

DADS/DSHS EXECUTIVE FORMULARY COMMITTEE MINUTES
July 18, 2014

The Executive Formulary Committee convened on Friday, July 18, 2014 in the West Auditorium - ASH Building 582. The meeting was called to order by Dr. Wright, Chair at 9:40 a.m.

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|-------------------------------------|--------|--------------------------------------|--------|
| Phillip Balfanz, M.D. | √ | Valerie Kipfer, MSN, RN (non-voting) | √ |
| James Baker, M.D. | √ | Lilani Muthali, M.D. (non-voting) | Absent |
| 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. (via phone) | √ | Peggy Perry (non-voting) | Absent |
| Marla Knight, Pharm.D., CGP, FASCP | √ | Scott Schalchlin (non-voting) | Absent |
| Jeff Matthews, M.D. | √ | Lauren Lacefield Lewis (non-voting) | Absent |
| Connie Millhollon, RN | √ | Kerry Raymond (non-voting) | Absent |
| Kenda Pittman, Pharm.D. (via phone) | √ | 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: Lisa Mican, Pharm.D., ASH, Sarah Norman, Pharm.D., Resident

Introduction and Other Information

The guests were introduced.

Approval of Minutes of April 11, 2014

On a motion of Dr. Ward, seconded by Dr. Matthews, the minutes of the April 11th meeting were approved as previously distributed.

Conflict of Interest

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

Issues from the Clinical Directors' Meeting

Dr. Baker presented information on the following concerns that are being addressed. One major issue is to reduce the amount of violence, especially the violence caused by substance abuse. The goal is to identify substance abuse initially in patients and mitigate the violence through different avenues, including pharmacology of withdrawal symptoms. There is a possibility that substance abuse treatment will be reintegrated with mental health at the state hospitals. Support for this possible change include: outpatient centers report that outside of natural causes, the most common contributor to death in their patient population is substance abuse; and approximately 50% of hospital admissions have a substance abuse diagnosis.

The PAP programs in the community continue to be an area of controversy. The goal is to have the outpatient clinics manage their programs within the scope of the law. In the continuing efforts to research this topic, it was discovered that at least one clinic uses a local pharmacy to handle all of their PAP medications. It becomes the pharmacy's responsibility to abide by the laws. Our attorney was contacted regarding the handling of the PAP medications. The attorney responded that safe medication dispensing is the major issue. A pharmacist can safely and legally dispense medication. Having a pharmacist handle the PAP medications seems to be the best solution to this issue. Dr. Baker will develop a guideline addressing this issue.

The CannonDesign plan may include the recommendation for more beds, especially in some areas far from current state hospitals and may recommend new facilities.

House Bill 3793 has the goal of reduced wait times for civil and forensic beds in the community. This bill will allocate mental health outpatient and hospital resources for forensic and civil/voluntary populations. The goal of the Bill is to reduce the involvement of the criminal justice system in managing adults with mental health disorders.

Despite issues in some clinics with the handling of PAP and drug sample medications, it was noted that there are clinics within Texas that utilize best practices for handling sample medications as well as PAP medications.

Dr. Balfanz reported an occasional issue with children going on and off Medicaid and needing to change medication due to their change in status. The question arose as to the relationship between the Medicaid Drug Formulary and our Formulary. Dr. Baker reported that there is no relationship between the Medicaid Formulary and our Drug Formulary. It was suggested that a comparison between the Medicaid Drug Formulary and our Formulary be made with regards to psychotropic medication.

Adverse Drug Reaction Reports

The Executive Formulary Committee discussed two adverse drug reaction reports.

The first case involved a 44 year old Asian male diagnosed with schizoaffective disorder who had multiple psychiatric hospitalizations. Just prior to this psychiatric hospitalization, he was in jail and was transferred from jail to the hospital. He has a history of noncompliance and checking medication, so he was started on aripiprazole long acting injection (LAI) (Abilify® Maintena™) 400 mg once monthly and sertraline (Zoloft®) 100 mg daily. The first known dose of aripiprazole LAI was given during a prior hospitalization at a different facility on February 4, 2014. He received another dose of aripiprazole LAI 400 mg while in jail on March 4, 2014 and was then transferred to the psychiatric hospital the day following administration. He was given a dose of olanzapine (Zyprexa®) 10 mg at 19:00 on March 5, 2014 (day of admission). At approximately 20:25, he experienced a grand-mal seizure lasting 1.5 minutes and was given lorazepam (Ativan®) 2 mg IM. He was in a postictal state and was transferred to a local medical hospital. A neuro workup and CT of the brain were normal and EEG did not pick up any seizure activity. He was sent back to the psychiatric hospital on March 6, 2014 with the recommendation of not starting an anticonvulsant for an isolated seizure. Sertraline 100 mg daily and olanzapine 10 mg daily were continued until March 14, 2014 when they were discontinued as they were no longer needed. A neurology consult and follow-up EEG was obtained on March 19, 2014. The EEG showed mild slowing and disorganization without evidence of seizure activity. The patient mentioned being prescribed phenytoin (Dilantin®) at some point in the past for seizures, but he has been admitted to this psychiatric hospital several times since 1999 and had not been prescribed phenytoin during those admissions. Aripiprazole LAI 400 mg once monthly was continued with the next injection noted to be due April 2, 2014; however, he was discharged prior to this date. He continued to receive aripiprazole

LAI in the community and reported continued seizure episodes and syncope and returned to the hospital. He was not restarted on aripiprazole LAI and was placed on oral olanzapine without further event reported. He has been on olanzapine up to 30 mg daily, aripiprazole up to 30 mg daily, and sertraline up to 100 mg daily in the past, although not all at the same time, without report of seizure. This was his first trial of the aripiprazole LAI. Genetic testing was obtained and it showed normal CYP 2D6, 1A2 metabolizer status and poor 3A4 metabolizer. Being a poor 3A4 metabolizer is considered to be the usual baseline metabolic status in individuals of Asian descent, as 70% of Asians are poor metabolizers of 3A4. Sertraline is a moderate inhibitor of CYP2D6. It is thought that perhaps the combination of sertraline and being a poor metabolizer may have led to the seizure.

