

**Supplemental Table 1.** Conversion from NDF-RT Classification Codes to the modified drug groups used in this study

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[AD100]	Alcohol deterrents	1	Antidotes, deterrents and poison control
[AD300]	Heavy metal antagonists	1	Antidotes, deterrents and poison control
[AD400]	Antidotes, deterrents, and poison control exchange resins	1	Antidotes, deterrents and poison control
[AD900]	Antidotes/deterrents, other	1	Antidotes, deterrents and poison control
[AH100]	Antihistamines, phenothiazine	2	Antihistamines
[AH102]	Antihistamines, ethanolamine	2	Antihistamines
[AH104]	Antihistamines, alkylamine	2	Antihistamines
[AH105]	Antihistamines, piperazine	2	Antihistamines
[AH106]	Antihistamines, butyrophenone	2	Antihistamines
[AH107]	Antihistamines, piperidine	2	Antihistamines
[AH109]	Antihistamines, other	2	Antihistamines
[AM110]	Penicillin-G related penicillins	3	Penicillins and beta-lactam antimicrobials
[AM111]	Penicillins, amino derivatives	3	Penicillins and beta-lactam antimicrobials
[AM112]	Penicillinase-resistant penicillins	3	Penicillins and beta-lactam antimicrobials
[AM113]	Extended spectrum penicillins	3	Penicillins and beta-lactam antimicrobials
[AM115]	Cephalosporin 1st generation	3	Penicillins and beta-lactam antimicrobials
[AM116]	Cephalosporin 2nd generation	3	Penicillins and beta-lactam antimicrobials
[AM117]	Cephalosporin 3rd generation	3	Penicillins and beta-lactam antimicrobials
[AM118]	Cephalosporin 4th generation	3	Penicillins and beta-lactam antimicrobials
[AM119]	Beta-lactams antimicrobials, other	3	Penicillins and beta-lactam antimicrobials
[AM200]	Erythromycins/macrolides	4	Erythromycins/macrolides
[AM250]	Tetracyclines	5	Tetracyclines
[AM400]	Quinolones	6	Quinolones

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[AM500]	Antituberculars	7	Antituberculars
[AM650]	Sulfonamide/related antimicrobials	8	Sulfonamide and related antimicrobials
[AM700]	Antifungals	9	Antifungals
[AM800]	Antivirals	10	Antivirals
[AM150]	Chloramphenicol	11	Anti-infectives, other
[AM300]	Aminoglycosides	11	Anti-infectives, other
[AM350]	Lincomycins	11	Anti-infectives, other
[AM500]	Methenamine salts antimicrobials	11	Anti-infectives, other
[AM600]	Nitrofurans antimicrobials	11	Anti-infectives, other
[AM900]	Anti-infectives, other	11	Anti-infectives, other
[AP101]	Antimalarials	12	Anti-parasitics
[AP109]	Antiprotozoals, other	12	Anti-parasitics
[AP200]	Anthelmintics	12	Anti-parasitics
[AP300]	Pediculicides	12	Anti-parasitics
[AP900]	Anti-parasitics, other	12	Anti-parasitics
[AU100]	Sympathomimetics (adrenergics)	13	Autonomic medications
[AU200]	Sympatholytics	13	Autonomic medications
[AU300]	Parasympathomimetics (cholinergics)	13	Autonomic medications
[AU350]	Parasympatholytics	13	Autonomic medications
[AU900]	Autonomic agents, other	13	Autonomic medications
[BL110]	Anticoagulants	14	Anticoagulants/antihemorrhagics/platelet aggregation inhibitors
[BL115]	Thrombolytics	14	Anticoagulants/antihemorrhagics/platelet aggregation inhibitors
[BL116]	Antihemorrhagics	14	Anticoagulants/antihemorrhagics/platelet aggregation inhibitors
[BL117]	Platelet aggregation inhibitors	14	Anticoagulants/antihemorrhagics/platelet aggregation inhibitors

