Add Health
The National Longitudinal Study of Adolescent to Adult Health

Mortality Outcomes Surveillance: Coroner/Medical Examiner Report Data

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Mortality Outcomes Surveillance, Part I: Ascertaining Decedents (2022 Update) summarizes the data stemming from the protocol used to (1) trace sample members and then (2) screen, match, and score all decedents in the National Longitudinal Study of Adolescent to Adult Health (Add Health). Mortality Outcomes Surveillance, Part II: Adjudicating Causes of Death & In-Hospital Cardiovascular Outcomes, summarizes data stemming from the protocol used to (3) assemble and abstract decedent cohort histories, obituaries, death certificates, healthcare provider questionnaires, coroner/medical examiner reports, next-of-kin interviews, and hospital records; and then (4) review, classify, and adjudicate all deaths and in-hospital cardiovascular outcomes ≤ 1 month before dates of death. *Mortality Outcomes Surveillance: Coroner/Medical Examiner Report Data* details the data abstracted from decedent coroner/medical examiner reports.

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Add Health was designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill. The project was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development from 1994-2021, with cooperative funding from 23 other federal agencies and foundations. Add Health is currently directed by Robert A. Hummer; it was previously directed by Kathleen Mullan Harris (2004-2021) and J. Richard Udry (1994-2004).

Information on obtaining Add Health data is available on the project website: http://www.cpc.unc.edu/addhealth.

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1. Introduction

The National Longitudinal Study of Adolescent to Adult Health (Add Health) is a longitudinal survey of a nationally representative sample of 20,745 U.S. adolescents in grades 7-12 during the 1994-95 school year. The Add Health cohort has been followed into young adulthood with five in-home interviews to date. Add Health traced, located, and re-interviewed cohort members in a Wave V follow-up during 2016-2019 to collect social, environmental, behavioral, and biological data with which to track the emergence of chronic disease as the cohort aged into their 30s and early 40s. The Wave VI follow-up began in 2021 and is currently underway.

The Biology of Chronic Disease Emergence and Medical Outcomes Surveillance, led by Dr. Eric Whitsel, commenced at Wave V. The goal of the project was to establish a scalable infrastructure for surveillance of chronic disease events in Add Health, initially by ascertaining sample members who died (decedents) since cohort inception (Wave I). Establishing the foundation on which to build a surveillance system in Add Health anticipated the epidemiologic transition to rapid increases in chronic disease morbidity and mortality as the cohort ages.

A total of 460 Add Health sample members died through December 31, 2017. A subset of these deaths was referred to a Coroner or Medical Examiner for further investigation. This document describes the methodology used to request, acquire, and abstract coroner/medical examiner reports for all eligible decedents through December 31, 2017. Linking the data set to the Wave I In-Home Weights and other Add Health data files will enable users to properly correct for the clustered design of Add Health, account for the unequal probability of sample member selection, and thereby compute nationally representative estimates of mortality and exposure-mortality associations.[1] Please note that although the University of North Carolina's Office of Human Research Ethics determined the Add Health Surveillance Project does not constitute human subjects research due to its focus solely on decedents, users should abide by the same protocols and ethical guidelines that are required for all Add Health data.

2. Data Acquisition

Decedents were retrospectively identified beginning at Wave V as described in *Mortality Outcomes Surveillance, Part I: Ascertaining Decedents*.[2] When decedents died under suspicious circumstances or were not under the immediate care of a physician, medicolegal investigations were often undertaken by coroners and / or medical examiners to help determine the cause(s) and manner of deaths (i.e., natural, accidental, suicide, homicide or undetermined) based on the circumstances and available information. However, death investigation in the U.S. varies in that each state independently determines the circumstances that necessitate investigations, the structure of the medicolegal system that oversees them (e.g., centralized or county-based), the qualifications of those who perform autopsies, and the policies controlling the public availability of findings.[3] Moreover, death certificates may not document the involvement of a coroner or medical examiner. Coroner/medical examiner reports also differ by jurisdiction and the circumstances of death: some entities only provide a basic autopsy report, while others provide supplemental information, such as investigative and toxicology reports.

