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_iqp_wp032

Request ID: cder_iqp_wp032

Requester: Center for Drug Evaluation and Research (CDER)

Request Description: In this report we aimed to characterize two cohorts of interest: 1) individuals with evidence of cannabis and cannabis-derived products, other than cannabidiol or Epidiolex, and 2) individuals with evidence of cannabidiol products, excluding the approved cannabidiol product Epidiolex, identified using natural language processing (NLP). We additionally estimated the number of pregnant patients who had evidence of each exposure of interest during pregnancy.

Data Source: We ran this query on February 28, 2023. This query contains data from 75 health care organizations (HCOs), provided through the TriNetX Live™ platform in their USA Network from July 1, 2018 to the most recently available data, January 26, 2023.

TriNetX aggregates electronic health record (EHR) systems data from its partner HCOs to create queryable datasets. TriNetX datasets are primarily comprised of clinical patient data such as demographics, diagnoses, procedures, labs, and medications. For more information on the TriNetX Live™ platform and the TriNetX data visit their website here: https://trinetx.com/

Study Design: In this retrospective cohort study, we identified counts of individuals with evidence of cannabis or a cannabis-derived product, other than cannabidiol or Epidiolex, and individuals with evidence of cannabidiol from NLP and no evidence of brand name Epidiolex, among a cohort of patients with a history of healthcare visits prior to exposure. This was done using the Query Builder module in the TriNetX Live™ platform. For these two main exposed cohorts of interest, we additionally summarized the length of individuals' patient record using the Summary Statistics module and each cohort's demographic distribution using the Explore Cohort module. We also utilized the Analyze Outcomes analytics module to determine the number of patients in the cohort with our baseline characteristics of interest, co-exposures, and subsequent cannabis-derived product exposures.

We also used TriNetX's Query Builder module to identify separate cohorts of patients with evidence of an exposure of interest during pregnancy. There is no gold standard for pregnancy identification in EHR data; therefore we employed two strategies for cohort creation to estimate evidence of exposure during pregnancy: 1) we anchored on evidence of the exposure of interest and looked for evidence of a pregnancy (ultrasound codes, gestational age codes, or a positive pregnancy test) in the month before or after exposure, and 2) we anchored on evidence of a gestational age code and based on the specific week of the gestational age, looked backwards to the start of the pregnancy or forwards through the maximum length of a pregnancy (42 weeks) for evidence of the exposure prior to the occurence of a pregnancy outcome (spontaneous abortion, stillbirth, or live birth). We also provided overall denominator counts of the number of patients identified by the pregnancy strategy, with or without exposure, during the time period. Please see the section below for further details on pregnancy identification.

Exposures of Interest: Our two exposures of interest in this request were 1) all cannabis and cannabis-derived products other than cannabidiol or Epidiolex, and 2) cannabidiol sourced from NLP, excluding known Epidiolex. We identified Epidiolex based on evidence of the brand name or a cannabidiol product with a strength of 100 mg/ml. Please see Appendix A for the list of codes used to define the exposures of interest in this request.

Cohort Eligibility Criteria: In the two main cohorts focused on exposure identification and cohort characterization, we required every patient to have a history of a healthcare visit in order to be included in each cohort. We defined a history of healthcare visits as evidence of any type of visit term in the two years prior to any cannabis-derived product or cannabidiol exposure that occurred during the query period. Patients of all ages were included in the cohorts.

Characteristics: We utilized the Characteristics section of the Analyze Outcomes analytic module to evaluate the following baseline characteristics in the 365 days prior to and including the date of the first qualifying cannabis-derived product or cannabidiol exposure (index exposure) for the two main exposure cohorts: alcohol-related disorders, attention-deficit hyperactivity disorders (ADHD), anxiety disorders, autism, cancer, cannabis-related disorders, cerebrovascular diseases, chronic kidney disease, dorsalgia (back and spine pain), fibromyalgia, pain (including chronic pain syndrome and chronic pain not elsewhere classified), pain (unspecified), chronic respiratory conditions, dementia (unspecified), dementia (vascular), diabetes, Dravet syndrome, dystonia, eating disorders, glaucoma, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), Huntington's disease, hypertension, intracranial injury, irritable bowel syndrome, ischemic heart diseases, Lennox-Gastaut syndrome, liver disease, mood disorders, multiple sclerosis, nicotine dependence, nicotine use, obesity, opioid-related disorders, other epilepsies, Parkinson's disease, personality disorders, post-traumatic stress disorder, psychologic developmental conditions, psychotic disorders, rheumatologic and inflammatory conditions, sleep disorders, spinal cord injury, Tourette syndrome, tuberous sclerosis complex, and vaping-related disorders.

We further utilized the Characteristics module section to assess co-exposures in the 30 days prior to and including the index date. These co-exposures included: anticonvulsants, antidepressants, antidiabetic agents, antiemetic agents, antihistamines, antipsychotics, anxiolytic and hypnotic drugs, cardiovascular medications, chemotherapeutics, central nervous system (CNS) stimulants, corticosteroids, dronabinol, nabilone, opioids, and other immunosuppressants. In the TriNetX platform, all pre-index characteristics must be defined by a single branch within the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) hierarchy or by a single Veterans Affairs (VA) formulary classification. Please see Appendix B for a list of the codes used to approximate these baseline characteristics.

We utilized the Outcomes section of the Analyze Outcomes analytics module to assess additional post-index characteristics for each cohort. We looked for evidence of the co-exposures in the 30 days after the index exposure. For the co-exposures we assessed the same medication classes as the pre-index period. We finally summarized subsequent cannabis-derived product exposure in the 365 days following the initial index exposure. We evaluated all cannabis and cannabis-derived products other than cannabidiol or Epidiolex, and then separately assessed any cannabidiol (including Epidiolex) derived from structured EHR data, any cannabidiol derived from NLP data, and positive tetrahydrocannabinol (THC) labs. We report both the number of patients in each cohort with a subsequent exposure and the mean number of exposures per patient, for the cannabis-derived product and positive THC lab outcomes; for the cannabidiol outcomes we only present the number of patients with a subsequent exposure due to platform output limitations. Please see Appendix C for a list of the codes used to define the post-index characteristics in this request.

Pregnancy Evaluation: For each exposure of interest, we identified four pregnancy-based cohorts:

1. Index on exposure and look for evidence of pregnancy (ultrasound, gestational age, or positive pregnancy test) within [-30, 30] days of exposure

2. Index on a first trimester gestational age code of X weeks, and look for evidence of the exposure of interest within [-X, 42-X] weeks of the gestational age code[1]. Exclude any patients that additionally had evidence of a second or third trimester gestational age code during the evaluation window, and any patients that had evidence of a pregnancy outcome[2] prior to their exposure.

3. Index on a second or third trimester gestational age code of Y weeks, and look for evidence of the exposure of interest within [-Y, 42-Y] weeks of the gestational age code[1]. Exclude any patients that additionally had evidence of a first trimester gestational age code during the evaluation window, and any patients that had evidence of a pregnancy outcome[2] prior to their exposure.

4. Index on a first trimester gestational age code of X weeks, and look for evidence of the exposure of interest within [-X, 42-X] weeks of the gestational age code[1]. Patients must also have evidence of a second or third trimester gestational age code during the evaluation window. Exclude any patients that had evidence of a pregnancy outcome[2] prior to their exposure.

Pregnancy Evaluation, continued: We created three cohorts based on gestational age to create mutually exclusive cohorts so that patients would not be double-counted across cohorts. When evaluating for the pregnancy outcome exclusion criteria, we looked for evidence of a pregnancy outcome in the 90 days prior to and including the date of the exposure of interest. Please see Appendix D for a list of codes used to define the cohort exclusion criteria and Appendix E for a visual representation of how the gestational age-specific evaluation windows were implemented.

Please see Appendices F and G for the specifications of parameters used in this request.

Limitations: Algorithms used to define exposures, characteristics, pregnancy, and mapping of source data to the data model are imperfect and susceptible to misclassification. Additionally, EHR data in the United States (US) lacks longitudinality. The information before or after patients' healthcare encounters could be missing, especially if patient care was administered across different HCOs that may or might not participate in the TriNetX USA network. We are unable to determine if absence of evidence of a condition implies a true absence of a condition or if the condition was not observed in the data. Furthermore, not all HCOs provide brand name information for RxNorm terms or laboratory data. Therefore, data should be interpreted with these limitations in mind.

All counts provided through the TriNetX Live™ platform are rounded up to the nearest 10 to protect patient privacy. This rounding affects error, especially as sample sizes decrease. Error due to rounding can range from <0.09% when sample sizes are >10,000 to nearly 20% as sample sizes drop. Thus, all estimates should be interpreted as ranges, and small sample sizes should be interpreted with caution. Additionally, percentages are calculated based on these rounded numerators and denominators. Thus, due to rounding, the sum of each value in a category may not total to 100%.