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[BL400]	Blood formation products	15	Blood products/modifiers, other
[BL500]	Blood derivatives	15	Blood products/modifiers, other
[CN101]	Opioid analgesics	16	Opioid analgesics
[CN103]	Non-opioid analgesics	17	Non-opioid analgesics
[CN105]	Anti-migraine agents	18	Anti-migraine agents
[CN300]	Sedatives/hypnotics	19	Sedatives/hypnotics
[CN301]	Barbituric acid derivative sedatives/hypnotics	19	Sedatives/hypnotics
[CN302]	Benzodiazepine derivative sedatives/hypnotics	19	Sedatives/hypnotics
[CN309]	Sedatives/hypnotics, other	19	Sedatives/hypnotics
[CN400]	Anticonvulsants	20	Anticonvulsants
[CN601]	Tricyclic antidepressants	21	Antidepressants
[CN602]	Monamine oxidase inhibitor antidepressants	21	Antidepressants
[CN609]	Antidepressants, other	21	Antidepressants
[CN701]	Phenothiazine/related antipsychotics	22	Antipsychotics
[CN709]	Antipsychotics, other	22	Antipsychotics
[CN750]	Lithium salts	22	Antipsychotics
[CN801]	Amphetamines	23	Central nervous system stimulants
[CN802]	Amphetamine like stimulants	23	Central nervous system stimulants
[CN809]	CNS stimulants, other	23	Central nervous system stimulants
[CN102]	Opioid antagonist analgesics	24	Central nervous system agents, other
[CN203]	General anesthetics, other	24	Central nervous system agents, other
[CN204]	Local anesthetics, injection	24	Central nervous system agents, other
[CN500]	Anti-Parkinson agents	24	Central nervous system agents, other
[CN550]	Anti-vertigo agents	24	Central nervous system agents, other

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[CN900]	CNS medications, other	24	Central nervous system agents, other
[CV100]	Beta-blockers/related	25	Beta-blockers and related medications
[CV150]	Alpha-blockers/related	26	Alpha-blockers and related medications
[CV200]	Calcium channel blockers	27	Calcium channel blockers
[CV250]	Anti-anginals	28	Anti-anginals
[CV350]	Antilipemic agents	29	Antilipemic agents
[CV400]	Antihypertensive combinations	30	Antihypertensives, other
[CV490]	Antihypertensives, other	30	Antihypertensives, other
[CV701]	Thiazides/related diuretics	31	Diuretics
[CV702]	Loop diuretics	31	Diuretics
[CV703]	Carbonic anhydrase inhibitor diuretics	31	Diuretics
[CV704]	Potassium sparing/combinations diuretics	31	Diuretics
[CV800]	ACE inhibitors	32	ACE inhibitors
[CV805]	Angiotensin II inhibitor	32	ACE inhibitors
[CV806]	Direct renin inhibitor	32	ACE inhibitors
[CV050]	Digitalis glycosides	33	Cardiovascular agents, other
[CV300]	Anti-arrhythmics	33	Cardiovascular agents, other
[CV500]	Peripheral vasodilators	33	Cardiovascular agents, other
[CV900]	Cardiovascular agents, other	33	Cardiovascular agents, other
[DE100]	Anti-infective, topical	34	Topical anti-infective/anti-inflammatory agents
[DE101]	Antibacterial, topical	34	Topical anti-infective/anti-inflammatory agents
[DE102]	Antifungal, topical	34	Topical anti-infective/anti-inflammatory agents
[DE103]	Antiviral, topical	34	Topical anti-infective/anti-inflammatory agents
[DE109]	Anti-infective, topical, other	34	Topical anti-infective/anti-inflammatory agents