Based on information contained on the death certificate and the medicolegal system in each state, the Add Health Medical Outcomes Coordinator identified and then contacted the proper entity to request reports for a subset of Add Health decedents whose deaths were referred to a coroner or medical examiner. Add Health has received these reports for 206 (59% of 348 examiner-referred or 45% of all 460) decedents through December 31, 2017. Upon receipt of the reports, trained, and certified abstractors used a Coroner/Medical Examiner Data Entry Form and Question-by-Question Instructions to abstract data into a restricted-access, secure research workspace using CSPro.

2.1 Reliability of Data Abstraction

The reliability of data abstraction was evaluated among a random sample of 28 Add Health decedents (mean age at death = 26.1 years; 57% female; 61% white) whose death certificates and coroner/medical examiner reports were abstracted by two staff members trained and certified to follow the standardized protocols described above. Between-abstractor reliability was estimated as the item-specific percent agreement and prevalence- and bias-adjusted kappa (PABAK) with 95% confidence intervals (95% CI).[4] Across all items, median percent agreement (95% CI) and PABAK (95% CI) were excellent:[5] 0.93 (0.92-0.95), 0.92 (0.90-0.94) for coroner/medical examiner reports.[6]

3. Data File

The Coroner/Medical Examiner data set is available as a SAS SAS7BDAT file (**Table 1**).

Table 1. Add Health Coroner/Medical Examiner Data File for Deaths Through 2017

File Name	File Description	N†
AHME17	Coroner/Medical Examiner Report Data	206

†Decedents.

3.1 Structure

Add Health coroner/medical examiner data are provided as a SAS SAS7BDAT file comprised of 29 variables (**Table 3**). This file contains records for 206 (59% of 348 examiner-referred or 45% of all 460) decedents through December 31, 2017, namely those whose autopsy, investigative, and/or toxicology reports were obtained by Add Health.

3.2 Format

The file provides non-identifiable information from each coroner/medical examiner report received. Included in this data set are all known decedents whose death (through December 31, 2017) was referred for an autopsy and/or death investigation and whose coroner/medical examiner reports have been obtained.

3.3 Content

3.3.1 Places of Injury and Death

The Coroner/Medical Examiner Report data include places of injury and death that have been broadly categorized to prevent deductive disclosure (e.g., decedent's residence, outdoors, roadway).

3.3.2 Medications and Drugs

The Coroner/Medical Examiner Report Data include indicator variables identifying a) medications that decedents took within four weeks of death and b) drugs detected by toxicologic screens of the urine, blood, or vitreous. The *medication indicators* identify cardiovascular medications (angiotensin-converting enzyme [ACE] inhibitors; angiotensin II receptor antagonists; antianginals; antiarrhythmics; antihyperlipidemics; aspirin; beta-blockers; calcium channel blockers; digitalis glycosides; loop diuretics; nitrates; thiazide/thiazide-like diuretics) and other medications. The *drug indicators* identify common toxicants (alcohol/volatiles; analgesics; anti-convulsants; antidepressants; antihistamines; antipsychotics; barbiturates; benzodiazepines; cannabis; cardiovascular drugs;

cocaine; environmental toxicants; gamma-hydroxybutyrate [GHB]; lysergic acid diethylamide [LSD]; narcotic analgesics; stimulants; synthetics) and other drugs. When "other" medications or drugs were identified, a 2019 contract allowed for their therapeutic classification using an updated version of the Multum Lexicon™ (Cerner Multum, Inc.; Denver, CO).