In the other case, a 17 year-old Hispanic male was admitted to an acute care psychiatric hospital on April 8, 2014 for the treatment of first-episode schizophrenia. He had no known medical conditions. He was on no medications prior to hospital admission, and had had no recent psychiatric treatment. He had a remote history of treatment for depression with fluoxetine (Prozac®) for a short time at the age of 10. At that time, the fluoxetine was discontinued when the family could no longer afford the medication. On the day of admission (April 8th), a stat olanzapine (Zyprexa®) 5 mg oral dose was administered at 23:15 for psychosis. Baseline labs drawn April 9th at 07:40 showed minor LFT elevation: AST 46 (normal range: 10-42 U/L) and ALT 67 (normal range: 10-60 U/L). Total bilirubin was also elevated at 2.0 (normal range: 0.1-1.1 mg/dL). Alkaline phosphatase was normal at 63 U/L. Albumin was also slightly elevated at 5.0 (normal range: 3.4 – 4.7 g/dL). CBC, TSH, fasting lipid panel, fasting glucose, and electrolytes were all within normal limits. RPR and HIV were non-reactive. Urine drug screen was negative. Urinalysis was within normal limits. On April 10th, 2 days after admission, he was started on risperidone (Risperdal®) 0.5 mg orally once a day at bedtime. The dose was further titrated to risperidone 1 mg at bedtime on April 12th, then 2 mg at bedtime April 15th. Hepatic function panel follow-up for the elevated LFTs at baseline was obtained April 22nd at 07:29 which showed LFT elevation approximately 3 times the upper limit of normal: AST 113 U/L, ALT 175 U/L. Total bilirubin was elevated at 1.6 mg/dl and indirect bilirubin was elevated at 1.4 mg/dl. Albumin was within normal limits at 4.0 g/dl. A second follow-up hepatic panel was obtained April 23rd at 07:37 to see if LFTs were trending up or down. These results showed the LFT elevation now approximately 4 times the upper limit of normal for ALT: AST 134 U/L and ALT 229 U/L. Acute hepatitis profile for Hepatitis A, B, and C serology was negative, GGT was normal at 18 (normal range: 7 – 64 IU/L), and serum ammonia was also normal at 16 (11 -25 mmol/L). Risperidone was discontinued on April 24th as it was thought to be contributory for the elevated liver enzyme. In evaluating this adverse drug reaction, the hospital noted the following: This patient had slightly elevated liver function tests (LFTs) on 4/9/14 at baseline, prior to initiation of risperidone, for unknown reasons. Potential reasons for LFT elevation in the absence of liver disease are numerous (muscle exertion/muscle injury, dehydration, alcohol or other substance use/abuse, hemolysis, viral hepatitis, etc.). It is possible that the one-time stat dose of olanzapine 5 mg on 4/8/14 contributed to elevated baseline LFTs. Antipsychotic medications may cause elevations in transaminases upon initiation of therapy. These elevations are typically transient and benign, and improve within a few days to a few weeks. The majority of antipsychotic medications including risperidone (excluding paliperidone – Invega®) are hepatically metabolized via the cytochrome P450 system. A recent meta-analysis evaluating LFT elevation with antipsychotic medications found that the median percentage of patients with any LFT abnormality on any antipsychotic was 32% with a range of 5% - 78%. The median percentage of patients showing clinically significant LFT elevation (defined as greater than 3-fold above the upper limit of normal for AST or ALT) was 4%, with a range of 0% - 15% (Marwick et al. Clin Neuropharm 2012; 35: 244 – 253). In this study, the minimum time reported until onset of LFT abnormalities was one week. Most LFT abnormalities occurred within 6 weeks of starting antipsychotic therapy, and most resolved within a period of approximately one month. No cases of severe or fatal hepatic injury associated with antipsychotic use were reported in this study. In general, if a medication is suspected of causing liver enzyme elevation of 3 times the upper limit of normal or greater, it is recommended to discontinue this medication to reduce the risk of hepatocellular injury. In this case, paliperidone was started in place of risperidone, due to renal elimination of paliperidone, and the liver enzyme elevation improved. It is not clear what caused LFT elevation at baseline; however, it is possible in this case that risperidone was contributory to the elevated AST and ALT, as LFTs improved upon discontinuation of risperidone.

Dr. Mican noted that Austin State Hospital has had a few cases of slightly elevated LFTs with antipsychotics and then upon repeat follow up testing, the LFTs have been significantly elevated.

New Drug Applications

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

Saliva substitutes - developed by Maren Cowley, Pharmacy Student and Tim Phan, Pharmacy Student, presented by Dr. Richards

Saliva substitutes are used as a temporary moisturizing solution for patients with dry mouth. Although they do help with xerostomia, they do not cure dry mouth. The ingredients found in saliva substitutes are responsible for pulling water into the oral cavity due to hyperosmotic properties. Ingredients found in these products include: glycerin, hydroxyethyl cellulose, xylitol and sorbitol. Xylitol is responsible for decreasing bacteria that cause tooth decay. Saliva substitutes are available in various formulations including mouthwash, toothpaste, spray, gel, etc. No common side effects have been reported with these products. These products do not increase saliva flow but patients do report a feeling of relief from dry mouth after using the products.

To minimize drug mouth, one should:

- Stay hydrated to keep the mouth moist. Sip water throughout the day and keep a bottle of water near the bed.
- Stimulate salivary flow by chewing sugar-free gum containing xylitol or sucking on sugar-free hard candies.
- Eat soft, moist foods.
- Avoid dry, salty foods, as well as foods with high sugar content.
- Avoid drinks containing alcohol, caffeine, or acidic beverages (any fruit and tomato juice)

To reduce irritation associated with dry mouth, one should:

- Minimize salty or spicy foods, which can cause pain in patients with dry mouth.
- Quit smoking.
- Use lip balm to minimize irritation.
- Use a soft-bristled toothbrush on teeth and gums.
- Rinse mouth with water before and after meals.
- Brush with a fluoride-containing toothpaste.
- Use a humidifier to increase the humidity in the home, especially at night.

Saliva substitutes are available in both over-the-counter and prescription products. The prescription products are very expensive so OTC products should be used first.

Following discussion, on motion of Dr. Knight, seconded by Dr. Ward, the request to add saliva substitutes (in any formulation) to the formulary was approved. It was recommended that the listing in the Drug Formulary be "Saliva Substitutes" in order to allow for all formulations to be on Formulary.

Oxcarbazepine (Trileptal®) Label Change

The oxcarbazepine package insert was recently changed to include a warning for an increased risk for Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) for patients carrying the Human Leukocyte Antigen (HLA) allele B*1502. The HLA allele B*1502 increases the risk for developing SJS/TEN in patients treated with carbamazepine (Tegretol®). The chemical structure of oxcarbazepine is similar to that of carbamazepine. According to the package insert, available clinical evidence, and data from nonclinical studies showing a direct interaction between oxcarbazepine and HLA-B*1502 protein, suggest that the HLA-B*1502 allele may also increase the risk for SJS/TEN with oxcarbazepine. The frequency of the HLA-B*1502 allele is:

- 2 to 12% in Han Chinese populations
- ~8% in Thai populations
- Above 15% in the Philippines and in some Malaysian populations
- Up to about 2% reported in Korea
- Up to about 6% reported in India
- Negligible in European descent, several African populations, indigenous peoples of Americas, Hispanic populations
- <1% found in Japanese

Testing for the presence of the HLA-B*1502 allele should be considered in patients with ancestry in genetically at-risk populations, prior to initiating treatment with oxcarbazepine. Oxcarbazepine should be avoided in patients positive for the HLA-B*1502 allele unless benefits clearly outweigh the risk. Consideration should be given to avoiding the use of other drugs associated with SJS/TEN in HLA-B*1502 positive patients, when alternative therapies are otherwise equally acceptable. Screening is not generally recommended in patient populations that have a low prevalence for the HLA-B*1502 allele, or in current oxcarbazepine users, as the risk of SJS/TEN is largely confined to the first few months of therapy, regardless of the HLA B*1502 status.