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[DE200]	Anti-inflammatory, topical	34	Topical anti-infective/anti-inflammatory agents
[DE250]	Anti-infective/anti-inflammatory combinations, topical	34	Topical anti-infective/anti-inflammatory agents
[DE600]	Antineoplastic, topical	35	Topical antineoplastic agents
[DE751]	Anti-acne agents, systemic	36	Anti-acne agents
[DE752]	Anti-acne agents, topical	36	Anti-acne agents
[DE350]	Emollients	37	Dermatological agents, other
[DE400]	Soaps/shampoos/soap-free cleansers	37	Dermatological agents, other
[DE450]	Deodorants/antiperspirants, topical	37	Dermatological agents, other
[DE500]	Keratolytics/caustics, topical	37	Dermatological agents, other
[DE650]	Analgesics, topical	37	Dermatological agents, other
[DE700]	Local anesthetics, topical	37	Dermatological agents, other
[DE810]	Antipsoriatics, systemic	37	Dermatological agents, other
[DE820]	Antipsoriatics, topical	37	Dermatological agents, other
[DE900]	Dermatologicals, topical other	37	Dermatological agents, other
[GA103]	Aluminum/magnesium containing antacids	38	Antacids
[GA105]	Calcium containing antacids	38	Antacids
[GA108]	Magnesium containing antacids	38	Antacids
[GA110]	Sodium bicarbonate containing antacids	38	Antacids
[GA199]	Antacids, other	38	Antacids
[GA201]	Bulk-forming laxatives	39	Laxatives
[GA202]	Hyperosmotic laxatives	39	Laxatives
[GA203]	Lubricant laxatives	39	Laxatives
[GA204]	Stimulant laxatives	39	Laxatives
[GA205]	Stool softener	39	Laxatives

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[GA209]	Laxatives, other	39	Laxatives
[GA301]	Histamine antagonists	40	Antiulcer agents/histamine antagonists
[GA302]	Protectants, ulcer	40	Antiulcer agents/histamine antagonists
[GA303]	H. Pylori agents	40	Antiulcer agents/histamine antagonists
[GA309]	Antiulcer agents, other	40	Antiulcer agents/histamine antagonists
[GA400]	Tumor necrosis factor blocker	41	Tumor necrosis factor blocker
[GA605]	Antiemetics	42	Antiemetics
[GA751]	Centrally-acting appetite suppressants	43	Centrally-acting appetite suppressants
[GA208]	Antidiarrheal agents	44	Gastrointestinal medications, other
[GA500]	Digestants	44	Gastrointestinal medications, other
[GA802]	Antimuscarinic/antispasmodic combinations	44	Gastrointestinal medications, other
[GA900]	Gastric medications, other	44	Gastrointestinal medications, other
[GU100]	Analgesics, urinary	45	Genitourinary agents
[GU200]	Antispasmodics, urinary	45	Genitourinary agents
[GU201]	Antispasmodics, urinary, other	45	Genitourinary agents
[GU300]	Anti-infectives, vaginal	45	Genitourinary agents
[GU500]	Estrogens, vaginal	45	Genitourinary agents
[GU600]	Oxytocics	45	Genitourinary agents
[GU900]	Genitourinary agents, other	45	Genitourinary agents
[HS051]	Glucocorticoids	46	Adrenal corticosteroids
[HS052]	Mineralocorticoids	46	Adrenal corticosteroids
[HS200]	Contraceptives, systemic	47	Systemic contraceptives
[HS300]	Estrogens	48	Estrogens
[HS500]	Blood glucose regulation agents	49	Blood glucose regulation agents

