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The following report(s) provides findings from an FDA-initiated query using Sentinel. While Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Sentinel, and seeking to better understand Sentinel capabilities.

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).

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Overview for Request: cder_mpl1r_wp122, Report 1 of 2

Request ID: cder_mpl1r_wp122_nsdv_v01

Request Description: The goal of this request was to characterize user demographics of higher dosage strength opioid analgesics in the Sentinel Distributed Database (SDD). This is report 1 of 2. Report 2 contains characterizations of treatment duration of higher dosage strength opioid analgesics in the SDD.

Sentinel Modular Program Tool Used: Cohort Identification and Descriptive Analysis (CIDA) tool, version 6.0.0

Data Source: Data from January 1, 2012 to June 30, 2018 from 17 Data Partners contributing to the SDD were included in this report. This request was distributed on November 12, 2018. See Appendix A for a list of dates of available data for each Data Partner.

Study Design: The request was designed to calculate background rates of higher dosage strength opioid analgesic users. The number of qualifying patients with the exposures of interest were calculated overall, by year, by year and sex, and by year and age group.

Exposure of Interest: The exposures of interest were: 1) higher dosage strength oral and transmucosal opioid analgesics; 2) lower dosage strength oral and transmucosal opioid analgesics; 3) all oral and transmucosal opioid analgesics; and 4) transdermal opioid analgesics (fentanyl and buprenorphine). These exposures were defined using National Drug Codes (NDCs) and Healthcare Common Procedure Coding System (HCPCS) procedure codes. Please see Appendices B and C for generic and brand drug names used to define the exposure groups.

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 7 days prior to and 7 days following each valid exposure dispensing (index date), during which gaps in enrollment coverage of up to 45 days were allowed. No incidence criteria were applied, and a member could contribute multiple dispensing dates. All valid dispensings during the query period were included, with deduplication of same-day dispensings of the same exposure group. The following age groups were included in the cohort: 0-17, 18-29, 30-49, 50-64, and 65+ years.

Baseline Characteristics: In addition to age and sex and year of dispensing, concurrent use of the following treatments was assessed: benzodiazepines, gabapentinoids, Z-drugs (eszopiclone, zaleplon, or zolpidem), and oral/transmucosal lower dosage strength opioid analgesics. Concurrency was defined as the presence of days supply within the 7 days before or after the index date. Please see Appendices D and E for the generic and brand drug names, and HCPCS procedure codes used to define these treatments.

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

Limitations: Algorithms used to define exposure groups 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, 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.

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.

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 MP algorithm: 0: Counts all occurrences of an 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 days 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 requests.

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.

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 may not be used in this report

Table 1. Baseline Characteristics for Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018

Characteristic ¹	Higher Dosage Strength Oral and Transmucosal Opioid Analgesics		Lower Dosage Strength Oral and Transmucosal Opioid Analgesics		All Oral and Transmucosal Opioid Analgesics		Transdermal Opioid Analgesics (Fentanyl & Buprenorphine)	
	Number	Standard Deviation	Number	Standard Deviation	Number	Standard Deviation	Number	Standard Deviation
Number of episodes	27,349,071		350,546,610		373,466,910		13,802,509	
Number of unique patients	1,844,419		47,178,068		47,416,985		1,293,201	
Demographics	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Mean Age (years)	56.9	12.4	61.2	14.8	60.9	14.8	67.1	15.5
Age (years) ²	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
0-17	9,505	0.0%	2,928,672	0.8%	2,936,856	0.8%	2,158	0.0%
18-29	436,535	1.6%	13,004,048	3.7%	13,382,178	3.6%	111,465	0.8%
30-49	7,183,235	26.3%	67,499,337	19.3%	73,556,619	19.7%	1,982,939	14.4%
50-64	12,765,334	46.7%	106,729,914	30.4%	117,335,721	31.4%	4,077,176	29.5%
65+	6,954,462	25.4%	160,384,639	45.8%	166,255,536	44.5%	7,628,771	55.3%
Gender								
Female	1,021,663	55.4%	26,888,987	57.0%	27,019,055	57.0%	846,935	65.5%
Male	822,711	44.6%	20,287,606	43.0%	20,396,453	43.0%	446,230	34.5%
Other	45	0.0%	1,475	0.0%	1,477	0.0%	36	0.0%
Year ³								
2012	4,898,679	17.9%	65,206,831	18.6%	69,280,883	18.6%	2,581,827	18.7%
2013	5,233,685	19.1%	68,439,997	19.5%	72,815,907	19.5%	2,721,797	19.7%
2014	5,390,466	19.7%	68,200,789	19.5%	72,731,634	19.5%	2,759,638	20.0%
2015	5,436,917	19.9%	64,997,817	18.5%	69,564,181	18.6%	2,728,074	19.8%
2016	5,232,878	19.1%	63,074,758	18.0%	67,463,565	18.1%	2,564,636	18.6%
2017	1,085,225	4.0%	19,348,299	5.5%	20,272,033	5.4%	418,483	3.0%
2018	71,221	0.3%	1,278,119	0.4%	1,338,707	0.4%	28,054	0.2%
Concurrent Therapies ⁴	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Benzodiazepines	10,037,792	36.7%	82,382,496	23.5%	90,851,356	24.3%	4,112,732	29.8%
Gabapentinoids	7,751,779	28.3%	69,950,416	20.0%	76,378,095	20.5%	4,302,798	31.2%
Z-drugs ⁵	3,327,858	12.2%	29,458,969	8.4%	32,229,975	8.6%	1,445,322	10.5%
Oral/Transmucosal Lower Dosage Strength Opioid Analgesics	12,112,800	44.3%	350,546,600	100.0%	358,237,012	95.9%	8,326,867	60.3%

¹All metrics are based on total number of episodes per group, except for sex which is based on total number of unique patients.

²Aggregated results are not nationally representative when stratified by age. Further, the proportion of older adults included in this analysis varies by year. Please refer to Sentinel's Snapshot of Database Statistics (<https://www.sentinelinitiative.org/sentinel/data/snapshot-database-statistics>) for further details.

³The end of available data varies by Data Partner, with staggered end dates from May 2015 to June 2018 in this report. Please see Appendix A for further details.

⁴Occurrence of concurrent treatments was evaluated in the 7 days prior to the index exposure dispensing through 7 days after the dispensing.

⁵Z-drugs are eszopiclone, zaleplon, and zolpidem.

Table 2. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, Overall

Exposure	Users	Eligible Members¹	Episodes²	Eligible Member-Years¹
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics	1,844,419	149,132,305	27,349,071	368,276,831.8
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics	47,178,068	149,132,305	350,546,610	368,276,831.8
All Oral and Transmucosal Opioid Analgesics	47,416,985	149,132,305	373,466,910	368,276,831.8
Transdermal Opioid Analgesics (Fentanyl & Buprenorphine)	1,293,201	149,132,305	13,802,509	368,276,831.8

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

²Episodes reflects de-duplication of same-day dispensings of same exposure group

Table 3. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹

	Users	Eligible Members ²	Episodes ³	Eligible Member-Years ²
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics				
2012	654,656	69,176,883	4,898,679	58,752,198.6
2013	686,224	74,477,630	5,233,685	63,055,653.7
2014	691,618	77,854,039	5,390,466	65,494,249.8
2015	692,179	79,822,548	5,436,917	67,316,706.8
2016	664,163	82,638,204	5,232,878	69,473,523.9
2017	160,391	54,871,681	1,085,225	41,388,365.3
2018	39,879	14,555,963	71,221	2,796,133.7
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics				
2012	15,164,612	69,176,883	65,206,831	58,752,198.6
2013	16,180,602	74,477,630	68,439,997	63,055,653.7
2014	16,378,669	77,854,039	68,200,789	65,494,249.8
2015	16,242,961	79,822,548	64,997,817	67,316,706.8
2016	15,989,079	82,638,204	63,074,758	69,473,523.9
2017	6,586,413	54,871,681	19,348,299	41,388,365.3
2018	799,579	14,555,963	1,278,119	2,796,133.7
All Oral and Transmucosal Opioid Analgesics				
2012	15,309,836	69,176,883	69,280,883	58,752,198.6
2013	16,343,831	74,477,630	72,815,907	63,055,653.7
2014	16,556,545	77,854,039	72,731,634	65,494,249.8
2015	16,434,952	79,822,548	69,564,181	67,316,706.8
2016	16,187,747	82,638,204	67,463,565	69,473,523.9
2017	6,638,688	54,871,681	20,272,033	41,388,365.3
2018	823,965	14,555,963	1,338,707	2,796,133.7
Transdermal Opioid Analgesics (Fentanyl & Buprenorphine)				
2012	418,149	69,176,883	2,581,827	58,752,198.6
2013	437,969	74,477,630	2,721,797	63,055,653.7
2014	442,895	77,854,039	2,759,638	65,494,249.8
2015	429,789	79,822,548	2,728,074	67,316,706.8
2016	394,612	82,638,204	2,564,636	69,473,523.9
2017	69,583	54,871,681	418,483	41,388,365.3
2018	15,768	14,555,963	28,054	2,796,133.7

¹The end of available data varies by Data Partner, with staggered end dates from May 2015 to June 2018 in this report.