The Committee also discussed the risk of hyponatremia with the use of oxcarbazepine. It was noted in the package insert that based on 14 controlled epilepsy studies; 2.5% of oxcarbazepine-treated patients had a sodium of less than 125 mmol/L at some point during treatment. Clinically significant hyponatremia generally occurred within the first three months of oxcarbazepine treatment, although there were patients that first developed a serum sodium < 125 mmol/L over a year after initiation. Based on personal experience, Dr. Mican thought that the incidence of hyponatremia with oxcarbazepine might be higher in the population she sees. Dr. Knight noted that in her patient population, the hyponatremia may sometimes be dose related.

Based on these issues, it was recommended that a work group be formed to review the psychotropic guidelines for oxcarbazepine as well as the other mood stabilizers.

Quetiapine (Seroquel®, Seroquel® XR) Purchases

Dr. Richards reviewed the State Hospital purchases and returns of Seroquel® and Seroquel® XR from April through June. During this time, the hospitals did not purchase or return any Seroquel® or Seroquel® XR products. It is possible that there are still patients on these products as the pharmacy may have had enough drug inventory to supply the medication. The Committee will continue to monitor the purchases to determine if this trend continues.

Drug Deletions

During the Formulary Sectional Review at the last meeting, it was recommended that desiccated thyroid be removed from the Formulary. The Committee did not receive any feedback regarding this recommendation. On a motion of Dr. Hall, seconded by Dr. Ward the recommendation to delete desiccated thyroid from Formulary was approved.

New Dosage Strengths

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

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-

Antiparkinson Agents Cardiovascular Agents

Dr. Hall provided the review on the agents in the Antiparkinson section. See Attachment B. Dr. Hall recommended the deletion of pergolide (Permax®) as it has been removed from the market. On a motion of Dr. Hall, seconded by Dr. Matthews, the recommendation to delete pergolide was approved. Since this drug is no longer on the market, the Committee will not seek feedback from the field.

Dr. Hall provided the review on the agents in the cardiovascular section. See Attachment C. In completing the review, Dr. Hall did recommend deleting the following:

- Adenosine
- Procainamide
- Dopamine
- Norepinephrine/levarterenol
- Prazosin (Minipress®)

The purchase histories for adenosine, procainamide, dopamine and norepinephrine from September 1, 2013 through May 31, 2014 were obtained. During this time, none of these agents were purchased. In reviewing inventory status at the facilities, it was noted that one State Supported Living Center and one State Hospital had adenosine in stock and the same State Hospital had both dopamine and norepinephrine in stock. Ms. Millhollon noted that Terrell State Hospital has an ECT Suite. Adenosine, dopamine and norepinephrine are available for use in Terrell's ECT Suite.

Dr. Richards noted that procainamide isn't even listed in WORx (the pharmacy software) which means that there has not been a request to add this drug to the pharmacy software.

Prazosin is no longer considered a first line agent for the treatment of hypertension. It has been used for dream disorders in post-traumatic stress disorders.

It was noted that the State Supported Living Centers were researching the possibility of providing the anesthesia crash carts for the dental clinics. At this time, a decision regarding the crash carts has not been made.

In reviewing Dr. Hall's recommendation for deletion, the following modified recommendations were made:

- On a motion of Dr. Matthews, seconded by Dr. Wright, the recommendation to delete procainamide was approved.
- On a motion of Dr. Hall, seconded by Dr. Matthews, it was recommended to delete prazosin from the Miscellaneous Antihypertensive section and add it to the Miscellaneous Psychotropic Agents section. The Committee recommended the addition of prazosin to the psychotropic consent list.
- Based on information obtained from Terrell State Hospital regarding their ECT Suite, on a motion of Dr. Matthews, seconded by Ms. Millhollon, it was recommended that adenosine, dopamine, and norepinephrine/levarterenol be moved to reserve status with the following criteria for use:
 - To be used in an ECT Suite or under the direction of an anesthesiologist.

Feedback will be obtained from the field regarding the deletion of procainamide from the Formulary.

In addition to the Formulary review, Dr. Hall presented a general overview of the 2013 American College of Cardiology/American Heart Association (ACC/AHA) guideline on the assessment of cardiovascular risk (http://circ.ahajournals.org/content/129/25_suppl_2/S49).

- Atherosclerotic cardiovascular disease (ASCVD) Risk Assessment, primary prevention
 - ASCVD event defined as nonfatal myocardial infarction (MI) or coronary heart disease (CHD), death, fatal or nonfatal stroke
 - Assess adults 20-79 years of age at least once every 4-6 years
 - Age 20-39, assess risk factors

- Age, sex, total and HDL-cholesterol, systolic blood pressure, use of antihypertensive therapy, diabetes, current smoking
 - Age 40-79, use Pooled Cohort Equations
- Pooled cohort equations available at:
 - <http://my.americanheart.org/cvriskcalculator>
 - <http://www.cardiosource.org/science-and-quality/practice-guidelines-and-quality-standards/2013-prevention-guideline-tools.aspx>
- If risk-based treatment decisions remain unclear, consider family history, high-sensitivity C-reactive protein (hs-CRP), coronary artery calcium score, or ankle-brachial index (ABI)

Dr. Hall provided a brief overview of the 2013 ACC/AHA Guidelines on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risker in Adults (http://circ.ahajournals.org/content/129/25_suppl_2/S1). The following is a summary of this overview:

- Recommendations based on randomized control trials (RCT), identified four groups that would benefit from statin therapy to reduce ASCVD events
 - Secondary prevention in individuals with clinical ASCVD
 - Acute coronary syndromes
 - History of MI, stable or unstable angina, coronary or other arterial revascularization, stroke, transient ischemic attack (TIA), atherosclerotic peripheral arterial disease
 - Treatment
 - ≤ 75 years - use high intensity statin
 - > 75 years - use moderate intensity statin
 - Primary prevention in individuals with primary elevations of LDL-C ≥ 190 mg/dL
 - Treatment
 - Use high intensity statin
 - Primary prevention in individuals with diabetes 40 to 75 years of age who have LDL-C 70 to 189 mg/dL
 - Treatment
 - Estimated 10-year risk of ASCVD at least 7.5% - use high intensity statin
 - Estimated 10-year risk < 7.5% - use moderate intensity statin
 - Primary prevention in individuals without diabetes and with estimated 10 year ASCVD ≥ 7.5%, 40 to 75 years of age who have LDL-C 70 to 189 mg/dL
 - Treatment
 - Use moderate to high intensity statin

The following shows the statin potency comparison between agents:

| Atorva- statin (mg) | Fluva- statin (mg) | Pitava- statin (mg) | Lova- statin (mg) | Prava- statin (mg) | Rosuva- statin (mg) | Ezetimibe – simva- statin (mg) | Simva- statin (mg) | % ↓ LDL-C |
|---------------------------|--------------------------|---------------------------|-------------------------|--------------------------|---------------------------|---|--------------------------|--------------|
| | <i>40</i> | <i>1</i> | <i>20</i> | <i>20</i> | | | <i>10</i> | 30 |
| 10 | 80 | 2 | 40 | 40 | | | 20 | 38 |
| 20 | | 4 | 80 | 80 | 5 | 10/10 | 40 | 41 |
| 40 | | | | | 10 | 10/20 | | 47 |
| 80 | | | | | 20 | 10/40 | | 55 |
| | | | | | 40 | | | 63 |

Italic denotes low-intensity statin

Gray shade denotes moderate-intensity statin—lowers LDL-C by 30% - < 50%

Bold denotes high-intensity statin—lowers LDL-C by ≥ 50%

The following should be used for monitoring statin therapy:

