Disclaimer

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_wp126

Request ID: cder_mpl1r_wp126_nsdp_v01

Request Description: The goal of this request was to estimate total cumulative exposure duration of urate-lowering therapy (ULT) products, febuxostat and allopurinol, prior to switching between doses and generic names in the Sentinel Distributed Database (SDD). This is report 3 of 3. Report 1 describes counts of individuals with gout diagnoses. Report 2 describes counts of febuxostat and allopurinol users and switching between doses and ULT drug products.

Sentinel Routine Querying Module: Cohort Identification and Descriptive Analysis (CIDA) module, version 6.0.0

Data Source: Data from January 1, 2009 to December 31, 2016 from 17 Data Partners contributing to the Sentinel Distributed Database (SDD) were included in this report. This request was distributed on October 25, 2018. See Appendix A for a list of dates of available data for each Data Partner.

Study Design: This request was designed to calculate length of cumulative treatment episodes of febuxostat and allopurinol by generic name and dosage. Results were stratified by cumulative episode length, cumulative episode length among males, and cumulative episode length by age group.

Exposures of Interest: The exposures of interest were febuxostat and allopurinol. Febuxostat exposure groups were defined by dispensings of 40 mg strength, 80 mg strength, and any dosage (40 or 80 mg). Allopurinol exposure groups were defined by dispensings of 100 mg strength, 300 mg strength, and any dosage (100, 200, or 300 mg and combination products). Exposure episodes were considered continuous if the gap in days supply was less than 30 days. Exposure episodes were included until the first occurrence of any of the following: 1) the end of the last exposure episode, 2) death, 3) disenrollment, or 4) end of Data Partner data availability. Cumulative exposure duration was calculated across all contributing enrollment spans. See Appendix B for a list of generic and brand names of medical products used to define exposures in this request.

Cohort Eligibility Criteria: Members included in the cohort were required to be enrolled in plans with medical and drug coverage for 183 days prior to the index dispensing date, during which gaps in coverage up to 45 days were allowed. Members were required to have a diagnosis of gout in the 183 days prior to the index dispensing date. See Appendix D for a 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 gout inclusion criteria. Index exposure episodes were excluded if there was evidence of febuxostat, allopurinol, probenecid, or pegloticase in the 6 months (183 days) prior to the exposure of interest. See Appendix C for a list of generic and brand names of medical products used to defined incidence criteria. The following age groups were included in the cohort: 21-44, 45-64, and 65+ years.

Switching: Cumulative exposure duration prior to switching between doses and generic names was also assessed. The following switches among index exposure groups were captured:

- Febuxostat 40 mg, switch to 1) Febuxostat 80 mg, 2) Allopurinol 100 mg, or 3) Allopurinol 300 mg
- Febuxostat 80 mg, switch to 1) Febuxostat 40 mg, 2) Allopurinol 100 mg, or 3) Allopurinol 300 mg
- Febuxostat (any dose), switch to Allopurinol (any dose)
- Allopurinol 100 mg, switch to 1) Allopurinol 300 mg, 2) Febuxostat 40 mg, or 3) Febuxostat 80 mg
- Allopurinol 300 mg, switch to 1) Allopurinol 100 mg, 2) Febuxostat 40 mg, or 3) Febuxostat 80 mg
- Allopurinol (any dose), switch to Febuxostat (any dose)

Members included in the switching cohorts were required to have a dispensing of the switch exposure at any point after the index dispensing date. Exposure episodes were considered continuous if the gap in days supply was less than 30 days. Exposure episodes were included until the first occurrence of any of the following: 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability. Cumulative exposure duration was calculated across all contributing enrollment spans. See Appendix C for a list of generic and brand names used to define index exposures and switch exposures in this request.

Request End Date: The study period was January 1, 2009 to December 31, 2016, which binds index dates for initiation of cumulative exposure duration. However, cumulative episodes that began during the study period were allowed to continue past December 31, 2016 for Data Partners with additional data.

For cohorts observing cumulative exposure duration prior to switching, members were included in the cohort if they had a dispensing of the switch of interest after the index dispensing date. Due to varying dates of availability among the Data Partners in the SDD, this inclusion criteria may have occurred after the study period end date. To calculate the total cumulative exposure duration until the switch of interest, exposure episodes were not truncated at the request end date (December 31, 2016). See Appendix E for figures with further details.

Overview for Request: cder_mpl1r_wp126
Please see Appendix F for the specifications of parameters used in the analyses for this request. **Limitations:** Algorithms used to define exposures and inclusion criteria are imperfect; thus, it is possible that there may be misclassification. In addition, users were included in the switching analysis if there was evidence of the use of the switch exposure *at any point* following the index dispensing; thus, we cannot guarantee that the user was taking the index exposure at the time of the switch. If the index exposure ended before the switch drug was dispensed, episode duration would reflect the time until the episode end date. **Notes:** Please contact the Sentinel Operations Center (info@sentinelsystem.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) Module*

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.

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 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 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 1a. Distribution of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category

	Number of Patients															
Exposure Duration	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Febuxostat 40 mg	66,682	100	2,351	3.5	22,911	34.4	10,034	15.0	10,106	15.2	15,498	23.2	4,535	6.8	1,247	1.9
Febuxostat 80 mg	14,657	100	432	2.9	4,810	32.8	2,376	16.2	2,531	17.3	3,485	23.8	829	5.7	194	1.3
Febuxostat (any dose)[1]	80,083	100	2,574	3.2	23,698	29.6	11,286	14.1	12,566	15.7	21,383	26.7	6,685	8.3	1,891	2.4
Allopurinol 100 mg	681,171	100	30,203	4.4	186,651	27.4	96,870	14.2	105,206	15.4	177,500	26.1	62,563	9.2	22,178	3.3
Allopurinol 300 mg	406,322	100	10,580	2.6	105,697	26	53,066	13.1	61,888	15.2	113,619	28.0	43,928	10.8	17,544	4.3
Allopurinol (any dose)[2]	1,049,461	100	29,186	2.8	229,536	21.9	129,827	12.4	158,955	15.1	319,258	30.4	130,417	12.4	52,282	5.0

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 1b. Descriptive Statistics of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016

Exposure	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg	66,682	363	459	1	60	165	496	3,246
Febuxostat 80 mg	14,657	343.8	420.09	1	60	180	460	3,098
Febuxostat (any dose)[1]	80,083	418	491.2	1	62	210	600	3,274
Allopurinol 100 mg	681,171	446.9	529.43	1	75	216	637	3,463
Allopurinol 300 mg	406,322	505.9	568.96	1	90	270	745	3,441
Allopurinol (any dose)[2]	1,049,461	557.7	589.57	1	93	334	839	3,464

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 2a. Distribution of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category among Males

	Number of Patients															
Exposure Duration	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Febuxostat 40 mg	66,682	100	2,351	100	22,911	100	10,034	100	10,106	100	15,498	100	4,535	100	1,247	100
Male	41,195	61.8	1,405	59.8	14,685	64.1	6,386	63.6	6,226	61.6	9,221	59.5	2,526	55.7	746	59.8
Febuxostat 80 mg	14,657	100	432	100	4,810	100	2,376	100	2,531	100	3,485	100	829	100	194	100
Male	10,667	72.8	307	71.1	3,543	73.7	1,790	75.3	1,818	71.8	2,509	72.0	573	69.1	127	65.5
Febuxostat (any dose)[1]	80,083	100	2,574	100	23,698	100	11,286	100	12,566	100	21,383	100	6,685	100	1,891	100
Male	50,961	63.6	1,564	60.8	15,442	65.2	7,399	65.6	8,017	63.8	13,376	62.6	3,960	59.2	1,203	63.6
Allopurinol 100 mg	681,171	100	30,203	100	186,651	100	96,870	100	105,206	100	177,500	100	62,563	100	22,178	100
Male	420,621	61.7	19,667	65.1	119,280	63.9	61,825	63.8	65,895	62.6	105,291	59.3	35,470	56.7	13,193	59.5
Allopurinol 300 mg	406,322	100	10,580	100	105,697	100	53,066	100	61,888	100	113,619	100	43,928	100	17,544	100
Male	296,982	73.1	7,556	71.4	75,189	71.1	39,186	73.8	46,023	74.4	83,856	73.8	31,930	72.7	13,242	75.5
Allopurinol (any dose)[2]	1,049,461	100	29,186	100	229,536	100	129,827	100	158,955	100	319,258	100	130,417	100	52,282	100
Male	689,900	65.7	18,982	65.0	150,449	65.5	86,631	66.7	106,257	66.8	208,924	65.4	83,445	64.0	35,212	67.4

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 2b. Descriptive Statistics of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, among Males

Exposure	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg	66,682	363	459	1	60	165	496	3,246
Male	41,195	347.9	451.43	1	60	153	465	3,246
Febuxostat 80 mg	14,657	343.8	420.09	1	60	180	460	3,098
Male	10,667	336.6	412.7	1	60	172	450	3,080
Febuxostat (any dose)[1]	80,083	418	491.2	1	62	210	600	3,274
Male	50,961	407.9	487.82	1	61	203	575	3,246
Allopurinol 100 mg	681,171	446.9	529.43	1	75	216	637	3,463
Male	420,621	428	521.75	1	67	201	597	3,450
Allopurinol 300 mg	406,322	505.9	568.96	1	90	270	745	3,441
Male	296,982	511	573.22	1	90	276	749	3,441
Allopurinol (any dose)[2]	1,049,461	557.7	589.57	1	93	334	839	3,464
Male	689,900	556	593.01	1	94	330	830	3,464

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 3a. Distribution of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category and Age Group

