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Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does not mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

The following report contains a description of the request, request specifications, and results from the modular program run(s). If you are using a web page screen reader and are unable to access this document, please contact the Sentinel Operations Center for assistance at info@sentinelssystem.org.

Overview for Request cder_mpl1r_wp079

Request ID: cder_mpl1r_wp079_nsdv_v01

Request Description: The goal of this request was to investigate the occurrence of non-melanoma skin cancer (NMSC) diagnoses among incident users of thiazide diuretics or comparator drugs of interest and to observe follow-up time after incident drug dispensing in the Sentinel Distributed Database (SDD).

Sentinel Modular Program Tool Used: Cohort Identification and Descriptive Analysis (CIDA) tool, version 5.2.1

Data Source: Data from January 1, 2000 to October 31, 2017 from 17 Data Partners contributing to the SDD were included in this report. This request was distributed to Data Partners on March 30, 2018. See Appendix A for a list of dates of available data for each Data Partner.

Study Design: This request was designed to identify incident exposures of thiazide diuretics or comparator drugs of interest and prevalent outcomes of NMSC. The number of qualifying members with the exposures and outcomes of interest were stratified by drug, year, sex, age group, and race.

Exposures of Interest: The thiazide diuretic exposures of interest were hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), and bendroflumethiazide (BFMTZ). The comparator exposures of interest were angiotensin-converting enzyme (ACE) inhibitors, beta blockers, and calcium channel blockers. Exposures were defined using National Drug Codes (NDCs). See Appendix B for generic and brand drug names used to define the exposures of interest in this request.

Cohort Eligibility Criteria: Members included in the cohort were required to be continuously enrolled in health plans with medical and drug coverage for at least 183 days prior to their first qualifying dispensing (index) date, during which gaps in coverage of up to 45 days were allowed. Incident thiazide diuretic exposure was defined as no use of HCTZ, CTZ, or BFMTZ in the 183 days preceding the index date. Incident comparator drug exposure and incident exposure to the aggregate group of thiazide diuretics and comparator drugs was defined as no use of HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or calcium channel blocker in the 183 days preceding the index date. For each exposure cohort, members contributed a maximum of one exposure episode. The following age groups were included: 0-19, 20-44, 45-64 and 65+ years.

Follow-Up Time: Follow-up time was used to evaluate outcomes and to observe continuous use of thiazide diuretics and comparator drugs in the SDD. Follow-up began on the day of the first valid HCTZ, CTZ, BFMTZ, ACEI, beta blocker, or calcium channel blocker dispensing and continued until the first occurrence of any of the following: 1) disenrollment; 2) death; 3) the end of the data provided by each Data Partner; 4) the end of the query period; or 5) an outcome of interest. Follow-up was stratified by the following intervals of time: 0-<1, 1-<2, 2-<3, 3-<5, and 5+ years. In evaluating outcomes, episode lengths were defined using outpatient pharmacy dispensing days supplied to create a sequence of continuous exposure.

Outcomes of Interest: The following outcomes were assessed after incident exposure to the drugs of interest in this request: 1) NMSC; 2) basal cell carcinoma (BCC); 3) squamous cell carcinoma (SCC). NMSC, BCC, and SCC were defined using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes. Each of these outcomes were assessed in a primary analysis with one outcome definition, and in an additional sensitivity analysis using a second outcome definition. The event combinations used to define the outcome definition for each analysis are as follows:

Primary Analysis: A valid event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, BCC, or SCC diagnosis code. See Appendix C for a list diagnosis codes and Appendix D for a list of procedure codes used to define the primary analysis outcome in this request.

Sensitivity Analysis: A valid event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of an NDC of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, BCC, or SCC diagnosis code. See Appendix C for a list of diagnosis codes, Appendix D for a list of procedure codes, and Appendix E for a list of generic and brand drug names used to define the sensitivity analysis outcome in this request.

Please see Appendix F for the specifications of parameters used in the analyses for this request.

Limitations: Algorithms used to define exposures, outcomes, and inclusion criteria are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind.

Notes: Please contact the Sentinel Operations Center (info@sentinelssystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

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**Glossary of Terms for Analyses Using
Cohort Identification and Descriptive Analysis (CIDA) Tool***

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing.

Blackout Period - number of days at the beginning of a treatment episode that events are to be ignored. If an event occurs during the blackout period, the episode is excluded.

Care Setting - type of medical encounter or facility where the exposure, event, or condition code was recorded. Possible care settings include: Inpatient Hospital Stay (IP), Non-Acute Institutional Stay (IS), Emergency Department (ED), Ambulatory Visit (AV), and Other Ambulatory Visit (OA). For laboratory results, possible care settings include: Emergency Department (E), Home (H), Inpatient (I), Outpatient (O), or Unknown or Missing (U). The Care Setting, along with the Principal Diagnosis Indicator (PDX), forms the Care Setting/PDX parameter.

Ambulatory Visit (AV) - includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.

Emergency Department (ED) - includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.

Inpatient Hospital Stay (IP) - includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.

Non-Acute Institutional Stay (IS) - includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.

Other Ambulatory Visit (OA) - includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

Charlson/Elixhauser Combined Comorbidity Score - calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (e.g., in the 183 days prior to index).

Cohort Definition (drug/exposure) - indicates how the cohort will be defined: 01: Cohort includes only the first valid treatment episode during the query period; 02: Cohort includes all valid treatment episodes during the query period; 03: Cohort includes all valid treatment episodes during the query period until an event occurs.

Computed Start Marketing Date - represents the first observed dispensing date among all valid users within a GROUP (scenario) within each Data Partner site.

Days Supplied - number of days supplied for all dispensings in qualifying treatment episodes.

Eligible Members - number of members eligible for an incident treatment episode (defined by the drug/exposure and event washout periods) with drug and medical coverage during the query period.

Enrollment Gap - number of days allowed between two consecutive enrollment periods without breaking a "continuously enrolled" sequence.

Episodes - treatment episodes; length of episode is determined by days supplied in one dispensing or consecutive dispensings bridged by the episode gap.

Episode Gap - number of days allowed between two (or more) consecutive exposures (dispensings/procedures) to be considered the same treatment episode.

Event Deduplication - specifies how events are counted by the Modular Program (MP) algorithm: 0: Counts all occurrences of a health outcome of interest (HOI) during an exposure episode; 1: de-duplicates occurrences of the same HOI code and code type on the same day; 2: de-duplicates occurrences of the same HOI group on the same day (e.g., de-duplicates at the group level).

Exposure Episode Length - number of days after exposure initiation that is considered "exposed time."

Exposure Extension Period - number of days post treatment period in which the outcomes/events are counted for a treatment episode. Extensions are added after any episode gaps have been bridged.

Lookback Period - number of days wherein a member is required to have evidence of pre-existing condition (diagnosis/procedure/drug dispensing).

Maximum Episode Duration - truncates exposure episodes after a requester-specified number of exposed days. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Member-Years - sum of all days of enrollment with medical and drug coverage in the query period preceded by an exposure washout period all divided by 365.25.

Minimum Days Supplied - specifies a minimum number of days in length of the days supplied for the episode to be considered.

Minimum Episode Duration - specifies a minimum number of days in length of the episode for it to be considered. Applied after any gaps are bridged and extension days added to the length of the exposure episode.

Monitoring Period - used to define time periods of interest for both sequential analysis and simple cohort characterization

Principal Diagnosis (PDX) - diagnosis or condition established to be chiefly responsible for admission of the patient to the hospital. 'P' = principal diagnosis, 'S' = secondary diagnosis, 'X' = unspecified diagnosis, '.' = blank. Along with the Care Setting values, forms the CareSetting/PDX parameter.

Query Period - period in which the modular program looks for exposures and outcomes of interest.

Switch Evaluation Step Value - value used to differentiate evaluation step. Each switch pattern can support up to 2 evaluation steps (0 = switch pattern evaluation start; 1 = first evaluation; 2 = second evaluation).

Switch Gap Inclusion Indicator - indicator for whether gaps in treatment episodes that are included in a switch episode will be counted as part of the switch episode duration.

Switch Pattern Cohort Inclusion Date - indicates which date to use for inclusion into the switch pattern cohort of interest as well as optionally as the index date of the treatment episode initiating the switch pattern. Valid options are the product approval date, product marketing date, other requester defined date, or computed start marketing date.

Switch Pattern Cohort Inclusion Strategy - indicates how the switch pattern cohort inclusion date will be used: 01: used only as a switch cohort entry date. First treatment episode dispensing date is used as index for computing time to first switch; 02: used as switch cohort entry date and as initial switch step index date for computing time to first switch.

Treatment Episode Truncation Indicator - indicates whether the exposure episode will be truncated at the occurrence of a requester-specified code.

Washout Period (drug/exposure) - number of days a user is required to have no evidence of prior exposure (drug dispensing/procedure) and continuous drug and medical coverage prior to an incident treatment episode.

Washout Period (event/outcome) - number of days a user is required to have no evidence of a prior event (procedure/diagnosis) and continuous drug and medical coverage prior to an incident treatment episode.

Years at Risk - number of days supplied plus any episode gaps and exposure extension periods all divided by 365.25.

*All terms listed above may not be used in this report

Table 1a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017

Drug Exposure	New Users	New	Dispensings	Days	Amount	Eligible	Number of Exposed	Years at Risk	Eligible Member-
		Episodes		Supplied	Supplied	Members ¹	Members per 1,000		Years ¹
							Eligible Members		
Hydrochlorothiazide (HCTZ)	7,749,207	7,749,207	7,757,442	353,420,767	351,277,785	159,668,234	48.53	23,887,711.7	442,365,611.4
Chlorothiazide (CTZ)	6,084	6,084	6,084	207,125	361,205	159,668,234	0.04	14,824.3	451,670,823.4
Bendroflumethiazide (BFMTZ)	436	436	436	17,557	17,206	159,668,234	0.00	1,399.0	451,678,426.6
HCTZ, CTZ, or BFMTZ	7,754,255	7,754,255	7,762,495	353,590,028	351,595,073	159,668,234	48.56	23,900,389.7	442,358,368.3
Angiotensin Converting-Enzyme (ACE) Inhibitors	4,897,171	4,897,171	4,898,778	206,957,818	217,090,118	141,896,195	34.51	13,472,125.1	369,616,272.7
Beta Blockers	4,563,423	4,563,423	4,567,957	177,260,241	238,757,753	141,896,195	32.16	12,856,992.1	368,893,923.1
Calcium Channel Blockers	2,803,429	2,803,429	2,805,984	106,882,812	121,524,934	142,342,965	19.69	6,827,387.6	371,790,100.4

¹Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 1b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017

Outcome	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Primary Analysis³											
NMSC	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	496,194	37.41	141,896,195	93.48	36,608,087.7	361,961,786.6
Basal Cell Carcinoma	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	269,044	20.28	141,896,195	93.48	37,405,028.7	361,961,786.6
Squamous Cell Carcinoma	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	186,142	14.03	141,896,195	93.48	37,583,521.9	361,961,786.6
Sensitivity Analysis⁴											
NMSC	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	510,416	38.48	141,896,195	93.48	36,569,539.5	361,961,786.6
Basal Cell Carcinoma	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	277,356	20.91	141,896,195	93.48	37,388,353.7	361,961,786.6
Squamous Cell Carcinoma	13,264,313	13,264,313	14,105,371	582,024,970	653,061,008	191,910	14.47	141,896,195	93.48	37,572,510.3	361,961,786.6

¹Incident drug exposures include: hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin converting-enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers

²Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

³A primary analysis event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

⁴A sensitivity analysis event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of a National Drug Code (NDC) of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

Table 2a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
Hydrochlorothiazide (HCTZ)									
2000	61,983	61,983	62,042	4,118,375	3,074,836	6,322,503	9.80	490,157.7	2,891,695.3
2001	98,935	98,935	99,085	5,670,186	4,368,006	6,885,835	14.37	746,610.2	5,704,805.1
2002	100,705	100,705	100,808	6,106,870	4,685,025	6,968,217	14.45	745,247.5	5,745,223.6
2003	125,679	125,679	125,785	7,930,961	6,223,039	6,898,384	18.22	903,856.3	5,658,369.3
2004	123,938	123,938	124,094	7,783,241	14,279,301	7,233,860	17.13	831,726.6	5,823,838.2
2005	105,914	105,914	106,080	6,725,556	5,604,876	7,395,668	14.32	681,780.6	6,050,740.7
2006	198,216	198,216	198,434	10,717,568	9,657,284	18,322,302	10.82	1,083,598.1	10,840,225.5
2007	275,627	275,627	275,955	13,071,571	12,125,816	22,232,658	12.40	1,325,895.3	16,079,330.3
2008	469,936	469,936	470,489	19,925,868	19,208,367	42,178,124	11.14	1,823,573.0	26,311,973.4
2009	534,425	534,425	535,003	22,004,216	21,446,401	43,543,074	12.27	1,883,374.9	33,476,022.0
2010	818,031	818,031	818,880	35,776,046	35,346,433	54,900,214	14.90	3,045,503.6	38,218,555.2
2011	960,882	960,882	961,848	42,041,276	41,729,060	54,940,473	17.49	3,313,967.0	43,884,922.9
2012	865,498	865,498	866,407	38,345,964	38,078,521	56,063,018	15.44	2,505,514.4	44,594,461.2
2013	860,497	860,497	861,433	38,969,468	38,789,554	59,927,328	14.36	1,987,536.5	47,014,529.6
2014	802,913	802,913	803,741	36,469,888	39,359,913	62,090,438	12.93	1,366,655.8	49,031,688.4
2015	781,355	781,355	782,114	33,850,474	33,655,082	62,989,083	12.40	780,732.9	50,381,263.6
2016	389,673	389,673	390,095	17,003,892	16,825,688	45,603,015	8.54	326,201.6	35,044,270.9
2017	175,000	175,000	175,149	6,909,347	6,820,582	36,364,221	4.81	45,779.8	15,613,696.4
Chlorothiazide (CTZ)									
2000	64	64	64	2,028	2,905	6,322,503	0.01	274.3	2,891,695.3
2001	88	88	88	2,718	5,965	6,909,830	0.01	447.8	5,717,206.1
2002	93	93	93	2,797	4,746	7,040,248	0.01	428.3	5,792,307.1
2003	110	110	110	3,739	6,226	7,011,974	0.02	501.2	5,736,793.3
2004	127	127	127	3,853	17,525	7,394,013	0.02	540.1	5,937,041.6
2005	72	72	72	2,167	3,653	7,601,146	0.01	272.3	6,198,342.8
2006	138	138	138	4,657	9,708	18,539,846	0.01	639.0	10,998,862.0
2007	223	223	223	7,063	12,621	22,510,523	0.01	910.5	16,282,302.0
2008	301	301	301	9,951	19,488	42,561,469	0.01	1,060.6	26,592,721.3