- Check ALT at baseline. Repeat only if symptoms of hepatotoxicity occur
- Document pre-existing muscle symptoms before starting a statin (to establish a baseline)
- Consider checking creatine kinase at baseline in patients at increased risk for myopathy. Repeat only if symptomatic.
 - If severe muscle symptoms or fatigue of unknown cause develop, hold the statin and check creatinine and urinalysis to rule out rhabdomyolysis
- Check fasting lipid panel four to twelve weeks after starting statin, then every three to twelve months
- Consider statin dose reduction if two consecutive LDL measurements are < 40 mg/dL
- Monitor for new-onset diabetes per diabetes screening guidelines
- For individuals presenting with confusional state/memory impairment: evaluate for non-statin causes (exposure to other drugs/systemic and neuropsychiatric causes), in addition to possibility of adverse effects associated with statin therapy

Dr. Hall provided an overview of the Eighth Joint National Committee (JNC 8) hypertension guidelines (<http://jama.jamanetwork.com/article.aspx?articleid=1791497>). The following is a summary of the overview:

Who should receive Pharmacotherapy?

- Patients < 60 years: Start pharmacotherapy at 140/90 mmHg.
- Patients with diabetes: Start pharmacotherapy at 140/90 mmHg.
- Patients with chronic kidney disease: Start pharmacotherapy at 140/90 mmHg.
- Patients ≥ 60 years: Start pharmacotherapy at 150/90 mmHg.

Blood Pressure Goal

- Patients < 60 years: < 140/90 mmHg.
- Patients with diabetes: < 140/90 mmHg.
- Patients with chronic kidney disease: < 140/90 mmHg.
- Patients ≥ 60 years: < 150/90 mmHg.

Pharmacotherapy Recommendation

- Nonblack, including those with diabetes: thiazide, calcium channel blocker (CCB), angiotensin-converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB)
- African American, including those with diabetes: thiazide or CCB
- Chronic Kidney Disease: regimen should include an ACEI or ARB (including African Americans)
- Can initiate with two agents, especially if systolic > 20 mmHg above goal or diastolic > 10 mmHg above goal
- If goal not reached:
 - Stress adherence to medication and lifestyle
 - Increase dose or add a second or third agent from one of the recommended classes
 - Choose a drug outside of the classes recommended above only if these options have been exhausted. Consider specialist referral

FDA Drug Safety Communications

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

The FDA recently completed a new study in Medicare patients comparing dabigatran (Pradaxa®) to warfarin, for risk of ischemic or clot-related stroke, bleeding in the brain, major gastrointestinal (GI) bleeding, myocardial infarction (MI), and death. The new study included information from more than 134,000 Medicare patients, 65 years or older, and found that among new users of blood-thinning drugs, dabigatran was associated with a lower risk of clot-related strokes, bleeding in the brain, and death, than warfarin. The study also found an increased risk of major gastrointestinal bleeding with use of dabigatran as compared to warfarin. The MI risk was similar for the two drugs. Importantly, the new study is based on

a much larger and older patient population than those used in FDA's earlier review of post-market data, and employed a more sophisticated analytical method to capture and analyze the events of concern. This study's findings, except with regard to MI, are consistent with the clinical trial results that provided the basis for dabigatran approval. As a result of these latest findings, the FDA still considers dabigatran to have a favorable benefit to risk profile and have made no changes to the current label or recommendations for use.

The FDA has completed its safety review and has found no clear evidence of increased cardiovascular risks associated with use of the blood pressure medication olmesartan (Benicar®) in diabetic patients. The FDA believes the benefits of olmesartan in patients with high blood pressure continue to outweigh the potential risks. This FDA safety review was prompted by the results of the ROADMAP trial. The ROADMAP (Randomized Olmesartan and Diabetes Microalbuminuria Prevention) clinical trial examined the effects of olmesartan in patients with type 2 diabetes, to see whether olmesartan could delay kidney damage. There was an unexpected finding of increased risk of cardiovascular death in the olmesartan group compared to the group taking a placebo, or sugar pill. However, the risk of non-fatal heart attack was lower in the olmesartan-treated patients. To evaluate these findings, FDA reviewed additional studies, including a large study in Medicare patients.

The FDA has notified health professionals and their medical care organizations of a new warning that the insomnia drug eszopiclone (Lunesta®) can cause next-day impairment of driving and other activities that require alertness. The FDA recommends a decreased starting dose of eszopiclone to 1 mg at bedtime. Women and men are equally susceptible to impairment from eszopiclone, so the recommended starting dose of 1 mg is the same for both. The FDA approved changes to the eszopiclone prescribing information and the patient Medication Guide to include these new recommendations. The drug labels for generic eszopiclone products will also be updated to include these changes. A study of eszopiclone found that the previously recommended dose of 3 mg can cause impairment to driving skills, memory, and coordination that can last more than 11 hours after receiving an evening dose. Despite these driving and other problems, patients were often unaware they were impaired. The new lower recommended starting dose of 1 mg at bedtime will result in less drug in the blood the next day.

Quarterly Non-Formulary Drug Justification Report

For the third quarter of fiscal year 2014, all facilities reported use of non-formulary agents. The DADS facilities submitted 836 non-formulary requests and the DSHS facilities had 481 requests. The following were the top non-formulary agents that were prescribed:

- Saliva substitute/dry mouth solution
- Fiber-Stat
- Magnesium Oxide tablet
- Lansoprazole (Prevacid®) Solutab
- Levalbuterol (Xopenex®) solution

The new drug application for saliva substitute products was approved earlier in the meeting.

Sectional Review for Next Meeting

The following sections will be reviewed at the next meeting:

- Analgesics/Antipyretics Agents
- Anticonvulsant Agents
- Sedative and hypnotic Agents

Other Issues

The following information was shared with the Committee members:

HealthDay reports that according to a study recently published online in the Journal of Child and Adolescent Psychopharmacology, antipsychotic medications “are increasingly being prescribed to treat attention-deficit/hyperactivity disorder (AD/HD) in children and teens in foster care,” even though the use of such medications “has not been approved by the US Food and Drug Administration, and is known as an ‘atypical’ use, the researchers explained.” After analyzing data on some 260,000 youngsters who were enrolled in a particular state’s Medicaid program during the year 2006, investigators found that “antipsychotics were used to treat nearly one-third of foster care youth aged two to 17 who had been diagnosed with AD/HD.”

The Los Angeles Times “Science Now” blog reports that according to a study published online April 16 in JAMA Dermatology, “free samples of prescription drugs may seem like a great deal for patients.” However, even when physicians “think they’re doing patients a favor by handing out the freebies, the real beneficiaries are the drug manufacturers.” Using survey data derived from the National Disease and Therapeutic Index, investigators found that “dermatologists were especially likely to give free samples to their adult acne patients – 25% of their prescriptions came with a free sample in 2010, up from 10% in 2001.”