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

³Episodes reflects de-duplication of same-day dispensings of same exposure group

Table 4. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Sex

	Users	Episodes
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics		
2012		
Female	356,983	2,537,397
Male	297,658	2,361,197
Other	15	85
2013		
Female	373,605	2,722,136
Male	312,604	2,511,472
Other	15	77
2014		
Female	375,763	2,801,707
Male	315,844	2,588,706
Other	11	53
2015		
Female	374,930	2,822,763
Male	317,237	2,614,094
Other	12	60
2016		
Female	358,614	2,715,254
Male	*****	2,517,576
Other	*****	48
2017		
Female	82,524	535,379
Male	*****	549,803
Other	*****	43
2018		
Female	19,905	35,981
Male	19,974	35,240
Other	0	0

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	Users	Episodes
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics		
2012		
Female	9,064,161	40,559,127
Male	6,099,871	24,645,862
Other	580	1,842
2013		
Female	9,622,508	42,391,018
Male	6,557,561	26,047,199
Other	533	1,780
2014		
Female	9,710,309	42,137,901
Male	6,667,913	26,061,354
Other	447	1,534
2015		
Female	9,600,752	40,025,276
Male	6,641,756	24,971,181
Other	453	1,360
2016		
Female	9,442,406	38,791,250
Male	6,546,350	24,282,513
Other	323	995
2017		
Female	3,744,444	11,260,714
Male	2,841,689	8,086,894
Other	280	691
2018		
Female	465,627	751,557
Male	333,933	526,525
Other	19	37

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	Users	Episodes
All Oral and Transmucosal Opioid Analgesics		
2012		
Female	9,139,959	42,661,140
Male	6,169,296	26,617,825
Other	581	1,918
2013		
Female	9,707,837	44,658,525
Male	6,635,458	28,155,543
Other	536	1,839
2014		
Female	9,802,345	44,482,175
Male	6,753,751	28,247,880
Other	449	1,579
2015		
Female	9,699,902	42,384,479
Male	6,734,595	27,178,284
Other	455	1,418
2016		
Female	9,544,461	41,057,112
Male	6,642,961	26,405,420
Other	325	1,033
2017		
Female	3,769,739	11,713,743
Male	2,868,666	8,557,561
Other	283	729
2018		
Female	477,385	782,087
Male	346,561	556,583
Other	19	37

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	Users	Episodes
Transdermal Opioid Analgesics (Fentanyl & Buprenorphine)		
2012		
Female	286,616	1,842,015
Male	131,520	739,714
Other	13	98
2013		
Female	298,546	1,927,404
Male	*****	794,322
Other	*****	71
2014		
Female	299,692	1,938,601
Male	*****	820,992
Other	*****	45
2015		
Female	289,297	1,900,474
Male	140,474	827,538
Other	18	62
2016		
Female	264,033	1,775,241
Male	*****	789,357
Other	*****	38
2017		
Female	43,652	271,281
Male	*****	147,178
Other	*****	24
2018		
Female	10,258	18,375
Male	5,510	9,679
Other	0	0

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	Users	Episodes
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics		
2012		
0-17 years	949	1,868
18-29 years	18,803	110,418
30-49 years	186,020	1,524,198
50-64 years	261,200	2,193,420
65+ years	204,956	1,068,775
2013		
0-17 years	1,025	1,973
18-29 years	16,021	95,952
30-49 years	177,525	1,483,725
50-64 years	278,561	2,389,488
65+ years	230,837	1,262,547
2014		
0-17 years	898	1,730
18-29 years	13,770	83,463
30-49 years	166,839	1,408,213
50-64 years	288,290	2,518,604
65+ years	239,716	1,378,456
2015		
0-17 years	813	1,613
18-29 years	11,760	70,954
30-49 years	155,374	1,309,239
50-64 years	292,337	2,578,538
65+ years	249,332	1,476,573
2016		
0-17 years	727	1,412
18-29 years	9,748	58,308
30-49 years	139,665	1,173,678
50-64 years	282,103	2,486,013
65+ years	248,732	1,513,467
2017		
0-17 years	469	863
18-29 years	3,947	16,754
30-49 years	40,282	270,062
50-64 years	75,773	562,977
65+ years	43,478	234,569

Table 5. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Age Group²

	Users	Episodes
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics		
2018		
0-17 years	27	46
18-29 years	328	686
30-49 years	6,860	14,120
50-64 years	20,280	36,294
65+ years	12,491	20,075

¹The end of available data varies by Data Partner, with staggered end dates from May 2015 to June 2018 in this report. Please see Appendix A for further details.

²Aggregated results are not nationally representative when stratified by age. Further, the proportion of older adults included in this analysis varies by year. Please refer to Sentinel's Snapshot of Database Statistics (<https://www.sentinelinitiative.org/sentinel/data/snapshot-database-statistics>) for further details.

Table 5. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Age Group²

	Users	Episodes
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics		
2012		
0-17 years	480,138	617,365
18-29 years	1,248,152	2,710,804
30-49 years	3,450,953	13,902,833
50-64 years	3,696,929	19,324,146
65+ years	6,474,808	28,651,683
2013		
0-17 years	452,631	570,822
18-29 years	1,239,664	2,579,570
30-49 years	3,448,440	13,465,510
50-64 years	3,933,778	20,283,901
65+ years	7,292,836	31,540,194
2014		
0-17 years	415,271	515,219
18-29 years	1,212,294	2,415,841
30-49 years	3,378,347	12,753,029
50-64 years	4,022,468	20,439,226
65+ years	7,533,758	32,077,474
2015		
0-17 years	392,964	476,067
18-29 years	1,159,871	2,157,790
30-49 years	3,244,877	11,536,951
50-64 years	4,004,632	19,684,315
65+ years	7,613,003	31,142,694
2016		
0-17 years	372,834	444,223
18-29 years	1,089,797	1,927,129
30-49 years	3,129,499	10,708,075
50-64 years	3,962,812	19,205,187
65+ years	7,599,380	30,790,144
2017		
0-17 years	253,754	291,079
18-29 years	766,062	1,149,519
30-49 years	1,972,499	4,857,232
50-64 years	2,112,535	7,338,438
65+ years	1,537,912	5,712,031

Table 5. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Age Group²

	Users	Episodes
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics		
2018		
0-17 years	12,801	13,897
18-29 years	50,151	63,395
30-49 years	167,390	275,707
50-64 years	265,694	454,701
65+ years	304,925	470,419

¹The end of available data varies by Data Partner, with staggered end dates from May 2015 to June 2018 in this report. Please see Appendix A for further details.

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Table 5. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Age Group²

	Users	Episodes
All Oral and Transmucosal Opioid Analgesics		
2012		
0-17 years	480,518	618,947
18-29 years	1,252,572	2,806,130
30-49 years	3,489,189	15,176,432
50-64 years	3,752,608	21,129,371
65+ years	6,529,773	29,550,003
2013		
0-17 years	453,107	572,532
18-29 years	1,243,449	2,662,079
30-49 years	3,487,807	14,712,970
50-64 years	3,997,999	22,262,645
65+ years	7,357,323	32,605,681
2014		
0-17 years	415,703	516,708
18-29 years	1,215,789	2,487,984
30-49 years	3,419,425	13,942,865
50-64 years	4,095,426	22,538,974
65+ years	7,603,424	33,245,103
2015		
0-17 years	393,354	477,447
18-29 years	1,163,091	2,219,863
30-49 years	3,286,066	12,645,774
50-64 years	4,084,696	21,832,459
65+ years	7,690,013	32,388,638
2016		
0-17 years	373,196	445,450
18-29 years	1,092,557	1,977,609
30-49 years	3,169,221	11,700,954
50-64 years	4,046,241	21,273,746
65+ years	7,681,456	32,065,806
2017		
0-17 years	253,991	291,836
18-29 years	767,460	1,164,506
30-49 years	1,985,464	5,089,779
50-64 years	2,136,245	7,813,178
65+ years	1,554,057	5,912,734

Table 5. Summary of Prevalent Dispensings of Higher Dosage Strength Products, Lower Dosage Strength Products, All Doses of Oral and Transmucosal Opioid Analgesics, and Transdermal Opioid Analgesics (Fentanyl & Buprenorphine) in the Sentinel Distributed Database (SDD) between January 1, 2012 and June 30, 2018, by Year¹ and Age Group²

	Users	Episodes
All Oral and Transmucosal Opioid Analgesics		
2018		
0-17 years	12,816	13,936
18-29 years	50,325	64,007
30-49 years	171,327	287,845
50-64 years	277,905	485,348
65+ years	313,051	487,571

¹The end of available data varies by Data Partner, with staggered end dates from May 2015 to June 2018 in this report. Please see Appendix A for further details.