Table 2a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
2009	368	368	368	11,841	26,809	44,094,849	0.01	1,041.9	33,866,961.1
2010	522	522	522	17,737	31,238	55,623,843	0.01	1,673.3	38,740,315.0
2011	686	686	686	23,633	36,684	55,931,034	0.01	2,013.8	44,588,205.3
2012	681	681	681	22,671	38,961	57,418,289	0.01	1,675.1	45,581,631.2
2013	730	730	730	25,639	43,315	61,581,630	0.01	1,429.7	48,251,818.1
2014	750	750	750	27,960	42,226	63,997,597	0.01	1,051.8	50,475,874.5
2015	743	743	743	26,452	36,124	65,127,890	0.01	629.8	52,031,314.7
2016	262	262	262	8,437	14,936	46,732,941	0.01	203.4	35,926,404.9
2017	126	126	126	3,782	8,077	37,337,975	0.00	31.3	16,061,027.0
Bendroflumethiazide (BFMTZ)									
2000	7	7	7	179	179	6,322,503	0.00	26.8	2,891,695.3
2001	27	27	27	744	724	6,909,856	0.00	112.2	5,717,222.7
2002	14	14	14	388	388	7,040,308	0.00	54.6	5,792,350.4
2003	21	21	21	641	574	7,012,075	0.00	56.4	5,736,866.5
2004	14	14	14	343	242	7,394,168	0.00	69.3	5,937,165.8
2005	3	3	3	63	48	7,601,354	0.00	2.1	6,198,498.4
2006	15	15	15	495	480	18,540,021	0.00	87.3	10,998,994.5
2007	28	28	28	1,140	1,080	22,510,754	0.00	142.1	16,282,486.1
2008	42	42	42	1,485	1,530	42,561,792	0.00	168.3	26,592,985.4
2009	37	37	37	1,634	1,574	44,095,283	0.00	88.7	33,867,299.3
2010	51	51	51	2,331	2,271	55,624,422	0.00	185.4	38,740,759.1
2011	45	45	45	2,100	1,905	55,931,764	0.00	171.8	44,588,777.8
2012	31	31	31	1,274	1,394	57,419,286	0.00	86.7	45,582,413.8
2013	27	27	27	1,422	1,473	61,582,887	0.00	54.8	48,252,807.3
2014	34	34	34	1,860	1,890	63,999,086	0.00	67.1	50,477,035.7
2015	26	26	26	973	984	65,129,545	0.00	16.9	52,032,614.8
2016	9	9	9	227	212	46,733,810	0.00	6.7	35,927,126.5
2017	5	5	5	258	258	37,338,650	0.00	1.8	16,061,327.2

Table 2a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
HCTZ, CTZ, or BFMTZ									
2000	62,053	62,053	62,112	4,120,552	3,077,889	6,322,503	9.81	490,458.6	2,891,695.3
2001	99,038	99,038	99,189	5,673,313	4,374,163	6,885,805	14.38	747,138.9	5,704,786.3
2002	100,792	100,792	100,896	6,109,443	4,689,478	6,968,137	14.46	745,658.6	5,745,167.7
2003	125,777	125,777	125,884	7,934,188	6,228,816	6,898,250	18.23	904,288.9	5,658,268.0
2004	124,045	124,045	124,201	7,786,392	14,295,975	7,233,662	17.15	832,223.1	5,823,680.7
2005	105,968	105,968	106,134	6,727,157	5,607,975	7,395,422	14.33	681,968.6	6,050,547.5
2006	198,347	198,347	198,565	10,721,830	9,666,171	18,322,127	10.83	1,084,203.7	10,840,090.0
2007	275,846	275,846	276,175	13,078,633	12,138,116	22,232,421	12.41	1,326,795.8	16,079,141.4
2008	470,220	470,220	470,773	19,935,167	19,227,285	42,177,792	11.15	1,824,501.7	26,311,705.7
2009	534,754	534,754	535,333	22,014,636	21,471,238	43,542,632	12.28	1,884,228.9	33,475,678.3
2010	818,535	818,535	819,384	35,793,481	35,377,017	54,899,647	14.91	3,047,125.0	38,218,125.8
2011	961,476	961,476	962,442	42,062,032	41,761,744	54,939,752	17.50	3,315,710.7	43,884,360.0
2012	866,028	866,028	866,937	38,362,893	38,111,286	56,062,048	15.45	2,506,742.1	44,593,702.7
2013	861,041	861,041	861,976	38,988,066	38,824,901	59,926,150	14.37	1,988,566.1	47,013,598.5
2014	803,473	803,473	804,301	36,490,712	39,394,359	62,089,102	12.94	1,367,438.0	49,030,629.9
2015	781,891	781,891	782,651	33,869,209	33,683,042	62,987,655	12.41	781,178.8	50,380,127.7
2016	389,878	389,878	390,300	17,010,306	16,838,402	45,602,250	8.55	326,359.0	35,043,631.7
2017	175,093	175,093	175,242	6,912,018	6,827,217	36,363,616	4.82	45,803.3	15,613,431.1
Angiotensin Converting-Enzyme (ACE) Inhibitors									
2000	31,650	31,650	31,725	1,828,956	1,884,264	5,778,148	5.48	232,836.3	2,614,863.8
2001	48,658	48,658	48,818	2,296,253	2,363,503	6,332,924	7.68	326,675.9	5,146,644.5
2002	50,336	50,336	50,437	2,489,998	2,536,581	6,393,723	7.87	331,279.1	5,165,477.3
2003	45,142	45,142	45,203	2,363,344	2,608,514	6,325,125	7.14	291,416.4	5,085,794.8
2004	51,624	51,624	51,808	2,742,985	4,545,237	6,648,126	7.77	314,811.3	5,240,940.0
2005	50,371	50,371	50,459	2,893,201	2,933,930	6,810,685	7.40	311,214.1	5,458,978.7
2006	95,995	95,995	96,086	4,624,379	4,742,630	16,976,083	5.65	493,169.6	9,908,233.5
2007	145,243	145,243	145,313	6,194,002	6,373,557	20,438,020	7.11	656,801.2	14,678,356.7
2008	271,796	271,796	271,901	10,720,712	11,294,067	39,056,094	6.96	996,430.8	23,877,689.5

Table 2a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
2009	346,669	346,669	346,738	13,433,484	13,909,327	40,476,730	8.56	1,170,042.0	30,480,208.7
2010	502,704	502,704	502,818	20,628,980	21,720,368	45,752,230	10.99	1,755,341.3	32,311,210.9
2011	593,853	593,853	593,976	24,495,183	25,690,888	45,493,150	13.05	1,949,267.9	34,838,265.3
2012	553,419	553,419	553,515	23,319,851	24,350,787	46,253,379	11.96	1,549,272.9	35,209,128.5
2013	565,827	565,827	565,927	24,342,643	25,333,530	49,050,770	11.54	1,285,751.8	36,916,254.6
2014	562,092	562,092	562,174	24,143,090	25,075,675	50,782,675	11.07	957,492.5	38,263,804.2
2015	548,893	548,893	548,949	22,709,786	23,492,097	51,426,605	10.67	568,309.1	39,310,205.9
2016	300,538	300,538	300,561	12,621,980	13,011,013	41,726,349	7.20	246,887.6	31,338,552.1
2017	132,361	132,361	132,370	5,108,991	5,224,150	32,780,182	4.04	35,125.4	13,771,663.6
Beta Blockers									
2000	37,465	37,465	37,499	2,022,101	2,232,580	5,778,148	6.48	284,366.3	2,614,863.8
2001	63,566	63,566	63,641	3,051,874	3,448,361	6,327,373	10.05	469,725.8	5,143,014.8
2002	67,230	67,230	67,297	3,410,790	3,759,858	6,378,562	10.54	480,420.7	5,153,647.6
2003	60,543	60,543	60,608	3,077,866	3,485,072	6,301,524	9.61	410,048.5	5,066,817.4
2004	66,724	66,724	66,937	3,427,159	7,269,942	6,617,556	10.08	424,005.0	5,215,572.9
2005	61,716	61,716	61,907	3,178,859	3,759,661	6,772,917	9.11	380,099.7	5,427,480.7
2006	104,554	104,554	104,722	4,587,116	5,683,493	16,934,122	6.17	532,494.3	9,872,516.5
2007	148,443	148,443	148,628	5,912,002	7,455,850	20,388,289	7.28	670,501.9	14,635,893.7
2008	242,875	242,875	243,170	9,017,481	11,613,191	38,997,727	6.23	886,930.7	23,825,995.9
2009	280,900	280,900	281,107	10,078,611	13,463,565	40,416,361	6.95	938,604.1	30,421,032.8
2010	427,043	427,043	427,369	16,332,689	21,821,927	45,701,093	9.34	1,477,561.1	32,251,750.3
2011	527,050	527,050	527,473	19,875,206	26,701,427	45,458,137	11.59	1,700,856.9	34,783,644.9
2012	518,649	518,649	519,071	19,717,918	26,679,475	46,239,006	11.22	1,423,390.1	35,164,352.9
2013	528,258	528,258	528,723	20,386,899	27,638,784	49,034,894	10.77	1,171,126.2	36,868,769.8
2014	514,077	514,077	514,560	19,783,304	27,102,621	50,759,122	10.13	847,833.2	38,205,803.5
2015	518,666	518,666	519,197	19,167,825	26,476,708	51,393,460	10.09	505,550.8	39,243,624.2
2016	269,492	269,492	269,785	9,967,519	14,111,679	41,671,402	6.47	220,289.1	31,264,831.7
2017	126,172	126,172	126,263	4,265,022	6,053,558	32,713,610	3.86	33,187.8	13,734,309.8

Table 2a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
Calcium Channel Blockers									
2000	13,468	13,468	13,507	593,305	699,650	5,780,490	2.33	85,223.6	2,615,795.8
2001	22,949	22,949	23,024	947,370	1,118,699	6,338,232	3.62	146,218.7	5,149,236.9
2002	20,290	20,290	20,317	829,268	969,366	6,405,080	3.17	119,045.4	5,171,358.6
2003	17,148	17,148	17,171	695,760	865,022	6,342,357	2.70	95,214.2	5,094,673.8
2004	18,983	18,983	19,015	796,113	2,728,281	6,668,707	2.85	98,667.8	5,251,584.3
2005	16,095	16,095	16,125	687,007	826,329	6,836,951	2.35	84,464.2	5,472,866.6
2006	36,159	36,159	36,198	1,417,312	1,671,684	17,008,119	2.13	170,011.9	9,925,507.7
2007	56,623	56,623	56,686	2,036,271	2,432,127	20,480,962	2.76	241,264.5	14,702,455.1
2008	117,376	117,376	117,497	4,176,333	4,908,946	39,159,562	3.00	414,691.0	23,930,040.8
2009	158,534	158,534	158,662	5,626,363	6,495,390	40,693,201	3.90	522,666.9	30,592,915.2
2010	266,493	266,493	266,798	9,964,205	11,276,781	46,163,470	5.77	914,066.8	32,518,250.9
2011	344,394	344,394	344,768	12,919,905	14,496,715	45,897,693	7.50	1,105,757.3	35,086,950.5
2012	337,021	337,021	337,322	12,918,381	14,353,488	46,712,475	7.21	920,159.2	35,490,884.1
2013	357,630	357,630	357,912	14,001,374	15,498,113	49,524,513	7.22	787,137.2	37,210,411.0
2014	358,993	358,993	359,268	14,165,208	15,612,072	51,254,926	7.00	582,596.8	38,568,292.0
2015	385,904	385,904	386,180	14,709,539	16,109,934	51,923,682	7.43	363,581.8	39,625,223.4
2016	186,508	186,508	186,615	7,216,767	7,977,167	42,012,671	4.44	153,017.2	31,518,106.9
2017	88,861	88,861	88,919	3,182,331	3,485,172	33,009,443	2.69	23,603.2	13,865,546.6