The nine-digit therapeutic classification codes associated with each of the "other" medications and drugs include a hierarchical series of up to three, three-digit codes (**Appendix A**) representing, from left to right, the (general) therapeutic class, the (more specific) therapeutic subclass and (most specific) therapeutic subgroup. For example, carisoprodol, coded 057-073-178, is in the *central nervous system agents* class, *muscle relaxants* subclass, and *skeletal muscle relaxants* subgroup. A drug commonly administered in suspected opioid overdose — naloxone, coded 105-106-*** — is in the *miscellaneous agents* class and *antidotes* subclass. Ketamine and its metabolite norketamine, both coded 057-072-***, are in the *central nervous system agents* class, and *general anesthetics* subclass. In other words, three, right-sided asterisks (***) in the nine-digit code indicate that subgrouping was impossible. Medications and drugs appearing in the Coroner/Medical Examiner Report that lacked classifications in the Multum Lexicon™ were assigned special classifications. As specified in the accompanying codebook, a classification of 999-999-984 represents Nicotine and its Metabolites, 999-999-986 indicates Alcohol and Alcohol Volatiles, 999-999-983 denotes Phencyclidines, and 999-999-985 reports the presence of Ketone Bodies. The medication- and drug-level variables, MECVD117- MECVD217 and METXS117- METXS517, capture each of the "other" medications and drugs as single, nine-digit therapeutic classification codes.

3.3.3 Reserve Codes

The Coroner/Medical Examiner Report data employ special reserve codes to distinguish different types of missing data. All codes begin with "-99", followed by two trailing digits that indicate a particular type of missingness (**Table 2**). For example, a code ending in "82" identifies suppressed data. Data suppression occurred when a particular response appeared infrequently in the data, posing a potential threat to decedent anonymity. A code ending in "92" indicates that the data source reported an absence of data or missing data for the field. A code ending in "97" identifies data missing due to instrument logic that produces a legitimate skip. When the data were reported as either "unknown" or "not provided", the reserve code ends in "98."

Table 2. Special Reserve Codes

Code	Description
-9982	suppressed
-9992	missing in source
-9997	legitimate skip/not applicable
-9998	unknown/not provided

Table 3. Coroner/Medical Examiner Report Data

Variable Name	Variable Label
AID	Sample member's identifier
MEAUTO17	Full autopsy performed
MEINT17	Amount of time between the onset of illness/injury and the immediate cause of death
MEMANN17	Manner of death
MEMEAN17	Means of death
MEPLDT17	Place of death
MEINJ17	Death involved an injury
MEWORK17	Injury did not occur at work
MEPLIN17	Place of injury
METOX17	Toxicology report available
METXAL17	Toxicology report positive for alcohol/volatiles (e.g., ethanol, methanol, isopropanol, acetone)
METXAC17	Toxicology report positive for anti-convulsants (e.g., lamotrigine, valproate, phenytoin)
METXAD17	Toxicology report positive for antidepressants (e.g., imipramine, amitriptyline, fluoxetine, sertraline)
METXAH17	Toxicology report positive for antihistamines (e.g., doxylamine, chlorpheniramine, diphenhydramine)
METXBE17	Toxicology report positive for benzodiazepines (e.g., diazepam, alprazolam, zolpidem, zopiclone, zaleplon)
METXCA17	Toxicology report positive for cannabis (tetrahydrocannabinol and its metabolites)
METXCO17	Toxicology report positive for cocaine (cocaine and its metabolites)
METXNA17	Toxicology report positive for narcotic analgesics (e.g., methadone, morphine, oxycodone, fentanyl, heroin)
METXST17	Toxicology report positive for stimulants (e.g., methamphetamine, MDMA, pseudoephedrine, caffeine)
METXOT17	Toxicology report positive for other drug(s)
MEMIHX17	Decedent had no history of myocardial infarction
MESTHX17	Decedent had no history of stroke
MECSHX17	Decedent had history of cardiometabolic disease
MEEPHX17	Decedent had history of epilepsy or seizure disorder
MEMBHX17	Decedent had history of a mental and/or behavioral disorder
MEDSHX17	Decedent had history of substance use
MESKHX17	Decedent had history of smoking
MESCHX17	Decedent had history of suicide attempt(s) and/or ideation
MEOTHX17	Decedent had history of another disease/condition

4. List of Appendices

Appendix A: Therapeutic Classification Codes

5. References

[1]National Longitudinal Study of Adolescent to Adult Health. Codebooks. PDF Codebooks for the Add Health Restricted-Use Data. Available at https://addhealth.cpc.unc.edu/documentation/codebooks.

