

Supplemental Material

Appendix 1

Therapeutic Classes and Drugs of Interest

Therapeutic Class	Drug
Adrenals & combinations	Betamethasone Ace/Betamethasone Na Phos_Suspension
	Cortisone Acetate_Tablet
	HC Ace/Pramoxine HCl;Pramoxine HCl_Kit
	Hydrocortisone_Tablet
	Triamcinolone Acetonide_Ointment
	Triamcinolone Acetonide_Spray
Amebicides	Paromomycin Sulfate Capsule
Androgens & combinations	Danazol_Capsule
	Methyltestosterone_Capsule
	Oxandrolone_Tablet
	Testosterone Cypionate_Oil
	Testosterone Enanthate_Oil
Anesthetics, local	Lidocaine Hydrochloride_Solution
Angiotensin receptor blockers & combinations	Candesartan
	Cilexetil/Hydrochlorothiazide_Tablet
	Candesartan Cilexetil_Tablet
	Eprosartan Mesylate_Tablet
	Hydrochlorothiazide/Irbesartan_Tablet
	Hydrochlorothiazide/Losartan Potassium_Tablet
	Hydrochlorothiazide/Valsartan_Tablet
Antiarrhythmic Agents	Irbesartan_Tablet
	Losartan Potassium_Tablet
	Amiodarone Hydrochloride_Tablet
	Disopyramide Phosphate Capsule
	Flecainide Acetate_Tablet
	Mexiletine Hydrochloride_Capsule
	Propafenone Hydrochloride_Capsule, Extended Release
	Propafenone Hydrochloride_Tablet
	Quinidine Gluconate_Tablet, Extended Release
	Quinidine Sulfate_Tablet
Anticonvulsants, hydantoins	Quinidine Sulfate_Tablet, Extended Release
	Fosphenytoin Sodium_Solution
	Phenytoin Sodium, Extended_Capsule, Extended Release
	Phenytoin_Suspension

	Phenytoin_Tablet, Chewable
Anticonvulsants, succinimides	Ethosuximide_Capsule, Liquid Filled
	Ethosuximide_Syrup
Anticonvulsants	Carbamazepine_Capsule, Extended Release
	Carbamazepine_Suspension
	Carbamazepine_Tablet
	Carbamazepine_Tablet, Chewable
	Divalproex Sodium_Capsule, Delayed Release
	Divalproex Sodium_Tablet, Extended Release
	Felbamate_Suspension
	Felbamate_Tablet
	Gabapentin_Capsule
	Gabapentin_Solution
	Lamotrigine_Tablet
	Lamotrigine_Tablet, Chewable
	Lamotrigine_Tablet, Extended Release
	Levetiracetam_Solution
	Levetiracetam_Tablet
	Levetiracetam_Tablet, Extended Release
	Magnesium Sulfate_Solution
	Oxcarbazepine_Suspension
	Oxcarbazepine_Tablet
	Primidone_Tablet
	Tiagabine Hydrochloride_Tablet
	Topiramate_Capsule
	Topiramate_Tablet
	Valproate Sodium_Solution
	Valproic Acid_Capsule, Liquid Filled
	Valproic Acid_Syrup
	Zonisamide_Capsule
Anticoagulants	Warfarin Sodium_Tablet
Antidepressants	Amitriptyline
	Hydrochloride/Chlordiazepoxide_Tablet
	Amitriptyline
	Hydrochloride/Perphenazine_Tablet
	Amitriptyline Hydrochloride_Tablet
	Amoxapine_Tablet
	Bupropion Hydrochloride_Tablet
	Bupropion Hydrochloride_Tablet, Extended Release
	Citalopram Hydrobromide_Solution
	Citalopram Hydrobromide_Tablet
	Clomipramine Hydrochloride_Capsule

	Desipramine Hydrochloride_Tablet
	Desvenlafaxine Succinate_Tablet, Extended Release
	Doxepin Hydrochloride_Capsule
	Doxepin Hydrochloride_Solution
	Duloxetine Hydrochloride_Capsule, Delayed Release
	Escitalopram Oxalate_Solution
	Escitalopram Oxalate_Tablet
	Fluoxetine Hydrochloride_Capsule
	Fluoxetine Hydrochloride_Capsule, Delayed Release
	Fluoxetine Hydrochloride_Solution
	Fluoxetine Hydrochloride Syrup
	Fluvoxamine Maleate_Capsule, Extended Release
	Fluvoxamine Maleate_Tablet
	Imipramine Hydrochloride_Tablet
	Imipramine Pamoate_Capsule
	Maprotiline Hydrochloride_Tablet
	Mirtazapine_Tablet
	Mirtazapine_Tablet, Disintegrating
	Nefazodone Hydrochloride_Tablet
	Nortriptyline Hydrochloride_Capsule
	Nortriptyline Hydrochloride_Solution
	Paroxetine Hydrochloride_Tablet
	Paroxetine Hydrochloride_Tablet, Extended Release
	Phenelzine Sulfate_Tablet
	Protriptyline Hydrochloride_Tablet
	Sertraline Hydrochloride_Solution
	Sertraline Hydrochloride_Tablet
	Tranylcypromine Sulfate_Tablet
	Trazodone Hydrochloride_Tablet
	Venlafaxine Hydrochloride_Capsule, Extended Release
	Venlafaxine Hydrochloride_Tablet
Antiemetics	Prochlorperazine Edisylate_Solution
	Prochlorperazine Maleate_Tablet
	Prochlorperazine Suppository
Antigout Agents	Allopurinol_Tablet
	Colchicine/Probenecid_Tablet
	Probenecid_Tablet
Antimanic Agents	Lithium Carbonate_Capsule
	Lithium Carbonate_Tablet
	Lithium Carbonate_Tablet, Extended Release