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[HS501]	Insulin	49	Blood glucose regulation agents
[HS502]	Oral hypoglycemic agents	49	Blood glucose regulation agents
[HS503]	Antihypoglycemics	49	Blood glucose regulation agents
[HS509]	Hypoglycemic agents, other	49	Blood glucose regulation agents
[HS800]	Progestins	50	Progestins
[HS851]	Thyroid supplements	51	Thyroid modifiers
[HS852]	Antithyroid agents	51	Thyroid modifiers
[HS100]	Androgens/anabolics	52	Hormones, other
[HS400]	Gonadotropins	52	Hormones, other
[HS600]	Parathyroid	52	Hormones, other
[HS701]	Anterior pituitary	52	Hormones, other
[HS702]	Posterior pituitary	52	Hormones, other
[HS875]	Prostaglandins	52	Hormones, other
[HS900]	Hormones/synthetics/modifiers, other	52	Hormones, other
[IM100]	Vaccines	53	Vaccines/toxoids
[IM105]	Toxoids	53	Vaccines/toxoids
[IM109]	Vaccines/toxoids, other	53	Vaccines/toxoids
[IM500]	Immunoglobulins	54	Immunological agents, other
[IM600]	Immune suppressants	54	Immunological agents, other
[IM700]	Immune stimulants	54	Immunological agents, other
[IM900]	Immunological agents, other	54	Immunological agents, other
[MS101]	Salicylates, anti-rheumatic	55	Anti-rheumatics
[MS102]	Nonsalicylate NSAIs, anti-rheumatic	55	Anti-rheumatics
[MS140]	Penicillamine	55	Anti-rheumatics

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[MS160]	Gold compounds, anti-rheumatic	55	Anti-rheumatics
[MS190]	Anti-rheumatics, other	55	Anti-rheumatics
[MS200]	Skeletal muscle relaxants	56	Skeletal muscle relaxants
[MS205]	Vesicular monoamine transport type 2 blocker	57	Musculoskeletal agents, other
[MS400]	Anti-gout agents	57	Musculoskeletal agents, other
[MS900]	Musculoskeletal agents, other	57	Musculoskeletal agents, other
[NT100]	Decongestants, nasal	58	Topical nasal and throat agents
[NT200]	Anti-inflammatories, nasal	58	Topical nasal and throat agents
[NT300]	Anesthetics, mucosal	58	Topical nasal and throat agents
[NT400]	Antihistamines, nasal	58	Topical nasal and throat agents
[NT900]	Nasal and throat, topical, other	58	Topical nasal and throat agents
[OP101]	Beta-blockers, topical ophthalmic	59	Anti-glaucoma agents
[OP102]	Miotics, topical ophthalmic	59	Anti-glaucoma agents
[OP103]	Adrenergics, topical ophthalmic	59	Anti-glaucoma agents
[OP105]	Anti-glaucoma combinations, topical ophthalmic	59	Anti-glaucoma agents
[OP109]	Anti-glaucoma, other	59	Anti-glaucoma agents
[OP160]	Osmotic agents, systemic ophthalmic	59	Anti-glaucoma agents
[OP200]	Anti-infective, topical ophthalmic	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP210]	Antibacterials, topical ophthalmic	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP219]	Anti-infective, topical ophthalmic, other	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP230]	Antivirals, topical ophthalmic	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP300]	Anti-inflammatories, topical ophthalmic	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP350]	Anti-infective/anti-inflammatory combinations, topical ophthalmic	60	Ophthalmic anti-infective/anti-inflammatory agents
[OP500]	Eye washes/lubricants	61	Ophthalmic agents, other



**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[OP600]	Mydriatics/cycloplegics, topical ophthalmic	61	Ophthalmic agents, other
[OP700]	Anesthetics, topical ophthalmic	61	Ophthalmic agents, other
[OP800]	Decongestants, topical ophthalmic	61	Ophthalmic agents, other
[OP900]	Ophthalmics, other	61	Ophthalmic agents, other
[OT101]	Antibacterials, topical otic	62	Otic anti-infective/anti-inflammatory agents
[OT109]	Anti-infectives, topical otic other	62	Otic anti-infective/anti-inflammatory agents
[OT250]	Anti-infective/anti-inflammatory combinations, topical otic	62	Otic anti-infective/anti-inflammatory agents
[OT300]	Ceruminolytics	63	Otic agents, other
[OT400]	Analgesics, topical otic	63	Otic agents, other
[OT900]	Otic agents, other	63	Otic agents, other
[RE101]	Anti-inflammatories, inhalation	64	Anti-asthmatics
[RE102]	Bronchodilators, sympathomimetic, inhalation	64	Anti-asthmatics
[RE103]	Bronchodilators, sympathomimetic, oral	64	Anti-asthmatics
[RE104]	Bronchodilators, xanthine-derivative	64	Anti-asthmatics
[RE105]	Bronchodilators, anticholinergic	64	Anti-asthmatics
[RE109]	Antiasthma, other	64	Anti-asthmatics
[RE301]	Opioid-containing antitussives/expectorants	65	Antitussives/expectorants
[RE302]	Non-opioid-containing antitussives/expectorants	65	Antitussives/expectorants
[RE200]	Decongestants, systemic	66	Respiratory agents, other
[RE400]	Mucolytics	66	Respiratory agents, other
[RE501]	Antihistamine/decongestant	66	Respiratory agents, other
[RE507]	Antihistamine/antitussive	66	Respiratory agents, other
[RE513]	Decongestant/antitussive/expectorant	66	Respiratory agents, other
[RE516]	Decongestant/expectorant	66	Respiratory agents, other