[2]Trani EA, Hill MJ, Anthony KM, Lawrence EM, Loehr LR, Hummer RA, Whitsel EA. *Add Health Wave VI Documentation: Mortality Outcomes Surveillance, Part I: Ascertaining Decedents (2022 Update)*; 2024. Available at: https://doi.org/10.17615/zbe9-rh36.

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[4]Byrt T, Bishop J, Carlin JB. Bias, prevalence and kappa. *J Clin Epidemiol* 1993;46(5):423-429.

[5]Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics* 1977;33(1):159-174.

[6]Anthony KM, Trani E, Monbureau TO, Hill MJM, Loehr LR, Harris KM, Aiello AE, Hummer RA, Whitsel EA. Reliability of cardiovascular disease surveillance in the National Longitudinal Study of Adolescent to Adult Health. *Circulation* 2022:145(S11); P154.

Appendix A

Therapeutic Classification Codes

Code	Name
001	anti-infectives
002	amebicides
003	anthelmintics
004	antifungals
005	antimalarial agents
006	antituberculosis agents
007	antiviral agents
008	carbapenems
009	cephalosporins
010	leprostatics
011	macrolide derivatives
012	miscellaneous antibiotics
013	penicillins
014	quinolones
015	sulfonamides
016	tetracyclines
017	urinary anti-infectives
018	aminoglycosides
019	antihyperlipidemic agents
020	antineoplastics
021	alkylating agents
022	antineoplastic antibiotics
023	antimetabolites
024	antineoplastic hormones
025	miscellaneous antineoplastics
026	mitotic inhibitors
027	radiopharmaceuticals
028	biologicals
030	antitoxins and antivenins
031	bacterial vaccines
032	colony stimulating factors
033	immune globulins
034	in vivo diagnostic biologicals
036	erythropoiesis-stimulating agents
038	viral vaccines
040	cardiovascular agents
041	agents for hypertensive emergencies
042	angiotensin converting enzyme (ACE) inhibitors
043	antiadrenergic agents, peripherally acting
044	antiadrenergic agents, centrally acting
045	antianginal agents

Code	Name
046	antiarrhythmic agents
047	beta-adrenergic blocking agents
048	calcium channel blocking agents
049	diuretics
050	inotropic agents
051	miscellaneous cardiovascular agents
052	peripheral vasodilators
053	vasodilators
054	vasopressors
055	antihypertensive combinations
056	angiotensin II inhibitors
057	central nervous system agents
058	analgesics
059	miscellaneous analgesics
060	narcotic analgesics
061	nonsteroidal anti-inflammatory agents
062	salicylates
063	analgesic combinations
064	anticonvulsants
065	antiemetic/antivertigo agents
066	antiparkinson agents
067	anxiolytics, sedatives, and hypnotics
068	barbiturates
069	benzodiazepines
070	miscellaneous anxiolytics, sedatives and hypnotics
071	CNS stimulants
072	general anesthetics
073	muscle relaxants
074	neuromuscular blocking agents
076	miscellaneous antidepressants
077	miscellaneous antipsychotic agents
079	psychotherapeutic combinations
080	miscellaneous central nervous system agents
081	coagulation modifiers
082	anticoagulants
083	antiplatelet agents
084	heparin antagonists
085	miscellaneous coagulation modifiers
086	thrombolytics
087	gastrointestinal agents
088	antacids
089	anticholinergics/antispasmodics
090	antidiarrheals
091	digestive enzymes
092	gallstone solubilizing agents
093	GI stimulants