	Lithium_Solution
Antiplatelet Agents	Anagrelide_Hydrochloride_Capsule
	Cilostazol_Tablet
	Clopidogrel_Hydrogen_Sulfate_Tablet
	Dipyridamole_Tablet
	Ticlopidine_Hydrochloride_Tablet
Antipsychotics	Chlorpromazine_Hydrochloride_Solution
	Chlorpromazine_Hydrochloride_Tablet
	Clozapine_Tablet
	Clozapine_Tablet, Disintegrating
	Fluphenazine_Decanoate_Oil
	Fluphenazine_Hydrochloride_Tablet
	Haloperidol_Decanoate_Oil
	Haloperidol_Decanoate_Suspension
	Haloperidol_Lactate_Solution
	Haloperidol_Solution
	Haloperidol_Tablet
	Loxapine_Succinate_Capsule
	Olanzapine_Powder for Solution
	Olanzapine_Tablet
	Olanzapine_Tablet, Disintegrating
	Perphenazine_Tablet
	Quetiapine_Fumarate_Tablet
	Risperidone_Solution
	Risperidone_Tablet
	Risperidone_Tablet, Disintegrating
	Thioridazine_Hydrochloride_Tablet
	Thiothixene_Capsule
	Trifluoperazine_Hydrochloride_Tablet
	Ziprasidone_Hydrochloride_Capsule
Bladder Muscle Relaxants	Flavoxate_Hydrochloride_Tablet
	Oxybutynin_Chloride_Syrup
	Oxybutynin_Chloride_Tablet
	Oxybutynin_Chloride_Tablet, Extended Release
	Tolterodine_Tartrate_Tablet
	Trospium_Chloride_Capsule, Extended Release
	Trospium_Chloride_Tablet
Estrogens & combinations	Esterified
	Estrogens/Methyltestosterone_Tablet
	Estradiol_Valerate_Oil
	Estradiol/Norethindrone
	Acetate_Tablet
	Estradiol_Patch, Extended Release

	Estradiol_Tablet
	Estropipate_Tablet
	Ethinyl Estradiol/Norgestimate_Tablet
Immunosuppressants	Cyclosporine, Modified_Capsule, Liquid Filled
	Cyclosporine, Modified_Solution
	Cyclosporine_Capsule
	Cyclosporine_Solution
	Mycophenolate Mofetil_Capsule
	Mycophenolate Mofetil_Tablet
	Tacrolimus Capsule
Ocular preparations for pressure lowering	Apraclonidine Hydrochloride_Solution
	Betaxolol Hydrochloride_Solution
	Brimonidine Tartrate_Solution
	Carteolol Hydrochloride_Solution
	Dorzolamide Hydrochloride/Timolol Maleate_Solution
	Dorzolamide Hydrochloride_Solution
	Latanoprost_Solution
	Levobunolol Hydrochloride_Solution
	Metipranolol_Solution
	Timolol Maleate_Gel-Forming Solution
	Timolol Maleate_Solution
	Travoprost Solution
Parathyroid Hormones	Calcitonin (Salmon)_Spray
Stimulant, Amphetamine Type	Amphetamine Salt Combination_Capsule, Extended Release
	Amphetamine Salt Combination_Tablet
	Benzphetamine Hydrochloride_Tablet
	Dexmethylphenidate Hydrochloride_Tablet
	Dextroamphetamine Sulfate_Capsule, Extended Release
	Dextroamphetamine Sulfate_Solution
	Dextroamphetamine Sulfate_Tablet
	Diethylpropion Hydrochloride_Tablet
	Diethylpropion Hydrochloride_Tablet, Extended Release
	Methamphetamine Hydrochloride_Tablet
	Methylphenidate Hydrochloride_Capsule, Extended Release
	Methylphenidate Hydrochloride_Solution
	Methylphenidate Hydrochloride_Tablet
	Modafinil_Tablet
Sympathomimetic Agents	Albuterol Sulfate/Ipratropium Bromide_Solution
	Albuterol Sulfate_Solution