²Aggregated results are not nationally representative when stratified by age. Further, the proportion of older adults included in this analysis varies by year. Please refer to Sentinel's Snapshot of Database Statistics (<https://www.sentinelinitiative.org/sentinel/data/snapshot-database-statistics>) for further details.

Appendix A. Dates of Available Data for Each Data Partner (DP), as of Request Distribution Date (November 12, 2018)

DP ID	DP Start Date ¹	DP End Date ¹
DP01	01/01/2000	10/31/2017
DP02	01/01/2000	03/31/2018
DP03	01/01/2004	05/31/2018
DP04	01/01/2008	03/31/2018
DP05	01/01/2000	06/30/2017
DP06	01/01/2000	12/31/2016
DP07	01/01/2006	12/31/2017
DP08	01/01/2000	12/31/2017
DP09	06/01/2007	01/31/2018
DP10	01/01/2000	03/31/2016
DP11	01/01/2005	12/17/2017
DP12	01/01/2000	06/30/2018
DP13	01/01/2000	03/31/2018
DP14	01/01/2008	09/30/2017
DP15	01/01/2000	05/31/2015
DP16	01/01/2012	06/30/2017
DP17	01/01/2010	12/31/2016

¹The 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 the Exposure in this Request

Generic Name	Brand Name	Strength	Unit
Higher Dosage Strength Oral and Transmucosal Opioid Analgesics			
fentanyl citrate	Onsolis	1,200	mcg
fentanyl citrate	Onsolis	200	mcg
fentanyl citrate	Onsolis	400	mcg
fentanyl citrate	Onsolis	600	mcg
fentanyl citrate	Onsolis	800	mcg
morphine sulfate	morphine	15	mg
morphine sulfate	morphine	30	mg
morphine sulfate	morphine	20 mg/5 mL	(4 mg/mL)
hydromorphone HCl	hydromorphone	8	mg
oxymorphone HCl	oxymorphone	10	mg
morphine sulfate	morphine concentrate	100 mg/5 mL	(20 mg/mL)
methadone HCl	methadone	10	mg/mL
oxycodone HCl	oxycodone	20	mg/mL
methadone HCl	Methadone Intensol	10	mg/mL
methadone HCl	methadone	5	mg/5 mL
methadone HCl	methadone	10	mg/5 mL
methadone HCl	Diskets	40	mg
fentanyl citrate	fentanyl citrate	200	mcg
fentanyl citrate	fentanyl citrate	400	mcg
fentanyl citrate	fentanyl citrate	600	mcg
fentanyl citrate	fentanyl citrate	800	mcg
fentanyl citrate	fentanyl citrate	1,200	mcg
fentanyl citrate	fentanyl citrate	1,600	mcg
oxycodone HCl	oxycodone	40	mg
oxycodone HCl	oxycodone	80	mg
oxymorphone HCl	oxymorphone	20	mg
oxymorphone HCl	oxymorphone	40	mg
morphine sulfate	morphine	100	mg
oxymorphone HCl	oxymorphone	15	mg
oxymorphone HCl	oxymorphone	30	mg
oxycodone HCl	oxycodone	30	mg
oxycodone HCl	oxycodone	60	mg
oxycodone HCl	oxycodone	15	mg
morphine sulfate	morphine	90	mg
morphine sulfate	morphine	120	mg
morphine sulfate	morphine	60	mg
morphine sulfate	morphine	200	mg
methadone HCl	Methadose	10	mg/mL
methadone HCl	Methadose	40	mg
methadone HCl	methadone	40	mg
hydromorphone HCl	hydromorphone	32	mg
pentazocine HCl/naloxone HCl	pentazocine-naloxone	50-0.5	mg
oxycodone HCl	oxycodone	20	mg

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

Generic Name	Brand Name	Strength	Unit
fentanyl citrate	Lazanda	400	mcg/spray
fentanyl citrate	Lazanda	300	mcg/spray
tapentadol HCl	Nucynta	100	mg
morphine sulfate	Avinza	120	mg
morphine sulfate	Avinza	90	mg
oxymorphone HCl	Opana ER	20	mg
oxymorphone HCl	Opana ER	40	mg
oxycodone HCl	OxyContin	40	mg
oxycodone HCl	OxyContin	80	mg
oxycodone HCl	OxyContin	30	mg
oxymorphone HCl	Opana ER	30	mg
oxycodone HCl	OxyContin	60	mg
morphine sulfate	Kadian	100	mg
oxymorphone HCl	Opana	10	mg
tapentadol HCl	Nucynta	75	mg
fentanyl citrate	Fentora	600	mcg
fentanyl	Subsys	400	mcg/spray
fentanyl	Subsys	600	mcg/spray
fentanyl	Subsys	800	mcg/spray
fentanyl	Subsys	1,200 mcg (600	mcg/spray X 2)
fentanyl	Subsys	1,600 mcg (800	mcg/spray X 2)
hydromorphone HCl	Exalgo ER	32	mg
oxycodone HCl	Roxicodone	15	mg
oxycodone HCl	Roxicodone	30	mg
morphine sulfate	morphine concentrate	20	mg/mL
oxycodone myristate	Xtampza ER	27	mg
oxycodone myristate	Xtampza ER	36	mg
morphine sulfate	MS Contin	60	mg
morphine sulfate	MS Contin	100	mg
morphine sulfate	MS Contin	200	mg
morphine sulfate	Oramorph SR	60	mg
morphine sulfate	Oramorph SR	100	mg
oxymorphone HCl	Opana ER	15	mg
fentanyl citrate	Actiq	400	mcg
fentanyl citrate	Actiq	600	mcg
fentanyl citrate	Actiq	800	mcg
morphine sulfate/naltrexone HCl	Embeda	100-4	mg
fentanyl citrate	Abstral	200	mcg
fentanyl citrate	Abstral	300	mcg
fentanyl citrate	Abstral	400	mcg
fentanyl citrate	Abstral	600	mcg
fentanyl citrate	Abstral	800	mcg
hydromorphone HCl	Dilaudid	8	mg
hydrocodone bitartrate	Zohydro ER	50	mg

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

Generic Name	Brand Name	Strength	Unit
morphine sulfate	Kadian	130	mg
morphine sulfate	Kadian	150	mg
morphine sulfate	Kadian	200	mg
tapentadol HCl	Nucynta ER	150	mg
tapentadol HCl	Nucynta ER	200	mg
tapentadol HCl	Nucynta ER	250	mg
hydrocodone bitartrate	Hysingla ER	100	mg
hydrocodone bitartrate	Hysingla ER	120	mg
buprenorphine HCl	Belbuca	300	mcg
buprenorphine HCl	Belbuca	450	mcg
buprenorphine HCl	Belbuca	600	mcg
buprenorphine HCl	Belbuca	750	mcg
buprenorphine HCl	Belbuca	900	mcg
fentanyl citrate	Actiq	200	mcg
fentanyl citrate	Actiq	1,200	mcg
fentanyl citrate	Actiq	1,600	mcg
fentanyl citrate	Fentora	200	mcg
fentanyl citrate	Fentora	400	mcg
fentanyl citrate	Fentora	800	mcg
morphine sulfate	MorphaBond ER	60	mg
morphine sulfate	MorphaBond ER	100	mg
oxycodone HCl	RoxyBond	15	mg
oxycodone HCl	RoxyBond	30	mg
oxycodone HCl	oxycodone	10	mg/0.5 mL
morphine sulfate	Arymo ER	60	mg
Lower Dosage Strength Oral and Transmucosal Opioid Analgesics			
hydrocodone bitartrate/acetaminophen	Norco	5-325	mg
morphine sulfate	Kadian	50	mg
hydrocodone bitartrate/acetaminophen	Norco	7.5-325	mg
hydrocodone bitartrate/acetaminophen	Norco	10-325	mg
meperidine HCl	Demerol	50	mg
meperidine HCl	Demerol	100	mg
acetaminophen with codeine phosphate	Tylenol-Codeine #4	300-60	mg
morphine sulfate	morphine	10	mg/5 mL
codeine sulfate	codeine sulfate	15	mg
codeine sulfate	codeine sulfate	30	mg
codeine sulfate	codeine sulfate	60	mg
hydromorphone HCl	hydromorphone	4	mg
oxymorphone HCl	oxymorphone	5	mg
hydromorphone HCl	hydromorphone	1	mg/mL
oxycodone HCl	oxycodone	5	mg/5 mL
levorphanol tartrate	levorphanol tartrate	2	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-500	mg