In the New York Times “Well” blog, psychiatrist Doris Iarovici, MD, of Duke University, writes that “a growing number of young adults are taking psychiatric medicines for longer and longer periods, at the very age when they are also consolidating their identities, making plans for the future and navigating adult relationships.” Dr. Iarovici points out that psychiatric medications, particularly antidepressants, have their place and some young adults probably do need treatment over the long term. Still, “we walk a thinning line between diagnosing illness and teaching our youth to view any emotional upset as pathological,” she asserts. Dr. Iarovici calls for “a greater focus on building resilience in emerging adults” and more research on benefits and risks of long-term antidepressant use in young adults.

Reuters reports that according to a study published online April 14 in JAMA Internal Medicine, elderly people appear to be capable of quitting certain medications after understanding the possible consequences. These medications include benzodiazepines for the treatment of insomnia or anxiety. After providing patients with booklets detailing the potential risks of such treatments, researchers found that 62% of these patients stopped taking the benzodiazepines, while only 5% of a comparison group did the same.

The NBC News website reports that a survey conducted by researchers at the National Center for Health Statistics has found that “7.5 percent of children aged 6–17 are taking some sort of prescription medicine for emotional or behavioral difficulties,” supporting evidence that an increasing number of “US kids are getting drugs for conditions like attention-deficit/hyperactivity disorder (AD/HD).” For the survey, researchers interviewed the parents of 17,000 youngsters during the years 2011 and 2012. Figures from the American Psychiatric Association indicate that “five percent of US children have AD/HD.”

The Bloomberg News reported the FDA plans to conduct an extensive study of blood-pressure medicines after getting “thousands of complaints from doctors and patients.” The piece noted generics of AstraZeneca Plc’s extended release Toprol® XL (metoprolol succinate) “make up about 90 percent of physicians’ orders for the drug.” The generic copies are made by Wockhardt Ltd. and Dr. Reddy’s Laboratories Ltd., “both of which are based in India, and Mylan Inc. and Actavis Plc (ACT) in the U.S.” The article noted the complaints cite “both a lack of effectiveness and troublesome side effects, according to a review of 3,425

adverse incident reports by Bloomberg News.”

MedPage Today reports that according to research presented at the American Psychiatric Association’s annual meeting, “patients with borderline personality disorder showed significant improvements when treated with long-acting antipsychotic agent quetiapine fumarate (Seroquel ®XR).” The study involving 95 patients randomized to either placebo or quetiapine revealed that “scores on the Zanarini Rating Scale for borderline personality disorder declined significantly more in the eight-week trial among those taking 150 mg/day of extended release quetiapine than did those in the placebo group.”

The Los Angeles Times reports that “among the study’s 82,647 subjects - all of them prescribed an antipsychotic or mood-stabilizing drug at some point between 2006 and 2009 - routinely taking an antipsychotic drug was linked to a 29% reduced probability of being convicted of a drug-related charge, a 22% decline in convictions for any crime, and a 26% reduction in the likelihood of arrest on suspicion of having committed a violent crime.”

MedPage Today reports that according to research presented at the American Psychiatric Association’s annual meeting, patients with schizophrenia “who had recently been released from jail were less likely to be re-arrested or otherwise fail treatment when they took a depot antipsychotic compared with daily oral medication in a randomized trial.” The study, which was funded by Janssen, a pharmaceutical maker, found that “among 444 patients participating in the study, those assigned to paliperidone palmitate (Invega® Sustenna™) had a median time to treatment failure – defined as arrest or incarceration, psychiatric hospitalization, discontinuation of treatment, supplementation with another antipsychotic, or needing extra services to prevent imminent psychiatric hospitalization – of 416 days (95% CI 285 to no upper bound), compared with 226 days (95% CI 147-304, P=0.011) for patients taking any of seven first- or second-generation oral antipsychotics chosen at the treating clinician’s discretion.”

The Washington Post “To Your Health” blog reported that according to a study published in the current issue of the Journal of Psychiatric Research, injections of onabotulinumtoxinA may benefit patients with depression. The small study revealed that that “17 of 33 patients experienced better than 50 percent reductions in their depression symptoms after a single injection, and 27 percent of the group saw their depression go into remission.” This study now “confirms a similar one reported in 2012 by German researchers Tillmann Kroger and Axel Wollmer, who spoke of their findings at a meeting of the American Psychiatric Association in New York.”

MedPage Today reports that at the American Psychiatric Association’s annual meeting, “adverse zolpidem (Ambien®) reactions and a presentation of two forensic cases, in which concomitant zolpidem and paroxetine use was associated with the violent killing of a spouse while reportedly being totally or partially amnesiac,” were discussed by “a forensic psychiatrist and two psychiatrists involved in two of these cases.” According to MedPage Today, “Forensic psychiatrists have found it challenging to unravel the role of zolpidem in several brutal murders committed against loved ones – and then to persuade attorneys, judges, and juries to take their conclusions seriously.” Such “cases may be the most extreme examples of an already known side effect of zolpidem – that, even at recommended doses, people using the drug may get out of bed and do things while still effectively asleep, and don’t remember it the next day.”

In a more than 1,400-word piece, Bloomberg Business Week reported the prices of medicines have been surging over the past several years, noting that since October 2007 “the cost of brand-name medicines has soared, with prices doubling for dozens of established drugs that target everything from multiple sclerosis to cancer, blood pressure, and even erectile dysfunction,” citing an analysis conducted for Bloomberg. The piece examined the reasons behind the soaring prices, noting that one of them is “desperation” as

companies boost the prices on products “that remain under patent to offset sales declines from blockbusters that have lost such protection.” There are also fears the recent “consolidation” in the pharmaceutical sector could help boost the rising prices trend.

The Los Angeles Times reports in “Science Now” that according to research published May 14 in the journal *Science Translational Medicine*, the selective serotonin reuptake inhibitor (SSRI) antidepressant Celexa® (citalopram) appears to drive “down the production of a protein called beta-amyloid, which in the brains of those with Alzheimer’s clumps together in sticky plaques and is thought to short-circuit the brain’s wiring.” Working with transgenic mice bred to get Alzheimer’s and with a small group of “healthy human volunteers,” researchers found that citalopram reduced “the concentration of beta-amyloid in the cerebrospinal fluid (outside of the brain) by 38%.”

Medscape reports that according to the results of a 137-patient study presented recently at the American Psychiatric Association’s annual meeting, “a simple, easy-to-use, free program appears to stop antipsychotic-related weight gain and delivers durable weight loss in patients with schizophrenia.” The “randomized controlled trial showed that the Simplified Intervention to Modify Physical activity, Lifestyle, and Eating behavior (SIMPLE) program resulted in clinically significant weight loss of 5% or more with no post-intervention weight gain out to six months, compared with usual care.” The study received funding from the National Institute of Mental Health.

USA Today reports that according to a study published online June 18 in the *BMJ*, boxed “warnings that antidepressant medications might prompt suicidal thinking in some young people may have backfired, resulting in more suicide attempts.” While the study is “not the first to show that antidepressant use by young people fell sharply after warnings from the Food and Drug Administration and subsequent media coverage in 2003-04,” it appears to be “the first to link the change to an increase in suicide attempts among teens and young adults, researchers say.”

On its website, Time reports that investigators analyzed data on “949,504 pregnant women, 64,389 of whom used antidepressants during the first trimester.” The researchers found that “the rate of heart defects in newborns was similar between the groups.” The article points out that “concerns about the risks of the drugs, primarily selective serotonin reuptake inhibitors (SSRIs), on the developing fetus prompted the Food and Drug Administration in 2005 to add warnings about the risk of heart defects in babies born to moms taking antidepressants.”