	Albuterol Sulfate_Syrup
	Albuterol Sulfate_Tablet
	Albuterol Sulfate_Tablet, Extended Release
	Levalbuterol Hydrochloride_Solution
	Metaproterenol Sulfate_Syrup
	Metaproterenol Sulfate_Tablet
	Terbutaline Sulfate_Tablet
Thyroid/Hormones	Levothyroxine Sodium_Powder for Solution
	Levothyroxine Sodium_Tablet
	Liothyronine Sodium_Tablet
Vascular 5HT1 Agonist	Naratriptan Hydrochloride_Tablet
	Rizatriptan Benzoate_Tablet
	Rizatriptan Benzoate_Tablet, Disintegrating
	Sumatriptan Succinate_Solution
	Sumatriptan Succinate_Tablet
	Sumatriptan_Spray
	Zolmitriptan_Tablet
	Zolmitriptan_Tablet, Disintegrating
Vasodilating Agents	Isosorbide Dinitrate_Tablet
	Isosorbide Dinitrate_Tablet, Extended Release
	Isosorbide Mononitrate_Tablet
	Isosorbide Mononitrate_Tablet, Extended Release
	Nitroglycerin_Capsule, Extended Release
	Nitroglycerin_Ointment
	Nitroglycerin_Patch, Extended Release
	Nitroglycerin_Spray

Appendix 2.

The following is a list of the state substitution and consent laws in 2011 and 2015. We used the laws as listed in 2011 as we did not know when in this four-year interval the laws changed for the eight states that had changes between 2011 and 2015. We collapsed the patient consent category to two levels for the models: no consent required versus any consent required (strict or relaxed).

State Substitution and Consent Laws around 2013*

State	2011 substitution	2015 substitution	2011 Patient consent	2015 Patient consent
Alabama	permissive	permissive	none	strict
Alaska	permissive	permissive	relaxed	relaxed
Arizona	permissive	permissive	relaxed	relaxed
Arkansas	permissive	permissive	relaxed	relaxed
California	permissive	permissive	relaxed	relaxed
Colorado	permissive	permissive	relaxed	relaxed
Connecticut	permissive	permissive	relaxed	relaxed
D.C.	permissive	permissive	none	none
Delaware	permissive	permissive	relaxed	relaxed
Florida	mandatory	mandatory	strict	strict
Georgia	permissive	permissive	none	none
Hawaii	mandatory	mandatory	strict	strict
Idaho	permissive	permissive	none	none
Illinois	permissive	permissive	none	relaxed
Indiana	permissive	permissive	none	none
Iowa	permissive	permissive	none	none
Kansas	permissive	permissive	relaxed	relaxed
Kentucky	mandatory	mandatory	none	none
Louisiana	permissive	permissive	none	none
Maine	permissive	permissive	relaxed	relaxed
Maryland	permissive	permissive	relaxed	relaxed
Massachusetts	mandatory	mandatory	none	none
Michigan	permissive	permissive	relaxed	relaxed
Minnesota	mandatory	permissive	relaxed	relaxed
Mississippi	permissive	permissive	relaxed	relaxed
Missouri	permissive	permissive	none	none

Montana	permissive	permissive	none	none
Nebraska	permissive	permissive	relaxed	relaxed
Nevada	mandatory	mandatory	strict	strict
New Hampshire	permissive	permissive	strict	strict
New Jersey	mandatory	mandatory	none	none
New Mexico	permissive	permissive	none	none
New York	mandatory	permissive	relaxed	relaxed
North Carol	permissive	permissive	none	none
North Dakota	permissive	permissive	strict	strict
Ohio	permissive	permissive	none	none
Oklahoma	no substit	no substit	none	none
Oregon	permissive	mandatory	relaxed	relaxed
Pennsylvania	mandatory	permissive	strict	strict
Puerto Rico	mandatory	mandatory	strict	strict
Rhode Island	mandatory	mandatory	relaxed	relaxed
South Carol	permissive	permissive	strict	strict
South Dakota	permissive	permissive	none	none
Tennessee	permissive	permissive	none	none
Texas	permissive	permissive	strict	strict
Utah	permissive	permissive	strict	strict
Vermont	permissive	permissive	none	none
Virginia	permissive	permissive	relaxed	relaxed
Washington	mandatory	mandatory	relaxed	relaxed
West Virgin	mandatory	permissive	relaxed	relaxed
Wisconsin	permissive	permissive	none	none
Wyoming	permissive	mandatory	none	none

*in bold are those that changed status between 2011 and 2015

Source: Survey of Pharmacy Law–2015. National Association of Boards of Pharmacy.(ed) 2014. Mount Prospect, IL