	Number of Patients															
Exposure Duration	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Febuxostat 40 mg	66,682	100	2,351	100	22,911	100	10,034	100	10,106	100	15,498	100	4,535	100	1,247	100
21-44 Years	5,041	7.6	180	7.7	2,334	10.2	775	7.7	681	6.7	812	5.2	186	4.1	73	5.9
45-64 Years	16,447	24.7	583	24.8	6,203	27.1	2,561	25.5	2,398	23.7	3,462	22.3	916	20.2	324	26.0
65+ Years	45,194	67.8	1,588	67.5	14,374	62.7	6,698	66.8	7,027	69.5	11,224	72.4	3,433	75.7	850	68.2
Febuxostat 80 mg	14,657	100	432	100	4,810	100	2,376	100	2,531	100	3,485	100	829	100	194	100
21-44 Years	1,595	10.9	59	13.7	610	12.7	277	11.7	266	10.5	313	9.0	56	6.8	14	7.2
45-64 Years	4,679	31.9	124	28.7	1,686	35.1	757	31.9	785	31.0	1,028	29.5	230	27.7	69	35.6
65+ Years	8,383	57.2	249	57.6	2,514	52.3	1,342	56.5	1,480	58.5	2,144	61.5	543	65.5	111	57.2
Febuxostat (any dose)[1]	80,083	100	2,574	100	23,698	100	11,286	100	12,566	100	21,383	100	6,685	100	1,891	100
21-44 Years	6,503	8.1	226	8.8	2,515	10.6	972	8.6	966	7.7	1,367	6.4	333	5.0	124	6.6
45-64 Years	20,722	25.9	657	25.5	6,690	28.2	3,003	26.6	3,176	25.3	5,161	24.1	1,483	22.2	552	29.2
65+ Years	52,858	66.0	1,691	65.7	14,493	61.2	7,311	64.8	8,424	67.0	14,855	69.5	4,869	72.8	1,215	64.3
Allopurinol 100 mg	681,171	100	30,203	100	186,651	100	96,870	100	105,206	100	177,500	100	62,563	100	22,178	100
21-44 Years	51,313	7.5	3,074	10.2	20,152	10.8	8,709	9.0	7,616	7.2	8,865	5.0	2,143	3.4	754	3.4
45-64 Years	169,497	24.9	8,113	26.9	51,612	27.7	26,431	27.3	26,809	25.5	39,781	22.4	12,157	19.4	4,594	20.7
65+ Years	460,361	67.6	19,016	63.0	114,887	61.6	61,730	63.7	70,781	67.3	128,854	72.6	48,263	77.1	16,830	75.9
Allopurinol 300 mg	406,322	100	10,580	100	105,697	100	53,066	100	61,888	100	113,619	100	43,928	100	17,544	100
21-44 Years	41,978	10.3	1,267	12.0	14,475	13.7	6,527	12.3	6,665	10.8	9,351	8.2	2,635	6.0	1,058	6.0
45-64 Years	129,899	32.0	3,267	30.9	35,078	33.2	18,400	34.7	20,722	33.5	35,143	30.9	11,997	27.3	5,292	30.2
65+ Years	234,445	57.7	6,046	57.1	56,144	53.1	28,139	53.0	34,501	55.7	69,125	60.8	29,296	66.7	11,194	63.8
Allopurinol (any dose)[2]	1,049,461	100	29,186	100	229,536	100	129,827	100	158,955	100	319,258	100	130,417	100	52,282	100
21-44 Years	88,682	8.5	2,915	10.0	27,643	12.0	13,349	10.3	14,078	8.9	21,626	6.8	6,464	5.0	2,607	5.0
45-64 Years	286,874	27.3	7,815	26.8	67,670	29.5	38,460	29.6	45,352	28.5	83,457	26.1	30,504	23.4	13,616	26.0
65+ Years	673,905	64.2	18,456	63.2	134,223	58.5	78,018	60.1	99,525	62.6	214,175	67.1	93,449	71.7	36,059	69.0

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 3b. Descriptive Statistics of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg	66,682	363	459	1	60	165	496	3,246
21-44 Years	5,041	259.7	396.72	1	30	92	298	3,099
45-64 Years	16,447	334.1	455.62	1	41	135	433	3,246
65+ Years	45,194	385	464.52	1	60	182	542	3,184
Febuxostat 80 mg	14,657	343.8	420.09	1	60	180	460	3,098
21-44 Years	1,595	275.2	363.59	1	30	129	354	2,642
45-64 Years	4,679	323.3	418.81	1	60	151	428	2,955
65+ Years	8,383	368.3	428.73	1	76	190	506	3,098
Febuxostat (any dose)[1]	80,083	418	491.2	1	62	210	600	3,274
21-44 Years	6,503	323.2	444.74	1	30	135	420	3,099
45-64 Years	20,722	396.8	497.81	1	60	183	547	3,246
65+ Years	52,858	438	492.34	1	79	238	640	3,274
Allopurinol 100 mg	681,171	446.9	529.43	1	75	216	637	3,463
21-44 Years	51,313	279.7	407.76	1	30	107	327	3,275
45-64 Years	169,497	391.3	501.16	1	60	180	523	3,450
65+ Years	460,361	486	545.85	1	90	267	716	3,463
Allopurinol 300 mg	406,322	505.9	568.96	1	90	270	745	3,441
21-44 Years	41,978	366.4	484.68	1	60	164	473	3,329
45-64 Years	129,899	474.3	560.39	1	90	243	669	3,441
65+ Years	234,445	548.4	582.34	1	90	318	832	3,441
Allopurinol (any dose)[2]	1,049,461	557.7	589.57	1	93	334	839	3,464
21-44 Years	88,682	403	509.79	1	60	187	543	3,364
45-64 Years	286,874	521.3	585.36	1	90	292	755	3,464
65+ Years	673,905	593.6	596.85	1	110	381	907	3,463

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 4a. Distribution of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category and Age Group among Males

	Number of Patients															
Exposure Duration	Total	%	<1 month	%	1 - <3 months	%	3 - <6 months	%	6 months - <1 year	%	1 - <3 years	%	3 - <5 years	%	5+ years	%
Febuxostat 40 mg	66,682	100	2,351	100	22,911	100	10,034	100	10,106	100	15,498	100	4,535	100	1,247	100
Male	41,195	61.8	1,405	59.8	14,685	64.1	6,386	63.6	6,226	61.6	9,221	59.5	2,526	55.7	746	59.8
21-44 Years	4,677	7.0	165	7.0	2,167	9.5	720	7.2	637	6.3	750	4.8	171	3.8	67	5.4
45-64 Years	12,726	19.1	452	19.2	4,911	21.4	2,008	20.0	1,818	18.0	2,603	16.8	676	14.9	258	20.7
65+ Years	23,792	35.7	788	33.5	7,607	33.2	3,658	36.5	3,771	37.3	5,868	37.9	1,679	37.0	421	33.8
Febuxostat 80 mg	14,657	100	432	100	4,810	100	2,376	100	2,531	100	3,485	100	829	100	194	100
Male	10,667	72.8	307	71.1	3,543	73.7	1,790	75.3	1,818	71.8	2,509	72.0	573	69.1	127	65.5
21-44 Years	1,511	10.3	56	13.0	576	12.0	270	11.4	249	9.8	295	8.5	52	6.3	13	6.7
45-64 Years	3,884	26.5	96	22.2	1,399	29.1	651	27.4	639	25.2	844	24.2	196	23.6	59	30.4
65+ Years	5,272	36.0	155	35.9	1,568	32.6	869	36.6	930	36.7	1,370	39.3	325	39.2	55	28.4
Febuxostat (any dose)[1]	80,083	100	2,574	100	23,698	100	11,286	100	12,566	100	21,383	100	6,685	100	1,891	100
Male	50,961	63.6	1,564	60.8	15,442	65.2	7,399	65.6	8,017	63.8	13,376	62.6	3,960	59.2	1,203	63.6
21-44 Years	6,062	7.6	209	8.1	2,341	9.9	913	8.1	907	7.2	1,269	5.9	308	4.6	115	6.1
45-64 Years	16,262	20.3	503	19.5	5,319	22.4	2,400	21.3	2,453	19.5	4,009	18.7	1,133	16.9	445	23.5
65+ Years	28,637	35.8	852	33.1	7,782	32.8	4,086	36.2	4,657	37.1	8,098	37.9	2,519	37.7	643	34.0
Allopurinol 100 mg	681,171	100	30,203	100	186,651	100	96,870	100	105,206	100	177,500	100	62,563	100	22,178	100
Male	420,621	61.7	19,667	65.1	119,280	63.9	61,825	63.8	65,895	62.6	105,291	59.3	35,470	56.7	13,193	59.5
21-44 Years	46,926	6.9	2,826	9.4	18,386	9.9	8,058	8.3	7,006	6.7	8,054	4.5	1,907	3.0	689	3.1
45-64 Years	128,432	18.9	6,305	20.9	39,674	21.3	20,333	21.0	20,437	19.4	29,503	16.6	8,743	14.0	3,437	15.5
65+ Years	245,263	36.0	10,536	34.9	61,220	32.8	33,434	34.5	38,452	36.5	67,734	38.2	24,820	39.7	9,067	40.9
Allopurinol 300 mg	406,322	100	10,580	100	105,697	100	53,066	100	61,888	100	113,619	100	43,928	100	17,544	100
Male	296,982	73.1	7,556	71.4	75,189	71.1	39,186	73.8	46,023	74.4	83,856	73.8	31,930	72.7	13,242	75.5
21-44 Years	39,462	9.7	1,186	11.2	13,432	12.7	6,153	11.6	6,329	10.2	8,879	7.8	2,478	5.6	1,005	5.7
45-64 Years	107,406	26.4	2,640	25.0	28,506	27.0	15,196	28.6	17,327	28.0	29,322	25.8	9,912	22.6	4,503	25.7
65+ Years	150,114	36.9	3,730	35.3	33,251	31.5	17,837	33.6	22,367	36.1	45,655	40.2	19,540	44.5	7,734	44.1
Allopurinol (any dose)[2]	1,049,461	100	29,186	100	229,536	100	129,827	100	158,955	100	319,258	100	130,417	100	52,282	100
Male	689,900	65.7	18,982	65.0	150,449	65.5	86,631	66.7	106,257	66.8	208,924	65.4	83,445	64.0	35,212	67.4
21-44 Years	81,983	7.8	2,650	9.1	25,210	11.0	12,411	9.6	13,130	8.3	20,157	6.3	5,979	4.6	2,446	4.7
45-64 Years	225,215	21.5	6,020	20.6	52,717	23.0	30,218	23.3	35,970	22.6	65,659	20.6	23,681	18.2	10,950	20.9
65+ Years	382,702	36.5	10,312	35.3	72,522	31.6	44,002	33.9	57,157	36.0	123,108	38.6	53,785	41.2	21,816	41.7