Notes: We ran this query on February 28, 2023. A re-run of this query for the same query period in the future may not yield the same results owing to the dynamic nature of the TriNetX Live™ network.

Please contact the Sentinel Operations Center (info@sentinelsystem.org) for questions and to provide comments/suggestions for future enhancements to this document. For more information on Sentinel's querying in the TriNetX platform, please refer to the Sentinel Website (https://www.sentinelinitiative.org/methods-data-tools/methods/trinetx-rapid-querying).

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[1]The pregnant period is assumed to be 42 weeks total based on the maximum gestational age available in the ICD-10-CM diagnosis code set. For the cohorts that index on evidence of pregnancy, the number of weeks that occur pre-index and post-index is dependent on the weeks of gestation indicated by the index gestational age code, where X = 8-13 weeks for 1st trimester gestational age codes (starting at week 8 due to availability of ICD-10-CM diagnosis codes for gestational age) and Y = 14-42 weeks for 2nd/3rd trimester. The pre-index window is equal to the number of weeks gestation of the pregnancy-defining index code. The post-index window is equal to 42 minus the number of weeks gestation of the pregnancy-defining index code. For example, a code for 14 weeks gestation has a pre-index pregnant period of 14 weeks and a post-index pregnant period of 28 weeks.

[2]Pregnancy outcomes included live birth delivery, stillbirth, and spontaneous abortion. Live birth delivery codes were sourced from the MEPREP algorithm: Andrade, S. E., et al. (2012). "Medication Exposure in Pregnancy Risk Evaluation Program." Matern Child Health J 16(7):1349-1354.

Glossary of Terms for Analyses Using TriNetX Live™ Platform*

Characteristic - A medical fact (e.g., diagnosis, procedure, lab result) that occurred on or before the cohort-defining index event.

Explore Cohort - A description module on the TriNetX platform that presents a clinical profile of patients in a given cohort. Patient counts are rounded up to the nearest 10 before percentages are calculated, so the sum each of the values in one category may not total to 100%.

Date Shifting - A data obfuscation technique that some HCOs use to preserve patient privacy. Date shifting entails assigning each patient a random number of days (e.g., -365 to +365 days) and consistently adjusting each of their dates by that number of days, thus maintaining temporal relationships between records within a single patient.

Fact - (Medical Fact) A unit of utilization that represents a medical observation on a patient (e.g., diagnosis, procedure, clinical observation).

Filter - A method of limiting terms included in queries to a specific subset of data. Filters include age at time of event, data source (electronic health record or natural language processing); brand name, route, and strength for medication terms; occurrence (first or most recent) for lab terms; and priority for diagnosis and procedure terms.

Group - A series of codes and terms defined with Boolean logic that are used to create a query cohort. For each group, users have the ability to specified time periods of interest, and the number of instances that the group must occur for cohort entry.

> **Subgroup -** Within a group, additional subgroups can be specified to define temporal relationships between the terms in the subgroup (e.g., terms in subgroup B must occur within 5 days after terms in subgroup A). Users can require that these temporal constraints be applied to the 1) first, 2) last, or 3) any instance of each subgroup.

Health Care Organization (HCO) - Organizations that contribute electronic healthcare record data to the TriNetX data networks. HCOs include academic institutions and community health provider systems and a single HCO may contain one or more individual sites or facilities.

Index - The first date when a patient meets all of the cohort-defining criteria. In Analytics modules, the index can be defined as the date when a patient meets all of the cohort criteria, or only one specific group's criteria.

Module - A subsection of the TriNetX platform that performs a distinct functionality. Cohorts are created using the Query Builder module. Descriptive modules include Healthcare Organizations, Explore Cohorts, Rate of Arrival, Summary Statistics, and Analyze Criteria. Advanced analytic modules include Analyze Outcomes, Compare Outcomes, Compare Cohorts, Treatment Pathways, and Incidence and Prevalence.

Network - An aggregation of HCOs contributing data to the platform. Multiple networks are available for querying on the platform; the different networks represent subsets of HCOs organized by date-shifting practices or availability of downloadable datasets.

Outcome - A medical fact (e.g., diagnosis, procedure, lab result) that occurred on or after the cohort-defining index event.

Query - In the TriNetX platform, a query is a distinct cohort with a unique set of terms and logic. Query cohorts are created using the Query Builder platform module.

Risk - In Advanced Analytics modules, risk refers to the percentage of patients in each cohort with the specified outcome of interest.

Priority - An indication whether the code was the condition that the provider spent the most time evaluating or treating during a visit. Possible values include primary, secondary, or unknown.

Study Design: In this retrospective cohort study, we identified counts of individuals with evidence of cannabis or a cannabis-derived product, other than cannabidiol or Epidiolex, and individuals with evidence of cannabidiol from NLP and no evidence of brand name Epidiolex, among a cohort of patients with a history of healthcare visits prior to exposure. This was done using the Query Builder module in the TriNetX Live™ platform. For these two main exposed cohorts of interest, we additionally summarized the length of individuals' patient record using the Summary Statistics module and each cohort's demographic distribution using the Explore Cohort module. We also utilized the Analyze Outcomes analytics module to determine the number of patients in the cohort with our baseline characteristics of interest, co-exposures, and subsequent cannabis-derived product exposures.

Glossary of Terms for Analyses Using TriNetX Live™ Platform*

Term - The codes used to specify patient cohort criteria in a query. Code options include diagnoses, procedures, medications, labs, demographics, genomics, and visits. Terms can be linked together using and/or Boolean logic. TriNetX also creates terms that group together multiple medical codes into single clinical concepts.

   Cannot Have Term - A category of terms within a query group that patients must not have evidence of to be included in the cohort.

   Must Have Term - A category of terms within a query group that patients must have evidence of to be included in the cohort.

Time Constraint - used to define time periods of interest for each group within a query. Time constraints can be defined relative to the date the query was run (e.g., any time before today), or defined based on specific dates (e.g., January 1, 2015 to September 30, 2020).

Treatment Pathway - In Advanced Analytics modules, the Treatment Pathways module returns the order in which patients received treatment and the prevalence of treatments, including combination of medications, following an index event.

TriNetX Codes - For commonly used laboratory terms, TriNetX aggregates Logical Observation Identifiers Names and Codes (LOINC) laboratory codes at a clinically significant level to new queryable TNX:LAB terms.

Visit - A type of term used to specify the type of medical encounter or facility where the encounter was recorded. Visit terms are derived by TriNetX from the source data. Visits are recorded separately from the codes or labs that occurred during the encounter; care settings are not attached to individual codes. Values for visit terms include: ambulatory, emergency, field, home health, inpatient encounter, inpatient acute, inpatient non-acute, laboratory, observation, pharmacy, pre-admission, short stay, virtual, and unknown.

*all terms may not be used in this report

Table 1. Baseline Characteristics Among Patients with Cannabis and Cannabis-Derived Product Exposures and a History of Healthcare Visits from July 1, 2018 through January 26, 2023

	Cannabis and Cannabis-Derived Products, other than Cannabidiol/Epidiolex		Cannabidiol, excluding Epidiolex, identified from Natural Language Processing	
	Number	Percent/ Standard Deviation[1]	Number	Percent/ Standard Deviation[1]
Total Number of Patients	3,340	100%	23,610	100%
Baseline Clinical Characteristics [-365, 0][2]	3,340	100%	22,830	100%
Alcohol-related disorders	110	3%	1,600	7%
Anxiety disorders	770	23%	7,500	33%
Attention-deficit hyperactivity disorders (ADHD)	100	3%	1,080	5%
Autism	70	2%	580	3%
Cancer[3]	940	28%	9,360	41%
Cannabis-related disorders	150	4%	1,330	6%
Cerebrovascular diseases	300	9%	3,080	13%
Chronic kidney disease (CKD)	230	7%	2,590	11%
Chronic liver disease	240	7%	3,850	17%
Chronic Pain				
Back and spine pain (dorsalgia)	790	24%	8,640	38%
Fibromyalgia	140	4%	1,430	6%
Pain, not elsewhere classified (includes Chronic Pain Syndrome and Chronic Pain not elsewhere classified)	540	16%	6,440	28%
Pain (unspecified)	1,060	32%	10,730	47%
Chronic respiratory conditions	550	16%	4,600	20%
Dementia (unspecified)	40	1%	410	2%
Dementia (vascular)	10	<1%	70	<1%
Diabetes	470	14%	4,880	21%
Dravet Syndrome	0	<1%	30	<1%
Dystonia	40	1%	410	2%
Eating disorders	50	1%	490	2%
Glaucoma	90	3%	790	3%
HIV/AIDS	60	2%	630	3%
Huntington's disease	10	<1%	70	<1%
Hypertension	820	25%	8,570	38%
Irritable bowel syndrome	110	3%	870	4%
Ischemic heart diseases	290	9%	3,270	14%
Lennox-Gastaut syndrome	30	1%	230	1%
Mood disorders	890	27%	8,510	37%
Multiple sclerosis	40	1%	450	2%
Nicotine use	430	13%	3,980	17%
Obesity	480	14%	4,110	18%
Opioid-related disorders	70	2%	600	3%
Other epilepsies	280	8%	1,570	7%
Other neurological or developmental conditions	180	5%	1,730	8%