¹Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 2b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Primary Analysis³											
NMSC											
2000	107,259	107,259	112,929	6,461,842	6,297,104	6,607	61.60	5,778,148	18.56	774,382.2	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	9,366	56.56	6,306,191	26.26	1,150,219.9	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	9,001	55.46	6,319,527	25.68	1,097,127.8	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	8,516	54.29	6,214,169	25.24	1,037,127.2	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	9,312	54.80	6,504,615	26.12	1,048,682.8	5,140,810.6
2005	153,388	153,388	162,102	9,136,763	9,203,443	7,464	48.66	6,636,420	23.11	932,009.7	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	15,965	51.45	16,785,483	18.49	1,517,631.7	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	21,682	48.39	20,187,003	22.20	1,942,772.9	14,501,792.0
2008	798,965	798,965	847,093	32,735,613	35,970,941	34,642	43.36	38,700,064	20.65	2,790,319.0	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	35,543	37.48	39,951,398	23.74	3,066,557.7	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	69,818	50.78	45,058,277	30.51	4,632,154.8	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	80,015	51.10	44,580,000	35.12	4,947,862.4	34,210,880.0
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	62,310	43.29	45,077,456	31.93	3,886,406.8	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	54,356	37.23	47,676,282	30.63	3,215,198.6	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	39,442	27.79	49,253,480	28.81	2,367,097.2	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	22,271	15.74	49,753,388	28.44	1,454,422.9	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	8,484	10.53	40,646,754	19.83	653,350.9	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	1,400	3.86	31,877,582	11.37	94,763.1	13,390,850.4
Basal Cell Carcinoma											
2000	107,259	107,259	112,929	6,461,842	6,297,104	1,697	15.82	5,778,148	18.56	808,966.2	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	2,561	15.47	6,306,191	26.26	1,197,266.2	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	2,747	16.93	6,319,527	25.68	1,140,591.3	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	2,745	17.50	6,214,169	25.24	1,076,135.8	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	3,224	18.97	6,504,615	26.12	1,089,095.1	5,140,810.6

Table 2b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
2005	153,388	153,388	162,102	9,136,763	9,203,443	3,036	19.79	6,636,420	23.11	961,310.0	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	5,647	18.20	16,785,483	18.49	1,572,375.5	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	8,153	18.19	20,187,003	22.20	2,007,411.5	14,501,792.0
2008	798,965	798,965	847,093	32,735,613	35,970,941	13,196	16.52	38,700,064	20.65	2,877,687.0	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	15,495	16.34	39,951,398	23.74	3,138,880.0	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	36,179	26.31	45,058,277	30.51	4,740,984.9	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	48,777	31.15	44,580,000	35.12	5,030,729.1	34,210,880.0
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	41,378	28.75	45,077,456	31.93	3,928,167.0	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	35,889	24.58	47,676,282	30.63	3,243,832.6	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	26,127	18.41	49,253,480	28.81	2,382,062.0	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	15,143	10.70	49,753,388	28.44	1,459,897.4	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	6,074	7.54	40,646,754	19.83	654,778.2	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	976	2.69	31,877,582	11.37	94,858.8	13,390,850.4
Squamous Cell Carcinoma											
2000	107,259	107,259	112,929	6,461,842	6,297,104	999	9.31	5,778,148	18.56	811,254.8	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	1,424	8.60	6,306,191	26.26	1,200,828.1	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	1,516	9.34	6,319,527	25.68	1,144,550.6	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	1,514	9.65	6,214,169	25.24	1,080,200.3	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	1,727	10.16	6,504,615	26.12	1,093,853.0	5,140,810.6
2005	153,388	153,388	162,102	9,136,763	9,203,443	1,520	9.91	6,636,420	23.11	965,971.4	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	3,340	10.76	16,785,483	18.49	1,579,207.1	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	5,026	11.22	20,187,003	22.20	2,016,760.5	14,501,792.0
2008	798,965	798,965	847,093	32,735,613	35,970,941	8,627	10.80	38,700,064	20.65	2,889,968.1	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	9,696	10.22	39,951,398	23.74	3,154,153.2	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	27,359	19.90	45,058,277	30.51	4,763,761.7	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	36,688	23.43	44,580,000	35.12	5,060,699.0	34,210,880.0

Table 2b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	30,269	21.03	45,077,456	31.93	3,952,508.0	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	25,534	17.49	47,676,282	30.63	3,261,241.5	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	17,975	12.67	49,253,480	28.81	2,392,085.4	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	9,305	6.58	49,753,388	28.44	1,465,089.7	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	3,115	3.86	40,646,754	19.83	656,436.3	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	508	1.40	31,877,582	11.37	94,953.2	13,390,850.4
Sensitivity Analysis⁴											
NMSC											
2000	107,259	107,259	112,929	6,461,842	6,297,104	6,755	62.98	5,778,148	18.56	773,279.1	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	9,567	57.77	6,306,191	26.26	1,148,986.2	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	9,209	56.74	6,319,527	25.68	1,095,577.5	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	8,726	55.63	6,214,169	25.24	1,035,756.5	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	9,510	55.97	6,504,615	26.12	1,047,477.9	5,140,810.6
2005	153,388	153,388	162,102	9,136,763	9,203,443	7,647	49.85	6,636,420	23.11	930,919.8	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	16,301	52.53	16,785,483	18.49	1,515,894.7	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	22,154	49.44	20,187,003	22.20	1,940,618.8	14,501,792.0
2008	798,965	798,965	847,093	32,735,613	35,970,941	35,321	44.21	38,700,064	20.65	2,787,615.1	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	36,291	38.26	39,951,398	23.74	3,064,041.9	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	71,911	52.30	45,058,277	30.51	4,625,922.8	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	82,417	52.63	44,580,000	35.12	4,941,529.9	34,210,880.0
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	64,273	44.66	45,077,456	31.93	3,882,329.8	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	56,261	38.53	47,676,282	30.63	3,212,192.4	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	40,856	28.79	49,253,480	28.81	2,365,565.5	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	23,030	16.27	49,753,388	28.44	1,453,883.0	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	8,739	10.84	40,646,754	19.83	653,196.0	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	1,448	3.99	31,877,582	11.37	94,752.7	13,390,850.4

Table 2b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Basal Cell Carcinoma											
2000	107,259	107,259	112,929	6,461,842	6,297,104	1,736	16.19	5,778,148	18.56	808,850.2	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	2,624	15.85	6,306,191	26.26	1,197,051.8	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	2,831	17.44	6,319,527	25.68	1,140,333.6	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	2,830	18.04	6,214,169	25.24	1,075,854.2	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	3,298	19.41	6,504,615	26.12	1,088,836.5	5,140,810.6
2005	153,388	153,388	162,102	9,136,763	9,203,443	3,123	20.36	6,636,420	23.11	961,060.1	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	5,777	18.62	16,785,483	18.49	1,571,980.8	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	8,330	18.59	20,187,003	22.20	2,006,931.7	14,501,792.0
2008	798,965	798,965	847,093	32,735,613	35,970,941	13,484	16.88	38,700,064	20.65	2,876,844.0	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	15,821	16.68	39,951,398	23.74	3,138,001.9	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	37,325	27.15	45,058,277	30.51	4,738,173.8	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	50,328	32.14	44,580,000	35.12	5,027,019.3	34,210,880.0
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	42,691	29.66	45,077,456	31.93	3,925,461.9	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	37,144	25.44	47,676,282	30.63	3,241,868.9	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	27,082	19.08	49,253,480	28.81	2,381,044.1	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	15,665	11.07	49,753,388	28.44	1,459,520.0	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	6,254	7.76	40,646,754	19.83	654,669.8	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	1,013	2.79	31,877,582	11.37	94,851.2	13,390,850.4
Squamous Cell Carcinoma											
2000	107,259	107,259	112,929	6,461,842	6,297,104	1,026	9.57	5,778,148	18.56	811,185.8	2,614,863.8
2001	165,598	165,598	174,161	8,634,738	8,575,065	1,476	8.91	6,306,191	26.26	1,200,703.2	5,132,327.6
2002	162,295	162,295	170,596	8,901,109	8,707,937	1,567	9.66	6,319,527	25.68	1,144,384.7	5,117,327.3
2003	156,851	156,851	165,402	9,071,655	8,972,575	1,562	9.96	6,214,169	25.24	1,080,077.5	5,010,397.7
2004	169,917	169,917	180,757	9,919,126	18,779,009	1,773	10.43	6,504,615	26.12	1,093,720.2	5,140,810.6
2005	153,388	153,388	162,102	9,136,763	9,203,443	1,560	10.17	6,636,420	23.11	965,875.5	5,336,772.3
2006	310,330	310,330	328,622	15,393,444	16,167,823	3,422	11.03	16,785,483	18.49	1,578,982.9	9,773,352.5
2007	448,114	448,114	472,964	19,764,421	21,166,304	5,151	11.49	20,187,003	22.20	2,016,411.4	14,501,792.0

Table 2b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
2008	798,965	798,965	847,093	32,735,613	35,970,941	8,784	10.99	38,700,064	20.65	2,889,531.7	23,627,233.3
2009	948,436	948,436	1,000,824	37,747,358	41,707,354	9,888	10.43	39,951,398	23.74	3,153,671.9	30,122,986.9
2010	1,374,932	1,374,932	1,469,044	59,010,339	66,017,966	28,252	20.55	45,058,277	30.51	4,761,753.3	31,830,982.3
2011	1,565,824	1,565,824	1,674,439	67,117,417	75,367,825	37,878	24.19	44,580,000	35.12	5,057,964.1	34,210,880.0
2012	1,439,297	1,439,297	1,537,757	62,629,459	70,458,917	31,220	21.69	45,077,456	31.93	3,950,683.7	34,388,314.6
2013	1,460,160	1,460,160	1,557,393	64,788,181	72,893,435	26,448	18.11	47,676,282	30.63	3,259,878.4	35,941,392.1
2014	1,419,162	1,419,162	1,512,345	62,805,858	70,819,791	18,575	13.09	49,253,480	28.81	2,391,464.2	37,175,589.4
2015	1,415,181	1,415,181	1,506,244	60,075,310	67,774,791	9,611	6.79	49,753,388	28.44	1,464,886.8	38,100,193.3
2016	806,060	806,060	850,608	33,914,608	38,405,286	3,199	3.97	40,646,754	19.83	656,384.7	30,545,720.6
2017	362,544	362,544	382,091	13,917,729	15,775,443	518	1.43	31,877,582	11.37	94,950.3	13,390,850.4

¹Incident drug exposures include: hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin converting-enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers

²Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

³A primary analysis event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

⁴A sensitivity analysis event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of a National Drug Code (NDC) of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

Table 3a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Sex

Sex	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
Hydrochlorothiazide (HCTZ)									
Female	4,494,343	4,494,343	4,498,967	201,314,234	200,603,729	82,256,246	54.64	14,075,643.9	229,323,863.7
Male	3,254,555	3,254,555	3,258,166	152,090,604	150,659,058	77,404,672	42.05	9,810,881.4	213,023,778.3
Other	309	309	309	15,929	14,998	7,316	42.24	1,186.4	17,969.4
Chlorothiazide (CTZ)									
Female	3,452	3,452	3,452	119,396	189,251	82,256,246	0.04	8,845.2	234,915,913.6
Male	2,632	2,632	2,632	87,729	171,954	77,404,672	0.03	5,979.0	216,736,449.2
Other	0	0	0	0	0	7,316	0.00	0.0	18,460.6
Bendroflumethiazide (BFMTZ)									
Female	276	276	276	11,042	10,644	82,256,246	0.00	898.8	234,920,450.0
Male	160	160	160	6,515	6,562	77,404,672	0.00	500.1	216,739,516.0
Other	0	0	0	0	0	7,316	0.00	0.0	18,460.6
HCTZ, CTZ, or BFMTZ									
Female	4,497,113	4,497,113	4,501,743	201,409,471	200,765,789	82,256,246	54.67	14,083,040.2	229,319,630.9
Male	3,256,833	3,256,833	3,260,443	152,164,628	150,814,286	77,404,672	42.08	9,816,163.1	213,020,768.0
Other	309	309	309	15,929	14,998	7,316	42.24	1,186.4	17,969.4
Angiotensin Converting-Enzyme (ACE) Inhibitors									
Female	2,180,433	2,180,433	2,181,210	90,990,559	95,363,267	72,710,652	29.99	6,074,427.7	191,814,151.6
Male	2,716,554	2,716,554	2,717,384	115,958,449	121,717,888	69,178,609	39.27	7,397,040.8	177,786,746.4
Other	184	184	184	8,810	8,963	6,934	26.54	656.6	15,374.7
Beta Blockers									
Female	2,475,595	2,475,595	2,478,014	94,763,845	127,996,206	72,710,652	34.05	7,006,147.0	190,979,437.1
Male	2,087,662	2,087,662	2,089,777	82,489,355	110,752,090	69,178,609	30.18	5,850,235.2	177,899,120.9
Other	166	166	166	7,041	9,457	6,934	23.94	609.9	15,365.1
Calcium Channel Blockers									
Female	1,545,535	1,545,535	1,546,900	57,510,865	67,359,579	72,955,412	21.18	3,848,428.7	192,573,419.4
Male	1,257,783	1,257,783	1,258,973	49,367,533	54,160,444	69,380,603	18.13	2,978,588.8	179,201,230.8
Other	111	111	111	4,414	4,912	6,950	15.97	370.1	15,450.2

¹Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 3b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Sex