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 4b. Descriptive Statistics of Cumulative Exposure Duration of All Febuxostat and Allopurinol Episodes in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group among Males

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg	66,682	363	459	1	60	165	496	3,246
Male	41,195	347.94	451.43	1	60	153	465	3,246
21-44 Years	4,677	258.88	395.96	1	30	92	297	3,099
45-64 Years	12,726	328.28	457.93	1	32	128	419	3,246
65+ Years	23,792	375.96	455.34	1	60	180	527	3,184
Febuxostat 80 mg	14,657	343.83	420.09	1	60	180	460	3,098
Male	10,667	336.55	412.7	1	60	172	450	3,080
21-44 Years	1,511	273.31	361.71	1	30	128	351	2,642
45-64 Years	3,884	325.59	423.13	1	60	150	427	2,955
65+ Years	5,272	362.76	416.37	1	83	189	507	3,080
Febuxostat (any dose)[1]	80,083	418.05	491.2	1	62	210	600	3,274
Male	50,961	407.9	487.82	1	61	203	575	3,246
21-44 Years	6,062	322.36	444.58	1	30	136	419	3,099
45-64 Years	16,262	394.35	501.07	1	60	180	540	3,246
65+ Years	28,637	433.69	486.57	1	86	237	631	3,184
Allopurinol 100 mg	681,171	446.87	529.43	1	75	216	637	3,463
Male	420,621	428	521.75	1	67	201	597	3,450
21-44 Years	46,926	277.93	406.17	1	30	106	322	3,275
45-64 Years	128,432	382.69	497.11	1	60	180	504	3,450
65+ Years	245,263	480.43	545.68	1	90	258	700	3,425
Allopurinol 300 mg	406,322	505.91	568.96	1	90	270	745	3,441
Male	296,982	510.99	573.22	1	90	276	749	3,441
21-44 Years	39,462	368.93	485.97	1	60	168	477	3,329
45-64 Years	107,406	478.91	564.03	1	90	249	673	3,441
65+ Years	150,114	571.3	592.19	1	94	352	867	3,441
Allopurinol (any dose)[2]	1,049,461	557.75	589.57	1	93	334	839	3,464
Male	689,900	556.02	593.01	1	94	330	830	3,464
21-44 Years	81,983	405.97	511.57	1	60	191	548	3,364
45-64 Years	225,215	523.12	588.56	1	90	293	753	3,464
65+ Years	382,702	607.52	604.91	1	120	393	925	3,456

[1]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[2]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 5a. Distribution of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category

	Number of Patients															
Exposure	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Febuxostat 40 mg																
Switch to Febuxostat 80 mg	9,598	100	902	9.4	3,475	36.2	1,920	20.0	1,548	16.1	1,479	15.4	242	2.5	32	0.3
Switch to Allopurinol 100 mg	11,354	100	1,433	12.6	4,712	41.5	1,703	15.0	1,492	13.1	1,682	14.8	292	2.6	40	0.4
Switch to Allopurinol 300 mg	7,464	100	723	9.7	3,359	45.0	1,201	16.1	961	12.9	1,023	13.7	174	2.3	23	0.3
Febuxostat 80 mg																
Switch to Febuxostat 40 mg	1,994	100	132	6.6	581	29.1	358	18.0	348	17.5	468	23.5	90	4.5	17	0.9
Switch to Allopurinol 100 mg	1,836	100	164	8.9	772	42.0	297	16.2	271	14.8	291	15.8	*****	~2%	*****	<1%
Switch to Allopurinol 300 mg	2,066	100	173	8.4	894	43.3	326	15.8	289	14.0	331	16.0	*****	~2%	*****	<1%
Febuxostat (any dose)[2]																
Switch to Allopurinol (any dose)[3]	19,363	100	2,261	11.7	7,220	37.3	2,930	15.1	2,747	14.2	3,433	17.7	671	3.5	101	0.5
Allopurinol 100 mg																
Switch to Allopurinol 300 mg	145,823	100	22,217	15.2	46,871	32.1	26,567	18.2	22,379	15.3	22,660	15.5	4,364	3.0	765	0.5
Switch to Febuxostat 40 mg	32,022	100	3,785	11.8	11,962	37.4	5,562	17.4	4,786	14.9	4,820	15.1	924	2.9	183	0.6
Switch to Febuxostat 80 mg	10,311	100	726	7.0	4,390	42.6	1,921	18.6	1,594	15.5	1,453	14.1	200	1.9	27	0.3
Allopurinol 300 mg																
Switch to Allopurinol 100 mg	63,279	100	8,053	12.7	16,410	25.9	9,159	14.5	9,965	15.7	14,725	23.3	4,043	6.4	924	1.5
Dwitch to Febuxostat 40 mg	16,821	100	1,563	9.3	6,577	39.1	2,850	16.9	2,403	14.3	2,756	16.4	571	3.4	101	0.6
Switch to Febuxostat 80 mg	8,437	100	504	6.0	3,264	38.7	1,539	18.2	1,350	16.0	1,443	17.1	282	3.3	55	0.7
Allopurinol (any dose)[3]																
Switch to Febuxostat (any dose)[2]	56,401	100	5,240	9.3	17,736	31.4	9,669	17.1	9,180	16.3	11,370	20.2	2,654	4.7	552	1.0

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be re-calculated through the cells presented.

Table 5b. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg								
Switch to Febuxostat 80 mg	9,598	223.9	300.27	1	46	108	267	2,781
Switch to Allopurinol 100 mg	11,354	209.4	308.82	1	30	90	244	2,533
Switch to Allopurinol 300 mg	7,464	200.9	298.33	1	30	90	219	2,536
Febuxostat 80 mg								
Switch to Febuxostat 40 mg	1,994	316.5	383.14	1	60	173	433	2,498
Switch to Allopurinol 100 mg	1,836	215.8	298.07	1	30	90	264	2,162
Switch to Allopurinol 300 mg	2,066	211.6	293.31	1	30	90	270	2,055
Febuxostat (any dose)[2]								
Switch to Allopurinol (any dose)[3]	19,363	247.3	345.58	1	30	95	308	2,536
Allopurinol 100 mg								
Switch to Allopurinol 300 mg	145,823	230.9	329.31	1	32	100	272	3,226
Switch to Febuxostat 40 mg	32,022	228.2	328.22	1	30	93	270	2,903
Switch to Febuxostat 80 mg	10,311	207.1	284.08	1	30	92	245	2,656
Allopurinol 300 mg								
Switch to Allopurinol 100 mg	63,279	346.2	441.82	1	48	165	472	3,312
Switch to Febuxostat 40 mg	16,821	244.4	344.55	1	31	97	285	3,114
Switch to Febuxostat 80 mg	8,437	253.1	340.19	1	57	120	304	2,571
Allopurinol (any dose)[3]								
Switch to Febuxostat (any dose)[2]	56,401	296.8	389.02	1	53	134	378	3,114

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 6a. Distribution of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category among Males