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

Generic Name	Brand Name	Strength	Unit
butorphanol tartrate	butorphanol tartrate	10	mg/mL
meperidine HCl	meperidine	50	mg/5 mL
oxycodone HCl/acetaminophen	Roxicet	5-325	mg/5 mL
methadone HCl	Dolophine	5	mg
methadone HCl	Dolophine	10	mg
methadone HCl	methadone	5	mg
methadone HCl	methadone	10	mg
meperidine HCl	meperidine	50	mg
meperidine HCl	meperidine	100	mg
oxycodone HCl/acetaminophen	Roxicet	5-325	mg
oxycodone HCl/acetaminophen	Roxicet	5-500	mg
hydrocodone bitartrate/acetaminophen	Vicodin	5-500	mg
hydrocodone bitartrate/acetaminophen	Vicodin ES	7.5-750	mg
hydrocodone bitartrate/acetaminophen	Vicodin HP	10-660	mg
hydrocodone/ibuprofen	Vicoprofen	7.5-200	mg
hydrocodone bitartrate/acetaminophen	Vicodin	5-300	mg
hydrocodone bitartrate/acetaminophen	Vicodin ES	7.5-300	mg
hydrocodone bitartrate/acetaminophen	Vicodin HP	10-300	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-15	mg
tramadol HCl	tramadol	50	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-30	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-60	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	7.5-200	mg
oxycodone HCl	oxycodone	10	mg
oxycodone HCl	oxycodone	20	mg
hydrocodone bitartrate/acetaminophen	Zolvit	10-300	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lortab Elixir	10-300	mg/15 mL
oxymorphone HCl	oxymorphone	10	mg
morphine sulfate	morphine	20	mg
morphine sulfate	morphine	30	mg
morphine sulfate	morphine	50	mg
morphine sulfate	morphine	60	mg
morphine sulfate	morphine	80	mg
oxymorphone HCl	oxymorphone	7.5	mg
oxycodone HCl	oxycodone	15	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	120 mg-12 mg	/5 mL (5 mL)
acetaminophen with codeine phosphate	acetaminophen-codeine	120-12	mg/5 mL
acetaminophen with codeine phosphate	acetaminophen-codeine	240 mg-24 mg	/10 mL (10 mL)
acetaminophen with codeine phosphate	acetaminophen-codeine	300 mg-30 mg	/12.5 mL
acetaminophen with codeine phosphate	acetaminophen-codeine	360 mg-36 mg	/15 mL (15 mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg/15 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-325	mg/15 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-167	mg/5 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-334	mg/10 mL

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg/15 mL(15 mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-163	mg/7.5mL(7.5mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-325	mg/15 mL(15 mL)
hydrocodone bitartrate/acetaminophen	Co-Gesic	5-500	mg
butalbital/acetaminophen/caffeine/codeine phosphate	butalbital-acetaminop-caf-cod	50-325-40-30	mg
tramadol HCl/acetaminophen	tramadol-acetaminophen	37.5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-325	mg
carisoprodol/aspirin/codeine phosphate	carisoprodol-ASA-codeine	200-325-16	mg
acetaminophen with codeine phosphate	Capital with Codeine	120-12	mg/5 mL
oxycodone HCl	oxycodone	5	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-325	mg
morphine sulfate	morphine	45	mg
morphine sulfate	morphine	75	mg
morphine sulfate	morphine	10	mg
ibuprofen/oxycodone HCl	ibuprofen-oxycodone	400-5	mg
morphine sulfate	morphine	15	mg
tramadol HCl	tramadol	100	mg
tramadol HCl	tramadol	200	mg
tramadol HCl	tramadol	300	mg
oxycodone HCl/aspirin	oxycodone-aspirin	4.8355-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	2.5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-500	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-500	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-750	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-660	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-500	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-750	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-300	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-300	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-300	mg
hydromorphone HCl	hydromorphone	2	mg
hydromorphone HCl	hydromorphone	8	mg
hydromorphone HCl	hydromorphone	12	mg
hydromorphone HCl	hydromorphone	16	mg
methadone HCl	Methadose	10	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-325	mg/5 mL

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	Hydrogesic	5-500	mg
hydrocodone bitartrate/acetaminophen	Zamicet	10-325	mg/15 mL
acetaminophen/caffeine/dihydrocodeine bitartrate	Panlor SS	712.8-60-32	mg
codeine phosphate/butalbital/aspirin/caffeine	Butalbital Compound W/Codeine	30-50-325-40	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-500	mg
oxycodone HCl/oxycodone terephthalate/aspirin	oxycodone HCl-oxycodone-ASA	4.5-0.38-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-325	mg
butalbital/acetaminophen/caffeine/codeine phosphate	butalbital-acetaminop-caf-cod	50-300-40-30	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	5-200	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	10-200	mg
hydrocodone bitartrate/acetaminophen	Hycet	7.5-325	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lorcet Plus	7.5-650	mg
hydrocodone bitartrate/acetaminophen	Lorcet 10/650	10-650	mg
fentanyl citrate	Lazanda	100	mcg/spray
tramadol HCl	Ryzolt	100	mg
tramadol HCl	Ryzolt	300	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	712.8-60-32	mg
morphine sulfate	Avinza	60	mg
morphine sulfate	Avinza	30	mg
morphine sulfate	Kadian	60	mg
oxycodone HCl/acetaminophen	Percocet	10-325	mg
oxycodone HCl/acetaminophen	Percocet	5-325	mg
oxycodone HCl/acetaminophen	Percocet	10-650	mg
hydrocodone bitartrate/acetaminophen	Lortab	10-500	mg
hydrocodone bitartrate/acetaminophen	Lortab	7.5-500	mg
meperidine HCl	Meperitab	50	mg
oxycodone HCl	OxyContin	10	mg
morphine sulfate	Kadian	20	mg
oxymorphone HCl	Opana ER	10	mg
oxycodone HCl/acetaminophen	Percocet	7.5-325	mg
oxymorphone HCl	Opana ER	5	mg
hydromorphone HCl	Dilaudid	2	mg
morphine sulfate	Kadian	80	mg
hydrocodone bitartrate/acetaminophen	Xodol 10/300	10-300	mg
oxycodone HCl/acetaminophen	Magnacet	10-400	mg
oxymorphone HCl	Opana	5	mg
morphine sulfate	Avinza	75	mg
tapentadol HCl	Nucynta	50	mg
morphine sulfate	Avinza	45	mg

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

Generic Name	Brand Name	Strength	Unit
oxycodone HCl/acetaminophen	Endocet	10-325	mg
hydromorphone HCl	Exalgo ER	8	mg
oxycodone HCl/aspirin	Endodan	4.8355-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Zerlor	712.8-60-32	mg
fentanyl	Subsys	100	mcg/spray
fentanyl	Subsys	200	mcg/spray
tramadol HCl/acetaminophen	Ultracet	37.5-325	mg
tramadol HCl	Ultram ER	100	mg
tramadol HCl	Ultram ER	200	mg
hydrocodone bitartrate/acetaminophen	Xodol 5/300	5-300	mg
hydrocodone bitartrate/acetaminophen	Xodol 7.5/300	7.5-300	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Trezix	356.4-30-16	mg
tramadol HCl	tramadol	150	mg
tramadol HCl	Ultram ER	300	mg
oxycodone HCl/acetaminophen	Xolox	10-500	mg
codeine phosphate/butalbital/aspirin/caffeine	Butalbital Compound-Codeine	30-50-325-40	mg
oxycodone HCl/acetaminophen	Endocet	10-650	mg
oxycodone HCl/acetaminophen	Endocet	7.5-325	mg
oxycodone HCl/acetaminophen	Endocet	7.5-500	mg
oxycodone HCl/acetaminophen	Xartemis XR	7.5-325	mg
hydromorphone HCl	Exalgo ER	12	mg
hydromorphone HCl	Exalgo ER	16	mg
oxycodone HCl	Roxicodone	5	mg
hydrocodone/ibuprofen	Reprexain	2.5-200	mg
hydrocodone/ibuprofen	Reprexain	5-200	mg
hydrocodone/ibuprofen	Reprexain	10-200	mg
oxycodone HCl/acetaminophen	Primlev	5-300	mg
oxycodone HCl/acetaminophen	Primlev	7.5-300	mg
oxycodone HCl/acetaminophen	Primlev	10-300	mg
oxycodone myristate	Xtampza ER	9	mg
oxycodone myristate	Xtampza ER	13.5	mg
oxycodone myristate	Xtampza ER	18	mg
hydromorphone HCl	Dilaudid	4	mg
morphine sulfate	Kadian	10	mg
morphine sulfate	Kadian	30	mg
oxycodone HCl	OxyContin	20	mg
morphine sulfate	MS Contin	15	mg
morphine sulfate	MS Contin	30	mg
morphine sulfate	Oramorph SR	15	mg
morphine sulfate	Oramorph SR	30	mg
tramadol HCl	Ryzolt	200	mg