Table 1. Baseline Characteristics Among Patients with Cannabis and Cannabis-Derived Product Exposures and a History of Healthcare Visits from July 1, 2018 through January 26, 2023

	Cannabis and Cannabis-Derived Products, other than Cannabidiol/Epidiolex		Cannabidiol, excluding Epidiolex, identified from Natural Language Processing	
	Number	Percent/ Standard Deviation[1]	Number	Percent/ Standard Deviation[1]
Parkinson's disease	40	1%	420	2%
Personality disorders	40	1%	360	2%
Post-traumatic stress disorder (PTSD)	110	3%	1,000	4%
Psychotic disorders	110	3%	1,220	5%
Rheumatologic and inflammatory conditions	250	7%	2,880	13%
Sleep disorders	660	20%	6,430	28%
Spinal cord injury	0	<1%	20	<1%
Tourette syndrome	10	<1%	60	<1%
Traumatic brain injury or intracranial hemorrhage	110	3%	920	4%
Tuberous sclerosis complex	10	<1%	50	<1%
Vaping-related disorder	10	<1%	20	<1%
Pre-Index Co-Exposures [-30, 0][2]	3,340	100%	22,150	100%
Anticonvulsants[4]	1,170	35%	22,150	100%
Antidepressants	1,130	34%	10,070	45%
Antidiabetic agents	520	16%	5,170	23%
Antiemetics	990	30%	8,360	38%
Antihistamine	1,060	32%	7,540	34%
Antipsychotics	280	8%	2,820	13%
Anxiolytic and hypnotic drugs	850	25%	9,010	41%
Cardiovascular medications	1,490	45%	14,380	65%
Chemotherapeutics	470	14%	4,060	18%
Central nervous system (CNS) stimulants	490	15%	3,710	17%
Corticosteroids	930	28%	7,940	36%
Dronabinol[5]	360	11%	1,930	9%
Nabilone	0	<1%	10	<1%
Opioids	1,160	35%	11,170	50%
Other immunosuppressants	110	3%	1,250	6%
Post-Index Co-Exposures [1, 30]	3,340	100%	23,610	100%
Anticonvulsants (excluding cannabidiol)[4]	420	13%	4,700	20%
Antidepressants	500	15%	5,690	24%
Antidiabetic agents	300	9%	3,850	16%
Antiemetics	490	15%	6,050	26%
Antihistamine	540	16%	4,770	20%
Antipsychotics	180	5%	2,080	9%
Anxiolytic and hypnotic drugs	450	13%	5,990	25%
Cardiovascular medications	780	23%	9,130	39%
Chemotherapeutics	270	8%	2,990	13%
Central nervous system (CNS) stimulants	250	7%	2,280	10%

Table 1. Baseline Characteristics Among Patients with Cannabis and Cannabis-Derived Product Exposures and a History of Healthcare Visits from July 1, 2018 through January 26, 2023

	Cannabis and Cannabis-Derived Products, other than Cannabidiol/Epidiolex		Cannabidiol, excluding Epidiolex, identified from Natural Language Processing	
	Number	**Percent/ Standard Deviation[1]**	**Number**	**Percent/ Standard Deviation[1]**
Corticosteroids	530	16%	5,540	23%
Dronabinol[5]	50	1%	600	3%
Nabilone	0	<1%	10	<1%
Opioids	710	21%	7,790	33%
Other immunosuppressants	60	2%	710	3%
Post-index Subsequent Cannabis-Derived Product Exposures [1, 365]	3,340	100%	23,610	100%
Any cannabis or cannabis-derived product (other than cannabidiol/Epidiolex)	1,380	41%	380	2%
Mean number of cannabis or cannabis-derived product (other than cannabidiol/Epidiolex) exposures	3.11	5.36	2.42	3.10
Positive tetrahydrocannabinol (THC) lab test	10	<1%	150	1%
Mean number of positive THC lab tests	1.29	0.76	1.20	0.71
Cannabidiol from natural language processing (NLP)	440	13%	10,700	45%
Cannabidiol from electronic health record (EHR)	20	1%	140	1%

[1]Value represents standard deviation where no % follows the value.

[2]Characteristics assessed in the pre-index period are taken from a convenience sample of the full cohort for the cannabidiol sourced from NLP cohort. Values in header rows represent the sample size for each look back period. Percentages for each section are calculated using these values as the denominator.

[3]Cancer baseline characteristic definition includes malignant, benign, and in situ neoplasms.

[4]Anticonvulsants includes ganaxolone, which was newly added to the TriNetX data and was not included previous queries.

[5]Dronabinol is a subset of the overall antiemetics category. Counts for dronabinol will be counted in both co-exposures.

NOTE: All counts provided through the TriNetX Live™ platform are rounded up to the nearest 10 to protect patient privacy. All percentages were calculated based on the rounded estimates, and are presented here as whole numbers to avoid mischararacterizing the precision of the measurement. Due to the rounding, all estimates should be interpreted as ranges, with the lower value of the range ≤ 0.3% less than the presented value unless otherwise noted.

Table 2. Summary of Exposure During Pregnancy Among Patients with Cannabis and Cannabis-Derived Product Exposures from July 1, 2018 through January 26, 2023, by Pregnancy Definition

	Cannabis and Cannabis-Derived Products, other than Cannabidiol/Epidiolex		Cannabidiol, excluding Epidiolex, identified from Natural Language Processing		Total Number of Pregnant Patients	
	Number	Percent	Number	Percent	Number	Percent
Any Ultrasound, Gestational Age, or Positive Pregnancy Test within 30 days of Exposure	730	<1%	220	<1%	2,057,950	100%
Exposure within Pregnancy, Identified with 1st Trimester Gestational Age Codes Only	30	<1%	20	<1%	144,560	100%
Exposure within Pregnancy Identified with 2nd or 3rd Trimester Gestational Age Codes Only	170	<1%	30	<1%	993,310	100%
Exposure within Pregnancy Identified with 1st and 2nd/3rd Trimester Gestational Age Codes	90	<1%	50	<1%	48,500	100%

NOTE: TriNetX obfuscates patient counts to safeguard protected health information (PHI), and percentages are calculated based on numerators and denominators rounded up to the nearest 10. Thus, all values in this table are actually ranges (i.e. 10 represents values from 1-10, 20 represents values 11-20, etc.), and the sum of each value in a category may not total to 100%.