Sex	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Primary Analysis³											
NMSC											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	209,604	29.91	72,710,652	96.38	19,847,236.5	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	286,575	45.81	69,178,609	90.43	16,759,015.5	174,896,172.6
Other	513	513	540	24,761	26,545	15	29.24	6,934	73.98	1,835.7	14,967.0
Basal Cell Carcinoma											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	108,348	15.46	72,710,652	96.38	20,199,207.3	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	160,688	25.69	69,178,609	90.43	17,203,951.1	174,896,172.6
Other	513	513	540	24,761	26,545	8	15.59	6,934	73.98	1,870.2	14,967.0
Squamous Cell Carcinoma											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	74,931	10.69	72,710,652	96.38	20,268,992.9	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	111,206	17.78	69,178,609	90.43	17,312,655.5	174,896,172.6
Other	513	513	540	24,761	26,545	5	9.75	6,934	73.98	1,873.4	14,967.0
Sensitivity Analysis⁴											
NMSC											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	216,559	30.90	72,710,652	96.38	19,828,018.6	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	293,841	46.97	69,178,609	90.43	16,739,685.6	174,896,172.6
Other	513	513	540	24,761	26,545	16	31.19	6,934	73.98	1,835.3	14,967.0
Basal Cell Carcinoma											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	112,305	16.03	72,710,652	96.38	20,191,344.2	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	165,043	26.38	69,178,609	90.43	17,195,139.3	174,896,172.6
Other	513	513	540	24,761	26,545	8	15.59	6,934	73.98	1,870.2	14,967.0

Table 3b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Sex

Sex	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Squamous Cell Carcinoma											
Female	7,008,088	7,008,088	7,382,144	299,783,057	338,322,811	77,392	11.04	72,710,652	96.38	20,264,284.8	187,050,647.0
Male	6,255,712	6,255,712	6,722,687	282,217,152	314,711,652	114,512	18.31	69,178,609	90.43	17,306,352.5	174,896,172.6
Other	513	513	540	24,761	26,545	6	11.70	6,934	73.98	1,873.0	14,967.0

¹Incident drug exposures include: hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin converting-enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers

²Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

³A primary analysis event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

⁴A sensitivity analysis event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of a National Drug Code (NDC) of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

Table 4a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Age

Age Group (Years)	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member- Years ¹
Hydrochlorothiazide (HCTZ)									
0-19	21,746	21,746	21,778	722,269	1,338,773	37,267,954	0.58	71,614.6	99,123,169.4
20-44	1,289,159	1,289,159	1,290,374	49,824,460	49,847,878	62,949,078	20.48	3,746,087.5	136,811,509.3
45-64	3,140,575	3,140,575	3,144,116	137,241,889	135,638,648	43,158,222	72.77	9,886,241.1	113,326,508.4
65+	3,297,727	3,297,727	3,301,174	165,632,149	164,452,487	33,068,209	99.72	10,183,768.4	93,104,424.2
Chlorothiazide (CTZ)									
0-19	1,527	1,527	1,527	44,773	152,302	37,267,954	0.04	4,115.8	99,146,527.3
20-44	652	652	652	20,369	29,743	62,959,996	0.01	1,702.1	138,066,239.3
45-64	1,313	1,313	1,313	42,983	56,402	43,408,379	0.03	3,385.6	116,975,946.4
65+	2,592	2,592	2,592	99,000	122,758	33,342,761	0.08	5,620.8	97,482,110.4
Bendroflumethiazide (BFMTZ)									
0-19	5	5	5	150	120	37,267,954	0.00	4.4	99,149,112.0
20-44	69	69	69	2,254	2,197	62,960,088	0.00	214.5	138,067,184.8
45-64	197	197	197	7,059	6,972	43,408,480	0.00	613.7	116,977,471.5
65+	165	165	165	8,094	7,917	33,342,890	0.00	566.4	97,484,658.3
HCTZ, CTZ, or BFMTZ									
0-19	23,217	23,217	23,249	765,217	1,487,881	37,267,954	0.62	75,537.2	99,120,668.0
20-44	1,289,757	1,289,757	1,290,973	49,843,259	49,875,388	62,948,994	20.49	3,747,666.7	136,810,563.6
45-64	3,141,638	3,141,638	3,145,182	137,276,353	135,685,047	43,158,109	72.79	9,889,007.3	113,324,949.9
65+	3,299,643	3,299,643	3,303,091	165,705,199	164,546,758	33,068,087	99.78	10,188,178.4	93,102,186.8
Angiotensin Converting-Enzyme (ACE) Inhibitors									
0-19	34,560	34,560	34,601	1,220,290	1,946,256	37,232,523	0.93	108,504.6	98,854,420.8
20-44	909,523	909,523	909,948	33,726,372	35,210,576	61,662,154	14.75	2,388,254.5	131,584,773.7
45-64	2,128,522	2,128,522	2,129,204	86,709,707	90,200,220	37,370,776	56.96	5,936,685.1	91,623,679.0
65+	1,824,566	1,824,566	1,825,025	85,301,449	89,733,066	20,800,100	87.72	5,038,680.9	47,553,399.2
Beta Blockers									
0-19	118,018	118,018	118,140	3,727,324	6,917,316	37,232,523	3.17	336,536.9	98,752,021.5
20-44	1,063,951	1,063,951	1,065,108	35,944,890	52,459,489	61,626,801	17.26	2,827,091.7	130,961,376.8
45-64	1,614,914	1,614,914	1,616,418	61,948,714	81,703,708	37,363,068	43.22	4,883,342.0	91,571,591.2
65+	1,766,540	1,766,540	1,768,291	75,639,313	97,677,240	20,812,954	84.88	4,810,021.6	47,608,933.7

Table 4a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Age

Age Group (Years)	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member- Years ¹
Calcium Channel Blockers									
0-19	30,549	30,549	30,678	926,560	1,803,697	37,232,873	0.82	90,561.9	98,856,411.5
20-44	531,259	531,259	531,611	17,027,504	22,805,609	61,692,905	8.61	1,311,791.3	131,674,616.0
45-64	943,739	943,739	944,504	35,169,886	38,486,294	37,589,070	25.11	2,313,314.5	92,725,997.8
65+	1,297,882	1,297,882	1,299,191	53,758,862	58,429,335	21,156,787	61.35	3,111,719.9	48,533,075.1

¹Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 4b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Age Group

Age Group (Years)	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Primary Analysis³											
NMSC											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	47	0.24	37,232,523	5.23	573,692.5	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	14,185	4.70	61,596,286	49.04	8,090,887.6	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	137,506	25.73	37,083,959	144.12	15,392,904.4	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	344,456	73.22	20,623,086	228.12	12,550,603.3	45,455,052.3
Basal Cell Carcinoma											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	19	0.10	37,232,523	5.23	573,781.5	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	7,955	2.63	61,596,286	49.04	8,115,402.9	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	73,865	13.82	37,083,959	144.12	15,639,437.2	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	187,205	39.79	20,623,086	228.12	13,076,407.1	45,455,052.3
Squamous Cell Carcinoma											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	5	0.03	37,232,523	5.23	573,801.4	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	1,953	0.65	61,596,286	49.04	8,127,339.8	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	34,375	6.43	37,083,959	144.12	15,721,158.2	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	149,809	31.84	20,623,086	228.12	13,161,222.4	45,455,052.3
Sensitivity Analysis⁴											
NMSC											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	48	0.25	37,232,523	5.23	573,682.0	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	14,720	4.87	61,596,286	49.04	8,089,187.7	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	141,260	26.43	37,083,959	144.12	15,380,996.6	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	354,388	75.33	20,623,086	228.12	12,525,673.3	45,455,052.3
Basal Cell Carcinoma											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	19	0.10	37,232,523	5.23	573,780.5	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	8,276	2.74	61,596,286	49.04	8,114,769.5	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	75,990	14.22	37,083,959	144.12	15,634,833.2	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	193,071	41.04	20,623,086	228.12	13,064,970.6	45,455,052.3

Table 4b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Age Group

Age Group (Years)	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Squamous Cell Carcinoma											
0-19	194,671	194,671	197,551	6,338,328	11,734,687	5	0.03	37,232,523	5.23	573,801.4	98,673,540.7
20-44	3,020,591	3,020,591	3,128,048	111,253,041	132,431,233	2,018	0.67	61,596,286	49.04	8,127,196.4	129,300,636.3
45-64	5,344,446	5,344,446	5,690,928	230,311,169	250,899,996	35,358	6.62	37,083,959	144.12	15,719,202.1	88,532,557.3
65+	4,704,605	4,704,605	5,088,844	234,122,432	257,995,092	154,529	32.85	20,623,086	228.12	13,152,310.4	45,455,052.3

¹Incident drug exposures include: hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin converting-enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers

²Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

³A primary analysis event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

⁴A sensitivity analysis event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of a National Drug Code (NDC) of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

Table 5a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
Hydrochlorothiazide (HCTZ)									
American Indian or Alaska Native	27,118	27,118	27,139	1,327,480	1,184,042	348,063	77.91	100,328.9	1,311,649.0
Asian	196,901	196,901	197,016	13,141,442	11,506,184	2,875,753	68.47	985,460.1	13,313,973.4
Black or African American	695,305	695,305	696,247	31,809,471	32,501,238	6,118,950	113.63	2,268,295.2	20,895,020.0
Native Hawaiian or Other Pacific Islander	23,029	23,029	23,039	1,399,928	1,202,552	300,138	76.73	125,248.8	1,580,583.5
Unknown	3,350,755	3,350,755	3,354,270	128,968,239	128,966,261	109,102,978	30.71	8,587,352.1	263,307,372.2
White	3,456,099	3,456,099	3,459,731	176,774,207	175,917,509	40,922,352	84.46	11,821,026.6	141,957,013.5
Chlorothiazide (CTZ)									
American Indian or Alaska Native	8	8	8	155	273	348,063	0.02	18.5	1,354,566.3
Asian	85	85	85	3,504	5,642	2,875,753	0.03	229.4	13,759,673.3
Black or African American	439	439	439	15,269	22,955	6,118,950	0.07	999.8	21,787,247.3
Native Hawaiian or Other Pacific Islander	6	6	6	207	357	300,138	0.02	8.0	1,642,653.8
Unknown	2,630	2,630	2,630	82,701	177,151	109,102,978	0.02	6,440.5	266,613,340.6
White	2,916	2,916	2,916	105,289	154,828	40,922,352	0.07	7,128.1	146,513,342.2
Bendroflumethiazide (BFMTZ)									
American Indian or Alaska Native	1	1	1	18	18	348,063	0.00	0.0	1,354,580.5
Asian	4	4	4	180	180	2,875,753	0.00	22.9	13,759,820.3
Black or African American	52	52	52	2,101	2,129	6,118,950	0.01	167.2	21,787,710.8
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	300,138	0.00	0.0	1,642,657.1
Unknown	216	216	216	8,271	8,104	109,102,978	0.00	630.8	266,616,910.6
White	163	163	163	6,987	6,775	40,922,352	0.00	578.0	146,516,747.4

Table 5a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
HCTZ, CTZ, or BFMTZ									
American Indian or Alaska Native	27,125	27,125	27,146	1,327,632	1,184,285	348,063	77.93	100,347.3	1,311,634.8
Asian	196,970	196,970	197,085	13,144,056	11,510,726	2,875,753	68.49	985,671.3	13,313,813.9
Black or African American	695,639	695,639	696,582	31,820,859	32,519,752	6,118,950	113.69	2,269,100.7	20,894,550.7
Native Hawaiian or Other Pacific Islander	23,035	23,035	23,045	1,400,135	1,202,909	300,138	76.75	125,256.9	1,580,580.2
Unknown	3,353,133	3,353,133	3,356,648	129,042,558	129,133,091	109,102,978	30.73	8,593,209.1	263,303,865.3
White	3,458,353	3,458,353	3,461,989	176,854,788	176,044,312	40,922,352	84.51	11,826,804.5	141,953,923.4
Angiotensin Converting-Enzyme (ACE) Inhibitors									
American Indian or Alaska Native	22,797	22,797	22,804	1,017,659	1,041,926	292,818	77.85	71,048.2	1,017,225.5
Asian	108,100	108,100	108,135	6,668,300	6,776,216	2,551,751	42.36	485,203.3	11,396,838.3
Black or African American	308,967	308,967	309,245	12,957,206	14,070,632	4,605,143	67.09	907,807.5	15,458,711.6
Native Hawaiian or Other Pacific Islander	17,120	17,120	17,120	924,526	917,810	270,634	63.26	86,280.4	1,371,272.4
Unknown	2,358,311	2,358,311	2,358,711	88,035,887	91,597,440	103,714,305	22.74	5,651,767.0	241,748,605.9
White	2,081,876	2,081,876	2,082,763	97,354,240	102,686,094	30,461,544	68.34	6,270,018.7	98,623,619.0
Beta Blockers									
American Indian or Alaska Native	17,296	17,296	17,305	705,216	953,265	292,818	59.07	56,251.5	1,016,366.6
Asian	109,740	109,740	109,802	6,097,357	7,418,089	2,551,751	43.01	509,306.8	11,380,239.1
Black or African American	237,082	237,082	237,453	9,430,595	13,359,281	4,605,143	51.48	694,587.3	15,473,792.3
Native Hawaiian or Other Pacific Islander	11,678	11,678	11,686	571,547	730,991	270,634	43.15	59,529.3	1,377,241.3
Unknown	2,052,551	2,052,551	2,054,090	69,508,442	93,600,330	103,714,305	19.79	4,899,619.8	241,507,805.7
White	2,135,076	2,135,076	2,137,621	90,947,084	122,695,797	30,461,544	70.09	6,637,697.3	98,138,478.0