	Number of Patients															
Exposure	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Febuxostat 40 mg																
Switch to Febuxostat 80 mg	9,598	100	902	100	3,475	100	1,920	100	1,548	100	1,479	100	242	100	32	100
Male	6,617	68.9	626	69.4	2,423	69.7	1,353	70.5	1,072	69.3	961	65.0	161	66.5	21	65.6
Switch to Allopurinol 100 mg	11,354	100	1,433	100	4,712	100	1,703	100	1,492	100	1,682	100	292	100	40	100
Male	6,727	59.2	772	53.9	2,902	61.6	1,013	59.5	909	60.9	949	56.4	161	55.1	21	52.5
Switch to Allopurinol 300 mg	7,464	100	723	100	3,359	100	1,201	100	961	100	1,023	100	174	100	23	100
Male	5,354	71.7	494	68.3	2,454	73.1	853	71.0	709	73.8	701	68.5	124	71.3	19	82.6
Febuxostat 80 mg																
Switch to Febuxostat 40 mg	1,994	100	132	100	581	100	358	100	348	100	468	100	90	100	17	100
Male	1,318	66.1	93	70.5	383	65.9	264	73.7	223	64.1	292	62.4	*****	*****	*****	*****
Switch to Allopurinol 100 mg	1,836	100	164	100	772	100	297	100	271	100	291	100	*****	*****	*****	*****
Male	1,286	70.0	108	65.9	534	69.2	220	74.1	188	69.4	206	70.8	*****	*****	*****	*****
Switch to Allopurinol 300 mg	2,066	100	173	100	894	100	326	100	289	100	331	100	*****	*****	*****	*****
Male	1,622	78.5	120	69.4	711	79.5	276	84.7	224	77.5	254	76.7	*****	*****	*****	*****
Febuxostat (any dose)[2]																
Switch to Allopurinol (any dose)[3]	19,363	100	2,261	100	7,220	100	2,930	100	2,747	100	3,433	100	671	100	101	100
Male	12,617	65.2	1,333	59.0	4,797	66.4	1,962	67.0	1,830	66.6	2,190	63.8	434	64.7	71	70.3
Allopurinol 100 mg																
Switch to Allopurinol 300 mg	145,823	100	22,217	100	46,871	100	26,567	100	22,379	100	22,660	100	4,364	100	765	100
Male	103,083	70.7	15,855	71.4	33,861	72.2	19,166	72.1	15,793	70.6	15,130	66.8	2,758	63.2	520	68.0
Switch to Febuxostat 40 mg	32,022	100	3,785	100	11,962	100	5,562	100	4,786	100	4,820	100	924	100	183	100
Male	18,787	58.7	2,075	54.8	6,984	58.4	3,355	60.3	2,921	61.0	2,841	58.9	499	54.0	112	61.2
Switch to Febuxostat 80 mg	10,311	100	726	100	4,390	100	1,921	100	1,594	100	1,453	100	200	100	27	100
Male	7,026	68.1	478	65.8	2,973	67.7	1,358	70.7	1,098	68.9	972	66.9	129	64.5	18	66.7
Allopurinol 300 mg																
Switch to Allopurinol 100 mg	63,279	100	8,053	100	16,410	100	9,159	100	9,965	100	14,725	100	4,043	100	924	100
Male	43,747	69.1	5,623	69.8	10,959	66.8	6,430	70.2	7,033	70.6	10,266	69.7	2,772	68.6	664	71.9
Switch to Febuxostat 40 mg	16,821	100	1,563	100	6,577	100	2,850	100	2,403	100	2,756	100	571	100	101	100
Male	11,318	67.3	934	59.8	4,114	62.6	1,982	69.5	1,807	75.2	2,005	72.8	397	69.5	79	78.2
Switch to Febuxostat 80 mg	8,437	100	504	100	3,264	100	1,539	100	1,350	100	1,443	100	282	100	55	100
Male	6,395	75.8	356	70.6	2,348	71.9	1,194	77.6	1,097	81.3	1,141	79.1	218	77.3	41	74.5

Table 6a. Distribution of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Length Category among Males

	Number of Patients															
Exposure	**Total**	**%**	**<1 month**	**%**	**1 - <3 months**	**%**	**3 - <6 months**	**%**	**6 months - <1 year**	**%**	**1 - <3 years**	**%**	**3 - <5 years**	**%**	**5+ years**	**%**
Allopurinol (any dose)[3]																
Switch to Febuxostat (any dose)[2]	56,401	100	5,240	100	17,736	100	9,669	100	9,180	100	11,370	100	2,654	100	552	100
Male	35,740	63.4	2,959	56.5	10,742	60.6	6,262	64.8	6,162	67.1	7,541	66.3	1,690	63.7	384	69.6

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be re-calculated through the cells presented.

Table 6b. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, among Males

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg								
Switch to Febuxostat 80 mg	9,598	223.9	300.27	1	46	108	267	2,781
Male	6,617	218.3	296.27	1	45	104	253	2,473
Switch to Allopurinol 100 mg	11,354	209.4	308.82	1	30	90	244	2,533
Male	6,727	202.8	300.28	1	30	90	232	2,533
Switch to Allopurinol 300 mg	7,464	200.9	298.33	1	30	90	219	2,536
Male	5,354	198.7	299.07	1	30	90	215	2,536
Febuxostat 80 mg								
Switch to Febuxostat 40 mg	1,994	316.5	383.14	1	60	173	433	2,498
Male	1,318	302.1	372.8	1	60	158	390	2,498
Switch to Allopurinol 100 mg	1,836	215.8	298.07	1	30	90	264	2,162
Male	1,286	219.1	302.11	1	30	91	270	2,162
Switch to Allopurinol 300 mg	2,066	211.6	293.31	1	30	90	270	2,055
Male	1,622	206.9	287.07	1	30	90	253	2,055
Febuxostat (any dose)[2]								
Switch to Allopurinol (any dose)[3]	19,363	247.3	345.58	1	30	95	308	2,536
Male	12,617	246.8	345.71	1	30	96	304	2,536
Allopurinol 100 mg								
Switch to Allopurinol 300 mg	145,823	230.9	329.31	1	32	100	272	3,226
Male	103,083	220.7	318.43	1	31	97	259	3,115
Switch to Febuxostat 40 mg	32,022	228.2	328.22	1	30	93	270	2,903
Male	18,787	227.5	323.63	1	30	99	269	2,903
Switch to Febuxostat 80 mg	10,311	207.1	284.08	1	30	92	245	2,656
Male	7,026	205.3	280.73	1	30	93	241	2,656
Allopurinol 300 mg								
Switch to Allopurinol 100 mg	63,279	346.2	441.82	1	48	165	472	3,312
Male	43,747	348.6	443.49	1	50	171	476	3,149
Switch to Febuxostat 40 mg	16,821	244.4	344.55	1	31	97	285	3,114
Male	11,318	259.4	351.18	1	44	119	311	3,114
Switch to Febuxostat 80 mg	8,437	253.1	340.19	1	57	120	304	2,571
Male	6,395	260.2	341.15	1	60	123	318	2,555
Allopurinol (any dose)[3]								
Switch to Febuxostat (any dose)[2]	56,401	296.8	389.02	1	53	134	378	3,114
Male	35,740	306.6	392.1	1	60	150	394	3,114

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 7. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg								
Switch to Febuxostat 80 mg	9,598	223.9	300.27	1	46	108	267	2,781
21-44 Years	963	203.4	301.63	1	30	91	229	2,339
45-64 Years	2,808	214.7	296.1	1	44	100	243	2,260
65+ Years	5,827	231.8	301.81	1	50	115	281	2,781
Switch to Allopurinol 100 mg	11,354	209.4	308.82	1	30	90	244	2,533
21-44 Years	824	181.6	291.76	1	30	60	181	1,864
45-64 Years	2,670	202	312.41	1	30	86	222	2,533
65+ Years	7,860	214.8	309.17	1	30	90	262	2,383
Switch to Allopurinol 300 mg	7,464	200.9	298.33	1	30	90	219	2,536
21-44 Years	900	163.7	269.21	1	30	60	179	2,195
45-64 Years	2,397	189.8	293.47	1	30	80	201	2,536
65+ Years	4,167	215.3	306.08	1	30	90	249	2,418
Febuxostat 80 mg								
Switch to Febuxostat 40 mg	1,994	316.5	383.14	1	60	173	433	2,498
21-44 Years	158	286.4	354.34	1	60	149	358	1,957
45-64 Years	587	284	380.54	1	60	148	369	2,498
65+ Years	1,249	335.7	386.85	1	62	180	482	2,257
Switch to Allopurinol 100 mg	1,836	215.8	298.07	1	30	90	264	2,162
21-44 Years	171	174.2	236.18	1	30	73	192	1,263
45-64 Years	540	220.3	323.69	1	30	90	259	2,162
65+ Years	1,125	220.1	293.38	1	30	92	273	2,072
Switch to Allopurinol 300 mg	2,066	211.6	293.31	1	30	90	270	2,055
21-44 Years	298	180	256.26	1	30	76	215	1,957
45-64 Years	760	205.1	294.15	1	30	90	254	2,055
65+ Years	1,008	225.8	302.17	1	30	92	290	2,014
Febuxostat (any dose)[2]								
Switch to Allopurinol (any dose)[3]	19,363	247.3	345.58	1	30	95	308	2,536
21-44 Years	1,773	214.4	324.02	1	30	78	246	2,195
45-64 Years	5,335	243.9	353.22	1	30	92	290	2,536
65+ Years	12,255	253.5	344.97	1	30	100	329	2,418
Allopurinol 100 mg								
Switch to Allopurinol 300 mg	145,823	230.9	329.31	1	32	100	272	3,226
21-44 Years	16,057	181.5	269.24	1	30	90	209	2,854
45-64 Years	45,039	217.3	313.5	1	30	97	254	3,108
65+ Years	84,727	247.6	346.16	1	37	107	299	3,226
Switch to Febuxostat 40 mg	32,022	228.2	328.22	1	30	93	270	2,903
21-44 Years	2,251	182.4	276.55	1	30	90	205	2,656
45-64 Years	7,209	208.2	304.67	1	30	90	238	2,820
65+ Years	22,562	239.1	339.35	1	30	98	285	2,903
Switch to Febuxostat 80 mg	10,311	207.1	284.08	1	30	92	245	2,656
21-44 Years	1,072	164.8	241.37	1	30	82	188	2,656
45-64 Years	2,958	191.6	262.98	1	30	90	220	2,416
65+ Years	6,281	221.7	298.93	1	38	99	270	2,635

Table 7. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Allopurinol 300 mg								
Switch to Allopurinol 100 mg	63,279	346.2	441.82	1	48	165	472	3,312
21-44 Years	6,807	290.9	385.83	1	32	135	369	2,941
45-64 Years	18,400	333	438.61	1	39	152	450	3,149
65+ Years	38,072	362.4	451.63	1	55	180	506	3,312
Switch to Febuxostat 40 mg	16,821	244.4	344.55	1	31	97	285	3,114
21-44 Years	1,824	223.8	294.18	1	41	104	270	2,323
45-64 Years	4,931	240.7	343.86	1	30	100	281	3,114
65+ Years	10,066	250	353.1	1	32	92	291	3,025
Switch to Febuxostat 80 mg	8,437	253.1	340.19	1	57	120	304	2,571
21-44 Years	1,225	245.7	325.6	1	60	120	299	2,518
45-64 Years	2,941	245.5	331.02	1	57	116	298	2,555
65+ Years	4,271	260.4	350.29	1	57	120	316	2,571
Allopurinol (any dose)[3]								
Switch to Febuxostat (any dose)[2]	56,401	296.8	389.02	1	53	134	378	3,114
21-44 Years	5,062	273.7	352.87	1	60	136	348	2,656
45-64 Years	14,711	288	380.79	1	56	133	362	3,114
65+ Years	36,628	303.5	396.79	1	51	134	392	3,025