Figure 1. Distribution of Length of Patient Record for Patients with Cannabis and Cannabis-Derived Product Exposures, other than Cannabidiol/Epidiolex, from July 1, 2018 through January 26, 2023
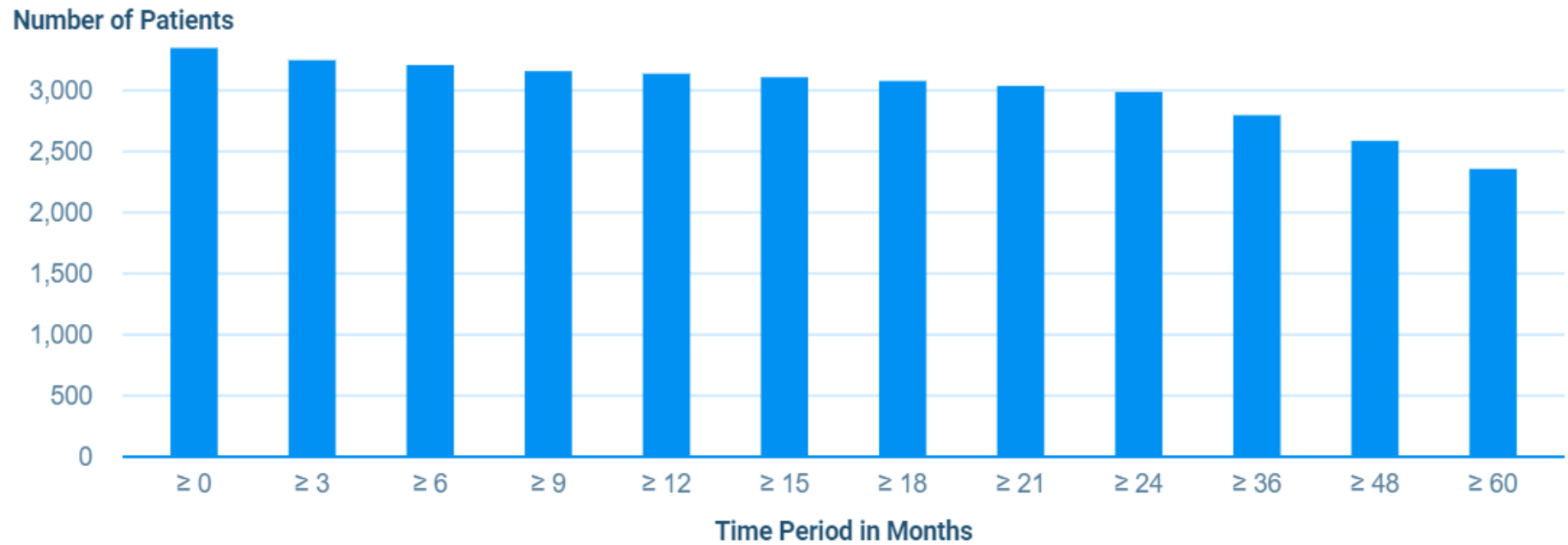
Figure 2. Distribution of Length of Patient Record for Patients with Cannabidiol Exposures, excluding Epidiolex, Identified from Natural Language Processing (NLP) from July 1, 2018 through January 26, 2023
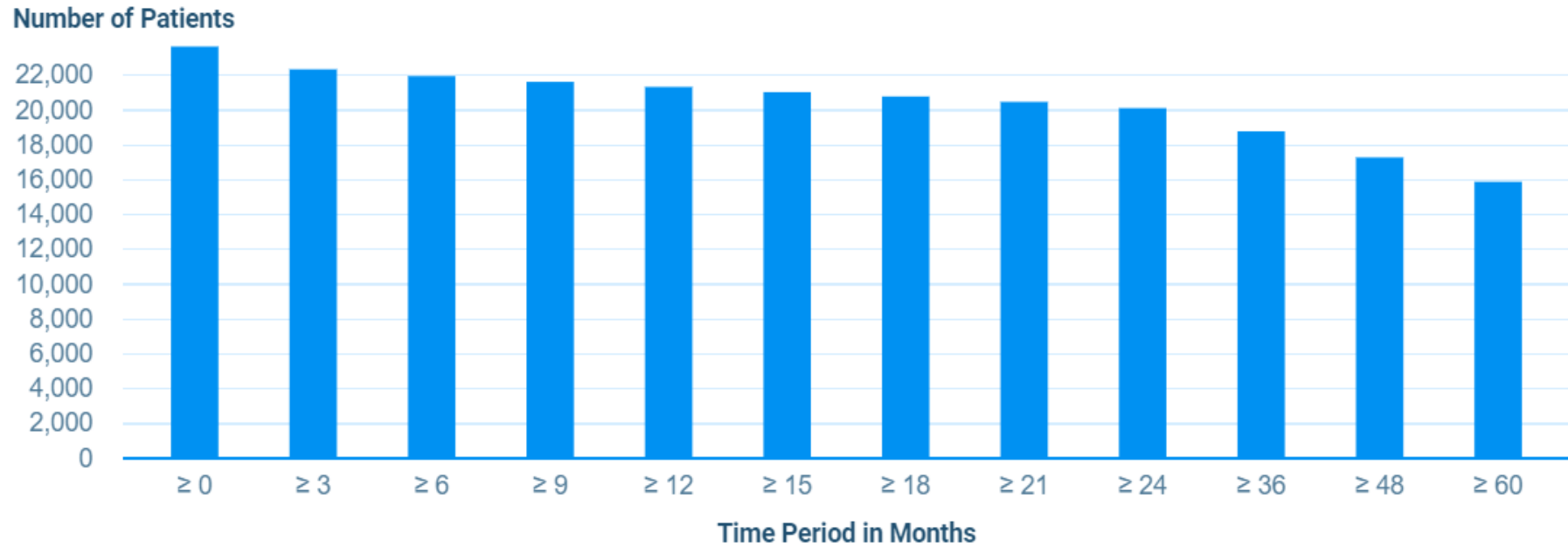
Figure 3. Demographic Characteristics for Patients with Cannabis and Cannabis-Derived Product Exposures, other than Cannabidiol/Epidiolex, from July 1, 2018 through January 26, 2023
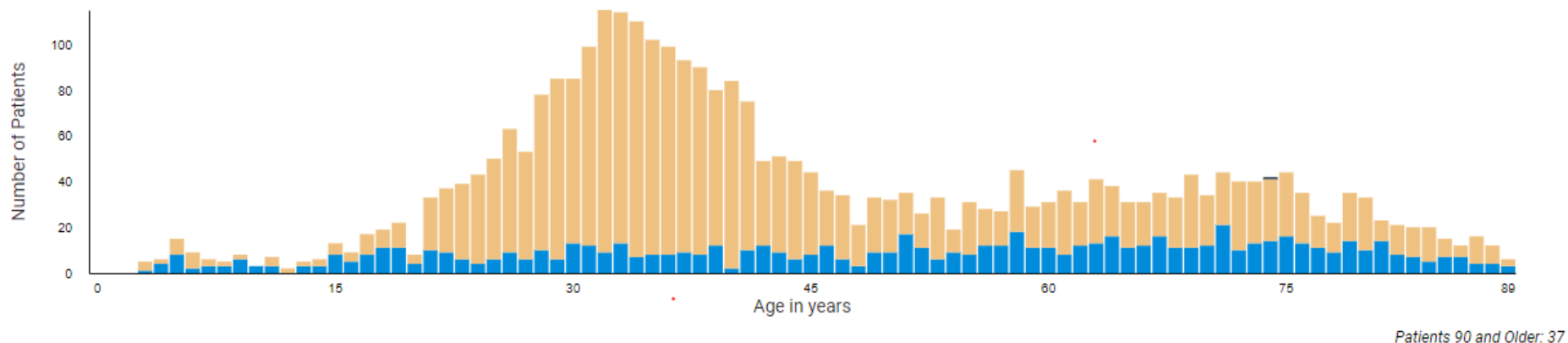
Total Patients	Minimum Age	Maximum Age	Mean Age	Standard Deviation
3,340	3	90	46	20

Sex

Female	77%	
Male	23%	
Unknown	0%	

Ethnicity

Not Hispanic or Latino	90%	
Hispanic or Latino	6%	
Unknown Ethnicity	4%	

Race

White	81%	
Unknown Race	9%	
Black or African American	7%	
Asian	2%	
American Indian or Alask...	1%	
Native Hawaiian or Other ...	0%	
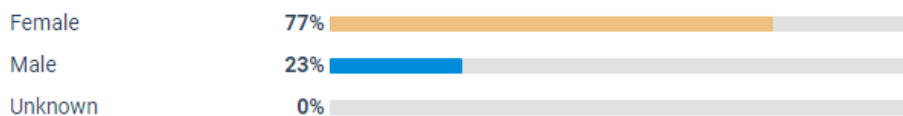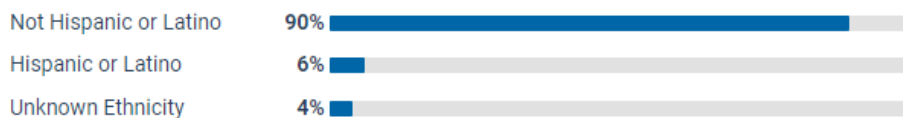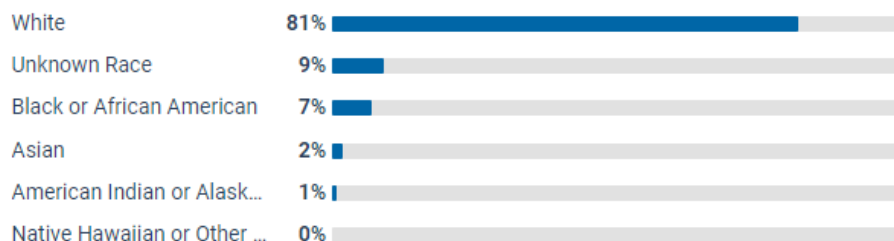
Figure 4. Demographic Characteristics for Patients with Cannabidiol Exposures, excluding Epidiolex, Identified from Natural Language Processing (NLP) from July 1, 2018 through January 26, 2023