Table 5a. Summary of Incident Drug Exposures among Individuals in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	Eligible Members ¹	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ¹
Calcium Channel Blockers									
American Indian or Alaska Native	10,301	10,301	10,317	408,198	452,241	293,936	35.05	28,322.6	1,028,671.8
Asian	75,167	75,167	75,223	3,816,802	4,265,662	2,559,081	29.37	243,348.2	11,483,225.1
Black or African American	294,667	294,667	295,135	11,488,469	12,829,219	4,625,580	63.70	749,845.6	15,526,312.0
Native Hawaiian or Other Pacific Islander	7,112	7,112	7,118	344,552	380,848	271,046	26.24	28,074.3	1,389,783.9
Unknown	1,186,764	1,186,764	1,187,607	40,709,913	46,769,441	103,868,281	11.43	2,623,496.0	242,737,561.1
White	1,229,418	1,229,418	1,230,584	50,114,878	56,827,523	30,725,041	40.01	3,154,301.0	99,624,546.5

¹Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

Table 5b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Primary Analysis³											
NMSC											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	800	16.27	292,818	167.95	163,384.7	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	1,218	3.84	2,551,751	124.35	1,464,543.8	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	734	0.86	4,605,143	185.09	2,663,173.9	14,923,785.1
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	372	9.82	270,634	139.96	192,926.9	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	157,525	24.32	103,714,305	62.45	15,246,196.2	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	335,545	60.67	30,461,544	181.55	16,877,862.1	95,374,997.3
Basal Cell Carcinoma											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	429	8.72	292,818	167.95	165,008.3	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	432	1.36	2,551,751	124.35	1,468,012.4	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	213	0.25	4,605,143	185.09	2,664,638.3	14,923,785.1
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	169	4.46	270,634	139.96	193,842.2	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	82,738	12.77	103,714,305	62.45	15,487,187.6	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	185,063	33.46	30,461,544	181.55	17,426,339.8	95,374,997.3
Squamous Cell Carcinoma											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	243	4.94	292,818	167.95	165,408.6	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	406	1.28	2,551,751	124.35	1,468,123.4	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	312	0.37	4,605,143	185.09	2,664,536.6	14,923,785.1

Table 5b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	153	4.04	270,634	139.96	193,877.6	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	46,558	7.19	103,714,305	62.45	15,556,711.5	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	138,470	25.04	30,461,544	181.55	17,534,864.3	95,374,997.3
Sensitivity Analysis⁴											
NMSC											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	823	16.73	292,818	167.95	163,327.5	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	1,259	3.97	2,551,751	124.35	1,464,430.4	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	763	0.90	4,605,143	185.09	2,663,098.0	14,923,785.1
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	379	10.01	270,634	139.96	192,898.3	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	161,412	24.92	103,714,305	62.45	15,235,698.3	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	345,780	62.52	30,461,544	181.55	16,850,087.1	95,374,997.3
Basal Cell Carcinoma											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	444	9.03	292,818	167.95	164,988.9	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	443	1.40	2,551,751	124.35	1,467,992.4	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	220	0.26	4,605,143	185.09	2,664,623.9	14,923,785.1
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	171	4.51	270,634	139.96	193,840.0	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	84,931	13.11	103,714,305	62.45	15,482,862.3	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	191,147	34.56	30,461,544	181.55	17,414,046.2	95,374,997.3

Table 5b. Summary of Non-Melanoma Skin Cancer (NMSC) Events among Individuals with Incident Drug Exposure¹ in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Race

Race	New Users	New Episodes	Dispensings	Days Supplied	Amount Supplied	New Episodes with an Event	New Episodes with an Event per 1,000 New Episodes	Eligible Members ²	Number of Exposed Members per 1,000 Eligible Members	Years at Risk	Eligible Member-Years ²
Squamous Cell Carcinoma											
American Indian or Alaska Native	49,180	49,180	54,156	2,387,983	2,587,432	251	5.10	292,818	167.95	165,394.2	986,190.4
Asian	317,308	317,308	333,947	20,095,121	20,837,686	421	1.33	2,551,751	124.35	1,468,094.7	11,106,140.0
Black or African	852,344	852,344	950,042	40,284,889	45,209,016	327	0.38	4,605,143	185.09	2,664,513.5	14,923,785.1
Native Hawaiian or Other Pacific Islander	37,878	37,878	39,887	2,150,130	2,201,014	156	4.12	270,634	139.96	193,873.7	1,335,101.0
Unknown	6,477,161	6,477,161	6,835,350	245,679,353	276,058,711	47,652	7.36	103,714,305	62.45	15,554,477.8	238,235,572.7
White	5,530,442	5,530,442	5,891,989	271,427,494	306,167,150	143,103	25.88	30,461,544	181.55	17,526,156.4	95,374,997.3

¹Incident drug exposures include: hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin converting-enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers

²Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on at least one day during the query period

³A primary analysis event combination was defined as evidence of a Current Procedural Terminology, Fourth Edition (CPT-4) procedure code for removal of a tumor on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

⁴A sensitivity analysis event combination was defined as evidence of a CPT-4 procedure code for removal of a tumor or evidence of a National Drug Code (NDC) of a topical chemotherapeutic agent treatment on the same day as or within 30 days after evidence of a NMSC, basal cell carcinoma, or squamous cell carcinoma diagnosis code

Table 6. Summary Statistics of Follow-Up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017

Drug Exposure	Mean (Days)	Minimum (Days)	Q1 (Days)	Median (Days)	Q3 (Days)	Maximum (Days)
Hydrochlorothiazide (HCTZ)	1126	1	342	829	1,573	6,270
Chlorothiazide (CTZ)	890	1	225	587	1,289	6,228
Bendroflumethiazide (BFMTZ)	1172	2	367	932	1,716	5,665
HCTZ, CTZ, or BFMTZ	1126	1	342	829	1,573	6,270
Angiotensin Converting-Enzyme (ACE) Inhibitors	1005	1	301	732	1,423	6,269
Beta Blockers	1029	1	287	719	1,428	6,269
Calcium Channel Blockers	1126	1	342	829	1,573	6,270

Table 7a. Summary of Follow-up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017

Drug Exposure	Follow-up Time									
	0-<1 year		1-<2 years		2-<3 years		3-<5 years		5+ years	
	Number of Episodes	Percent	Number of Episodes	Percent	Number of Episodes	Percent	Number of Episodes	Percent	Number of Episodes	Percent
Hydrochlorothiazide (HCTZ)	2,049,416	26.45%	1,488,215	19.20%	1,147,245	14.80%	1,640,755	21.17%	1,423,576	18.37%
Chlorothiazide (CTZ)	2,171	35.68%	1,264	20.78%	834	13.71%	1,049	17.24%	766	12.59%
Bendroflumethiazide (BFMTZ)	109	25.00%	77	17.66%	59	13.53%	105	24.08%	86	19.72%
HCTZ, CTZ, or BFMTZ	2,051,203	26.45%	1,489,248	19.21%	1,147,897	14.80%	1,641,646	21.17%	1,424,261	18.37%
Angiotensin Converting-Enzyme (ACE) Inhibitors	1,447,163	29.55%	996,468	20.35%	732,953	14.97%	979,146	19.99%	741,441	15.14%
Beta Blockers	1,390,580	30.47%	914,138	20.03%	665,998	14.59%	875,239	19.18%	717,468	15.72%
Calcium Channel Blockers	918,565	32.77%	594,326	21.20%	425,159	15.17%	539,760	19.25%	325,619	11.62%

Table 7b. Summary of Follow-up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	Follow-up Time				
	0-<1 year	1-<2 years	2-<3 years	3-<5 years	5+ years
Hydrochlorothiazide (HCTZ)					
2000	6,470	5,367	4,936	7,944	37,266
2001	10,463	9,448	7,108	21,426	50,490
2002	11,516	8,459	8,162	20,280	52,288
2003	13,348	11,963	19,184	14,064	67,120
2004	14,985	21,389	9,112	12,735	65,717
2005	20,469	9,914	7,249	11,784	56,498
2006	32,680	23,249	21,081	27,531	93,675
2007	49,241	41,321	29,112	40,326	115,627
2008	111,512	79,578	52,396	65,615	160,835
2009	139,391	89,391	60,585	80,797	164,261
2010	144,774	103,338	75,041	127,763	367,115
2011	150,009	108,462	96,946	476,093	129,372
2012	138,644	112,615	85,194	465,733	63,312
2013	148,514	106,405	424,162	181,416	0
2014	141,730	436,843	137,092	87,248	0
2015	490,347	181,123	109,885	0	0
2016	250,323	139,350	0	0	0
2017	175,000	0	0	0	0
Chlorothiazide (CTZ)					
2000	20	6	6	10	22
2001	24	6	2	34	22
2002	18	12	10	27	26
2003	21	16	32	10	31
2004	31	40	6	6	44
2005	28	12	5	6	21
2006	35	15	15	15	58
2007	59	27	24	41	72
2008	72	63	42	30	94
2009	128	64	41	53	82
2010	140	61	48	84	189
2011	166	91	80	274	75
2012	177	102	79	293	30
2013	210	113	284	123	0
2014	198	419	90	43	0
2015	541	132	70	0	0
2016	177	85	0	0	0
2017	126	0	0	0	0

Table 7b. Summary of Follow-up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	Follow-up Time				
	0-<1 year	1-<2 years	2-<3 years	3-<5 years	5+ years
Bendroflumethiazide (BFMTZ)					
2000	1	0	1	2	3
2001	2	3	0	20	2
2002	2	2	1	6	3
2003	6	4	7	1	3
2004	2	5	1	0	6
2005	3	0	0	0	0
2006	1	1	3	3	7
2007	4	3	5	4	12
2008	8	8	4	7	15
2009	12	11	5	4	5
2010	9	9	3	7	23
2011	5	4	4	26	6
2012	8	2	3	17	1
2013	8	2	13	4	0
2014	3	19	8	4	0
2015	22	3	1	0	0
2016	8	1	0	0	0
2017	5	0	0	0	0
HCTZ, CTZ, or BFMTZ					
2000	6,490	5,373	4,943	7,956	37,291
2001	10,486	9,455	7,109	21,475	50,513
2002	11,532	8,472	8,173	20,301	52,314
2003	13,367	11,981	19,207	14,075	67,147
2004	15,013	21,417	9,116	12,740	65,759
2005	20,489	9,925	7,253	11,789	56,512
2006	32,710	23,265	21,097	27,547	93,728
2007	49,298	41,346	29,139	40,365	115,698
2008	111,583	79,640	52,435	65,648	160,914
2009	139,517	89,452	60,621	80,839	164,325
2010	144,905	103,396	75,090	127,844	367,300
2011	150,155	108,539	97,012	476,341	129,429
2012	138,795	112,706	85,261	465,935	63,331
2013	148,687	106,493	424,350	181,511	0
2014	141,889	437,140	137,164	87,280	0
2015	490,732	181,232	109,927	0	0
2016	250,462	139,416	0	0	0
2017	175,093	0	0	0	0

Table 7b. Summary of Follow-up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	Follow-up Time				
	0-<1 year	1-<2 years	2-<3 years	3-<5 years	5+ years
Angiotensin Converting-Enzyme (ACE) Inhibitors					
2000	3,885	3,067	2,728	4,236	17,734
2001	6,212	5,345	3,938	11,325	21,838
2002	6,943	5,008	4,615	10,660	23,110
2003	5,915	4,990	7,580	5,066	21,591
2004	7,571	9,537	4,036	5,704	24,776
2005	10,298	4,918	3,671	5,852	25,632
2006	17,258	12,227	10,578	13,825	42,107
2007	28,034	23,219	16,321	21,691	55,978
2008	68,399	48,428	31,053	38,324	85,592
2009	95,093	59,922	40,291	51,395	99,968
2010	104,777	70,610	49,176	80,442	197,699
2011	109,975	73,567	64,065	261,748	84,498
2012	101,723	77,765	58,339	274,674	40,918
2013	110,031	76,495	250,170	129,131	0
2014	113,831	278,294	104,894	65,073	0
2015	327,348	140,047	81,498	0	0
2016	197,509	103,029	0	0	0
2017	132,361	0	0	0	0
Beta Blockers					
2000	5,058	3,666	3,238	4,774	20,729
2001	8,227	6,929	5,022	10,866	32,522
2002	9,426	6,773	5,567	11,324	34,140
2003	8,571	6,321	7,931	7,175	30,545
2004	9,697	10,457	5,492	7,544	33,534
2005	11,995	6,430	4,782	7,182	31,327
2006	19,634	13,291	11,387	14,875	45,367
2007	29,769	23,107	16,262	21,793	57,512
2008	62,639	43,150	27,291	33,352	76,443
2009	78,341	48,824	32,177	41,564	79,994
2010	91,394	59,561	41,755	66,480	167,853
2011	102,966	65,609	56,322	230,752	71,401
2012	101,332	73,661	53,801	253,754	36,101
2013	109,299	70,984	237,573	110,402	0
2014	107,747	264,563	88,365	53,402	0
2015	330,284	119,349	69,033	0	0
2016	178,029	91,463	0	0	0
2017	126,172	0	0	0	0

Table 7b. Summary of Follow-up Time among Individuals with Incident Drug Exposure in the Sentinel Distributed Database (SDD) between January 1, 2000 and October 31, 2017, by Year

Year	Follow-up Time				
	0-<1 year	1-<2 years	2-<3 years	3-<5 years	5+ years
Calcium Channel Blockers					
2000	2,003	1,500	1,272	1,927	6,766
2001	3,215	2,738	1,964	5,396	9,636
2002	3,432	2,143	1,940	4,709	8,066
2003	2,750	2,160	3,508	1,865	6,865
2004	3,304	4,426	1,527	2,072	7,654
2005	4,367	1,709	1,254	1,952	6,813
2006	7,478	4,917	4,243	5,201	14,320
2007	12,164	9,379	6,389	8,488	20,203
2008	31,422	21,393	13,071	16,402	35,088
2009	45,639	27,394	17,941	23,399	44,161
2010	56,971	36,883	26,972	43,110	102,557
2011	66,706	43,359	36,878	155,183	42,268
2012	65,149	47,490	35,679	167,481	21,222
2013	72,859	48,393	167,651	68,727	0
2014	73,353	194,533	57,259	33,848	0
2015	256,527	81,766	47,611	0	0
2016	122,365	64,143	0	0	0
2017	88,861	0	0	0	0

Appendix A. Dates of Available Data for Each Data Partner (DP) in the Sentinel Distributed Database (SDD) as of Request Distribution Date (March 30, 2018)

Data Partner ID	Start Date ¹	End Date ¹
DP01	06/01/2007	07/31/2017
DP02	01/01/2000	07/31/2017
DP03	01/01/2000	08/31/2017
DP04	01/01/2008	06/30/2017
DP05	01/01/2006	07/31/2017
DP06	01/01/2000	12/31/2016
DP07	01/01/2008	03/31/2017
DP08	01/01/2010	12/31/2015
DP09	01/01/2005	08/25/2017
DP10	01/01/2000	10/31/2014
DP11	01/01/2000	05/31/2015
DP12	01/01/2000	07/31/2017
DP13	01/01/2000	07/31/2017
DP14	01/01/2000	06/30/2017
DP15	01/01/2004	10/31/2017
DP16	01/01/2000	10/31/2015
DP17	01/01/2012	06/30/2016

¹ The start and end dates are based on the minimum and maximum dates within each DP. The month with the maximum date must have at least 80% of the number of records in the previous month.