Code	Name
094	H2 antagonists
095	laxatives
096	miscellaneous GI agents
097	hormones/hormone modifiers
098	adrenal cortical steroids
099	antidiabetic agents
101	sex hormones
102	contraceptives
103	thyroid hormones
104	immunosuppressive agents
105	miscellaneous agents
106	antidotes
107	chelating agents
108	cholinergic muscle stimulants
109	local injectable anesthetics
110	miscellaneous uncategorized agents
111	psoralens
112	radiocontrast agents
113	genitourinary tract agents
115	nutritional products
116	iron products
117	minerals and electrolytes
118	oral nutritional supplements
119	vitamins
120	vitamin and mineral combinations
121	intravenous nutritional products
122	respiratory agents
123	antihistamines
124	antitussives
125	bronchodilators
126	methylxanthines
127	decongestants
128	expectorants
129	miscellaneous respiratory agents
130	respiratory inhalant products
131	antiasthmatic combinations
132	upper respiratory combinations
133	topical agents
134	anorectal preparations
135	antiseptic and germicides
136	dermatological agents
137	topical anti-infectives
138	topical steroids
139	topical anesthetics
140	miscellaneous topical agents
141	topical steroids with anti-infectives

Code	Name
143	topical acne agents
144	topical antipsoriatics
146	mouth and throat products
147	ophthalmic preparations
148	otic preparations
149	spermicides
150	sterile irrigating solutions
151	vaginal preparations
153	plasma expanders
154	loop diuretics
155	potassium-sparing diuretics
156	thiazide and thiazide-like diuretics
157	carbonic anhydrase inhibitors
158	miscellaneous diuretics
159	first generation cephalosporins
160	second generation cephalosporins
161	third generation cephalosporins
162	fourth generation cephalosporins
163	ophthalmic anti-infectives
164	ophthalmic glaucoma agents
165	ophthalmic steroids
166	ophthalmic steroids with anti-infectives
167	ophthalmic anti-inflammatory agents
168	ophthalmic lubricants and irrigations
169	miscellaneous ophthalmic agents
170	otic anti-infectives
171	otic steroids with anti-infectives
172	miscellaneous otic agents
173	HMG-CoA reductase inhibitors (statins)
174	miscellaneous antihyperlipidemic agents
175	protease inhibitors
176	NRTIs
177	miscellaneous antivirals
178	skeletal muscle relaxants
179	skeletal muscle relaxant combinations
180	adrenergic bronchodilators
181	bronchodilator combinations
182	androgens and anabolic steroids
183	estrogens
184	gonadotropins
185	progestins
186	sex hormone combinations
191	narcotic analgesic combinations
192	antirheumatics
193	antimigraine agents
194	antigout agents

Code	Name
195	5HT3 receptor antagonists
196	phenothiazine antiemetics
197	anticholinergic antiemetics
198	miscellaneous antiemetics
199	hydantoin anticonvulsants
200	succinimide anticonvulsants
201	barbiturate anticonvulsants
202	oxazolidinedione anticonvulsants
203	benzodiazepine anticonvulsants
204	miscellaneous anticonvulsants
205	anticholinergic antiparkinson agents
208	SSRI antidepressants
209	tricyclic antidepressants
210	phenothiazine antipsychotics
211	platelet aggregation inhibitors
212	glycoprotein platelet inhibitors
213	sulfonylureas
214	biguanides
215	insulin
216	alpha-glucosidase inhibitors
217	bisphosphonates
218	alternative medicines
219	nutraceutical products
220	herbal products
222	penicillinase resistant penicillins
223	antipseudomonal penicillins
224	aminopenicillins
225	penicillins/beta-lactamase inhibitors
226	natural penicillins
227	NNRTIs
228	adamantane antivirals
229	purine nucleosides
230	aminosalicylates
231	thiocarbamide derivatives
232	rifamycin derivatives
233	streptomyces derivatives
234	miscellaneous antituberculosis agents
235	polyenes
236	azole antifungals
237	miscellaneous antifungals
238	antimalarial quinolines
239	miscellaneous antimalarials
240	lincomycin derivatives
241	fibric acid derivatives
242	psychotherapeutic agents
243	leukotriene modifiers