Patients 90 and Older: 441
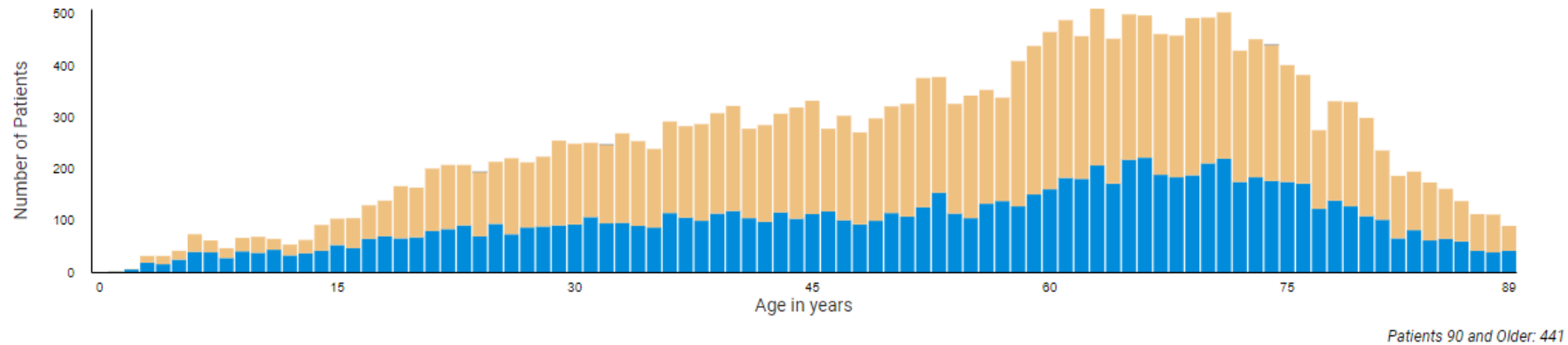
Total Patients	Minimum Age	Maximum Age	Mean Age	Standard Deviation
23,610	1	90	54	20

Sex

Female	61%	
Male	39%	
Unknown	0%	

Ethnicity

Not Hispanic or Latino	90%	
Unknown Ethnicity	5%	
Hispanic or Latino	5%	

Race

White	87%	
Unknown Race	7%	
Black or African American	4%	
American Indian or Alask…	1%	
Asian	1%	
Native Hawaiian or Other …	0%	

Appendix A. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type	Filter
Cannabidiol				
2045371	Cannabidiol	Medication	RxNorm	NLP
Cannbis-Derived Products				
1976	Cannabinol	Medication	RxNorm	n/a
1788846	Hemp	Medication	RxNorm	n/a
1305550	Cannabis sativa seed oil	Medication	RxNorm	n/a
2177094	Cannabis Sativa subsp. Sativa whole extract	Medication	RxNorm	n/a
2464938	Cannabigerol	Medication	RxNorm	n/a
2279519	Cannabigerolate	Medication	RxNorm	n/a
2585216	Cannabichromene	Medication	RxNorm	n/a
2168435	Cannabis sativa susp. indica top extract	Medication	RxNorm	n/a
1484855	Cannabis Sativa subsp. Flowering top extract	Medication	RxNorm	n/a
2002575	Cannabis sativa pollen extract	Medication	RxNorm	n/a
2048033	Cannabis sativa whole extract	Medication	RxNorm	n/a
1429926	Cannabis sativa seed extract	Medication	RxNorm	n/a
Ultrasound				
76801	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, first trimester (<14 weeks 0 days), transabdominal approach; single or first gestation)	Procedure	CPT-4	
76802	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, first trimester (<14 weeks 0 days), transabdominal apprach; each additional gestation (list separately in addition to	Procedure	CPT-4	
1010786	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, first trimester (<14 weeks 0 days), transabdominal approach	Procedure	CPT-4	
76805	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation after first trimester (> or =14 weeks 0 days), transabdominal approach; single or first gestation	Procedure	CPT-4	
76810	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (> or =14 weeks 0 days), transabdominal approah; each additional gestation (list separately in addition to code for primary procedure)	Procedure	CPT-4	
1010789	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation, after first trimester (> or =14 weeks 0 days), transabdominal approah	Procedure	CPT-4	
76817	Ultrasound, pregnant uterus, real time with image documentation, transvaginal	Procedure	CPT-4	

Appendix A. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type	Filter
76812	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed anatomic examination, transabdominal approach; each additional gestation	Procedure	CPT-4	
76816	Ultrasound, pregnant uterus, real time with image documetation, follow-up (eg, re-evaluation of fetal size by measuring standard growth parameters and amniotic fluid volume, re-evaluation of organ system(s) suspected or confirmed to be abnormal on a previous scan), transabdominal approach. per fetus	Procedure	CPT-4	
76811	Ulstrasound, preganat uterus, real time with image documentaion, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach; single or first gestation	Procedure	CPT-4	
76815	Ultrasouind, pregnant uterus, real time with image documetation, limited (eg, fetal heart beat, placental location, fetal position and/or qualitative amniotic fluid volume), 1 or more fetuses	Procedure	CPT-4	
76813	Ultrasound, pregnant uterus, real time with image doucmcmentation, first trimester fetal nuchal translucency measurement, transabdominal or transvaginal approach; single or first gestation	Procedure	CPT-4	
76814	Ultrasound, pregnant uterus, real time with image documentation, first trimester fetal nuchal trnaslucency measurement, transabdominal or transvaginal approach; each additional gestation (list separately in addition to code for primary procedure)	Procedure	CPT-4	
1010792	Ultrasound, pregnant uterus, real time with image documentation, fetal and maternal evaluation plus detailed fetal anatomic examination, transabdominal approach	Procedure	CPT-4	
1014713	Ultrasound, pregnant uterus, real time with image documentation, first trimester fetal nuchal trnaslucency measurement, transabdominal or transvaginal approach	Procedure	CPT-4	
76831	Saline infusion sonohysterography (sis), including color flow doppler, when performed Ultrasound of uterus	Procedure	CPT-4	
Gestational Age				
Z3A.08	8 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.09	9 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.10	10 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.11	11 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.12	12 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	

Appendix A. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type	Filter
Z3A.13	13 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.14	14 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.15	15 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.16	16 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.17	17 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.18	18 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.19	19 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.20	20 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.21	21 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.22	22 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.23	23 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.24	24 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.25	25 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.26	26 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.27	27 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.28	28 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.29	29 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.30	30 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.31	31 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.32	32 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.33	33 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.34	34 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.35	35 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.36	36 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.37	37 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.38	38 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.39	39 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.40	40 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.41	41 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.42	42 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	8-42 weeks gestation
First Trimester Gestational Age				
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	8 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	9 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	10 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	11 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	12 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	13 weeks gestation
Second/Third Trimester Gestational Age				

Appendix A. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type	Filter
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	14 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	15 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	16 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	17 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	18 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	19 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	20 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	21 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	22 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	23 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	24 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	25 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	26 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	27 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	28 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	29 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	30 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	31 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	32 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	33 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	34 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	35 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	36 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	37 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	38 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	39 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	40 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	41 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	42 weeks gestation
Positive Pregnancy Test				
80385-8	Choriogonadotropin (pregnancy test) [Presence] in Serum by Rapid immunoassay	Laboratory Test	LOINC	lab details: positive
2118-8	Choriogonadotropin (pregnancy test) [Presence] in Serum or Plasma	Laboratory Test	LOINC	lab details: positive
2106-3	Choriogonadotropin (pregnancy test) [Presence] in Urine	Laboratory Test	LOINC	lab details: positive
80384-1	Choriogonadotropin (pregnancy test) [Presence] in Urine by Rapid immunoassay	Laboratory Test	LOINC	lab details: positive
2110-5	Choriogonadotropin.beta subunit (pregnancy test) [Presence] in Serum or Plasma	Laboratory Test	LOINC	lab details: positive

Appendix A. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exposures in this Request

Code	Description	Code Category	Code Type	Filter
2112-1	Choriogonadotropin.beta subunit (pregnancy test) [Presence] in Urine	Laboratory Test	LOINC	lab details: positive
Z32.01	Encounter for pregnancy test, result, positive	Diagnosis	ICD-10-CM	

Appendix B. List of International Classification of Diseases, Tenth Revision, Clinical Modfication (ICD-10-CM) Hierarchy Codes and Veterans Affairs (VA) Formulary Classifications used to Define Baseline Characteristics in this Request