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

Generic Name	Brand Name	Strength	Unit
morphine sulfate/naltrexone HCl	Embeda	60-2.4	mg
morphine sulfate/naltrexone HCl	Embeda	20-0.8	mg
morphine sulfate/naltrexone HCl	Embeda	30-1.2	mg
oxycodone HCl/acetaminophen	Endocet	5-325	mg
tapentadol HCl	Nucynta ER	100	mg
tapentadol HCl	Nucynta ER	50	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	320.5-30-16	mg
fentanyl citrate	Abstral	100	mcg
hydromorphone HCl	Dilaudid	1	mg/mL
TRAMADOL HCL/GLUCOSAMINE SULFATE	Synapryn	10-5	mg/mL
hydrocodone bitartrate	Zohydro ER	10	mg
hydrocodone bitartrate	Zohydro ER	15	mg
hydrocodone bitartrate	Zohydro ER	20	mg
hydrocodone bitartrate	Zohydro ER	30	mg
hydrocodone bitartrate	Zohydro ER	40	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-300	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-300	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-300	mg
morphine sulfate	Kadian	40	mg
morphine sulfate	Kadian	70	mg
aspirin/caffeine/dihydrocodeine bitartrate	Synalgos-DC	356.4-30-16	mg
tramadol HCl	Ultram	50	mg
acetaminophen with codeine phosphate	Tylenol-Codeine #3	300-30	mg
oxycodone HCl/acetaminophen	Tylox	5-500	mg
hydrocodone bitartrate/acetaminophen	Lortab	5-500	mg
hydrocodone bitartrate/acetaminophen	Lortab Elixir	7.5-500	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lortab 5-325	5-325	mg
hydrocodone bitartrate/acetaminophen	Lortab 7.5-325	7.5-325	mg
hydrocodone bitartrate/acetaminophen	Lortab 10-325	10-325	mg
acetaminophen with codeine phosphate	Cocet Plus	650-60	mg
acetaminophen with codeine phosphate	Cocet	650-30	mg
hydrocodone/ibuprofen	Ibudone	5-200	mg
hydrocodone/ibuprofen	Ibudone	10-200	mg
hydrocodone/ibuprofen	Xylon 10	10-200	mg
codeine sulfate	codeine sulfate	30	mg/5 mL
hydrocodone bitartrate/acetaminophen	Lorcet (hydrocodone)	5-325	mg
hydrocodone bitartrate/acetaminophen	Lorcet Plus	7.5-325	mg
hydrocodone bitartrate/acetaminophen	Lorcet HD	10-325	mg
codeine phosphate/butalbital/aspirin/caffeine	Ascomp with Codeine	30-50-325-40	mg
butalbital/acetaminophen/caffeine/codeine phosphate	Fioricet with Codeine	50-300-40-30	mg
hydrocodone bitartrate/acetaminophen	Maxidone	10-750	mg

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

Generic Name	Brand Name	Strength	Unit
codeine phosphate/butalbital/aspirin/caffeine	Fiorinal-Codeine #3	30-50-325-40	mg
butalbital/acetaminophen/caffeine/codeine phosphate	Fioricet with Codeine	50-325-40-30	mg
hydrocodone bitartrate/acetaminophen	Zydone	7.5-400	mg
carisoprodol/aspirin/codeine phosphate	Carisoprodol Compound-Codeine	200-325-16	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	2.5-200	mg
tramadol HCl	ConZip	200	mg
hydrocodone bitartrate/acetaminophen	Zydone	10-400	mg
hydrocodone bitartrate/acetaminophen	Zydone	5-400	mg
oxycodone HCl/acetaminophen	Percocet	7.5-500	mg
oxycodone HCl	Oxaydo	5	mg
oxycodone HCl	Oxaydo	7.5	mg
aspirin/caffeine/dihydrocodeine bitartrate	aspirin-caffeine-dihydrocodein	356.4-30-16	mg
hydrocodone bitartrate/acetaminophen	Stagesic	5-500	mg
hydrocodone bitartrate	Hysingla ER	20	mg
hydrocodone bitartrate	Hysingla ER	30	mg
hydrocodone bitartrate	Hysingla ER	40	mg
hydrocodone bitartrate	Hysingla ER	60	mg
hydrocodone bitartrate	Hysingla ER	80	mg
oxycodone HCl	OxyContin	15	mg
buprenorphine HCl	Belbuca	75	mcg
buprenorphine HCl	Belbuca	150	mcg
tramadol HCl	Rybix ODT	50	mg
oxycodone HCl/acetaminophen	Magnacet	5-400	mg
oxycodone HCl/acetaminophen	Magnacet	7.5-400	mg
morphine sulfate/naltrexone HCl	Embeda	50-2	mg
morphine sulfate/naltrexone HCl	Embeda	80-3.2	mg
oxycodone HCl	Oxecta	5	mg
oxycodone HCl	Oxecta	7.5	mg
oxycodone HCl/acetaminophen	Endocet	2.5-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Trezix	320.5-30-16	mg
fentanyl citrate	Fentora	100	mcg
oxycodone HCl/aspirin	Percodan	4.8355-325	mg
oxymorphone HCl	Opana ER	7.5	mg
oxycodone HCl/acetaminophen	Percocet	2.5-325	mg
codeine phosphate/butalbital/aspirin/caffeine	codeine-bitalbital-ASA-caff	30-50-325-40	mg
morphine sulfate	MorphaBond ER	15	mg
morphine sulfate	MorphaBond ER	30	mg
oxycodone HCl	RoxyBond	5	mg
tramadol HCl	ConZip	100	mg
tramadol HCl	ConZip	300	mg

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	Verdrocet	2.5-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	325-30-16	mg
codeine sulfate	codeine sulfate	15 mg/2.5 mL	(2.5 mL)
codeine sulfate	codeine sulfate	30 mg/5 mL	(5 mL)
tramadol HCl/dietary supplement,misc. cb.11	Theratramadol-60	50	mg
tramadol HCl/dietary supplement,misc. cb.11	Theratramadol-90	50	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-325	10-325	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-650	10-650	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-Low-90	5-500	mg
morphine sulfate	Arymo ER	15	mg
morphine sulfate	Arymo ER	30	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Panlor(acetam-caff-dihydrocod)	325-30-16	mg
oxycodone HCl/acetaminophen	Nalocet	2.5-300	mg
All Oral and Transmucosal Opioid Analgesics			
fentanyl citrate	Onsolis	1,200	mcg
fentanyl citrate	Onsolis	200	mcg
fentanyl citrate	Onsolis	400	mcg
fentanyl citrate	Onsolis	600	mcg
fentanyl citrate	Onsolis	800	mcg
morphine sulfate	morphine	15	mg
morphine sulfate	morphine	30	mg
morphine sulfate	morphine	20 mg/5 mL	(4 mg/mL)
hydromorphone HCl	hydromorphone	8	mg
oxymorphone HCl	oxymorphone	10	mg
morphine sulfate	morphine concentrate	100 mg/5 mL	(20 mg/mL)
methadone HCl	methadone	10	mg/mL
oxycodone HCl	oxycodone	20	mg/mL
methadone HCl	Methadone Intensol	10	mg/mL
methadone HCl	methadone	5	mg/5 mL
methadone HCl	methadone	10	mg/5 mL
methadone HCl	Diskets	40	mg
fentanyl citrate	fentanyl citrate	200	mcg
fentanyl citrate	fentanyl citrate	400	mcg
fentanyl citrate	fentanyl citrate	600	mcg

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

Generic Name	Brand Name	Strength	Unit
fentanyl citrate	fentanyl citrate	800	mcg
fentanyl citrate	fentanyl citrate	1,200	mcg
fentanyl citrate	fentanyl citrate	1,600	mcg
oxycodone HCl	oxycodone	40	mg
oxycodone HCl	oxycodone	80	mg
oxymorphone HCl	oxymorphone	20	mg
oxymorphone HCl	oxymorphone	40	mg
morphine sulfate	morphine	100	mg
oxymorphone HCl	oxymorphone	15	mg
oxymorphone HCl	oxymorphone	30	mg
oxycodone HCl	oxycodone	30	mg
oxycodone HCl	oxycodone	60	mg
oxycodone HCl	oxycodone	15	mg
morphine sulfate	morphine	90	mg
morphine sulfate	morphine	120	mg
morphine sulfate	morphine	60	mg
morphine sulfate	morphine	200	mg
methadone HCl	Methadose	10	mg/mL
methadone HCl	Methadose	40	mg
methadone HCl	methadone	40	mg
hydromorphone HCl	hydromorphone	32	mg
pentazocine HCl/naloxone HCl	pentazocine-naloxone	50-0.5	mg
oxycodone HCl	oxycodone	20	mg
fentanyl citrate	Lazanda	400	mcg/spray
fentanyl citrate	Lazanda	300	mcg/spray
tapentadol HCl	Nucynta	100	mg
morphine sulfate	Avinza	120	mg
morphine sulfate	Avinza	90	mg
oxymorphone HCl	Opana ER	20	mg
oxymorphone HCl	Opana ER	40	mg
oxycodone HCl	OxyContin	40	mg
oxycodone HCl	OxyContin	80	mg
oxycodone HCl	OxyContin	30	mg
oxymorphone HCl	Opana ER	30	mg
oxycodone HCl	OxyContin	60	mg
morphine sulfate	Kadian	100	mg
oxymorphone HCl	Opana	10	mg
tapentadol HCl	Nucynta	75	mg
fentanyl citrate	Fentora	600	mcg
fentanyl	Subsys	400	mcg/spray
fentanyl	Subsys	600	mcg/spray
fentanyl	Subsys	800	mcg/spray
fentanyl	Subsys	1,200 mcg (600	mcg/spray X 2)
fentanyl	Subsys	1,600 mcg (800	mcg/spray X 2)