Appendix B. List of Generic and Brand Drug Names Used to Define Exposures in this Request

Generic Name	Brand Name
Hydrochlorothiazide	
Aliskiren Hemifumarate/Amlodipine/Hydrochlorothiazide	Amturnide
Aliskiren Hemifumarate/Hydrochlorothiazide	Tektura Hct
Amiloride Hcl/Hydrochlorothiazide	Amiloride-Hydrochlorothiazide
Amiloride Hcl/Hydrochlorothiazide	Moduretic
Amlodipine Besylate/Valsartan/Hydrochlorothiazide	Amlodipine-Valsartan-Hcthiazid
Amlodipine Besylate/Valsartan/Hydrochlorothiazide	Exforge Hct
Benazepril Hcl/Hydrochlorothiazide	Benazepril-Hydrochlorothiazide
Benazepril Hcl/Hydrochlorothiazide	Lotensin Hct
Bisoprolol Fumarate/Hydrochlorothiazide	Bisoprolol-Hydrochlorothiazide
Bisoprolol Fumarate/Hydrochlorothiazide	Ziac
Candesartan Cilexetil/Hydrochlorothiazide	Candesartan-Hydrochlorothiazid
Candesartan Cilexetil/Hydrochlorothiazide	Atacand Hct
Captopril/Hydrochlorothiazide	Capozide
Captopril/Hydrochlorothiazide	Captopril-Hydrochlorothiazide
Enalapril Maleate/Hydrochlorothiazide	Vaseretic
Enalapril Maleate/Hydrochlorothiazide	Enalapril-Hydrochlorothiazide
Eprosartan Mesylate/Hydrochlorothiazide	Teveten Hct
Fosinopril Sodium/Hydrochlorothiazide	Monopril Hct
Fosinopril Sodium/Hydrochlorothiazide	Fosinopril-Hydrochlorothiazide
Guanethidine Sulfate/Hydrochlorothiazide	Esimil
Hydralazine Hcl/Hydrochlorothiazide	Hydralazine-Hydrochlorothiazid
Hydralazine Hcl/Hydrochlorothiazide	Apresazide
Hydralazine Hcl/Hydrochlorothiazide	Hydra-Zide
Hydralazine Hcl/Reserpine/Hydrochlorothiazide	Cam-Ap-Es
Hydralazine Hcl/Reserpine/Hydrochlorothiazide	Ser-A-Gen
Hydralazine Hcl/Reserpine/Hydrochlorothiazide	Hydralazine-Reserpin-Hcthiazid
Hydralazine Hcl/Reserpine/Hydrochlorothiazide	Uni-Serp
Hydrochlorothiazide	Hydrochlorothiazide
Hydrochlorothiazide	Hydrodiuril
Hydrochlorothiazide	Esidrix
Hydrochlorothiazide	Microzide
Hydrochlorothiazide	Aquazide-H
Hydrochlorothiazide	Carozide
Hydrochlorothiazide	Oretic
Irbesartan/Hydrochlorothiazide	Irbesartan-Hydrochlorothiazide
Irbesartan/Hydrochlorothiazide	Avalide
Lisinopril/Hydrochlorothiazide	Lisinopril-Hydrochlorothiazide
Lisinopril/Hydrochlorothiazide	Zestoretic
Lisinopril/Hydrochlorothiazide	Prinzide
Losartan Potassium/Hydrochlorothiazide	Losartan-Hydrochlorothiazide
Losartan Potassium/Hydrochlorothiazide	Hyzaar
Methyldopa/Hydrochlorothiazide	Methyldopa-Hydrochlorothiazide
Methyldopa/Hydrochlorothiazide	Aldoril-15

Appendix B. List of Generic and Brand Drug Names Used to Define Exposures in this Request

Generic Name	Brand Name
Methyldopa/Hydrochlorothiazide	Aldoril-25
Methyldopa/Hydrochlorothiazide	Aldoril D30
Metoprolol Succinate/Hydrochlorothiazide	Dutoprol
Metoprolol Succinate/Hydrochlorothiazide	Metoprolol Su-Hydrochlorothiaz
Metoprolol Tartrate/Hydrochlorothiazide	Metoprolol Ta-Hydrochlorothiaz
Metoprolol Tartrate/Hydrochlorothiazide	Lopressor Hct
Moexipril Hcl/Hydrochlorothiazide	Uniretic
Moexipril Hcl/Hydrochlorothiazide	Moexipril-Hydrochlorothiazide
Olmesartan Medoxomil/Amlodipine Besylate/Hydrochlorothiazide	Olmesartan-Amlodipin-Hcthiazid
Olmesartan Medoxomil/Amlodipine Besylate/Hydrochlorothiazide	Tribenzor
Olmesartan Medoxomil/Hydrochlorothiazide	Benicar Hct
Olmesartan Medoxomil/Hydrochlorothiazide	Olmesartan-Hydrochlorothiazide
Propranolol Hcl/Hydrochlorothiazide	Propranolol-Hydrochlorothiazid
Propranolol Hcl/Hydrochlorothiazide	Inderide La
Propranolol Hcl/Hydrochlorothiazide	Inderide
Quinapril Hcl/Hydrochlorothiazide	Quinaretic
Quinapril Hcl/Hydrochlorothiazide	Quinapril-Hydrochlorothiazide
Quinapril Hcl/Hydrochlorothiazide	Accuretic
Reserpine/Hydrochlorothiazide	Reserpine-Hydrochlorothiazide
Reserpine/Hydrochlorothiazide	Hydro-Reserp
Spironolactone/Hydrochlorothiazide	Spironolacton-Hydrochlorothiaz
Spironolactone/Hydrochlorothiazide	Aldactazide
Telmisartan/Hydrochlorothiazide	Micardis Hct
Telmisartan/Hydrochlorothiazide	Telmisartan-Hydrochlorothiazid
Timolol Maleate/Hydrochlorothiazide	Timolide
Triamterene/Hydrochlorothiazide	Triamterene-Hydrochlorothiazid
Triamterene/Hydrochlorothiazide	Dyazide
Triamterene/Hydrochlorothiazide	Maxzide
Triamterene/Hydrochlorothiazide	Maxzide-25Mg
Valsartan/Hydrochlorothiazide	Valsartan-Hydrochlorothiazide
Valsartan/Hydrochlorothiazide	Diovan Hct
Chlorothiazide	
Chlorothiazide	Diuril
Chlorothiazide	Chlorothiazide
Methyldopa/Chlorothiazide	Aldoclor
Bendroflumethiazide	
Bendroflumethiazide	Naturetin
Nadolol/Bendroflumethiazide	Corzide
Nadolol/Bendroflumethiazide	Nadolol-Bendroflumethiazide
Rauwolfia Serpentina/Bendroflumethiazide	Rauzide
Rauwolfia Serpentina/Bendroflumethiazide	Rondameth
Rauwolfia Serpentina/Bendroflumethiazide	Flumezide
Angiotensin-Converting Enzyme Inhibitors	
Amlodipine Besylate/Benazepril Hcl	Amlodipine-Benazepril

Appendix B. List of Generic and Brand Drug Names Used to Define Exposures in this Request

Generic Name	Brand Name
Amlodipine Besylate/Benazepril Hcl	Lotrel
Benazepril Hcl	Benazepril
Benazepril Hcl	Lotensin
Captopril	Captopril
Captopril	Capoten
Enalapril Maleate	Vasotec
Enalapril Maleate	Enalapril Maleate
Enalapril Maleate	Epaned
Enalapril Maleate/Felodipine	Lexxel
Fosinopril Sodium	Fosinopril
Fosinopril Sodium	Monopril
Lisinopril	Zestril
Lisinopril	Prinivil
Lisinopril	Lisinopril
Lisinopril	Qbrelis
Lisinopril/Dietary Supplement,Comb.10	Lytensopril
Lisinopril/Dietary Supplement,Comb.10	Lytensopril-90
Moexipril Hcl	Univasc
Moexipril Hcl	Moexipril
Perindopril Arginine/Amlodipine Besylate	Prestalia
Perindopril Erbumine	Perindopril Erbumine
Perindopril Erbumine	Aceon
Quinapril Hcl	Accupril
Quinapril Hcl	Quinapril
Ramipril	Altace
Ramipril	Ramipril
Trandolapril	Trandolapril
Trandolapril	Mavik
Trandolapril/Verapamil Hcl	Tarka
Trandolapril/Verapamil Hcl	Trandolapril-Verapamil
Beta Blockers	
Acebutolol Hcl	Sectral
Acebutolol Hcl	Acebutolol
Atenolol	Atenolol
Atenolol	Tenormin
Atenolol	Senormin
Betaxolol Hcl	Betaxolol
Betaxolol Hcl	Kerlone
Bisoprolol Fumarate	Bisoprolol Fumarate
Bisoprolol Fumarate	Zebeta
Carteolol Hcl	Cartrol
Metoprolol Succinate	Metoprolol Succinate
Metoprolol Succinate	Toprol XL
Metoprolol Tartrate	Metoprolol Tartrate

Appendix B. List of Generic and Brand Drug Names Used to Define Exposures in this Request

Generic Name	Brand Name
Metoprolol Tartrate	Lopressor
Metoprolol Tartrate/Dietary Supplement,Comb.10	Hypertensolol
Nadolol	Nadolol
Nadolol	Corgard
Nebivolol Hcl	Bystolic
Penbutolol Sulfate	LevatoI
Pindolol	Pindolol
Pindolol	Visken
Propranolol Hcl	Propranolol
Propranolol Hcl	Inderal
Propranolol Hcl	Innopran XL
Propranolol Hcl	Inderal XL
Propranolol Hcl	Inderal La
Propranolol Hcl	Hemangeol
Sotalol Hcl	Sotalol Af
Sotalol Hcl	Sotalol
Sotalol Hcl	Betapace Af
Sotalol Hcl	Betapace
Sotalol Hcl	Sorine
Sotalol Hcl	Sotylize
Timolol Maleate	Timolol Maleate
Timolol Maleate	Blocadren
Calcium Channel Blockers	
Amlodipine Besylate	Amlodipine
Amlodipine Besylate	Norvasc
Bepridil Hcl	Vasacor
Diltiazem Hcl	Diltiazem Hcl
Diltiazem Hcl	Cardizem Cd
Diltiazem Hcl	Cardizem La
Diltiazem Hcl	Matzim La
Diltiazem Hcl	Tiazac
Diltiazem Hcl	Cartia Xt
Diltiazem Hcl	Cardizem Sr
Diltiazem Hcl	Dilt-Xr
Diltiazem Hcl	Dilacor Xr
Diltiazem Hcl	Taztia Xt
Diltiazem Hcl	Cardizem
Diltiazem Hcl	Diltia Xt
Diltiazem Hcl	Diltzac Er
Diltiazem Hcl	Dilt-Cd
Felodipine	Felodipine
Felodipine	Plendil
Isradipine	Dynacirc
Isradipine	Dynacirc Cr

Appendix B. List of Generic and Brand Drug Names Used to Define Exposures in this Request

Generic Name	Brand Name
Isradipine	Isradipine
Nicardipine Hcl	Nicardipine
Nicardipine Hcl	Cardene Sr
Nicardipine Hcl	Cardene
Nifedipine	Adalat Cc
Nifedipine	Nifedipine
Nifedipine	Nifediac Cc
Nifedipine	Procardia Xl
Nifedipine	Afeditab Cr
Nifedipine	Procardia
Nifedipine	Nifedical Xl
Nifedipine	Adalat
Nimodipine	Nimodipine
Nimodipine	Nymalize
Nimodipine	Nimotop
Nisoldipine	Sular
Nisoldipine	Nisoldipine
Verapamil Hcl	Calan
Verapamil Hcl	Verapamil
Verapamil Hcl	Isoptin Sr
Verapamil Hcl	Calan Sr
Verapamil Hcl	Covera-Hs
Verapamil Hcl	Verelan Pm
Verapamil Hcl	Verelan