Code	Name
244	nasal lubricants and irrigations
245	nasal steroids
246	nasal antihistamines and decongestants
247	nasal preparations
248	topical emollients
249	antidepressants
250	monoamine oxidase inhibitors
251	antipsychotics
252	bile acid sequestrants
253	anorexiants
254	immunologic agents
256	interferons
261	heparins
262	coumarins and indanediones
263	erectile dysfunction agents
264	urinary antispasmodics
265	urinary pH modifiers
266	miscellaneous genitourinary tract agents
267	ophthalmic antihistamines and decongestants
268	vaginal anti-infectives
269	miscellaneous vaginal agents
270	antipsoriatics
271	thiazolidinediones
272	proton pump inhibitors
273	lung surfactants
274	beta blockers, cardioselective
275	beta blockers, non-cardioselective
276	dopaminergic antiparkinsonism agents
277	5-aminosalicylates
278	cox-2 inhibitors
279	gonadotropin-releasing hormone and analogs
280	thioxanthenes
281	neuraminidase inhibitors
282	meglitinides
283	thrombin inhibitors
284	viscosupplementation agents
285	factor Xa inhibitors
286	mydriatics
287	ophthalmic anesthetics
288	5-alpha-reductase inhibitors
289	antihyperuricemic agents
290	topical antibiotics
291	topical antivirals
292	topical antifungals
293	glucose elevating agents
295	growth hormones

Code	Name
296	inhaled corticosteroids
297	mucolytics
298	mast cell stabilizers
299	anticholinergic bronchodilators
300	corticotropin
301	glucocorticoids
302	mineralocorticoids
303	agents for pulmonary hypertension
304	macrolides
305	ketolides
306	phenylpiperazine antidepressants
307	tetracyclic antidepressants
308	SSNRI antidepressants
310	echinocandins
311	dibenzazepine anticonvulsants
312	cholinergic agonists
313	cholinesterase inhibitors
314	antidiabetic combinations
315	glycylcyclines
316	cholesterol absorption inhibitors
317	antihyperlipidemic combinations
318	insulin-like growth factor
319	vasopressin antagonists
320	smoking cessation agents
321	ophthalmic diagnostic agents
322	ophthalmic surgical agents
324	antineoplastic interferons
325	sclerosing agents
327	antiviral combinations
328	antimalarial combinations
329	antituberculosis combinations
330	antiviral interferons
332	radiologic adjuncts
333	miscellaneous iodinated contrast media
334	lymphatic staining agents
335	magnetic resonance imaging contrast media
336	non-iodinated contrast media
337	ultrasound contrast media
338	diagnostic radiopharmaceuticals
339	therapeutic radiopharmaceuticals
340	aldosterone receptor antagonists
341	atypical antipsychotics
342	renin inhibitors
345	fatty acid derivative anticonvulsants
346	gamma-aminobutyric acid reuptake inhibitors
347	gamma-aminobutyric acid analogs

Code	Name
348	triazine anticonvulsants
349	carbamate anticonvulsants
350	pyrrolidine anticonvulsants
351	carbonic anhydrase inhibitor anticonvulsants
352	urea anticonvulsants
353	anti-angiogenic ophthalmic agents
354	H. pylori eradication agents
355	functional bowel disorder agents
356	serotoninergic neuroenteric modulators
357	growth hormone receptor blockers
358	metabolic agents
359	peripherally acting antiobesity agents
360	lysosomal enzymes
361	miscellaneous metabolic agents
362	chloride channel activators
363	probiotics
364	antiviral chemokine receptor antagonist
366	integrase strand transfer inhibitor
368	non-ionic iodinated contrast media
369	ionic iodinated contrast media
370	otic steroids
371	dipeptidyl peptidase 4 inhibitors
372	amylin analogs
373	GLP-1 receptor agonists
374	cardiac stressing agents
375	peripheral opioid receptor antagonists
376	radiologic conjugating agents
377	prolactin inhibitors
378	drugs used in alcohol dependence
379	fifth generation cephalosporins
380	topical debriding agents
381	topical depigmenting agents
382	topical antihistamines
383	antineoplastic detoxifying agents
384	platelet-stimulating agents
385	group I antiarrhythmics
386	group II antiarrhythmics
387	group III antiarrhythmics
388	group IV antiarrhythmics
389	group V antiarrhythmics
390	hematopoietic stem cell mobilizer
392	otic anesthetics
393	cerumenolytics
394	topical astringents
395	topical keratolytics
397	multikinase inhibitors