Medscape reports that according to research presented at the American Society of Clinical Psychopharmacology’s annual meeting, “patients with schizophrenia who were switched from their oral antipsychotics to once-monthly aripiprazole (Abilify® Maintena™, Otsuka/Lundbeck), a long-acting injectable antipsychotic, saw a significant drop in their rates of psychiatric hospitalizations compared with their experience with the oral medications they had been taking.” The 336-patient study revealed that “total psychiatric hospitalization rates were 27.1% when patients received oral antipsychotics and 2.7% when the same patients received aripiprazole injections.”

Medwire reports that according to the results of a 2,758-patient study published online June 17 in the *American Journal of Psychiatry*, “antidepressants may cause problems in patients with bipolar disorder [BD] only when they are used in isolation.” After studying data on patients with BD who began antidepressant treatment following 12 months of no antidepressant therapy at all, researchers found that “patients taking an antidepressant as monotherapy were 2.83 times more likely to develop mania during the

first three months of treatment than they were in the equivalent three months of the preceding year in which they were not taking an antidepressant.”

MedPage Today reports that research published in the Journal of Child and Adolescent Psychopharmacology indicated that “Danish children taking stimulant drugs for attention deficit-hyperactivity disorder (ADHD) had roughly double the risk for cardiovascular problems compared with other ADHD” children, “although the absolute incidence was still very low.” Investigators came to this conclusion after looking at data on about “714,000 Danish children born from 1990 to 1999.” The investigators “indicated that these results were not altogether surprising, as other studies in smaller samples had also linked stimulant use with cardiovascular abnormalities.”

Medwire News reports that a study in Bipolar Disorders has found that “the attitudes of patients with bipolar disorder towards mood-stabilizing medications are influenced by their social support system.” Researcher Ching-Wen Chang of Case Western Reserve University, Cleveland, Ohio, and co-workers said, “Knowing the importance of the social environment to medication attitudes, clinicians have the opportunity to themselves become an influential factor in how their patients think about [bipolar disorder] medication treatments.”

The AP reports that according to a study published July 9 in JAMA Psychiatry, adverse reactions to psychiatric medications result in some 90,000 emergency department “visits each year by US adults, with anti-anxiety medicines and sedatives among the most common culprits.” After analyzing “2009-2011 medical records from 63 hospitals that participate in a nationally representative government surveillance project,” researchers found that the majority of ED “visits were for troublesome side effects or accidental overdoses and almost 1 in 5 resulted in hospitalization.”

It was reported that the DEA is changing the scheduling classification of tramadol (Ultram®) to a Schedule IV drug on August 18th. On this date, both WORx and Avatar will need to be updated.

Dr. Richards reported a recent issue with haloperidol decanoate. An experienced unit nurse called the Pharmacy to check to see if the haloperidol decanoate solution should be colored. In checking the vials in the Pharmacy inventory, it was noted that the same lot number showed different shades of a pinkish orange color with some in that same lot number being clear. Different lot numbers from the same manufacturer were also clear. The Pharmacy removed all haloperidol decanoate vials from the units and ordered a different manufacturer. According to package insert, the haloperidol decanoate may have a clear, pale yellow to amber color. However, the nurse had never seen colored haloperidol decanoate in her long tenure of administering medication at SASH. The company was notified and they responded. The company reported that parenteral medications containing sesame oil often appear as amber color due to the color of the sesame oil and the color of the sesame oil could mask the color of the medication. The company noted that the sesame oil used in their manufacturing is highly refined and is initially clear. It was reported that all sesame oil will darken upon exposure to light and air and it is recommended that the oil be protected from light. In addition, the company reports that haloperidol decanoate is light sensitive and when exposed to light will develop a pinkish tint. The amount of light exposure and elapsed time from the date of manufacture will influence the color of the product which can range from clear, light amber to pinkish to yellow amber. The company states that the color changes do not affect potency. Despite the “light sensitivity” of this product, the company places haloperidol decanoate in clear vials. Since there was a varying degree of color amongst the same lot number in conjunction with recent manufacturing problems in general with parenteral products throughout the industry, the

Pharmacy pulled all drug from the units and returned all vials as there was a concern that the product was not stable. Pharmacy Directors at the State Supported Living Centers and State Hospitals were notified via email of this issue.

Dr. Hall noted that memantine (Namenda®) is being discontinued in August by the manufacturer as they will be focusing on the once daily memantine extended release capsule (Namenda® XR). It has been suggested that patients on memantine 10 mg twice a day be switched to the 28 mg extended release capsule. Currently, the memantine 10 mg twice a day is more expensive than the memantine extended release 28 mg daily. The patent for the immediate release memantine will expire in April 2015.

Next Meeting Date

The next meeting was scheduled for October 10, 2014.

Adjourn

There being no further business, the meeting was adjourned at 12:56 p.m.

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

Attachments

- Attachment A – New Drug Application
- Attachment B – Antiparkinson Agents Sectional Review
- Attachment C – Cardiovascular Agents Sectional Review

Minutes Prepared by:
Ann L. Richards, Pharm.D., BCPP

**Appendix 1: New Drug Application Form
DSHS\DADS**

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

NEW DRUG APPLICATION
(for inclusion in the *DSHS/DADS Drug Formulary*)

Date: 7-17-14

Name of practitioner submitting the application: Ann L. Richards, Pharm.D. (For EFC)

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)):

Executive Formulary Committee – based on non-formulary use

Information regarding new drug:

| | |
|-----------------------------------|---|
| Therapeutic Classification | Saliva substitutes |
| Generic Name | Various |
| Trade Name(s) | Various |
| Manufacturer(s) | Various |
| Dosage Form(s) | Various including mouthwash, toothpaste, spray, gel, etc. |

Explain the pharmacological action or use of this drug

Temporary moisturizing solution

Explain the advantages of this drug over those listed in the formulary:

Nothing on formulary.

State which drugs this new drug would replace or supplement:

Supplement

application is approved

Ann L. Richards, Pharm.D.
signature of chairman of facility pharmacy and therapeutics committee

OR

application is appropriate and complete

signature of clinical/medical director or designee

MEMORANDUM

To: Executive Formulary Committee

From: Catherine S. Hall, Pharm.D., BCPP

Through: Ann L. Richards, Pharm.D., BCPP

Subject: Class Review – Antiparkinson Agents

Date: July 18, 2014

Recommendation: Delete pergolide (Permax)

Antiparkinson Agents

| | |
|------------------------------|---------------------|
| Amantadine (Symmetrel) | \$\$ |
| Benztropine (Cogentin) | \$ - \$\$\$\$ |
| Bromocriptine (Parlodel) | \$\$ - \$\$\$\$\$\$ |
| Entacapone (Comtan) | \$\$ - C |
| Carbidopa/Levodopa (Sinemet) | \$\$ - \$\$\$\$ |
| Pergolide (Permax) | \$\$ - \$\$\$ |
| Pramipexole (Mirapex) | \$\$ - \$\$\$ |
| Rasagiline (Azilect) | \$\$\$\$\$ |
| Trihexyphenidyl (Artane) | \$ - \$\$ |