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Table 8. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group among Males

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Febuxostat 40 mg								
Switch to Febuxostat 80 mg	9,598	223.94	300.27	1	46	108	267	2,781
Male	6,617	218.27	296.27	1	45	104	253	2,473
21-44 Years	905	206.28	306.11	1	30	92	233	2,339
45-64 Years	2,282	208.53	290.44	1	42	97	232	2,260
65+ Years	3,430	227.92	297.24	1	50	114	274	2,473
Switch to Allopurinol 100 mg	11,354	209.36	308.82	1	30	90	244	2,533
Male	6,727	202.83	300.28	1	30	90	232	2,533
21-44 Years	750	177.99	283.6	1	30	60	180	1,768
45-64 Years	2,015	198.69	308.87	1	30	85	215	2,533
65+ Years	3,962	209.65	298.7	1	30	90	252	2,303
Switch to Allopurinol 300 mg	7,464	200.86	298.33	1	30	90	219	2,536
Male	5,354	198.69	299.07	1	30	90	215	2,536
21-44 Years	853	163.67	269.57	1	30	60	175	2,195
45-64 Years	2,009	189.95	296.56	1	30	79	199	2,536
65+ Years	2,492	217.72	309.2	1	30	90	261	2,124
Febuxostat 80 mg								
Switch to Febuxostat 40 mg	1,994	316.53	383.14	1	60	173	433	2,498
Male	1,318	302.15	372.8	1	60	158	390	2,498
21-44 Years	148	291.67	363.16	1	60	151	364	1,957
45-64 Years	467	283.3	387.77	1	60	140	362	2,498
65+ Years	703	316.87	364.45	1	61	179	442	1,925
Switch to Allopurinol 100 mg	1,836	215.85	298.07	1	30	90	264	2,162
Male	1,286	219.12	302.11	1	30	91	270	2,162
21-44 Years	165	172.9	235.57	2	30	73	180	1,263
45-64 Years	447	222.88	333.94	1	30	90	259	2,162
65+ Years	674	227.94	293.65	1	30	101	294	2,072
Switch to Allopurinol 300 mg	2,066	211.56	293.31	1	30	90	270	2,055
Male	1,622	206.93	287.07	1	30	90	253	2,055
21-44 Years	284	179.21	254.6	1	30	83	206	1,957
45-64 Years	655	203.41	299.87	1	30	90	229	2,055
65+ Years	683	221.83	286.68	1	30	99	289	1,961
Febuxostat (any dose)[2]								
Switch to Allopurinol (any dose)[3]	19,363	247.29	345.58	1	30	95	308	2,536
Male	12,617	246.77	345.71	1	30	96	304	2,536
21-44 Years	1,656	212.79	321.88	1	30	81	244	2,195
45-64 Years	4,265	244.07	357.56	1	30	91	285	2,536
65+ Years	6,696	256.88	343.19	1	30	112	330	2,303
Allopurinol 100 mg								
Switch to Allopurinol 300 mg	145,823	230.93	329.31	1	32	100	272	3,226
Male	103,083	220.68	318.43	1	31	97	259	3,115
21-44 Years	15,228	179.61	267.72	1	30	89	207	2,854
45-64 Years	36,578	211.11	305.58	1	30	94	246	3,108
65+ Years	51,277	239.7	339.14	1	36	104	285	3,115

Table 8. Descriptive Statistics of Cumulative Febuxostat or Allopurinol Exposure Duration, among Patients with Evidence of Switch Exposure Dispensing after Index Date[1] in the Sentinel Distributed Database from January 1, 2009 to December 31, 2016, by Age Group among Males

Exposures	Total Patients	Mean (days)	Standard Deviation	Min (days)	Q1 (days)	Median (days)	Q3 (days)	Max (days)
Switch to Febuxostat 40 mg	32,022	228.17	328.22	1	30	93	270	2,903
Male	18,787	227.53	323.63	1	30	99	269	2,903
21-44 Years	2,074	179.67	269.28	1	30	90	201	2,656
45-64 Years	5,239	206.72	302.03	1	30	90	237	2,700
65+ Years	11,474	245.69	340.3	1	37	109	298	2,903
Switch to Febuxostat 80 mg	10,311	207.13	284.08	1	30	92	245	2,656
Male	7,026	205.3	280.73	1	30	93	241	2,656
21-44 Years	1,010	163.07	240.46	1	30	79	180	2,656
45-64 Years	2,324	189.4	263.12	1	30	90	217	2,416
65+ Years	3,692	226.86	299.18	1	48	109	273	2,163
Allopurinol 300 mg								
Switch to Allopurinol 100 mg	63,279	346.2	441.82	1	48	165	472	3,312
Male	43,747	348.64	443.49	1	50	171	476	3,149
21-44 Years	6,433	291.13	385.48	1	32	136	373	2,941
45-64 Years	14,892	333.27	439.55	1	39	153	449	3,149
65+ Years	22,422	375.35	459.33	1	60	181	533	3,124
Switch to Febuxostat 40 mg	16,821	244.42	344.55	1	31	97	285	3,114
Male	11,318	259.43	351.18	1	44	119	311	3,114
21-44 Years	1,714	228.13	298.32	1	45	109	276	2,323
45-64 Years	3,979	246.04	346.57	1	31	110	289	3,114
65+ Years	5,625	278.43	367.86	1	51	120	353	2,571
Switch to Febuxostat 80 mg	8,437	253.07	340.19	1	57	120	304	2,571
Male	6,395	260.17	341.15	1	60	123	318	2,555
21-44 Years	1,168	247.15	327.12	1	60	120	301	2,518
45-64 Years	2,487	250.77	334.57	1	57	120	302	2,555
65+ Years	2,740	274.26	352.34	1	60	132	343	2,538
Allopurinol (any dose)[3]								
Switch to Febuxostat (any dose)[2]	56,401	296.77	389.02	1	53	134	378	3,114
Male	35,740	306.6	392.1	1	60	150	394	3,114
21-44 Years	4,724	275.52	352.7	1	60	139	354	2,656
45-64 Years	11,331	291.29	381.83	1	59	141	364	3,114
65+ Years	19,685	322.87	405.88	1	60	156	426	2,941

[1]Cohort entry required inclusion criteria of a dispensing of the switch exposure after index dispensing date. Index exposure episodes were truncated at the first occurrence of 1) dispensing of the switch exposure, 2) the end of the last exposure episode, 3) death, 4) disenrollment, or 5) end of Data Partner data availability.

[2]Febuxostat (any dose) includes Febuxostat dispensings of 40 mg and 80 mg strength.

[3]Allopurinol (any dose) includes Allopurinol dispensings of 100 mg, 200 mg, and 300 mg strength and combination products.

Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (June 30, 2018)

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

[1]Start Date and End Date are first calculated by individual table (enrollment, dispensing, etc). End Date is defined as the greatest year-month with a record count that is within 80% of the previous year-month. After Start Dates and End Dates are calculated by individual tables, the overall DP End Date is the minimum of all the table End Dates.

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

Generic Name	Brand Name
allopurinol	allopurinol
allopurinol	Zyloprim
lesinurad/allopurinol	Duzallo
febuxostat	Uloric

Appendix C. List of Generic and Brand Names of Medical Products Used to Define Incidence Washout Criteria in this Request

Generic Name	Brand Name
allopurinol	allopurinol
allopurinol	Zyloprim
lesinurad/allopurinol	Duzallo
febuxostat	Uloric
probenecid	probenecid
probenecid/colchicine	probenecid-colchicine
pegloticase	Krystexxa