Characteristic	ICD-10 Hierarchy Term/VA Code and Description
Alcohol-Related disorders	F10 (alcohol-related disorders)
ADHD	F90 (Attention-deficit hyperactivity disorders)
Anxiety Disorders	F41 (Other anxiety disorders)
Autism	F84.0 (Autistic disorder)
Cancer	C00-D49 (Neoplasms)
Cannabis-Related Disorders	F12 (Cannabis related disorders)
Cerebrovascular diseases	I60-I69 (Cerebrovascular diseases)
Chronic Kidney Disease	N18 (Chronic kidney disease)
Chronic Liver Disease	K70-K77 (Diseases of liver)
Chronic Pain	
Back and Spine pain	M54 (Dorsalgia)
Fibromyalgia	M79.7 (Fibromyalgia)
Pain, not elsewhere classified (includes Chronic Pain Syndrome and Chronic Pain not elsewhere classified)	G89 (pain, not elsewhere classified)
Pain, unspecified	R52 (Pain, unspecified)
Chronic Respiratory Conditions	J40-J47 (Chronic lower respiratory diseases)
Dementia (vascular)	F01 (Vascular dementia)
Dementia (unspecified)	F03 (Unspecified dementia)
Diabetes	E08-E13 (Diabetes mellitus)
Dravet Syndrome	G40.83 (Dravet syndrome)
Dystonia	G24 (Dystonia)
Eating Disorders	F50 (Eating disorders)
Glaucoma	H40-H42 (Glaucoma)
HIV/AIDS	B20 (Human immunodeficiency virus [HIV] disease)
Huntington's Disease	G10 (Huntington's disease)
Hypertension	I10 (Essential (primary) hypertension)
Irritable Bowel Syndrome	K58 (Irritable bowel syndrome)
Ischemic Heart Diseases	I20-I25 (Ischemic heart diseases)
Lennox-Gastaut Syndrome	G40.81 (Lennox-Gastaut syndrome)
Mood Disorders	F30-F39 (Mood [affective] disorders)
Multiple Sclerosis	G35 (Multiple sclerosis)
Nicotine Use	F17 (Nicotine dependence)
Obesity	E66 (Overweight and obesity)
Opioid-related disorders	F11 (opioid-related disorders)
Other Epilepsies	G40.9 (Epilepsy, unspecified)
Other Neurological Or Developmental Conditions	F80-F89 (Pervasive and specific developmental disorders)
Parkinson's Disease	G20 (Parkinson's disease)
Personality Disorders	F60 (Specific personality disorders)
Post-Traumatic Stress Disorder	F43.1 (Post-traumatic stress disorder (PTSD))
Psychotic Disorders	F20-F29 (Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders)
Rheumatologic And Inflammatory Conditions	M05-M14 (Inflammatory polyarthropathies)
Sleep Disorders	G47 (Sleep disorders)

Appendix B. List of International Classification of Diseases, Tenth Revision, Clinical Modfication (ICD-10-CM) Hierarchy Codes and Veterans Affairs (VA) Formulary Classifications used to Define Baseline Characteristics in this Request

Characteristic	ICD-10 Hierarchy Term/VA Code and Description
Spinal Cord Injury	S34 (Injury of lumbar and sacral spinal cord and nerves at abdomen, lower back and pelvis level)
Tourette Syndrome	F95.2 (Tourette's disorder)
Traumatic Brain Injury Or Intracranial Hemorrhage	S06 (Intracranial injury)
Tuberous Sclerosis Complex	Q85.1 (Tuberous sclerosis)
Vaping-Related Disorders	U07.0 (Vaping-related disorder)
Anticonvulsants	CN400 (Anticonvulsants)
Anticonvulsants, excluding cannabidiol	114477 (levetiracetam), 1356552 (perampanel), 1482502 (eslicarbazepine), 14851 (vigabatrin), 1739745 (brivaracetam), 2002 (carbamazepine), 2054968 (stiripentol), 21241 (clobazam), 2265690 (cenobamate), 24812 (felbamate), 25480 (gabapentin), 2604689 (ganaxolone), 28439 (lamotrigine), 31914 (tiagabine), 32624 (oxcarbazepine), 32894 (paramethadione), 33309 (phensuximide), 38404 (topiramide), 39998 (zonisamide), 40254 (valproate), 4135 (ethosuximide), 4328 (fenfluramine), 47858 (methsuximide), 623400 (lacosamide), 69036 (rufinamide), 72236 (fosphenytoin), 8183 (phenytoin), 8691 (primidone)
Anxiolytic And Hypnotic Drugs	CN300 (Sedatives/hypnotics)
Antidepressants	CN600 (Antidepressants)
Antipsychotics	CN700 (Antipsychotics)
Opioids	CN101 (Opioid analgesics)
Central Nervous System (CNS) Stimulants	CN800 (CNS stimulants)
Cardiovascular Medications	CV000 (Cardiovascular medications)
Antidiabetic Agents	HS500 (Blood glucose regulation agents)
Corticosteroids	HS050 (Adrenal corticosteroids)
Chemotherapeutics	AN000 (Antineoplastics)
Other Immunosuppressants	IM600 (Immune suppressants)
Antiemetic Agents	GA605 (Antiemetics)
Antihistamine	AH000 (Antihistamines)
Dronabinol	10402 (Dronabinol)
Nabilone	31447 (Nabilone)

Appendix C. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, RxNorm Medication Terms, and Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes Used to Define Post-Index Characteristics in this Request

Code	Description	Code Category	Code Type	Filter
	Cannabis and Cannabis-Derived Products			
1976	Cannabinol	Medication	RxNorm	n/a
1788846	Hemp	Medication	RxNorm	n/a
1305550	Cannabis sativa seed oil	Medication	RxNorm	n/a
2177094	Cannabis Sativa subsp. Sativa whole extract	Medication	RxNorm	n/a
2464938	Cannabigerol	Medication	RxNorm	n/a
2279519	Cannabigerolate (*note: this term has 0 patients)	Medication	RxNorm	n/a
2585216	Cannabichromene (*note: this term has 0 patients)	Medication	RxNorm	n/a
2168435	Cannabis sativa susp. indica top extract (*note: this term has 0 patients)	Medication	RxNorm	n/a
1484855	Cannabis Sativa subsp. Flowering top extract (*note: this term has 0 patients)	Medication	RxNorm	n/a
2002575	Cannabis sativa pollen extract (*note: this term has 0 patients)	Medication	RxNorm	n/a
2048033	Cannabis sativa whole extract (*note: this term has 0 patients)	Medication	RxNorm	n/a
1429926	Cannabis sativa seed extract (*note: this term has 0 patients)	Medication	RxNorm	n/a
	Cannabidiol			
2045371	Cannabidiol	Medication	RxNorm	NLP
2045371	Cannabidiol	Medication	RxNorm	EHR
	Tetrahydrocannabinol (THC) Lab Tests			
19415-9	Tetrahydrocannabinol [presence] in urine by screen method	Laboratory Test	LOINC	Positive result
14312-3	Tetrahydrocannabinol [presence] in urine by screen method >50 ng/ml	Laboratory Test	LOINC	Positive result
3426-4	Tetrahydrocannabinol [presence] in urine	Laboratory Test	LOINC	Positive result
21556-6	Tetrahydrocannabinol [presence] in urine by screen method >20 ng/ml	Laboratory Test	LOINC	Positive result
19416-7	Tetrahydrocannabinol [presence] in urine by confirmatory method	Laboratory Test	LOINC	Positive result
8175-2	Tetrahydrocannabinol [presence] in urine by samhsa screen method	Laboratory Test	LOINC	Positive result
21557-4	Tetrahydrocannabinol [presence] in urine by screen method >100 ng/ml	Laboratory Test	LOINC	Positive result
43834-1	Tetrahydrocannabinol [presence] in specimen	Laboratory Test	LOINC	Positive result
58047-2	Tetrahydrocannabinol [presence] in blood by confirmatory method (*note: 0 positive patients)	Laboratory Test	LOINC	Positive result
3435-5	Carboxy tetrahydrocannabinol [presence] in urine	Laboratory Test	LOINC	Positive result
19381-3	Carboxy tetrahydrocannabinol [presence] in urine by screen method	Laboratory Test	LOINC	Positive result
19382-1	Carboxy tetrahydrocannabinol [presence] in urine by confirmatory method	Laboratory Test	LOINC	Positive result

Appendix C. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, RxNorm Medication Terms, and Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes Used to Define Post-Index Characteristics in this Request