Amantadine (Symmetrel)

Capsule: 100 mg
Syrup: 50 mg/5 mL

Benztropine (Cogentin)

Injection: 1 mg/mL
Tablet: 0.5 mg, 1 mg, 2 mg

Bromocriptine (Parlodel)

Capsule: 5 mg

Tablet: 2.5 mg

Entacapone (Comtan)

Tablet: 200 mg

Carbidopa/Levodopa (Sinemet)

Tablet: Carbidopa 10 mg/Levodopa 100 mg

Carbidopa 25 mg/Levodopa 100mg

Carbidopa 25 mg/Levodopa 250 mg

Tablet, Sustained release: Carbidopa 25 mg/Levodopa 100 mg

Carbidopa 50 mg/Levodopa 200 mg

Pramipexole (Mirapex)

Tablet: 0.125 mg, 0.25 mg, 0.5 mg, 1 mg, 1.5 mg

Rasagiline (Azilect)

Tablet: 0.5 mg, 1 mg

Trihexyphenidyl (Artane)

Elixir: 2 mg/5 mL

Tablet: 2 mg, 5 mg

MEMORANDUM

To: Executive Formulary Committee

From: Catherine S. Hall, Pharm.D., BCPP, BCACP

Through: Ann L. Richards, Pharm.D., BCPP

Subject: Class Review – Cardiovascular Agents

Date: July 18, 2014

Recommendation: Delete adenosine, procainamide, dopamine, norepinephrine/levarterenol, prazosin (Minipress)

Cardiovascular Agents*Diuretics*

Thiazides & Related Diuretics

| | |
|--|----|
| Chlorthalidone (Hygroton) | \$ |
| Hydrochlorothiazide (HydroDIURIL, Esidrix) | \$ |

Loop Diuretics

| | |
|--------------------|----|
| Furosemide (Lasix) | \$ |
|--------------------|----|

Potassium-Sparing Diuretics

| | |
|----------------------------|---------|
| Spironolactone (Aldactone) | \$ |
| Triamterene (Dyrenium) | \$ - \$ |

Carbonic Anhydrase Inhibitors

| | |
|------------------------|----|
| acetaZOLAMIDE (Diamox) | \$ |
|------------------------|----|

Combination Diuretics

| | |
|--|-----------|
| Spironolactone/Hydrochlorothiazide (Aldactazide) | \$ - \$\$ |
| Triamterene/Hydrochlorothiazide (Dyazide, Maxzide) | \$ - \$ |

Cardiac Glycosides

| | |
|-------------------|----|
| Digoxin (Lanoxin) | \$ |
|-------------------|----|

Antianginals

| | |
|---|---------|
| Isosorbide Dinitrate (Isordil, Sorbitrate) | \$ |
| Isosorbide Mononitrate (Imdur, ISMO, Monoket) | \$ |
| Nitroglycerin | \$ - \$ |

Antiarrhythmics

| | |
|----------------------------------|----------------|
| Adenosine (Adenocard) | \$\$\$\$\$\$\$ |
| Amiodarone (Pacerone, Cordarone) | \$ - \$ |
| Procainamide (Pronestyl) | \$ - \$ |

Calcium Channel Blockers

| | |
|----------------------------|-------------|
| Amlodipine (Norvasc) | \$\$ |
| Diltiazem (Cardizem) | \$ - \$\$ |
| Felodipine (Plendil) | \$ - \$\$ |
| NIFEdipine (Procardia) | \$ - \$\$\$ |
| Verapamil (Calan, Isoptin) | \$ - \$\$ |

Beta-Adrenergic Blockers

| | |
|-----------------------------------|-------------|
| Atenolol (Tenormin) | \$ |
| Carvedilol (Coreg) | \$-\$\$ |
| Labetalol (Normodyne) | \$ - \$\$ |
| Metoprolol (Lopressor, Toprol XL) | \$ - \$\$ |
| Propranolol (Inderal) | \$ - \$\$\$ |

Antihyperlipidemics

| | |
|---|-------------|
| Atorvastatin (Lipitor) | \$-\$\$\$\$ |
| Cholestyramine (Questran) | \$ - \$\$\$ |
| Fenofibrate (Antara, Lofibra, Tricor, Triglide) | \$-\$\$\$\$ |
| Fluvastatin (Lescol) | \$\$ |
| Gemfibrozil (Lopid) | \$ |
| Niacin/Nicotinamide (Nicobid) | \$ - \$ |
| Pravastatin (Pravachol) | \$\$ |
| Simvastatin (Zocor) | |

Angiotensin Converting Enzyme Inhibitors

| | |
|--------------------------------|----|
| Benazepril (Lotensin) | \$ |
| Captopril (Capoten) | \$ |
| Enalapril (Vasotec) | \$ |
| Lisinopril (Prinivil, Zestril) | \$ |

Vasopressors

| | |
|---|-----------------------|
| DOPamine (Intropin) | \$\$\$ - \$\$\$\$ |
| EPINEPHrine (Adrenalin) | \$ - \$\$\$\$\$\$ |
| Norepinephrine or Levarterenol (Levophed) | \$\$\$ - \$\$\$\$\$\$ |

Miscellaneous Antihypertensives

| | |
|--|-------------------|
| cloNIDine (Catapres) | \$ - \$\$\$\$\$\$ |
| hydrALAZINE (Apresoline) | \$ |
| Methyldopa (Aldomet) | \$ - \$\$\$\$\$\$ |
| Olmesartan (Benicar RESERVE USE) | \$\$ |
| Prazosin (Minipress) | \$ - \$\$ |
| Valsartan (Diovan) RESERVE USE | \$\$ |

Miscellaneous Cardiovasculars

| | |
|---|-----------------|
| Sodium Polystyrene Sulfonate (Kayexalate) | \$\$ - \$\$\$\$ |
|---|-----------------|

Chlorthalidone (Hygroton)

Tablet: 15 mg, 25 mg, 50 mg, 100 mg

Hydrochlorothiazide (HydroDIURIL, Esidrix)

Capsule: 12.5 mg

Solution, oral: 50 mg/5 mL

Tablet: 12.5 mg, 25 mg, 50 mg, 100 mg

Furosemide (Lasix)

Injection: 10 mg/mL

Solution, oral: 10 mg/mL, 40 mg/5 mL

Tablet: 20 mg, 40 mg, 80 mg

Spirolactone (Aldactone)

Tablet: 25 mg, 50 mg, 100 mg

Triamterene (Dyrenium)

Capsule: 50 mg, 100 mg

acetaZOLAMIDE (Diamox)

Capsule, sustained release: 500 mg

Tablet: 125 mg, 250 mg

Spirolactone/Hydrochlorothiazide (Aldactazide)

Tablet: Spironolactone 25 mg/Hydrochlorothiazide 25 mg, Spironolactone 50 mg/
Hydrochlorothiazide 50 mg

Triamterene/Hydrochlorothiazide (Dyazide, Maxzide)

Capsule (Dyazide): 37.5 mg Triamterene/25 mg Hydrochlorothiazide. 50 mg Triamterene/25
mg Hydrochlorothiazide

Tablet (Maxzide): 37.5 mg Triamterene/25 mg Hydrochlorothiazide, 75 mg Triamterene/50
mg Hydrochlorothiazide