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

Generic Name	Brand Name	Strength	Unit
hydromorphone HCl	Exalgo ER	32	mg
oxycodone HCl	Roxicodone	15	mg
oxycodone HCl	Roxicodone	30	mg
morphine sulfate	morphine concentrate	20	mg/mL
oxycodone myristate	Xtampza ER	27	mg
oxycodone myristate	Xtampza ER	36	mg
morphine sulfate	MS Contin	60	mg
morphine sulfate	MS Contin	100	mg
morphine sulfate	MS Contin	200	mg
morphine sulfate	Oramorph SR	60	mg
morphine sulfate	Oramorph SR	100	mg
oxymorphone HCl	Opana ER	15	mg
fentanyl citrate	Actiq	400	mcg
fentanyl citrate	Actiq	600	mcg
fentanyl citrate	Actiq	800	mcg
morphine sulfate/naltrexone HCl	Embeda	100-4	mg
fentanyl citrate	Abstral	200	mcg
fentanyl citrate	Abstral	300	mcg
fentanyl citrate	Abstral	400	mcg
fentanyl citrate	Abstral	600	mcg
fentanyl citrate	Abstral	800	mcg
hydromorphone HCl	Dilaudid	8	mg
hydrocodone bitartrate	Zohydro ER	50	mg
morphine sulfate	Kadian	130	mg
morphine sulfate	Kadian	150	mg
morphine sulfate	Kadian	200	mg
tapentadol HCl	Nucynta ER	150	mg
tapentadol HCl	Nucynta ER	200	mg
tapentadol HCl	Nucynta ER	250	mg
hydrocodone bitartrate	Hysingla ER	100	mg
hydrocodone bitartrate	Hysingla ER	120	mg
buprenorphine HCl	Belbuca	300	mcg
buprenorphine HCl	Belbuca	450	mcg
buprenorphine HCl	Belbuca	600	mcg
buprenorphine HCl	Belbuca	750	mcg
buprenorphine HCl	Belbuca	900	mcg
fentanyl citrate	Actiq	200	mcg
fentanyl citrate	Actiq	1,200	mcg
fentanyl citrate	Actiq	1,600	mcg
fentanyl citrate	Fentora	200	mcg
fentanyl citrate	Fentora	400	mcg
fentanyl citrate	Fentora	800	mcg
morphine sulfate	MorphaBond ER	60	mg
morphine sulfate	MorphaBond ER	100	mg

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

Generic Name	Brand Name	Strength	Unit
oxycodone HCl	RoxyBond	15	mg
oxycodone HCl	RoxyBond	30	mg
oxycodone HCl	oxycodone	10	mg/0.5 mL
morphine sulfate	Arymo ER	60	mg
hydrocodone bitartrate/acetaminophen	Norco	5-325	mg
morphine sulfate	Kadian	50	mg
hydrocodone bitartrate/acetaminophen	Norco	7.5-325	mg
hydrocodone bitartrate/acetaminophen	Norco	10-325	mg
meperidine HCl	Demerol	50	mg
meperidine HCl	Demerol	100	mg
acetaminophen with codeine phosphate	Tylenol-Codeine #4	300-60	mg
morphine sulfate	morphine	10	mg/5 mL
codeine sulfate	codeine sulfate	15	mg
codeine sulfate	codeine sulfate	30	mg
codeine sulfate	codeine sulfate	60	mg
hydromorphone HCl	hydromorphone	4	mg
oxymorphone HCl	oxymorphone	5	mg
hydromorphone HCl	hydromorphone	1	mg/mL
oxycodone HCl	oxycodone	5	mg/5 mL
levorphanol tartrate	levorphanol tartrate	2	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-500	mg
butorphanol tartrate	butorphanol tartrate	10	mg/mL
meperidine HCl	meperidine	50	mg/5 mL
oxycodone HCl/acetaminophen	Roxicet	5-325	mg/5 mL
methadone HCl	Dolophine	5	mg
methadone HCl	Dolophine	10	mg
methadone HCl	methadone	5	mg
methadone HCl	methadone	10	mg
meperidine HCl	meperidine	50	mg
meperidine HCl	meperidine	100	mg
oxycodone HCl/acetaminophen	Roxicet	5-325	mg
oxycodone HCl/acetaminophen	Roxicet	5-500	mg
hydrocodone bitartrate/acetaminophen	Vicodin	5-500	mg
hydrocodone bitartrate/acetaminophen	Vicodin ES	7.5-750	mg
hydrocodone bitartrate/acetaminophen	Vicodin HP	10-660	mg
hydrocodone/ibuprofen	Vicoprofen	7.5-200	mg
hydrocodone bitartrate/acetaminophen	Vicodin	5-300	mg
hydrocodone bitartrate/acetaminophen	Vicodin ES	7.5-300	mg
hydrocodone bitartrate/acetaminophen	Vicodin HP	10-300	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-15	mg
tramadol HCl	tramadol	50	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-30	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	300-60	mg

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

Generic Name	Brand Name	Strength	Unit
hydrocodone/ibuprofen	hydrocodone-ibuprofen	7.5-200	mg
oxycodone HCl	oxycodone	10	mg
hydrocodone bitartrate/acetaminophen	Zolvit	10-300	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lortab Elixir	10-300	mg/15 mL
morphine sulfate	morphine	20	mg
morphine sulfate	morphine	50	mg
morphine sulfate	morphine	80	mg
oxymorphone HCl	oxymorphone	7.5	mg
acetaminophen with codeine phosphate	acetaminophen-codeine	120 mg-12 mg	/5 mL (5 mL)
acetaminophen with codeine phosphate	acetaminophen-codeine	120-12	mg/5 mL
acetaminophen with codeine phosphate	acetaminophen-codeine	240 mg-24 mg	/10 mL (10 mL)
acetaminophen with codeine phosphate	acetaminophen-codeine	300 mg-30 mg	/12.5 mL
acetaminophen with codeine phosphate	acetaminophen-codeine	360 mg-36 mg	/15 mL (15 mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg/15 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-325	mg/15 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-167	mg/5 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-334	mg/10 mL
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg/15 mL(15 mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-163	mg/7.5mL(7.5mL)
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-325	mg/15 mL(15 mL)
hydrocodone bitartrate/acetaminophen	Co-Gesic	5-500	mg
butalbital/acetaminophen/caffeine/codeine phosphate	butalbital-acetaminop-caf-cod	50-325-40-30	mg
tramadol HCl/acetaminophen	tramadol-acetaminophen	37.5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-325	mg
carisoprodol/aspirin/codeine phosphate	carisoprodol-ASA-codeine	200-325-16	mg
acetaminophen with codeine phosphate	Capital with Codeine	120-12	mg/5 mL
oxycodone HCl	oxycodone	5	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-325	mg
morphine sulfate	morphine	45	mg
morphine sulfate	morphine	75	mg
morphine sulfate	morphine	10	mg
ibuprofen/oxycodone HCl	ibuprofen-oxycodone	400-5	mg
tramadol HCl	tramadol	100	mg
tramadol HCl	tramadol	200	mg
tramadol HCl	tramadol	300	mg
oxycodone HCl/aspirin	oxycodone-aspirin	4.8355-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	2.5-325	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-500	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-500	mg

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-500	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-750	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-650	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-660	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-500	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-750	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	5-300	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	7.5-300	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	10-300	mg
hydromorphone HCl	hydromorphone	2	mg
hydromorphone HCl	hydromorphone	12	mg
hydromorphone HCl	hydromorphone	16	mg
methadone HCl	Methadose	10	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-325	mg/5 mL
hydrocodone bitartrate/acetaminophen	Hydrogesic	5-500	mg
hydrocodone bitartrate/acetaminophen	Zamicet	10-325	mg/15 mL
acetaminophen/caffeine/dihydrocodeine bitartrate	Panlor SS	712.8-60-32	mg
codeine phosphate/butalbital/aspirin/caffeine	Butalbital Compound W/Codeine	30-50-325-40	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-500	mg
oxycodone HCl/oxycodone terephthalate/aspirin	oxycodone HCl-oxycodone-ASA	4.5-0.38-325	mg
hydrocodone bitartrate/acetaminophen	hydrocodone-acetaminophen	2.5-325	mg
butalbital/acetaminophen/caffeine/codeine phosphate	butalbital-acetaminop-caf-cod	50-300-40-30	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	5-200	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	10-200	mg
hydrocodone bitartrate/acetaminophen	Hycet	7.5-325	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lorcet Plus	7.5-650	mg
hydrocodone bitartrate/acetaminophen	Lorcet 10/650	10-650	mg
fentanyl citrate	Lazanda	100	mcg/spray
tramadol HCl	Ryzolt	100	mg
tramadol HCl	Ryzolt	300	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	712.8-60-32	mg
morphine sulfate	Avinza	60	mg
morphine sulfate	Avinza	30	mg
morphine sulfate	Kadian	60	mg
oxycodone HCl/acetaminophen	Percocet	10-325	mg
oxycodone HCl/acetaminophen	Percocet	5-325	mg
oxycodone HCl/acetaminophen	Percocet	10-650	mg
hydrocodone bitartrate/acetaminophen	Lortab	10-500	mg