Code	Description	Code Category	Code Type	Filter
42492-9	Carboxy tetrahydrocannabinol [presence] in blood	Laboratory Test	LOINC	Positive result
26743-5	Carboxy tetrahydrocannabinol [presence] in serum or plasma	Laboratory Test	LOINC	Positive result
61063-4	Carboxy tetrahydrocannabinol [presence] in specimen	Laboratory Test	LOINC	Positive result
74678-4	Carboxy tetrahydrocannabinol [presence] in saliva (oral fluid) by confirmatory method	Laboratory Test	LOINC	Positive result
78754-9	11-hydroxy delta-9 tetrahydrocannabinol [presence] in urine by screen method (*note: 0 positive patients)	Laboratory Test	LOINC	Positive result
14313-1	Tetrahydrocannabinol [Mass/volume] in Urine by Confirmatory method	Laboratory Test	LOINC	15 ng/ml - 800 ng/ml
3530-3	Tetrahydrocannabinol [Mass/volume] in Urine	Laboratory Test	LOINC	50 ng/ml - 800
3528-7	Tetrahydrocannabinol [Mass/volume] in Serum or Plasma	Laboratory Test	LOINC	2 ng/ml - 125 ng/ml
44049-5	Tetrahydrocannabinol [Mass/volume] in Serum or Plasma by Confirmatory method	Laboratory Test	LOINC	2 ng/ml - 125 ng/ml
73935-9	Tetrahydrocannabinol [Mass/volume] in Serum, Plasma, or Blood by Confirmatory method	Laboratory Test	LOINC	2 ng/ml - 125 ng/ml

Appendix D. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exclusions in this Request

Code	Description	Code Category	Code Type	Filter
Cannabidiol				
2045371	Cannabidiol	Medication	RxNorm	n/a
2045371	Cannabidiol	Medication	RxNorm	Epidiolex
2045371	Cannabidiol	Medication	RxNorm	100 mg
Gestational Age				
Z3A.08	8 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.09	9 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.10	10 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.11	11 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.12	12 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.13	13 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.14	14 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.15	15 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.16	16 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.17	17 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.18	18 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.19	19 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.20	20 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.21	21 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.22	22 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.23	23 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.24	24 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.25	25 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.26	26 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.27	27 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.28	28 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.29	29 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.30	30 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.31	31 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.32	32 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.33	33 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.34	34 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.35	35 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.36	36 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.37	37 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.38	38 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.39	39 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.40	40 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	

Appendix D. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exclusions in this Request

Code	Description	Code Category	Code Type	Filter
Z3A.41	41 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
Z3A.42	42 weeks gestation of pregnancy	Diagnosis	ICD-10-CM	
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	8-42 weeks gestation
First Trimester Gestational Age				
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	8 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	9 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	10 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	11 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	12 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	13 weeks gestation
Second/Third Trimester Gestational Age				
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	14 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	15 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	16 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	17 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	18 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	19 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	20 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	21 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	22 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	23 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	24 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	25 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	26 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	27 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	28 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	29 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	30 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	31 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	32 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	33 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	34 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	35 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	36 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	37 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	38 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	39 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	40 weeks gestation