Digoxin (Lanoxin)

Capsule: 50 mcg, 100 mcg, 200 mcg

Elixir: 50 mcg/mL with 10% alcohol

Injection: 100 mcg/mL, 250 mcg/mL

Tablet: 125 mcg, 250 mcg, 500 mcg

Isosorbide Dinitrate (Isordil, Sorbitrate)

Capsule, sustained release: 40 mg

Tablet, chewable: 5 mg, 10 mg

Tablet, oral: 5 mg, 10 mg, 20 mg, 30 mg, 40 mg

Tablet, sublingual: 2.5 mg, 5 mg, 10 mg

Tablet, sustained release: 40 mg

Isosorbide Mononitrate (Imdur, ISMO, Monoket)

Tablet: 10 mg, 20 mg

Tablet, extended release: 30 mg, 60 mg, 120 mg

Nitroglycerin

Capsule, sustained release: 2.5 mg, 6.5 mg, 9 mg, 13 mg
Ointment, topical 2%: 30 gm, 60 gm
Patch, transdermal, topical: systems designed to deliver 2.5 mg, 5 mg, 7.5 mg, 10 mg, or 15 mg over 24 hours
Spray, translingual: 0.4 mg/metered spray
Tablet, buccal, controlled release: 2 mg, 3 mg
Tablet, sublingual: 0.3 mg, 0.4 mg, 0.6 mg
Tablet, sustained release: 2.6 mg, 6.5 mg, 9 mg

Adenosine (Adenocard)

Injection: 3 mg/mL

Amiodarone (Pacerone, Cordarone)

Tablet: 100 mg, 200 mg, 400 mg

Procainamide (Pronestyl)

Capsule: 250 mg, 375 mg, 500 mg
Tablet: 250 mg, 375 mg, 500 mg
Tablet, sustained release: 250 mg, 500 mg, 750 mg, 1000 mg

Amlodipine (Norvasc)

Tablet, extended release: 2.5 mg, 5 mg, 10 mg

Diltiazem (Cardizem)

Capsule, sustained release:
Cardizem CD: 120 mg, 180 mg, 240 mg, 300 mg
Cardizem SR: 60 mg, 90 mg, 120 mg
Dilacor XR: 180 mg, 240 mg
Tiazac: 120 mg, 180 mg, 240 mg, 300 mg, 360 mg
Tablet: 30 mg, 60 mg, 90 mg, 120 mg
Tablet, sustained release: 120 mg, 180 mg, 240 mg

Felodipine (Plendil)

Tablet, extended release: 2.5 mg, 5 mg, 10 mg

Nifedipine (Procardia)

Capsule, liquid-filled: 10 mg, 20 mg
Tablet, sustained release: 30 mg, 60 mg, 90 mg

Verapamil (Calan, Isoptin)

Capsule, sustained release: 100mg, 120 mg, 180 mg, 240 mg, 360 mg

Injection: 2.5 mg/mL

Tablet: 40 mg, 80 mg, 120 mg

Tablet, sustained release: 120 mg, 180 mg, 240 mg

Atenolol (Tenormin)

Tablet: 25 mg, 50 mg, 100 mg

Carvedilol (Coreg)

Tablet: 3.125 mg, 6.25 mg, 12.5 mg, 25 mg

Labetalol (Normodyne)

Tablet: 100 mg, 200 mg, 300 mg

Metoprolol (Lopressor, Toprol XL)

Tablet: 25 mg, 50 mg, 100 mg

Tablet, extended release: 25 mg, 50 mg, 100 mg, 200 mg

Propranolol (Inderal)

Capsule, sustained release: 60 mg, 80 mg, 120 mg, 160 mg

Injection: 1 mg/mL

Solution, oral: 4 mg/mL, 8 mg/mL, 80 mg/mL

Tablet: 10 mg, 20 mg, 40 mg, 60 mg, 80 mg

Atorvastatin (Lipitor)

Tablet: 10 mg, 20 mg, 40 mg, 80 mg

Cholestyramine (Questran)

Powder, oral: 4 gm resin/9 gm powder

Powder for oral suspension (with aspartame): 4 gm resin/5 gm powder

Powder for oral suspension (with phenylalanine): 4 gm resin/5.5 gm powder

Tablet: 1 gm

Fenofibrate (Antara, Lofibra, Tricor, Triglide)

Capsule: 50 mg, 150 mg, 160 mg

Capsule, micronized: 43 mg, 67 mg, 130 mg, 134 mg, 200 mg

Tablet: 40 mg, 54 mg, 120 mg, 160 mg

Tablet, nanocrystallized: 48 mg, 50 mg, 145 mg, 160 mg

Fluvastatin (Lescol)

Capsule: 20 mg, 40 mg

Gemfibrozil (Lopid)

Tablet, film coated: 600 mg

Niacin/Nicotinamide (Nicobid)

Capsule, extended release: 250 mg, 500 mg

Tablet: 50 mg, 100 mg, 250 mg, 500 mg

Tablet, extended release: 250 mg, 500 mg, 750 mg, 1000 mg

Pravastatin (Pravachol)

Tablet: 10 mg, 20 mg, 40 mg, 80 mg

Simvastatin (Zocor)

Tablet: 5 mg, 10 mg, 20 mg, 40 mg, 80 mg

Benazepril (Lotensin)

Tablet: 5 mg, 10 mg, 20 mg, 40 mg

Captopril (Capoten)

Tablet: 12.5 mg, 25 mg, 50 mg, 100 mg

Enalapril (Vasotec)

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

Lisinopril (Prinivil, Zestril)

Tablet: 2.5 mg, 5 mg, 10 mg, 20 mg, 30 mg, 40 mg

DOPamine (Intropin)

Infusion in D5W: 0.8 mg/mL, 1.6 mg/mL, 3.2 mg/mL
Injection: 40 mg/mL, 80 mg/mL, 160 mg/mL

EPINEPHrine (Adrenalin)

Auto-injector: 1:2000 [0.15 mg], 1:1000 [0.3 mg]
Injection: 1:100,000 [0.01 mg/mL], 1:10,000 [0.1 mg/mL], 1:1000 [1 mg/mL]

Norepinephrine or Levarterenol (Levophed)

Injection: 1 mg/mL

cloNIDine (Catapres)

Patch, transdermal: 1, 2, and 3 (0.1, 0.2, 0.3 mg/day, 7 day duration)
Tablet: 0.1 mg, 0.2 mg, 0.3 mg

hydrALAZINE (Apresoline)

Tablet: 10 mg, 25 mg, 50 mg, 100 mg

Methyldopa (Aldomet)

Injection: 50 mg/mL
Suspension, oral: 250 mg/5 mL
Tablet: 125 mg, 250 mg, 500 mgg

Olmesartan (Benicar - RESERVE USE)

Tablet: 5 mg, 20 mg, 40 mg

Prazosin (Minipress)

Capsule: 1 mg, 2 mg, 5 mg

Valsartan (Diovan) RESERVE USE

Tablet: 40 mg, 80 mg, 160 mg, 320 mg

Sodium Polystyrene Sulfonate (Kayexalate)

Powder for suspension: 454 gm
Suspension, oral: 1.25 gm/5 mL (with sorbitol and alcohol)