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Outcomes in this Request

Code	Description	Code Type
Non-Melanoma Skin Cancer		
173	Other and unspecified malignant neoplasm of skin	ICD-9-CM
173.1	Other and unspecified malignant neoplasm of eyelid, including canthus	ICD-9-CM
173.10	Unspecified malignant neoplasm of eyelid, including canthus	ICD-9-CM
173.11	Basal cell carcinoma of eyelid, including canthus	ICD-9-CM
173.12	Squamous cell carcinoma of eyelid, including canthus	ICD-9-CM
173.19	Other specified malignant neoplasm of eyelid, including canthus	ICD-9-CM
173.2	Other and unspecified malignant neoplasm of skin of ear and external auditory canal	ICD-9-CM
173.20	Unspecified malignant neoplasm of skin of ear and external auditory canal	ICD-9-CM
173.21	Basal cell carcinoma of skin of ear and external auditory canal	ICD-9-CM
173.22	Squamous cell carcinoma of skin of ear and external auditory canal	ICD-9-CM
173.29	Other specified malignant neoplasm of skin of ear and external auditory canal	ICD-9-CM
173.3	Other and unspecified malignant neoplasm of skin of other and unspecified parts of face	ICD-9-CM
173.30	Unspecified malignant neoplasm of skin of other and unspecified parts of face	ICD-9-CM
173.31	Basal cell carcinoma of skin of other and unspecified parts of face	ICD-9-CM
173.32	Squamous cell carcinoma of skin of other and unspecified parts of face	ICD-9-CM
173.39	Other specified malignant neoplasm of skin of other and unspecified parts of face	ICD-9-CM
173.4	Other and unspecified malignant neoplasm of scalp and skin of neck	ICD-9-CM
173.40	Unspecified malignant neoplasm of scalp and skin of neck	ICD-9-CM
173.41	Basal cell carcinoma of scalp and skin of neck	ICD-9-CM
173.42	Squamous cell carcinoma of scalp and skin of neck	ICD-9-CM
173.49	Other specified malignant neoplasm of scalp and skin of neck	ICD-9-CM
173.5	Other and unspecified malignant neoplasm of skin of trunk, except scrotum	ICD-9-CM
173.50	Unspecified malignant neoplasm of skin of trunk, except scrotum	ICD-9-CM
173.51	Basal cell carcinoma of skin of trunk, except scrotum	ICD-9-CM
173.52	Squamous cell carcinoma of skin of trunk, except scrotum	ICD-9-CM
173.59	Other specified malignant neoplasm of skin of trunk, except scrotum	ICD-9-CM
173.6	Other and unspecified malignant neoplasm of skin of upper limb, including shoulder	ICD-9-CM
173.60	Unspecified malignant neoplasm of skin of upper limb, including shoulder	ICD-9-CM
173.61	Basal cell carcinoma of skin of upper limb, including shoulder	ICD-9-CM
173.62	Squamous cell carcinoma of skin of upper limb, including shoulder	ICD-9-CM
173.69	Other specified malignant neoplasm of skin of upper limb, including shoulder	ICD-9-CM
173.7	Other and unspecified malignant neoplasm of skin of lower limb, including hip	ICD-9-CM
173.70	Unspecified malignant neoplasm of skin of lower limb, including hip	ICD-9-CM
173.71	Basal cell carcinoma of skin of lower limb, including hip	ICD-9-CM
173.72	Squamous cell carcinoma of skin of lower limb, including hip	ICD-9-CM
173.79	Other specified malignant neoplasm of skin of lower limb, including hip	ICD-9-CM
173.8	Other and unspecified malignant neoplasm of other specified sites of skin	ICD-9-CM
173.80	Unspecified malignant neoplasm of other specified sites of skin	ICD-9-CM
173.81	Basal cell carcinoma of other specified sites of skin	ICD-9-CM
173.82	Squamous cell carcinoma of other specified sites of skin	ICD-9-CM
173.89	Other specified malignant neoplasm of other specified sites of skin	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Outcomes in this Request

Code	Description	Code Type
173.9	Other and unspecified malignant neoplasm of skin, site unspecified	ICD-9-CM
173.90	Unspecified malignant neoplasm of skin, site unspecified	ICD-9-CM
173.91	Basal cell carcinoma of skin, site unspecified	ICD-9-CM
173.92	Squamous cell carcinoma of skin, site unspecified	ICD-9-CM
173.99	Other specified malignant neoplasm of skin, site unspecified	ICD-9-CM
C44.101	Unspecified malignant neoplasm of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.102	Unspecified malignant neoplasm of skin of right eyelid, including canthus	ICD-10-CM
C44.109	Unspecified malignant neoplasm of skin of left eyelid, including canthus	ICD-10-CM
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.112	Basal cell carcinoma of skin of right eyelid, including canthus	ICD-10-CM
C44.119	Basal cell carcinoma of skin of left eyelid, including canthus	ICD-10-CM
C44.121	Squamous cell carcinoma of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.122	Squamous cell carcinoma of skin of right eyelid, including canthus	ICD-10-CM
C44.129	Squamous cell carcinoma of skin of left eyelid, including canthus	ICD-10-CM
C44.191	Other specified malignant neoplasm of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.192	Other specified malignant neoplasm of skin of right eyelid, including canthus	ICD-10-CM
C44.199	Other specified malignant neoplasm of skin of left eyelid, including canthus	ICD-10-CM
C44.201	Unspecified malignant neoplasm of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.202	Unspecified malignant neoplasm of skin of right ear and external auricular canal	ICD-10-CM
C44.209	Unspecified malignant neoplasm of skin of left ear and external auricular canal	ICD-10-CM
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal	ICD-10-CM
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal	ICD-10-CM
C44.221	Squamous cell carcinoma of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.222	Squamous cell carcinoma of skin of right ear and external auricular canal	ICD-10-CM
C44.229	Squamous cell carcinoma of skin of left ear and external auricular canal	ICD-10-CM
C44.291	Other specified malignant neoplasm of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.292	Other specified malignant neoplasm of skin of right ear and external auricular canal	ICD-10-CM
C44.299	Other specified malignant neoplasm of skin of left ear and external auricular canal	ICD-10-CM
C44.300	Unspecified malignant neoplasm of skin of unspecified part of face	ICD-10-CM
C44.301	Unspecified malignant neoplasm of skin of nose	ICD-10-CM
C44.309	Unspecified malignant neoplasm of skin of other parts of face	ICD-10-CM
C44.310	Basal cell carcinoma of skin of unspecified parts of face	ICD-10-CM
C44.311	Basal cell carcinoma of skin of nose	ICD-10-CM
C44.319	Basal cell carcinoma of skin of other parts of face	ICD-10-CM
C44.320	Squamous cell carcinoma of skin of unspecified parts of face	ICD-10-CM
C44.321	Squamous cell carcinoma of skin of nose	ICD-10-CM
C44.329	Squamous cell carcinoma of skin of other parts of face	ICD-10-CM
C44.390	Other specified malignant neoplasm of skin of unspecified parts of face	ICD-10-CM
C44.391	Other specified malignant neoplasm of skin of nose	ICD-10-CM
C44.399	Other specified malignant neoplasm of skin of other parts of face	ICD-10-CM
C44.40	Unspecified malignant neoplasm of skin of scalp and neck	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Outcomes in this Request

Code	Description	Code Type
C44.41	Basal cell carcinoma of skin of scalp and neck	ICD-10-CM
C44.42	Squamous cell carcinoma of skin of scalp and neck	ICD-10-CM
C44.49	Other specified malignant neoplasm of skin of scalp and neck	ICD-10-CM
C44.500	Unspecified malignant neoplasm of anal skin	ICD-10-CM
C44.501	Unspecified malignant neoplasm of skin of breast	ICD-10-CM
C44.509	Unspecified malignant neoplasm of skin of other part of trunk	ICD-10-CM
C44.510	Basal cell carcinoma of anal skin	ICD-10-CM
C44.511	Basal cell carcinoma of skin of breast	ICD-10-CM
C44.519	Basal cell carcinoma of skin of other part of trunk	ICD-10-CM
C44.520	Squamous cell carcinoma of anal skin	ICD-10-CM
C44.521	Squamous cell carcinoma of skin of breast	ICD-10-CM
C44.529	Squamous cell carcinoma of skin of other part of trunk	ICD-10-CM
C44.590	Other specified malignant neoplasm of anal skin	ICD-10-CM
C44.591	Other specified malignant neoplasm of skin of breast	ICD-10-CM
C44.599	Other specified malignant neoplasm of skin of other part of trunk	ICD-10-CM
C44.601	Unspecified malignant neoplasm of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.602	Unspecified malignant neoplasm of skin of right upper limb, including shoulder	ICD-10-CM
C44.609	Unspecified malignant neoplasm of skin of left upper limb, including shoulder	ICD-10-CM
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder	ICD-10-CM
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder	ICD-10-CM
C44.621	Squamous cell carcinoma of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.622	Squamous cell carcinoma of skin of right upper limb, including shoulder	ICD-10-CM
C44.629	Squamous cell carcinoma of skin of left upper limb, including shoulder	ICD-10-CM
C44.691	Other specified malignant neoplasm of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.692	Other specified malignant neoplasm of skin of right upper limb, including shoulder	ICD-10-CM
C44.699	Other specified malignant neoplasm of skin of left upper limb, including shoulder	ICD-10-CM
C44.701	Unspecified malignant neoplasm of skin of unspecified lower limb, including hip	ICD-10-CM
C44.702	Unspecified malignant neoplasm of skin of right lower limb, including hip	ICD-10-CM
C44.709	Unspecified malignant neoplasm of skin of left lower limb, including hip	ICD-10-CM
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip	ICD-10-CM
C44.712	Basal cell carcinoma of skin of right lower limb, including hip	ICD-10-CM
C44.719	Basal cell carcinoma of skin of left lower limb, including hip	ICD-10-CM
C44.721	Squamous cell carcinoma of skin of unspecified lower limb, including hip	ICD-10-CM
C44.722	Squamous cell carcinoma of skin of right lower limb, including hip	ICD-10-CM
C44.729	Squamous cell carcinoma of skin of left lower limb, including hip	ICD-10-CM
C44.791	Other specified malignant neoplasm of skin of unspecified lower limb, including hip	ICD-10-CM
C44.792	Other specified malignant neoplasm of skin of right lower limb, including hip	ICD-10-CM
C44.799	Other specified malignant neoplasm of skin of left lower limb, including hip	ICD-10-CM
C44.80	Unspecified malignant neoplasm of overlapping sites of skin	ICD-10-CM
C44.81	Basal cell carcinoma of overlapping sites of skin	ICD-10-CM
C44.82	Squamous cell carcinoma of overlapping sites of skin	ICD-10-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Outcomes in this Request

Code	Description	Code Type
C44.89	Other specified malignant neoplasm of overlapping sites of skin	ICD-10-CM
C44.90	Unspecified malignant neoplasm of skin, unspecified	ICD-10-CM
C44.91	Basal cell carcinoma of skin, unspecified	ICD-10-CM
C44.92	Squamous cell carcinoma of skin, unspecified	ICD-10-CM
C44.99	Other specified malignant neoplasm of skin, unspecified	ICD-10-CM
Basal Cell Carcinoma		
173.11	Basal cell carcinoma of eyelid, including canthus	ICD-9-CM
173.21	Basal cell carcinoma of skin of ear and external auditory canal	ICD-9-CM
173.31	Basal cell carcinoma of skin of other and unspecified parts of face	ICD-9-CM
173.41	Basal cell carcinoma of scalp and skin of neck	ICD-9-CM
173.51	Basal cell carcinoma of skin of trunk, except scrotum	ICD-9-CM
173.61	Basal cell carcinoma of skin of upper limb, including shoulder	ICD-9-CM
173.71	Basal cell carcinoma of skin of lower limb, including hip	ICD-9-CM
173.81	Basal cell carcinoma of other specified sites of skin	ICD-9-CM
173.91	Basal cell carcinoma of skin, site unspecified	ICD-9-CM
C44.111	Basal cell carcinoma of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.112	Basal cell carcinoma of skin of right eyelid, including canthus	ICD-10-CM
C44.119	Basal cell carcinoma of skin of left eyelid, including canthus	ICD-10-CM
C44.211	Basal cell carcinoma of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.212	Basal cell carcinoma of skin of right ear and external auricular canal	ICD-10-CM
C44.219	Basal cell carcinoma of skin of left ear and external auricular canal	ICD-10-CM
C44.310	Basal cell carcinoma of skin of unspecified parts of face	ICD-10-CM
C44.311	Basal cell carcinoma of skin of nose	ICD-10-CM
C44.319	Basal cell carcinoma of skin of other parts of face	ICD-10-CM
C44.41	Basal cell carcinoma of skin of scalp and neck	ICD-10-CM
C44.510	Basal cell carcinoma of anal skin	ICD-10-CM
C44.511	Basal cell carcinoma of skin of breast	ICD-10-CM
C44.519	Basal cell carcinoma of skin of other part of trunk	ICD-10-CM
C44.611	Basal cell carcinoma of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.612	Basal cell carcinoma of skin of right upper limb, including shoulder	ICD-10-CM
C44.619	Basal cell carcinoma of skin of left upper limb, including shoulder	ICD-10-CM
C44.711	Basal cell carcinoma of skin of unspecified lower limb, including hip	ICD-10-CM
C44.712	Basal cell carcinoma of skin of right lower limb, including hip	ICD-10-CM
C44.719	Basal cell carcinoma of skin of left lower limb, including hip	ICD-10-CM
C44.81	Basal cell carcinoma of overlapping sites of skin	ICD-10-CM
C44.91	Basal cell carcinoma of skin, unspecified	ICD-10-CM
Squamous Cell Carcinoma		
173.12	Squamous cell carcinoma of eyelid, including canthus	ICD-9-CM
173.22	Squamous cell carcinoma of skin of ear and external auditory canal	ICD-9-CM
173.32	Squamous cell carcinoma of skin of other and unspecified parts of face	ICD-9-CM
173.42	Squamous cell carcinoma of scalp and skin of neck	ICD-9-CM
173.52	Squamous cell carcinoma of skin of trunk, except scrotum	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) and International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes Used to Define Outcomes in this Request