Code	Name
398	BCR-ABL tyrosine kinase inhibitors
399	CD52 monoclonal antibodies
400	CD33 monoclonal antibodies
401	CD20 monoclonal antibodies
402	VEGF/VEGFR inhibitors
403	mTOR inhibitors
404	EGFR inhibitors
405	HER2 inhibitors
406	glycopeptide antibiotics
407	inhaled anti-infectives
408	histone deacetylase inhibitors
409	bone resorption inhibitors
410	adrenal corticosteroid inhibitors
411	calcitonin
412	uterotonic agents
413	antigonadotropic agents
414	antidiuretic hormones
415	miscellaneous bone resorption inhibitors
416	somatostatin and somatostatin analogs
417	selective estrogen receptor modulators
418	parathyroid hormone and analogs
419	gonadotropin-releasing hormone antagonists
420	antiandrogens
422	antithyroid agents
423	aromatase inhibitors
424	estrogen receptor antagonists
426	synthetic ovulation stimulants
427	tocolytic agents
428	progesterone receptor modulators
430	anticholinergic chronotropic agents
431	anti-CTLA-4 monoclonal antibodies
432	vaccine combinations
433	catecholamines
435	selective phosphodiesterase-4 inhibitors
437	immunostimulants
438	interleukins
439	other immunostimulants
440	therapeutic vaccines
441	calcineurin inhibitors
442	TNF alpha inhibitors
443	interleukin inhibitors
444	selective immunosuppressants
445	other immunosuppressants
446	neuronal potassium channel openers
447	CD30 monoclonal antibodies
448	topical non-steroidal anti-inflammatories

Code	Name
449	hedgehog pathway inhibitors
450	topical antineoplastics
451	topical photochemotherapeutics
452	CFTR modulators
453	topical rubefacient
454	proteasome inhibitors
455	guanylate cyclase-C agonists
456	AMPA receptor antagonists
457	hydrazide derivatives
458	SGLT-2 inhibitors
459	urea cycle disorder agents
460	phosphate binders
461	topical anti-rosacea agents
462	allergenics
463	protease-activated receptor-1 antagonists
464	miscellaneous diagnostic dyes
465	diarylquinolines
467	ACE inhibitors with thiazides
468	antiadrenergic agents (central) with thiazides
469	antiadrenergic agents (peripheral) with thiazides
470	miscellaneous antihypertensive combinations
472	beta blockers with thiazides
473	angiotensin II inhibitors with thiazides
475	potassium sparing diuretics with thiazides
476	ACE inhibitors with calcium channel blocking agents
479	angiotensin II inhibitors with calcium channel blockers
480	antiviral boosters
481	NK1 receptor antagonists
482	angiotensin receptor blockers and neprilysin inhibitors
484	PCSK9 inhibitors
485	NS5A inhibitors
486	oxazolidinone antibiotics
487	CFTR combinations
488	anticoagulant reversal agents
489	CD38 monoclonal antibodies
490	peripheral opioid receptor mixed agonists/antagonists
491	local injectable anesthetics with corticosteroids
492	cephalosporins/beta-lactamase inhibitors
493	anti-PD-1 monoclonal antibodies
494	PARP inhibitors
495	calcimimetics
496	VMAT2 inhibitors

Code	Name
497	cation exchange resins
498	antineoplastic combinations
499	carbapenems/beta-lactamase inhibitors
500	PI3K inhibitors
501	CDK 4/6 inhibitors
502	CGRP inhibitors
503	streptogramins
504	antimanic agents