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	Lortab	7.5-500	mg
meperidine HCl	Meperitab	50	mg
oxycodone HCl	OxyContin	10	mg
morphine sulfate	Kadian	20	mg
oxymorphone HCl	Opana ER	10	mg
oxycodone HCl/acetaminophen	Percocet	7.5-325	mg
oxymorphone HCl	Opana ER	5	mg
hydromorphone HCl	Dilaudid	2	mg
morphine sulfate	Kadian	80	mg
hydrocodone bitartrate/acetaminophen	Xodol 10/300	10-300	mg
oxycodone HCl/acetaminophen	Magnacet	10-400	mg
oxymorphone HCl	Opana	5	mg
morphine sulfate	Avinza	75	mg
tapentadol HCl	Nucynta	50	mg
morphine sulfate	Avinza	45	mg
oxycodone HCl/acetaminophen	Endocet	10-325	mg
hydromorphone HCl	Exalgo ER	8	mg
oxycodone HCl/aspirin	Endodan	4.8355-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Zerlor	712.8-60-32	mg
fentanyl	Subsys	100	mcg/spray
fentanyl	Subsys	200	mcg/spray
tramadol HCl/acetaminophen	Ultracet	37.5-325	mg
tramadol HCl	Ultram ER	100	mg
tramadol HCl	Ultram ER	200	mg
hydrocodone bitartrate/acetaminophen	Xodol 5/300	5-300	mg
hydrocodone bitartrate/acetaminophen	Xodol 7.5/300	7.5-300	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Treizix	356.4-30-16	mg
tramadol HCl	tramadol	150	mg
tramadol HCl	Ultram ER	300	mg
oxycodone HCl/acetaminophen	Xolox	10-500	mg
codeine phosphate/butalbital/aspirin/caffeine	Butalbital Compound-Codeine	30-50-325-40	mg
oxycodone HCl/acetaminophen	Endocet	10-650	mg
oxycodone HCl/acetaminophen	Endocet	7.5-325	mg
oxycodone HCl/acetaminophen	Endocet	7.5-500	mg
oxycodone HCl/acetaminophen	Xartemis XR	7.5-325	mg
hydromorphone HCl	Exalgo ER	12	mg
hydromorphone HCl	Exalgo ER	16	mg
oxycodone HCl	Roxicodone	5	mg
hydrocodone/ibuprofen	Reprexain	2.5-200	mg
hydrocodone/ibuprofen	Reprexain	5-200	mg
hydrocodone/ibuprofen	Reprexain	10-200	mg

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

Generic Name	Brand Name	Strength	Unit
oxycodone HCl/acetaminophen	Primlev	5-300	mg
oxycodone HCl/acetaminophen	Primlev	7.5-300	mg
oxycodone HCl/acetaminophen	Primlev	10-300	mg
oxycodone myristate	Xtampza ER	9	mg
oxycodone myristate	Xtampza ER	13.5	mg
oxycodone myristate	Xtampza ER	18	mg
hydromorphone HCl	Dilaudid	4	mg
morphine sulfate	Kadian	10	mg
morphine sulfate	Kadian	30	mg
oxycodone HCl	OxyContin	20	mg
morphine sulfate	MS Contin	15	mg
morphine sulfate	MS Contin	30	mg
morphine sulfate	Oramorph SR	15	mg
morphine sulfate	Oramorph SR	30	mg
tramadol HCl	Ryzolt	200	mg
morphine sulfate/naltrexone HCl	Embeda	60-2.4	mg
morphine sulfate/naltrexone HCl	Embeda	20-0.8	mg
morphine sulfate/naltrexone HCl	Embeda	30-1.2	mg
oxycodone HCl/acetaminophen	Endocet	5-325	mg
tapentadol HCl	Nucynta ER	100	mg
tapentadol HCl	Nucynta ER	50	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	320.5-30-16	mg
fentanyl citrate	Abstral	100	mcg
hydromorphone HCl	Dilaudid	1	mg/mL
TRAMADOL HCL/GLUCOSAMINE SULFATE	Synapryn	10-5	mg/mL
hydrocodone bitartrate	Zohydro ER	10	mg
hydrocodone bitartrate	Zohydro ER	15	mg
hydrocodone bitartrate	Zohydro ER	20	mg
hydrocodone bitartrate	Zohydro ER	30	mg
hydrocodone bitartrate	Zohydro ER	40	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	5-300	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	7.5-300	mg
oxycodone HCl/acetaminophen	oxycodone-acetaminophen	10-300	mg
morphine sulfate	Kadian	40	mg
morphine sulfate	Kadian	70	mg
aspirin/caffeine/dihydrocodeine bitartrate	Synalgos-DC	356.4-30-16	mg
tramadol HCl	Ultram	50	mg
acetaminophen with codeine phosphate	Tylenol-Codeine #3	300-30	mg
oxycodone HCl/acetaminophen	Tylox	5-500	mg
hydrocodone bitartrate/acetaminophen	Lortab	5-500	mg
hydrocodone bitartrate/acetaminophen	Lortab Elixir	7.5-500	mg/15 mL
hydrocodone bitartrate/acetaminophen	Lortab 5-325	5-325	mg
hydrocodone bitartrate/acetaminophen	Lortab 7.5-325	7.5-325	mg

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

Generic Name	Brand Name	Strength	Unit
hydrocodone bitartrate/acetaminophen	Lortab 10-325	10-325	mg
acetaminophen with codeine phosphate	Cocet Plus	650-60	mg
acetaminophen with codeine phosphate	Cocet	650-30	mg
hydrocodone/ibuprofen	Ibudone	5-200	mg
hydrocodone/ibuprofen	Ibudone	10-200	mg
hydrocodone/ibuprofen	Xylon 10	10-200	mg
codeine sulfate	codeine sulfate	30	mg/5 mL
hydrocodone bitartrate/acetaminophen	Lorcet (hydrocodone)	5-325	mg
hydrocodone bitartrate/acetaminophen	Lorcet Plus	7.5-325	mg
hydrocodone bitartrate/acetaminophen	Lorcet HD	10-325	mg
codeine phosphate/butalbital/aspirin/caffeine	Ascomp with Codeine	30-50-325-40	mg
butalbital/acetaminophen/caffeine/codeine phosphate	Fioricet with Codeine	50-300-40-30	mg
hydrocodone bitartrate/acetaminophen	Maxidone	10-750	mg
codeine phosphate/butalbital/aspirin/caffeine	Fiorinal-Codeine #3	30-50-325-40	mg
butalbital/acetaminophen/caffeine/codeine phosphate	Fioricet with Codeine	50-325-40-30	mg
hydrocodone bitartrate/acetaminophen	Zydone	7.5-400	mg
carisoprodol/aspirin/codeine phosphate	Carisoprodol Compound-Codeine	200-325-16	mg
hydrocodone/ibuprofen	hydrocodone-ibuprofen	2.5-200	mg
tramadol HCl	ConZip	200	mg
hydrocodone bitartrate/acetaminophen	Zydone	10-400	mg
hydrocodone bitartrate/acetaminophen	Zydone	5-400	mg
oxycodone HCl/acetaminophen	Percocet	7.5-500	mg
oxycodone HCl	Oxaydo	5	mg
oxycodone HCl	Oxaydo	7.5	mg
aspirin/caffeine/dihydrocodeine bitartrate	aspirin-caffeine-dihydrocodein	356.4-30-16	mg
hydrocodone bitartrate/acetaminophen	Stagesic	5-500	mg
hydrocodone bitartrate	Hysingla ER	20	mg
hydrocodone bitartrate	Hysingla ER	30	mg
hydrocodone bitartrate	Hysingla ER	40	mg
hydrocodone bitartrate	Hysingla ER	60	mg
hydrocodone bitartrate	Hysingla ER	80	mg
oxycodone HCl	OxyContin	15	mg
buprenorphine HCl	Belbuca	75	mcg
buprenorphine HCl	Belbuca	150	mcg
tramadol HCl	Rybix ODT	50	mg
oxycodone HCl/acetaminophen	Magnacet	5-400	mg
oxycodone HCl/acetaminophen	Magnacet	7.5-400	mg
morphine sulfate/naltrexone HCl	Embeda	50-2	mg
morphine sulfate/naltrexone HCl	Embeda	80-3.2	mg
oxycodone HCl	Oxecta	5	mg