Code	Description	Code Type
173.62	Squamous cell carcinoma of skin of upper limb, including shoulder	ICD-9-CM
173.72	Squamous cell carcinoma of skin of lower limb, including hip	ICD-9-CM
173.82	Squamous cell carcinoma of other specified sites of skin	ICD-9-CM
173.92	Squamous cell carcinoma of skin, site unspecified	ICD-9-CM
C44.121	Squamous cell carcinoma of skin of unspecified eyelid, including canthus	ICD-10-CM
C44.122	Squamous cell carcinoma of skin of right eyelid, including canthus	ICD-10-CM
C44.129	Squamous cell carcinoma of skin of left eyelid, including canthus	ICD-10-CM
C44.221	Squamous cell carcinoma of skin of unspecified ear and external auricular canal	ICD-10-CM
C44.222	Squamous cell carcinoma of skin of right ear and external auricular canal	ICD-10-CM
C44.229	Squamous cell carcinoma of skin of left ear and external auricular canal	ICD-10-CM
C44.320	Squamous cell carcinoma of skin of unspecified parts of face	ICD-10-CM
C44.321	Squamous cell carcinoma of skin of nose	ICD-10-CM
C44.329	Squamous cell carcinoma of skin of other parts of face	ICD-10-CM
C44.42	Squamous cell carcinoma of skin of scalp and neck	ICD-10-CM
C44.520	Squamous cell carcinoma of anal skin	ICD-10-CM
C44.521	Squamous cell carcinoma of skin of breast	ICD-10-CM
C44.529	Squamous cell carcinoma of skin of other part of trunk	ICD-10-CM
C44.621	Squamous cell carcinoma of skin of unspecified upper limb, including shoulder	ICD-10-CM
C44.622	Squamous cell carcinoma of skin of right upper limb, including shoulder	ICD-10-CM
C44.629	Squamous cell carcinoma of skin of left upper limb, including shoulder	ICD-10-CM
C44.721	Squamous cell carcinoma of skin of unspecified lower limb, including hip	ICD-10-CM
C44.722	Squamous cell carcinoma of skin of right lower limb, including hip	ICD-10-CM
C44.729	Squamous cell carcinoma of skin of left lower limb, including hip	ICD-10-CM
C44.82	Squamous cell carcinoma of overlapping sites of skin	ICD-10-CM
C44.92	Squamous cell carcinoma of skin, unspecified	ICD-10-CM

Appendix D. List of Current Procedural Terminology, Fourth Edition (CPT-4) Procedure Codes Used to Define Outcomes in this Request

Code	Description	Code Type
11600	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter 0.5 cm or less	CPT-4
11601	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter 0.6 to 1.0 cm	CPT-4
11602	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter 1.1 to 2.0 cm	CPT-4
11603	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter 2.1 to 3.0 cm	CPT-4
11604	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter 3.1 to 4.0 cm	CPT-4
11606	Excision, malignant lesion including margins, trunk, arms, or legs; excised diameter over 4.0 cm	CPT-4
11620	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter 0.5 cm or less	CPT-4
11621	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter 0.6 to 1.0 cm	CPT-4
11622	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter 1.1 to 2.0 cm	CPT-4
11623	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter 2.1 to 3.0 cm	CPT-4
11624	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter 3.1 to 4.0 cm	CPT-4
11626	Excision, malignant lesion including margins, scalp, neck, hands, feet, genitalia; excised diameter over 4.0 cm	CPT-4
11640	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter 0.5 cm or less	CPT-4
11641	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter 0.6 to 1.0 cm	CPT-4
11642	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter 1.1 to 2.0 cm	CPT-4
11643	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter 2.1 to 3.0 cm	CPT-4
11644	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter 3.1 to 4.0 cm	CPT-4
11646	Excision, malignant lesion including margins, face, ears, eyelids, nose, lips; excised diameter over 4.0 cm	CPT-4
17260	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 0.5 cm or less	CPT-4
17261	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 0.6 to 1.0 cm	CPT-4
17262	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 1.1 to 2.0 cm	CPT-4
17263	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 2.1 to 3.0 cm	CPT-4
17264	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter 3.1 to 4.0 cm	CPT-4
17266	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), trunk, arms or legs; lesion diameter over 4.0 cm	CPT-4
17270	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 0.5 cm or less	CPT-4
17271	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 0.6 to 1.0 cm	CPT-4
17272	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 1.1 to 2.0 cm	CPT-4
17273	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 2.1 to 3.0 cm	CPT-4
17274	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter 3.1 to 4.0 cm	CPT-4
17276	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), scalp, neck, hands, feet, genitalia; lesion diameter over 4.0 cm	CPT-4

Appendix D. List of Current Procedural Terminology, Fourth Edition (CPT-4) Procedure Codes Used to Define Outcomes in this Request

Code	Description	Code Type
17280	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter 0.5 cm or less	CPT-4
17281	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter 0.6 to 1.0 cm	CPT-4
17282	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter 1.1 to 2.0 cm	CPT-4
17283	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter 2.1 to 3.0 cm	CPT-4
17284	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter 3.1 to 4.0 cm	CPT-4
17286	Destruction, malignant lesion (eg, laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), face, ears, eyelids, nose, lips, mucous membrane; lesion diameter over 4.0 cm	CPT-4
17304	Chemosurgery (Mohs micrographic technique), including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and complete histopathologic preparation including the first routine stain (eg, hematoxylin and eosin, toluidine blue); first stage, fresh tissue technique, up to 5 specimens	CPT-4
17305	Chemosurgery (Mohs micrographic technique), including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and complete histopathologic preparation including the first routine stain (eg, hematoxylin and eosin, toluidine blue); second stage, fixed or fresh tissue, up to 5 specimens	CPT-4
17306	Chemosurgery (Mohs micrographic technique), including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and complete histopathologic preparation including the first routine stain (eg, hematoxylin and eosin, toluidine blue); third stage, fixed or fresh tissue, up to 5 specimens	CPT-4
17307	Chemosurgery (Mohs micrographic technique), including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and complete histopathologic preparation including the first routine stain (eg, hematoxylin and eosin, toluidine blue); additional stage(s), up to 5 specimens, each stage	CPT-4
17310	Chemosurgery (Mohs micrographic technique), including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and complete histopathologic preparation including the first routine stain (eg, hematoxylin and eosin, toluidine blue); each additional specimen, after the first 5 specimens, fixed or fresh tissue, any stage (List separately in addition to code for primary procedure)	CPT-4
17311	Mohs micrographic technique, including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and histopathologic preparation including routine stain(s) (eg, hematoxylin and eosin, toluidine blue), head, neck, hands, feet, genitalia, or any location with surgery directly involving muscle, cartilage, bone, tendon, major nerves, or vessels; first stage, up to 5 tissue blocks	CPT-4

Appendix D. List of Current Procedural Terminology, Fourth Edition (CPT-4) Procedure Codes Used to Define Outcomes in this Request

Code	Description	Code Type
17312	Mohs micrographic technique, including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and histopathologic preparation including routine stain(s) (eg, hematoxylin and eosin, toluidine blue), head, neck, hands, feet, genitalia, or any location with surgery directly involving muscle, cartilage, bone, tendon, major nerves, or vessels; each additional stage after the first stage, up to 5 tissue blocks (List separately in addition to code for primary procedure)	CPT-4
17313	Mohs micrographic technique, including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and histopathologic preparation including routine stain(s) (eg, hematoxylin and eosin, toluidine blue), of the trunk, arms, or legs; first stage, up to 5 tissue blocks	CPT-4
17314	Mohs micrographic technique, including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and histopathologic preparation including routine stain(s) (eg, hematoxylin and eosin, toluidine blue), of the trunk, arms, or legs; each additional stage after the first stage, up to 5 tissue blocks (List separately in addition to code for primary procedure)	CPT-4
17315	Mohs micrographic technique, including removal of all gross tumor, surgical excision of tissue specimens, mapping, color coding of specimens, microscopic examination of specimens by the surgeon, and histopathologic preparation including routine stain(s) (eg, hematoxylin and eosin, toluidine blue), each additional block after the first 5 tissue blocks, any stage (List separately in addition to code for primary procedure)	CPT-4

Appendix E. List of Generic and Brand Drug Names Used to Define Outcomes in this Request

Generic Name	Brand Name
Alitretinoin	Panretin
Aminolevulinic Acid Hcl	Ameluz
Aminolevulinic Acid Hcl	Levulan
Bexarotene	Targretin
Diclofenac Sodium	Solaraze
Diclofenac Sodium	Diclofenac Sodium
Fluorouracil	Carac
Fluorouracil	Fluorouracil
Fluorouracil	Fluoroplex
Fluorouracil	Efudex
Fluorouracil	Tolak
Fluorouracil/Adhesive Bandage	Efudex Occlusion Pack
Imiquimod	Aldara
Imiquimod	Imiquimod
Imiquimod	Zyclara
Ingenol Mebutate	Picato
Mechlorethamine Hcl	Valchlor
Methyl Aminolevulinate Hcl	Metvixia

Appendix F. Specifications Defining Parameters Used in this Request

This request utilized the Cohort Identification and Descriptive Analysis (CIDA) tool, version 5.2.1 to calculate rates of non-melanoma skin cancer (NMSC) diagnoses after exposure to hydrochlorothiazide (HCTZ), chlorothiazide (CTZ), bendroflumethiazide (BFMTZ), angiotensin-converting enzyme (ACE) inhibitors, beta blockers, or calcium channel blockers (CaChannel) in the Sentinel Distributed Database (SDD).

Query Period: January 1, 2000 to October 31, 2017

Coverage Requirement: Medical and Drug Coverage

Enrollment Requirement: 183 Days

Enrollment Gap: 45 Days

Age Groups: 0-19, 20-44, 45-64, 65+ Years

Results Stratified by: Year, Sex, Age Group, Race

Scenario	Drug/Exposure					Outcome			
	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition	Intention-to-Treat (Days)	Outcome	Purpose of Outcome	Washout (Days)	Care Setting
1	HCTZ	HCTZ, CTZ, or BFMTZ	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
2	CTZ	HCTZ, CTZ, or BFMTZ	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
3	BFMTZ	HCTZ, CTZ, or BFMTZ	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
4	HCTZ, CTZ, or BFMTZ	HCTZ, CTZ, or BFMTZ	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any

Appendix F. Specifications Defining Parameters Used in this Request

Scenario	Drug/Exposure					Outcome			
	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition	Intention-to-Treat (Days)	Outcome	Purpose of Outcome	Washout (Days)	Care Setting
5	ACE inhibitor	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
6	Beta blocker	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
7	CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look until end of enrollment)	Dummy	To observe follow-up	--	Any
8	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	NMSC event (combo of NMSC diagnosis code as index <u>AND</u> treatment procedure code within 30 days)	To capture NMSC event; <u>primary analysis</u>	0	Any
9	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	NMSC event (combo of NMSC diagnosis code as index <u>AND</u> treatment procedure code <u>OR</u> chemotherapeutic agent code within 30 days)	To capture NMSC event; <u>sensitivity analysis</u>	0	Any

Appendix F. Specifications Defining Parameters Used in this Request

Scenario	Drug/Exposure					Outcome			
	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition	Intention-to-Treat (Days)	Outcome	Purpose of Outcome	Washout (Days)	Care Setting
10	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	Basal cell carcinoma event (combo of basal cell carcinoma diagnosis code as index <u>AND</u> treatment procedure code within 30 days)	To capture basal cell carcinoma event; primary analysis	0	Any
11	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	Basal cell carcinoma event (combo of basal cell carcinoma diagnosis code as index <u>AND</u> treatment procedure code <u>OR</u> chemotherapeutic agent code within 30 days)	To capture basal cell carcinoma event; sensitivity analysis	0	Any
12	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	Squamous cell carcinoma event (combo of squamous cell carcinoma diagnosis code as index <u>AND</u> treatment procedure code within 30 days)	To capture squamous cell carcinoma event; <u>primary analysis</u>	0	Any

Appendix F. Specifications Defining Parameters Used in this Request

Scenario	Drug/Exposure					Outcome			
	Exposure	Incident with Respect to:	Washout (Days)	Cohort Definition	Intention-to-Treat (Days)	Outcome	Purpose of Outcome	Washout (Days)	Care Setting
13	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	HCTZ, CTZ, BFMTZ, ACE inhibitor, beta blocker, or CaChannel	183	Include first valid exposure only	7,000 (look for outcome until end of enrollment)	squamous cell carcinoma event (combo of squamous cell carcinoma diagnosis code as index <u>AND</u> treatment procedure code <u>OR</u> chemotherapeutic agent code within 30 days)	To capture squamous cell carcinoma event; <u>sensitivity analysis</u>	0	Any
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), and Current Procedural Terminology, Fourth Edition (CPT-4) codes are provided by Optum360. National Drug Codes (NDC) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."									