrate Combinations (Polycitra, Polycitra-LC, Polycitra K, Citrolith)	\$\$ - \$\$
Sodium Bicarbonate	\$ - \$\$
Sodium Citrate/Citric Acid (Bicitra, Oracit)	\$\$ - \$\$\$

Urinary Anticholinergics

Darifenacin (Enablex)	\$\$\$
Flavoxate (Urispas)	\$\$\$
Oxybutynin (Ditropan, Ditropan XL)	\$\$ - \$\$
Trospium (Sanctura)	\$\$\$
Tolterodine (Detrol, Detrol LA)	\$\$ - \$\$\$

Urinary Cholinergics

Bethanechol (Urecholine)	\$ - \$\$\$
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Vaginal Antifungals

Clotrimazole (Gyne-Lotrimin, Mycelex)	\$\$\$\$ - \$\$\$\$\$
Miconazole (Monistat)	\$\$\$\$ - \$\$\$\$\$
Tioconazole (Vagistat-1)	\$\$\$\$

Miscellaneous Genitourinary Agents

Estradiol (Estrace)	\$\$ - \$\$\$\$\$\$\$
Estrogens, Conjugated (Premarin)	\$\$\$\$\$\$\$
Nitrofurantoin (Macrochantin)	\$\$ - \$\$\$\$
Sevelamer (Renagel)	\$\$\$ - \$\$\$\$

Phenazopyridine (Pyridium)

Tablet: 95 mg, 100 mg, 200 mg

Sodium Chloride

Drops, nasal: 0.9%
 Infusion: 0.2%, 0.45%, 0.9%, 3%, 5%, 20%, 23.4%
 Injection, bacteriostatic: 0.9%
 Injection, for admixtures: 50 mEq, 100 mEq, 635 mEq
 Ointment, ophthalmic: 5%
 Solution, irrigation: 0.45%, 0.9%
 Solution, nasal: 0.4%, 0.6%, 0.65%
 Solution, nebulizing: 0.9%
 Solution, ophthalmic: 2%, 5%
 Tablet: 650 mg, 1 g
 Tablet, enteric coated: 1 g
 Tablet, slow release: 600 mg

Water for Irrigation

Solution, irrigation

Finasteride (Proscar)

Tablet: 5 mg

Tamsulosin (Flomax)

Capsule, sustained release: 0.4 mg

Potassium Citrate (Urocit K)

Tablet: 5 mEq, 10 mEq

Potassium Citrate Combinations (Polycitra, Polycitra-LC, Polycitra K, Citrolith)

Solution, oral: containing Sodium Citrate /Potassium Citrate/Citric Acid

Solution, oral: containing Sodium Citrate/Potassium Citrate

Sodium Bicarbonate

Injection: 4.2% [5 mEq/10 mL], 8.4% [10 mEq/10 mL]

Sodium Citrate/Citric Acid (Bicitra, Oracit)

Solution, oral:

Bicitra: Sodium Citrate 500 mg/Citric Acid 334 mg per 5 mL

Oracit: Sodium Citrate 400 mg/Citric Acid 640 mg per 5 mL

Darifenacin (Enablex)

Tablet: 7.5 mg, 15mg

Flavoxate (Urispas)

Tablet, film coated: 100 mg

Oxybutynin (Ditropan, Ditropan XL)

Syrup: 5 mg/5 mL

Tablet: 5 mg

Tablet, extended release: 5 mg, 10 mg, 15 mg

Tropium (Sanctura)

Tablet: 20 mg

Tolterodine (Detrol, Detrol LA)

Capsule, extended release: 2 mg, 4 mg

Tablet: 1 mg, 2 mg

Bethanechol (Urecholine)

Injection: 5 mg/mL

Tablet: 5 mg, 10 mg, 25 mg, 50 mg

Clotrimazole (Lotrimin, Mycelex, Gyne-Lotrimin, Fungoid)

Cream, topical: 1%

Cream, vaginal: 1%, 2%

Lotion: 1%

Solution, topical: 1%

Suppository, vaginal: 100 mg, 200 mg

Tablet, vaginal: 100 mg, 500 mg

Troche: 10 mg

Miconazole (Monistat)

Cream, topical: 2%

Cream, vaginal: 2%

Injection: 10 mg/mL

Lotion: 2%

Powder, topical: 2%

Spray, topical: 2%

Suppository, vaginal: 100 mg, 200 mg

Tioconazole (Vagistat-1)

Ointment, vaginal: 6.5%

Estradiol (Estrace, Vivelle, Alora, Climara, Estraderm, Vagifem)

Cream, vaginal: 43 gm

Systems, transdermal: 0.025 mg, 0.0375 mg, 0.05 mg, 0.075 mg, 0.1 mg per 24 hr

Tablet: 0.5 mg, 1 mg, 2 mg

Tablet, vaginal: 25 mg

Estrogens, Conjugated (Premarin)

Cream, vaginal: 0.625 mg/g

Injection: 25 mg

Tablet: 0.3 mg, 0.625 mg, 0.9 mg, 1.25 mg, 2.5 mg

Nitrofurantoin (Macrochantin)

Capsule: 50 mg, 100 mg

Capsule, extended release: 100 mg

Capsule, macrocrystal: 25 mg, 50 mg, 100 mg

Capsule, macrocrystal/monohydrate: 100 mg

Suspension, oral: 25 mg/mL

Sevelamer (Renagel)

Tablet: 400 mg, 800 mg