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

Generic Name	Brand Name	Strength	Unit
oxycodone HCl	Oxecta	7.5	mg
oxycodone HCl/acetaminophen	Endocet	2.5-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Trezix	320.5-30-16	mg
fentanyl citrate	Fentora	100	mcg
oxycodone HCl/aspirin	Percodan	4.8355-325	mg
oxymorphone HCl	Opana ER	7.5	mg
oxycodone HCl/acetaminophen	Percocet	2.5-325	mg
codeine phosphate/butalbital/aspirin/caffeine	codeine-butalbital-ASA-caff	30-50-325-40	mg
morphine sulfate	MorphaBond ER	15	mg
morphine sulfate	MorphaBond ER	30	mg
oxycodone HCl	RoxyBond	5	mg
tramadol HCl	ConZip	100	mg
tramadol HCl	ConZip	300	mg
hydrocodone bitartrate/acetaminophen	Verdrocet	2.5-325	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	acetaminophen-caff-dihydrocod	325-30-16	mg
codeine sulfate	codeine sulfate	15 mg/2.5 mL	(2.5 mL)
codeine sulfate	codeine sulfate	30 mg/5 mL	(5 mL)
tramadol HCl/dietary supplement,misc. cb.11	Theratramadol-60	50	mg
tramadol HCl/dietary supplement,misc. cb.11	Theratramadol-90	50	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-325	10-325	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-650	10-650	mg
hydrocodone bitartrate/acetaminophen/dietary supplement #11	Theracodophen-Low-90	5-500	mg
morphine sulfate	Arymo ER	15	mg
morphine sulfate	Arymo ER	30	mg
acetaminophen/caffeine/dihydrocodeine bitartrate	Panlor(acetam-caff-dihydrocod)	325-30-16	mg
oxycodone HCl/acetaminophen	Nalocet	2.5-300	mg
Transdermal Opioid Analgesics (Fentanyl & Buprenorphine)			
buprenorphine	buprenorphine	5	mcg/hour
buprenorphine	Butrans	5	mcg/hour
buprenorphine	buprenorphine	7.5	mcg/hour
buprenorphine	Butrans	7.5	mcg/hour
buprenorphine	buprenorphine	10	mcg/hour

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

Generic Name	Brand Name	Strength	Unit
buprenorphine	Butrans	10	mcg/hour
buprenorphine	buprenorphine	15	mcg/hour
buprenorphine	Butrans	15	mcg/hour
buprenorphine	buprenorphine	20	mcg/hour
buprenorphine	Butrans	20	mcg/hour
fentanyl	fentanyl	12	mcg/hr
fentanyl	Duragesic	12	mcg/hr
fentanyl	fentanyl	25	mcg/hr
fentanyl	Duragesic	25	mcg/hr
fentanyl	fentanyl	37.5	mcg/hour
fentanyl	fentanyl	50	mcg/hr
fentanyl	Duragesic	50	mcg/hr
fentanyl	fentanyl	62.5	mcg/hour
fentanyl	fentanyl	75	mcg/hr
fentanyl	Duragesic	75	mcg/hr
fentanyl	fentanyl	87.5	mcg/hour
fentanyl	fentanyl	100	mcg/hr
fentanyl	Duragesic	100	mcg/hr

Appendix C. List of Healthcare Common Procedure Coding System (HCPCS) Procedure Codes Used to Define the Exposure in this Request

Code	Code Category	Code Type	Description
Lower Dosage Strength and All Oral and Transmucosal Opioid Analgesics			
S0012	Procedure	HCPCS	Butorphanol tartrate, nasal spray, 25 mg

Appendix D. List of Generic and Brand Drug Names Used to Define the Concurrent Therapies in this Request

Generic Name	Brand Name
Benzodiazepines	
CHLORDIAZEPOXIDE HCL	chlordiazepoxide HCl
CHLORDIAZEPOXIDE/CLIDINIUM BROMIDE	Librax (with clidinium)
CHLORDIAZEPOXIDE/CLIDINIUM BROMIDE	chlordiazepoxide-clidinium
FLURAZEPAM HCL	flurazepam
OXAZEPAM	oxazepam
TEMAZEPAM	temazepam
TEMAZEPAM	Restoril
TEMAZEPAM/DIETARY SUPPLEMENT NO.8	Strazepam
ALPRAZOLAM/DIETARY SUPPLEMENT, MISC COMBO NO.17	Gabazolamine
ALPRAZOLAM	Alprazolam Intensol
DIAZEPAM	Diazepam Intensol
DIAZEPAM	diazepam
LORAZEPAM	Lorazepam Intensol
LORAZEPAM	lorazepam
CLOBAZAM	Onfi
MIDAZOLAM HCL	midazolam
ALPRAZOLAM	Xanax
ALPRAZOLAM	alprazolam
AMITRIPTYLINE HCL/CHLORDIAZEPOXIDE	amitriptyline-chlordiazepoxide
CLONAZEPAM	Klonopin
CLONAZEPAM	clonazepam
CLORAZEPATE DIPOTASSIUM	clorazepate dipotassium
CLORAZEPATE DIPOTASSIUM	Tranxene T-Tab
DIAZEPAM	Valium
ESTAZOLAM	estazolam
LORAZEPAM	Ativan
QUAZEPAM	Doral
QUAZEPAM	quazepam
TRIAZOLAM	Halcion
TRIAZOLAM	triazolam
ALPRAZOLAM	Xanax XR
ALPRAZOLAM	Niravam
Gabapentinoids	
GABAPENTIN	Fanatrex
GABAPENTIN	gabapentin
GABAPENTIN	Gralise
GABAPENTIN	Gralise 30-Day Starter Pack
GABAPENTIN	Neurontin
GABAPENTIN ENACARBIL	Horizant
GABAPENTIN/DIETARY SUPPLEMENT, MISC COMBO NO.11	Therapentin-60
GABAPENTIN/DIETARY SUPPLEMENT, MISC COMBO NO.11	Therapentin-90
PREGABALIN	Lyrica

Appendix D. List of Generic and Brand Drug Names Used to Define the Concurrent Therapies in this Request

Generic Name	Brand Name
Z-Drugs	
eszopiclone	Lunesta
eszopiclone	eszopiclone
zaleplon	zaleplon
zaleplon	Sonata
zolpidem tartrate	zolpidem
zolpidem tartrate	Ambien
zolpidem tartrate	Ambien CR
zolpidem tartrate	Zolpimist
zolpidem tartrate	Edluar
zolpidem tartrate	Intermezzo

Appendix E. List of Healthcare Common Procedure Coding System (HCPCS) Procedure Codes Used to Define Concurrent Therapies in this Request

Code	Code Category	Code Type	Description
Benzodiazepines			
J3360	Procedure	HCPCS	Injection, diazepam, up to 5 mg
J2060	Procedure	HCPCS	Injection, lorazepam, 2 mg
J1990	Procedure	HCPCS	Injection, chlordiazepoxide HCl, up to 100 mg
J2250	Procedure	HCPCS	Injection, midazolam HCl, per 1 mg

Appendix F. Specifications of Parameters for this Request

This request used the Cohort Identification and Descriptive Analysis (CIDA) tool, version 6.0.0, to characterize user demographics and treatment duration of higher dosage strength opioid analgesics in the Sentinel Distributed Database (SDD).

Query Period: January 1, 2012- June 30, 2018
Coverage requirement: Medical & Drug Coverage
Pre-index enrollment requirement: 7 days
Post-index enrollment requirement: 7 days
Enrollment gap: 45 days
Age Groups (Years): 0-17, 18-29, 30-49, 50-64, 65+ years
Stratifications, Type 1 Output: Year, Year by Age, Year by Sex
Stratifications, Baseline: None
Envelope macro: Reclassify encounters during inpatient stay as inpatient
Freeze data: No
Baseline table: Yes

Exposure

Scenario	Index Exposure/ Event	Care setting	Cohort Definition	Incident with respect to:	Washout period	Censor enrollment at evidence of
1	Higher dosage strength oral and transmucosal opioid analgesics	Any care setting	All valid index dates during query period	None	0	Death, DP end date, Query end date
2	Lower dosage strength oral and transmucosal opioid analgesics	Any care setting	All valid index dates during query period	None	0	Death, DP end date, Query end date
3	All oral and transmucosal opioid analgesics	Any care setting	All valid index dates during query period	None	0	Death, DP end date, Query end date
4	Transdermal opioid analgesics (fentanyl and buprenorphine)	Any care setting	All valid index dates during query period	None	0	Death, DP end date, Query end date

Healthcare Common Procedure Coding System (HCPCS) codes are provided by Optum360.

National Drug Codes (NCDs) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."