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
	Gout		
274	Gout	ICD-9-CM	Diagnosis
274.0	Gouty arthropathy	ICD-9-CM	Diagnosis
274.00	Gouty arthropathy, unspecified	ICD-9-CM	Diagnosis
274.01	Acute gouty arthropathy	ICD-9-CM	Diagnosis
274.02	Chronic gouty arthropathy without mention of tophus (tophi)	ICD-9-CM	Diagnosis
274.03	Chronic gouty arthropathy with tophus (tophi)	ICD-9-CM	Diagnosis
274.1	Gouty nephropathy	ICD-9-CM	Diagnosis
274.10	Gouty nephropathy, unspecified	ICD-9-CM	Diagnosis
274.11	Uric acid nephrolithiasis	ICD-9-CM	Diagnosis
274.19	Other gouty nephropathy	ICD-9-CM	Diagnosis
274.8	Gout with other specified manifestations	ICD-9-CM	Diagnosis
274.81	Gouty tophi of ear	ICD-9-CM	Diagnosis
274.82	Gouty tophi of other sites	ICD-9-CM	Diagnosis
274.89	Gout with other specified manifestations	ICD-9-CM	Diagnosis
274.9	Gout, unspecified	ICD-9-CM	Diagnosis
M10.00	Idiopathic gout, unspecified site	ICD-10-CM	Diagnosis
M10.011	Idiopathic gout, right shoulder	ICD-10-CM	Diagnosis
M10.012	Idiopathic gout, left shoulder	ICD-10-CM	Diagnosis
M10.019	Idiopathic gout, unspecified shoulder	ICD-10-CM	Diagnosis
M10.021	Idiopathic gout, right elbow	ICD-10-CM	Diagnosis
M10.022	Idiopathic gout, left elbow	ICD-10-CM	Diagnosis
M10.029	Idiopathic gout, unspecified elbow	ICD-10-CM	Diagnosis
M10.031	Idiopathic gout, right wrist	ICD-10-CM	Diagnosis
M10.032	Idiopathic gout, left wrist	ICD-10-CM	Diagnosis
M10.039	Idiopathic gout, unspecified wrist	ICD-10-CM	Diagnosis
M10.041	Idiopathic gout, right hand	ICD-10-CM	Diagnosis
M10.042	Idiopathic gout, left hand	ICD-10-CM	Diagnosis
M10.049	Idiopathic gout, unspecified hand	ICD-10-CM	Diagnosis
M10.051	Idiopathic gout, right hip	ICD-10-CM	Diagnosis
M10.052	Idiopathic gout, left hip	ICD-10-CM	Diagnosis
M10.059	Idiopathic gout, unspecified hip	ICD-10-CM	Diagnosis
M10.061	Idiopathic gout, right knee	ICD-10-CM	Diagnosis
M10.062	Idiopathic gout, left knee	ICD-10-CM	Diagnosis
M10.069	Idiopathic gout, unspecified knee	ICD-10-CM	Diagnosis
M10.071	Idiopathic gout, right ankle and foot	ICD-10-CM	Diagnosis
M10.072	Idiopathic gout, left ankle and foot	ICD-10-CM	Diagnosis
M10.079	Idiopathic gout, unspecified ankle and foot	ICD-10-CM	Diagnosis
M10.08	Idiopathic gout, vertebrae	ICD-10-CM	Diagnosis
M10.09	Idiopathic gout, multiple sites	ICD-10-CM	Diagnosis
M10.10	Lead-induced gout, unspecified site	ICD-10-CM	Diagnosis
M10.111	Lead-induced gout, right shoulder	ICD-10-CM	Diagnosis
M10.112	Lead-induced gout, left shoulder	ICD-10-CM	Diagnosis
M10.119	Lead-induced gout, unspecified shoulder	ICD-10-CM	Diagnosis
M10.121	Lead-induced gout, right elbow	ICD-10-CM	Diagnosis
M10.122	Lead-induced gout, left elbow	ICD-10-CM	Diagnosis
M10.129	Lead-induced gout, unspecified elbow	ICD-10-CM	Diagnosis

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
M10.131	Lead-induced gout, right wrist	ICD-10-CM	Diagnosis
M10.132	Lead-induced gout, left wrist	ICD-10-CM	Diagnosis
M10.139	Lead-induced gout, unspecified wrist	ICD-10-CM	Diagnosis
M10.141	Lead-induced gout, right hand	ICD-10-CM	Diagnosis
M10.142	Lead-induced gout, left hand	ICD-10-CM	Diagnosis
M10.149	Lead-induced gout, unspecified hand	ICD-10-CM	Diagnosis
M10.151	Lead-induced gout, right hip	ICD-10-CM	Diagnosis
M10.152	Lead-induced gout, left hip	ICD-10-CM	Diagnosis
M10.159	Lead-induced gout, unspecified hip	ICD-10-CM	Diagnosis
M10.161	Lead-induced gout, right knee	ICD-10-CM	Diagnosis
M10.162	Lead-induced gout, left knee	ICD-10-CM	Diagnosis
M10.169	Lead-induced gout, unspecified knee	ICD-10-CM	Diagnosis
M10.171	Lead-induced gout, right ankle and foot	ICD-10-CM	Diagnosis
M10.172	Lead-induced gout, left ankle and foot	ICD-10-CM	Diagnosis
M10.179	Lead-induced gout, unspecified ankle and foot	ICD-10-CM	Diagnosis
M10.18	Lead-induced gout, vertebrae	ICD-10-CM	Diagnosis
M10.19	Lead-induced gout, multiple sites	ICD-10-CM	Diagnosis
M10.20	Drug-induced gout, unspecified site	ICD-10-CM	Diagnosis
M10.211	Drug-induced gout, right shoulder	ICD-10-CM	Diagnosis
M10.212	Drug-induced gout, left shoulder	ICD-10-CM	Diagnosis
M10.219	Drug-induced gout, unspecified shoulder	ICD-10-CM	Diagnosis
M10.221	Drug-induced gout, right elbow	ICD-10-CM	Diagnosis
M10.222	Drug-induced gout, left elbow	ICD-10-CM	Diagnosis
M10.229	Drug-induced gout, unspecified elbow	ICD-10-CM	Diagnosis
M10.231	Drug-induced gout, right wrist	ICD-10-CM	Diagnosis
M10.232	Drug-induced gout, left wrist	ICD-10-CM	Diagnosis
M10.239	Drug-induced gout, unspecified wrist	ICD-10-CM	Diagnosis
M10.241	Drug-induced gout, right hand	ICD-10-CM	Diagnosis
M10.242	Drug-induced gout, left hand	ICD-10-CM	Diagnosis
M10.249	Drug-induced gout, unspecified hand	ICD-10-CM	Diagnosis
M10.251	Drug-induced gout, right hip	ICD-10-CM	Diagnosis
M10.252	Drug-induced gout, left hip	ICD-10-CM	Diagnosis
M10.259	Drug-induced gout, unspecified hip	ICD-10-CM	Diagnosis
M10.261	Drug-induced gout, right knee	ICD-10-CM	Diagnosis
M10.262	Drug-induced gout, left knee	ICD-10-CM	Diagnosis
M10.269	Drug-induced gout, unspecified knee	ICD-10-CM	Diagnosis
M10.271	Drug-induced gout, right ankle and foot	ICD-10-CM	Diagnosis
M10.272	Drug-induced gout, left ankle and foot	ICD-10-CM	Diagnosis
M10.279	Drug-induced gout, unspecified ankle and foot	ICD-10-CM	Diagnosis
M10.28	Drug-induced gout, vertebrae	ICD-10-CM	Diagnosis
M10.29	Drug-induced gout, multiple sites	ICD-10-CM	Diagnosis
M10.30	Gout due to renal impairment, unspecified site	ICD-10-CM	Diagnosis
M10.311	Gout due to renal impairment, right shoulder	ICD-10-CM	Diagnosis
M10.312	Gout due to renal impairment, left shoulder	ICD-10-CM	Diagnosis
M10.319	Gout due to renal impairment, unspecified shoulder	ICD-10-CM	Diagnosis
M10.321	Gout due to renal impairment, right elbow	ICD-10-CM	Diagnosis
M10.322	Gout due to renal impairment, left elbow	ICD-10-CM	Diagnosis

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
M10.329	Gout due to renal impairment, unspecified elbow	ICD-10-CM	Diagnosis
M10.331	Gout due to renal impairment, right wrist	ICD-10-CM	Diagnosis
M10.332	Gout due to renal impairment, left wrist	ICD-10-CM	Diagnosis
M10.339	Gout due to renal impairment, unspecified wrist	ICD-10-CM	Diagnosis
M10.341	Gout due to renal impairment, right hand	ICD-10-CM	Diagnosis
M10.342	Gout due to renal impairment, left hand	ICD-10-CM	Diagnosis
M10.349	Gout due to renal impairment, unspecified hand	ICD-10-CM	Diagnosis
M10.351	Gout due to renal impairment, right hip	ICD-10-CM	Diagnosis
M10.352	Gout due to renal impairment, left hip	ICD-10-CM	Diagnosis
M10.359	Gout due to renal impairment, unspecified hip	ICD-10-CM	Diagnosis
M10.361	Gout due to renal impairment, right knee	ICD-10-CM	Diagnosis
M10.362	Gout due to renal impairment, left knee	ICD-10-CM	Diagnosis
M10.369	Gout due to renal impairment, unspecified knee	ICD-10-CM	Diagnosis
M10.371	Gout due to renal impairment, right ankle and foot	ICD-10-CM	Diagnosis
M10.372	Gout due to renal impairment, left ankle and foot	ICD-10-CM	Diagnosis
M10.379	Gout due to renal impairment, unspecified ankle and foot	ICD-10-CM	Diagnosis
M10.38	Gout due to renal impairment, vertebrae	ICD-10-CM	Diagnosis
M10.39	Gout due to renal impairment, multiple sites	ICD-10-CM	Diagnosis
M10.40	Other secondary gout, unspecified site	ICD-10-CM	Diagnosis
M10.411	Other secondary gout, right shoulder	ICD-10-CM	Diagnosis
M10.412	Other secondary gout, left shoulder	ICD-10-CM	Diagnosis
M10.419	Other secondary gout, unspecified shoulder	ICD-10-CM	Diagnosis
M10.421	Other secondary gout, right elbow	ICD-10-CM	Diagnosis
M10.422	Other secondary gout, left elbow	ICD-10-CM	Diagnosis
M10.429	Other secondary gout, unspecified elbow	ICD-10-CM	Diagnosis
M10.431	Other secondary gout, right wrist	ICD-10-CM	Diagnosis
M10.432	Other secondary gout, left wrist	ICD-10-CM	Diagnosis
M10.439	Other secondary gout, unspecified wrist	ICD-10-CM	Diagnosis
M10.441	Other secondary gout, right hand	ICD-10-CM	Diagnosis
M10.442	Other secondary gout, left hand	ICD-10-CM	Diagnosis
M10.449	Other secondary gout, unspecified hand	ICD-10-CM	Diagnosis
M10.451	Other secondary gout, right hip	ICD-10-CM	Diagnosis
M10.452	Other secondary gout, left hip	ICD-10-CM	Diagnosis
M10.459	Other secondary gout, unspecified hip	ICD-10-CM	Diagnosis
M10.461	Other secondary gout, right knee	ICD-10-CM	Diagnosis
M10.462	Other secondary gout, left knee	ICD-10-CM	Diagnosis
M10.469	Other secondary gout, unspecified knee	ICD-10-CM	Diagnosis
M10.471	Other secondary gout, right ankle and foot	ICD-10-CM	Diagnosis
M10.472	Other secondary gout, left ankle and foot	ICD-10-CM	Diagnosis
M10.479	Other secondary gout, unspecified ankle and foot	ICD-10-CM	Diagnosis
M10.48	Other secondary gout, vertebrae	ICD-10-CM	Diagnosis
M10.49	Other secondary gout, multiple sites	ICD-10-CM	Diagnosis
M10.9	Gout, unspecified	ICD-10-CM	Diagnosis
M1A.00X0	Idiopathic chronic gout, unspecified site, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.00X1	Idiopathic chronic gout, unspecified site, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0110	Idiopathic chronic gout, right shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0111	Idiopathic chronic gout, right shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis

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Code	Description	Code Type	Code Category
M1A.0120	Idiopathic chronic gout, left shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0121	Idiopathic chronic gout, left shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0190	Idiopathic chronic gout, unspecified shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0191	Idiopathic chronic gout, unspecified shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0210	Idiopathic chronic gout, right elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0211	Idiopathic chronic gout, right elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0220	Idiopathic chronic gout, left elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0221	Idiopathic chronic gout, left elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0290	Idiopathic chronic gout, unspecified elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0291	Idiopathic chronic gout, unspecified elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0310	Idiopathic chronic gout, right wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0311	Idiopathic chronic gout, right wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0320	Idiopathic chronic gout, left wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0321	Idiopathic chronic gout, left wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0390	Idiopathic chronic gout, unspecified wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0391	Idiopathic chronic gout, unspecified wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0410	Idiopathic chronic gout, right hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0411	Idiopathic chronic gout, right hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0420	Idiopathic chronic gout, left hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0421	Idiopathic chronic gout, left hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0490	Idiopathic chronic gout, unspecified hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0491	Idiopathic chronic gout, unspecified hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0510	Idiopathic chronic gout, right hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0511	Idiopathic chronic gout, right hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0520	Idiopathic chronic gout, left hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0521	Idiopathic chronic gout, left hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0590	Idiopathic chronic gout, unspecified hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0591	Idiopathic chronic gout, unspecified hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0610	Idiopathic chronic gout, right knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0611	Idiopathic chronic gout, right knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0620	Idiopathic chronic gout, left knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0621	Idiopathic chronic gout, left knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0690	Idiopathic chronic gout, unspecified knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0691	Idiopathic chronic gout, unspecified knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0710	Idiopathic chronic gout, right ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0711	Idiopathic chronic gout, right ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0720	Idiopathic chronic gout, left ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0721	Idiopathic chronic gout, left ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0790	Idiopathic chronic gout, unspecified ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.0791	Idiopathic chronic gout, unspecified ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.08X0	Idiopathic chronic gout, vertebrae, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.08X1	Idiopathic chronic gout, vertebrae, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.09X0	Idiopathic chronic gout, multiple sites, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.09X1	Idiopathic chronic gout, multiple sites, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.20X0	Drug-induced chronic gout, unspecified site, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.20X1	Drug-induced chronic gout, unspecified site, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2110	Drug-induced chronic gout, right shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
M1A.2111	Drug-induced chronic gout, right shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2120	Drug-induced chronic gout, left shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2121	Drug-induced chronic gout, left shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2190	Drug-induced chronic gout, unspecified shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2191	Drug-induced chronic gout, unspecified shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2210	Drug-induced chronic gout, right elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2211	Drug-induced chronic gout, right elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2220	Drug-induced chronic gout, left elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2221	Drug-induced chronic gout, left elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2290	Drug-induced chronic gout, unspecified elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2291	Drug-induced chronic gout, unspecified elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2310	Drug-induced chronic gout, right wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2311	Drug-induced chronic gout, right wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2320	Drug-induced chronic gout, left wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2321	Drug-induced chronic gout, left wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2390	Drug-induced chronic gout, unspecified wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2391	Drug-induced chronic gout, unspecified wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2410	Drug-induced chronic gout, right hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2411	Drug-induced chronic gout, right hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2420	Drug-induced chronic gout, left hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2421	Drug-induced chronic gout, left hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2490	Drug-induced chronic gout, unspecified hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2491	Drug-induced chronic gout, unspecified hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2510	Drug-induced chronic gout, right hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2511	Drug-induced chronic gout, right hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2520	Drug-induced chronic gout, left hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2521	Drug-induced chronic gout, left hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2590	Drug-induced chronic gout, unspecified hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2591	Drug-induced chronic gout, unspecified hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2610	Drug-induced chronic gout, right knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2611	Drug-induced chronic gout, right knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2620	Drug-induced chronic gout, left knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2621	Drug-induced chronic gout, left knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2690	Drug-induced chronic gout, unspecified knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2691	Drug-induced chronic gout, unspecified knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2710	Drug-induced chronic gout, right ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2711	Drug-induced chronic gout, right ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2720	Drug-induced chronic gout, left ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2721	Drug-induced chronic gout, left ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2790	Drug-induced chronic gout, unspecified ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.2791	Drug-induced chronic gout, unspecified ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.28X0	Drug-induced chronic gout, vertebrae, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.28X1	Drug-induced chronic gout, vertebrae, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.29X0	Drug-induced chronic gout, multiple sites, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.29X1	Drug-induced chronic gout, multiple sites, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.30X0	Chronic gout due to renal impairment, unspecified site, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.30X1	Chronic gout due to renal impairment, unspecified site, with tophus (tophi)	ICD-10-CM	Diagnosis

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
M1A.3110	Chronic gout due to renal impairment, right shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3111	Chronic gout due to renal impairment, right shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3120	Chronic gout due to renal impairment, left shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3121	Chronic gout due to renal impairment, left shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3190	Chronic gout due to renal impairment, unspecified shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3191	Chronic gout due to renal impairment, unspecified shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3210	Chronic gout due to renal impairment, right elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3211	Chronic gout due to renal impairment, right elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3220	Chronic gout due to renal impairment, left elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3221	Chronic gout due to renal impairment, left elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3290	Chronic gout due to renal impairment, unspecified elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3291	Chronic gout due to renal impairment, unspecified elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3310	Chronic gout due to renal impairment, right wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3311	Chronic gout due to renal impairment, right wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3320	Chronic gout due to renal impairment, left wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3321	Chronic gout due to renal impairment, left wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3390	Chronic gout due to renal impairment, unspecified wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3391	Chronic gout due to renal impairment, unspecified wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3410	Chronic gout due to renal impairment, right hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3411	Chronic gout due to renal impairment, right hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3420	Chronic gout due to renal impairment, left hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3421	Chronic gout due to renal impairment, left hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3490	Chronic gout due to renal impairment, unspecified hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3491	Chronic gout due to renal impairment, unspecified hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3510	Chronic gout due to renal impairment, right hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3511	Chronic gout due to renal impairment, right hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3520	Chronic gout due to renal impairment, left hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3521	Chronic gout due to renal impairment, left hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3590	Chronic gout due to renal impairment, unspecified hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3591	Chronic gout due to renal impairment, unspecified hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3610	Chronic gout due to renal impairment, right knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3611	Chronic gout due to renal impairment, right knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3620	Chronic gout due to renal impairment, left knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3621	Chronic gout due to renal impairment, left knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3690	Chronic gout due to renal impairment, unspecified knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3691	Chronic gout due to renal impairment, unspecified knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3710	Chronic gout due to renal impairment, right ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3711	Chronic gout due to renal impairment, right ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3720	Chronic gout due to renal impairment, left ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3721	Chronic gout due to renal impairment, left ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3790	Chronic gout due to renal impairment, unspecified ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.3791	Chronic gout due to renal impairment, unspecified ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.38X0	Chronic gout due to renal impairment, vertebrae, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.38X1	Chronic gout due to renal impairment, vertebrae, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.39X0	Chronic gout due to renal impairment, multiple sites, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.39X1	Chronic gout due to renal impairment, multiple sites, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.40X0	Other secondary chronic gout, unspecified site, without tophus (tophi)	ICD-10-CM	Diagnosis