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[RE599]	Cold remedies, other	66	Respiratory agents, other
[RE600]	Non-anesthetic gases	66	Respiratory agents, other
[RE900]	Respiratory agents, other	66	Respiratory agents, other
[TN102]	IV solutions with electrolytes	67	Therapeutic nutrients/minerals/electrolytes
[TN410]	Iron	67	Therapeutic nutrients/minerals/electrolytes
[TN420]	Calcium	67	Therapeutic nutrients/minerals/electrolytes
[TN430]	Potassium	67	Therapeutic nutrients/minerals/electrolytes
[TN440]	Sodium	67	Therapeutic nutrients/minerals/electrolytes
[TN450]	Zinc	67	Therapeutic nutrients/minerals/electrolytes
[TN460]	Magnesium	67	Therapeutic nutrients/minerals/electrolytes
[TN470]	Fluoride	67	Therapeutic nutrients/minerals/electrolytes
[TN475]	Phosphorus	67	Therapeutic nutrients/minerals/electrolytes
[TN478]	Citrates	67	Therapeutic nutrients/minerals/electrolytes
[TN490]	Electrolytes/minerals, combinations	67	Therapeutic nutrients/minerals/electrolytes
[TN499]	Electrolytes/minerals, other	67	Therapeutic nutrients/minerals/electrolytes
[TN503]	Amino acids/proteins, oral	67	Therapeutic nutrients/minerals/electrolytes
[TN900]	Therapeutic nutrients/minerals/electrolytes, other	67	Therapeutic nutrients/minerals/electrolytes
[VT101]	Cyanocobalamin	68	Vitamin B
[VT102]	Folic acid/leucovorin	68	Vitamin B
[VT103]	Nicotinic acid	68	Vitamin B
[VT104]	Pyridoxine	68	Vitamin B
[VT105]	Thiamine	68	Vitamin B
[VT106]	Riboflavin	68	Vitamin B
[VT109]	Vitamin B, other	68	Vitamin B

**Supplemental Table 1. Continued**

NDF-RT classes		Drug groups used in this study	
Code	Description	Code	Description
[VT800]	Vitamins, combinations	69	Multivitamins
[VT801]	Multivitamins	69	Multivitamins
[VT802]	Multivitamins with minerals	69	Multivitamins
[VT000]	Vitamins	70	Vitamins, other
[VT050]	Vitamin A	70	Vitamins, other
[VT400]	Vitamin C	70	Vitamins, other
[VT500]	Vitamin D	70	Vitamins, other
[VT502]	Calcitriol	70	Vitamins, other
[VT504]	Ergocalciferol	70	Vitamins, other
[VT509]	Vitamin D, other	70	Vitamins, other
[VT600]	Vitamin E	70	Vitamins, other
[VT700]	Vitamin K	70	Vitamins, other
[VT702]	Phytonadione	70	Vitamins, other

CNS = central nervous system  
ACE = angiotensin-converting-enzyme  
NSAIs = nonsteroidal anti-inflammatory drugs