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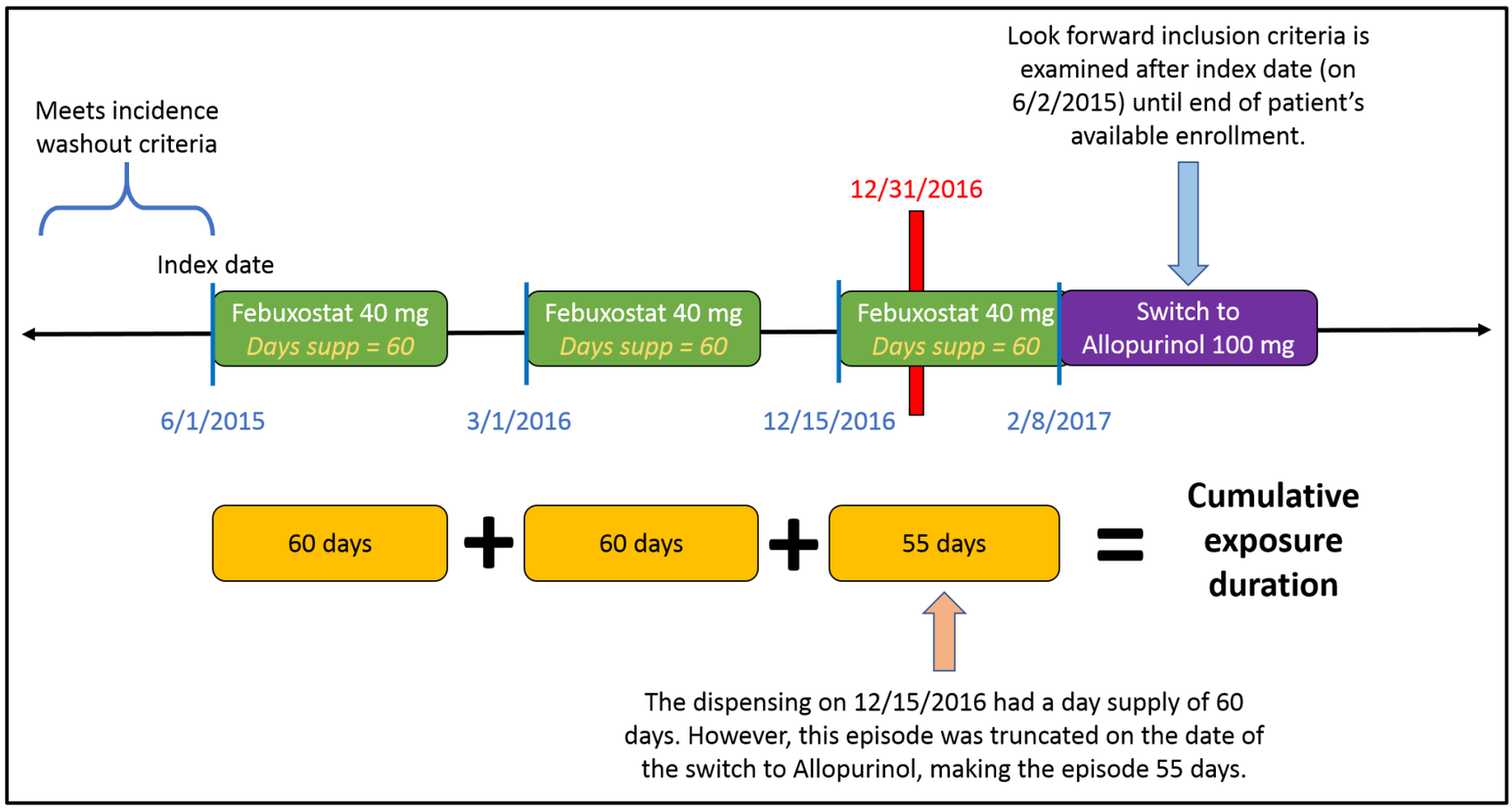
Code	Description	Code Type	Code Category
M1A.40X1	Other secondary chronic gout, unspecified site, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4110	Other secondary chronic gout, right shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4111	Other secondary chronic gout, right shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4120	Other secondary chronic gout, left shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4121	Other secondary chronic gout, left shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4190	Other secondary chronic gout, unspecified shoulder, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4191	Other secondary chronic gout, unspecified shoulder, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4210	Other secondary chronic gout, right elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4211	Other secondary chronic gout, right elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4220	Other secondary chronic gout, left elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4221	Other secondary chronic gout, left elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4290	Other secondary chronic gout, unspecified elbow, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4291	Other secondary chronic gout, unspecified elbow, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4310	Other secondary chronic gout, right wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4311	Other secondary chronic gout, right wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4320	Other secondary chronic gout, left wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4321	Other secondary chronic gout, left wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4390	Other secondary chronic gout, unspecified wrist, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4391	Other secondary chronic gout, unspecified wrist, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4410	Other secondary chronic gout, right hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4411	Other secondary chronic gout, right hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4420	Other secondary chronic gout, left hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4421	Other secondary chronic gout, left hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4490	Other secondary chronic gout, unspecified hand, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4491	Other secondary chronic gout, unspecified hand, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4510	Other secondary chronic gout, right hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4511	Other secondary chronic gout, right hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4520	Other secondary chronic gout, left hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4521	Other secondary chronic gout, left hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4590	Other secondary chronic gout, unspecified hip, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4591	Other secondary chronic gout, unspecified hip, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4610	Other secondary chronic gout, right knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4611	Other secondary chronic gout, right knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4620	Other secondary chronic gout, left knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4621	Other secondary chronic gout, left knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4690	Other secondary chronic gout, unspecified knee, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4691	Other secondary chronic gout, unspecified knee, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4710	Other secondary chronic gout, right ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4711	Other secondary chronic gout, right ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4720	Other secondary chronic gout, left ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4721	Other secondary chronic gout, left ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4790	Other secondary chronic gout, unspecified ankle and foot, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.4791	Other secondary chronic gout, unspecified ankle and foot, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.48X0	Other secondary chronic gout, vertebrae, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.48X1	Other secondary chronic gout, vertebrae, with tophus (tophi)	ICD-10-CM	Diagnosis
M1A.49X0	Other secondary chronic gout, multiple sites, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.49X1	Other secondary chronic gout, multiple sites, with tophus (tophi)	ICD-10-CM	Diagnosis

Appendix D. 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 Inclusion Criteria in this Request

Code	Description	Code Type	Code Category
M1A.9XX0	Chronic gout, unspecified, without tophus (tophi)	ICD-10-CM	Diagnosis
M1A.9XX1	Chronic gout, unspecified, with tophus (tophi)	ICD-10-CM	Diagnosis

Appendix E. Diagram of Cumulative Exposure Duration of Febuxostat 40 mg Switching to Allopurinol 100 mg, Censored at Request End Date[1] (December 31, 2016)



[1]Cumulative exposure duration of Febuxostat 40 mg is truncated at the switch of interest, Allopurinol 100 mg (2/8/2017). By not censoring at the query end date, we capture the total cumulative exposure duration until the switch of interest.

Appendix F. Specifications Defining Parameters for this Request

This request executed the Cohort Identification and Descriptive Analysis (CIDA) module, version 6.0.0, to examine use and switching of urate-lowering therapies (specifically febuxostat and allopurinol of varying dosages) among the gout population in the Sentinel Distributed Database (SDD).

Query period: January 1, 2009 - December 31, 2016
Coverage requirement: Medical and Drug Coverage
Pre-index enrollment requirement: 183 days
Post-index enrollment requirement: 0 days
Enrollment gap: 45 days
Age groups: 21-44, 45-64, 65+ years
Cumulative exposure length categories: <1 month, 1-<3 months, 3-<6 months, 6 months-<1 year, 1-<3 years, 3-<5 years, 5+ years
Stratifications: Cumulative exposure length
Cumulative exposure length by sex
Cumulative exposure length by age group
Cumulative exposure length by sex by age group

	Exposure								Inclusion Criteria				
Scenario	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Treatment episode gap	Care setting	Truncate exposure episode at evidence of:	Censor treatment episode at evidence of:	Inclusion group	Criteria	Care setting	Evaluation period start	Number of instances criteria should be found in evaluation period
1	Febuxostat, 40 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
2	Febuxostat, 80 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
3	Febuxostat (any dose: 40 or 80 mg)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
4	Allopurinol, 100 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
5	Allopurinol, 300 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
6	Allopurinol (any dose: 100, 200, or 300 mg)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	--	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
7	Febuxostat, 40 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 80 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 80 mg	Inclusion	Any care setting	(1, end of enrollment)	1
8	Febuxostat, 40 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 100 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 100 mg	Inclusion	Any care setting	(1, end of enrollment)	1
9	Febuxostat, 40 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 300 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 300 mg	Inclusion	Any care setting	(1, end of enrollment)	1
10	Febuxostat, 80 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 40 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 40 mg	Inclusion	Any care setting	(1, end of enrollment)	1

	Exposure								Inclusion Criteria				
Scenario	Index Exposure	Cohort definition	Incident exposure washout period	Incident with respect to:	Treatment episode gap	Care setting	Truncate exposure episode at evidence of:	Censor treatment episode at evidence of:	Inclusion group	Criteria	Care setting	Evaluation period start	Number of instances criteria should be found in evaluation period
11	Febuxostat, 80 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 100 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 100 mg	Inclusion	Any care setting	(1, end of enrollment)	1
12	Febuxostat, 80 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 300 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 300 mg	Inclusion	Any care setting	(1, end of enrollment)	1
13	Febuxostat (any dose: 40 or 80 mg)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol (any dose: 100, 200, or 300 mg)	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol (any dose)	Inclusion	Any care setting	(1, end of enrollment)	1
14	Allopurinol, 100 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 300 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 300 mg	Inclusion	Any care setting	(1, end of enrollment)	1
15	Allopurinol, 100 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 40 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 40 mg	Inclusion	Any care setting	(1, end of enrollment)	1
16	Allopurinol, 100 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 80 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 80 mg	Inclusion	Any care setting	(1, end of enrollment)	1
17	Allopurinol, 300 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Allopurinol, 100 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Allopurinol, 100 mg	Inclusion	Any care setting	(1, end of enrollment)	1
18	Allopurinol, 300 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 40 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 40 mg	Inclusion	Any care setting	(1, end of enrollment)	1
19	Allopurinol, 300 mg	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat, 80 mg	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat, 80 mg	Inclusion	Any care setting	(1, end of enrollment)	1
20	Allopurinol (any dose: 100, 200, or 300 mg)	Include all valid exposure episodes during query period; only the first valid exposure episode's incidence is assessed using washout criteria	183	Febuxostat (40 or 80 mg), Allopurinol (100, 200, or 300 mg), Probenecid, Pegoloticase	30 days	Any care setting	Febuxostat (any dose: 40 or 80 mg)	Death; Disenrollment; Data Partner end date	Gout	Inclusion	Any care setting	(-183, 0)	1
									Switch to Febuxostat (any dose)	Inclusion	Any care setting	(1, end of enrollment)	1

International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) codes are provided by Optum360. National Drug Codes (NDCs) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."