Code	Description	Code Category	Code Type	Filter
49051-6	Weeks gestation of Pregnancy	Laboratory	LOINC	41 weeks gestation
49051-6	Weeks gestation of Pregnancy	Laboratory Test	LOINC	42 weeks gestation
		Spontaneous Abortion		
59821	Treatment of missed abortion, completed surgically; second trimester	Procedure	CPT-4	
59820	Treatment of missed abortion, completed surgically; first trimester	Procedure	CPT-4	
59812	Treatment of incomplete abortion, any trimester, completed surgically	Procedure	CPT-4	
01965	Anesthesia for incomplete or missed abortion procedures	Procedure	CPT-4	
O02.1	Missed abortion	Diagnosis	ICD-10-CM	
O03.0	Genital tract and pelvic infection following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.37	Sepsis following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.5	Genital tract and pelvic infection following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.87	Sepsis following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.1	Delayed or excessive hemorrhage following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.6	Delayed or excessive hemorrhage following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.34	Damage to pelvic organs following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.84	Damage to pelvic organs following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.32	Renal failure following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.82	Renal failure following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.33	Metabolic disorder following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.83	Metabolic disorder following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.31	Shock following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.81	Shock following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.2	Embolism following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.7	Embolism following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.39	Incomplete spontaneous abortion with other complications	Diagnosis	ICD-10-CM	
O03.85	Other venous complications following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.86	Cardiac arrest following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O03.88	Urinary tract infection following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.89	Complete or unspecified spontaneous abortion with other complications	Diagnosis	ICD-10-CM	
O03.35	Other venous complications following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.36	Cardiac arrest following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.38	Urinary tract infection following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03.9	Complete or unspecified spontaneous abortion without complication	Diagnosis	ICD-10-CM	
O03.4	Incomplete spontaneous abortion without complication	Diagnosis	ICD-10-CM	
O03.8	Other and unspecified complications following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
O03.3	Other and unspecified complications following incomplete spontaneous abortion	Diagnosis	ICD-10-CM	
O03	Spontaneous abortion	Diagnosis	ICD-10-CM	
O03.80	Unspecified complication following complete or unspecified spontaneous abortion	Diagnosis	ICD-10-CM	
Still Birth				
O31.00X0	Papyraceous fetus, unspecified trimester, not applicable or unspecified	Diagnosis	ICD-10-CM	
O31.00X1	Papyraceous fetus, unspecified trimester, fetus 1	Diagnosis	ICD-10-CM	
O31.00X2	Papyraceous fetus, unspecified trimester, fetus 2	Diagnosis	ICD-10-CM	
O31.00X3	Papyraceous fetus, unspecified trimester, fetus 3	Diagnosis	ICD-10-CM	
O31.00X4	Papyraceous fetus, unspecified trimester, fetus 4	Diagnosis	ICD-10-CM	
O31.00X5	Papyraceous fetus, unspecified trimester, fetus 5	Diagnosis	ICD-10-CM	
O31.00X9	Papyraceous fetus, unspecified trimester, other fetus	Diagnosis	ICD-10-CM	
O31.02X0	Papyraceous fetus, second trimester, not applicable or unspecified	Diagnosis	ICD-10-CM	
O31.02X1	Papyraceous fetus, second trimester, fetus 1	Diagnosis	ICD-10-CM	
O31.02X2	Papyraceous fetus, second trimester, fetus 2	Diagnosis	ICD-10-CM	
O31.02X3	Papyraceous fetus, second trimester, fetus 3	Diagnosis	ICD-10-CM	
O31.02X4	Papyraceous fetus, second trimester, fetus 4	Diagnosis	ICD-10-CM	
O31.02X5	Papyraceous fetus, second trimester, fetus 5	Diagnosis	ICD-10-CM	
O31.02X9	Papyraceous fetus, second trimester, other fetus	Diagnosis	ICD-10-CM	
O31.03X0	Papyraceous fetus, third trimester, not applicable or unspecified	Diagnosis	ICD-10-CM	
O31.03X1	Papyraceous fetus, third trimester, fetus 1	Diagnosis	ICD-10-CM	
O31.03X2	Papyraceous fetus, third trimester, fetus 2	Diagnosis	ICD-10-CM	
O31.03X3	Papyraceous fetus, third trimester, fetus 3	Diagnosis	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O31.03X4	Papyraceous fetus, third trimester, fetus 4	Diagnosis	ICD-10-CM	
O31.03X5	Papyraceous fetus, third trimester, fetus 5	Diagnosis	ICD-10-CM	
O31.03X9	Papyraceous fetus, third trimester, other fetus	Diagnosis	ICD-10-CM	
O36.4	Maternal care for intrauterine death	Diagnosis	ICD-10-CM	
O36.4XX0	Maternal care for intrauterine death, not applicable or unspecified	Diagnosis	ICD-10-CM	
O36.4XX1	Maternal care for intrauterine death, fetus 1	Diagnosis	ICD-10-CM	
O36.4XX2	Maternal care for intrauterine death, fetus 2	Diagnosis	ICD-10-CM	
O36.4XX3	Maternal care for intrauterine death, fetus 3	Diagnosis	ICD-10-CM	
O36.4XX4	Maternal care for intrauterine death, fetus 4	Diagnosis	ICD-10-CM	
O36.4XX5	Maternal care for intrauterine death, fetus 5	Diagnosis	ICD-10-CM	
O36.4XX9	Maternal care for intrauterine death, other fetus	Diagnosis	ICD-10-CM	
P95	Stillbirth (may be on newborn record, not mother's)	Diagnosis	ICD-10-CM	
Z37.1	Single stillbirth	Diagnosis	ICD-10-CM	
Z37.3	Twins, one liveborn and one stillborn, pregnancy resulting from both spontaneous ovulation and conception	Diagnosis	ICD-10-CM	
Z37.4	Twins, both stillborn	Diagnosis	ICD-10-CM	
Z37.6	Other multiple births, some liveborn	Diagnosis	ICD-10-CM	
Z37.60	Multiple births, unspecified, some liveborn	Diagnosis	ICD-10-CM	
Z37.61	Triplets, some liveborn	Diagnosis	ICD-10-CM	
Z37.62	Quadruplets, some liveborn	Diagnosis	ICD-10-CM	
Z37.63	Quintuplets, some liveborn	Diagnosis	ICD-10-CM	
Z37.64	Sextuplets, some liveborn	Diagnosis	ICD-10-CM	
Z37.7	Other multiple births, all stillborn	Diagnosis	ICD-10-CM	
Z37.69	Other multiple births, some liveborn	Diagnosis	ICD-10-CM	
Live Birth				
0W8NXZZ	Division of Female Perineum, External Approach	Procedure	ICD-10-CM	
10900ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Open Approach	Procedure	ICD-10-CM	
10903ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Percutaneous Approach	Procedure	ICD-10-CM	
10904ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Percutaneous Endoscopic Approach	Procedure	ICD-10-CM	
10907ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10908ZC	Drainage of Amniotic Fluid, Therapeutic from Products of Conception, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-CM	
10D00Z0	Extraction of Products of Conception, Classical, Open Approach	Procedure	ICD-10-CM	
10D00Z1	Extraction of Products of Conception, Low Cervical, Open Approach	Procedure	ICD-10-CM	
10D00Z2	Extraction of Products of Conception, Extraperitoneal, Open Approach	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
10D07Z3	Extraction of Products of Conception, Low Forceps, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10D07Z4	Extraction of Products of Conception, Mid Forceps, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10D07Z5	Extraction of Products of Conception, High Forceps, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10D07Z6	Extraction of Products of Conception, Vacuum, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10D07Z7	Extraction of Products of Conception, Internal Version, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10D07Z8	Extraction of Products of Conception, Other, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
10E0XZZ	Delivery of Products of Conception, External Approach	Procedure	ICD-10-CM	
10S07ZZ	Reposition Products of Conception, Via Natural or Artificial Opening	Procedure	ICD-10-CM	
P030	Newborn affected by breech delivery and extraction	Diagnosis	ICD-10-CM	
P032	Newborn affected by forceps delivery	Diagnosis	ICD-10-CM	
P033	Newborn affected by delivery by vacuum extractor [ventouse]	Diagnosis	ICD-10-CM	
P034	Newborn affected by Cesarean delivery	Diagnosis	ICD-10-CM	
P035	Newborn affected by precipitate delivery	Diagnosis	ICD-10-CM	
P0700	Extremely low birth weight newborn, unspecified weight	Diagnosis	ICD-10-CM	
P0701	Extremely low birth weight newborn, less than 500 grams	Diagnosis	ICD-10-CM	
P0702	Extremely low birth weight newborn, 500-749 grams	Diagnosis	ICD-10-CM	
P0703	Extremely low birth weight newborn, 750-999 grams	Diagnosis	ICD-10-CM	
P0710	Other low birth weight newborn, unspecified weight	Diagnosis	ICD-10-CM	
P0714	Other low birth weight newborn, 1000-1249 grams	Diagnosis	ICD-10-CM	
P0715	Other low birth weight newborn, 1250-1499 grams	Diagnosis	ICD-10-CM	
P0716	Other low birth weight newborn, 1500-1749 grams	Diagnosis	ICD-10-CM	
P0717	Other low birth weight newborn, 1750-1999 grams	Diagnosis	ICD-10-CM	
P0718	Other low birth weight newborn, 2000-2499 grams	Diagnosis	ICD-10-CM	
P0720	Extreme immaturity of newborn, unspecified weeks of gestation	Diagnosis	ICD-10-CM	
P0721	Extreme immaturity of newborn, gestational age less than 23 completed weeks	Diagnosis	ICD-10-CM	
P0722	Extreme immaturity of newborn, gestational age 23 completed weeks	Diagnosis	ICD-10-CM	
P0723	Extreme immaturity of newborn, gestational age 24 completed weeks	Diagnosis	ICD-10-CM	
P0724	Extreme immaturity of newborn, gestational age 25 completed weeks	Diagnosis	ICD-10-CM	
P0725	Extreme immaturity of newborn, gestational age 26 completed weeks	Diagnosis	ICD-10-CM	
P0726	Extreme immaturity of newborn, gestational age 27 completed weeks	Diagnosis	ICD-10-CM	
P0730	Preterm newborn, unspecified weeks of gestation	Diagnosis	ICD-10-CM	
P0731	Preterm newborn, gestational age 28 completed weeks	Diagnosis	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
P0732	Preterm newborn, gestational age 29 completed weeks	Diagnosis	ICD-10-CM	
P0733	Preterm newborn, gestational age 30 completed weeks	Diagnosis	ICD-10-CM	
P0734	Preterm newborn, gestational age 31 completed weeks	Diagnosis	ICD-10-CM	
P0735	Preterm newborn, gestational age 32 completed weeks	Diagnosis	ICD-10-CM	
P0736	Preterm newborn, gestational age 33 completed weeks	Diagnosis	ICD-10-CM	
P0737	Preterm newborn, gestational age 34 completed weeks	Diagnosis	ICD-10-CM	
P0738	Preterm newborn, gestational age 35 completed weeks	Diagnosis	ICD-10-CM	
P0739	Preterm newborn, gestational age 36 completed weeks	Diagnosis	ICD-10-CM	
P0821	Post-term newborn	Diagnosis	ICD-10-CM	
P0822	Prolonged gestation of newborn	Diagnosis	ICD-10-CM	
Z370	Single live birth	Diagnosis	ICD-10-CM	
Z372	Twins, both liveborn	Diagnosis	ICD-10-CM	
Z373	Twins, one liveborn and one stillborn	Diagnosis	ICD-10-CM	
Z3750	Multiple births, unspecified, all liveborn	Diagnosis	ICD-10-CM	
Z3751	Triplets, all liveborn	Diagnosis	ICD-10-CM	
Z3752	Quadruplets, all liveborn	Diagnosis	ICD-10-CM	
Z3753	Quintuplets, all liveborn	Diagnosis	ICD-10-CM	
Z3754	Sextuplets, all liveborn	Diagnosis	ICD-10-CM	
Z3759	Other multiple births, all liveborn	Diagnosis	ICD-10-CM	
Z3760	Multiple births, unspecified, some liveborn	Diagnosis	ICD-10-CM	
Z3761	Triplets, some liveborn	Diagnosis	ICD-10-CM	
Z3762	Quadruplets, some liveborn	Diagnosis	ICD-10-CM	
Z3763	Quintuplets, some liveborn	Diagnosis	ICD-10-CM	
Z3764	Sextuplets, some liveborn	Diagnosis	ICD-10-CM	
Z3769	Other multiple births, some liveborn	Diagnosis	ICD-10-CM	
Z379	Outcome of delivery, unspecified	Diagnosis	ICD-10-CM	
Z3800	Single liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3801	Single liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	
Z381	Single liveborn infant, born outside hospital	Diagnosis	ICD-10-CM	
Z382	Single liveborn infant, unspecified as to place of birth	Diagnosis	ICD-10-CM	
Z3830	Twin liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3831	Twin liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	
Z384	Twin liveborn infant, born outside hospital	Diagnosis	ICD-10-CM	
Z385	Twin liveborn infant, unspecified as to place of birth	Diagnosis	ICD-10-CM	
Z3861	Triplet liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3862	Triplet liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	
Z3863	Quadruplet liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3864	Quadruplet liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
Z3865	Quintuplet liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3866	Quintuplet liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	
Z3868	Other multiple liveborn infant, delivered vaginally	Diagnosis	ICD-10-CM	
Z3869	Other multiple liveborn infant, delivered by cesarean	Diagnosis	ICD-10-CM	
Z387	Other multiple liveborn infant, born outside hospital	Diagnosis	ICD-10-CM	
Z388	Other multiple liveborn infant, unspecified as to place of birth	Diagnosis	ICD-10-CM	
59400	Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care	Procedure	ICD-10-CM	
59409	Vaginal delivery only (with or without episiotomy and/or forceps);	Procedure	ICD-10-CM	
59410	Vaginal delivery only (with or without episiotomy and/or forceps); including postpartum care	Procedure	ICD-10-CM	
59510	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care	Procedure	ICD-10-CM	
59514	Cesarean delivery only;	Procedure	ICD-10-CM	
59515	Cesarean delivery only; including postpartum care	Procedure	ICD-10-CM	
59610	Routine obstetric care including antepartum care, vaginal delivery (with or without episiotomy, and/or forceps) and postpartum care, after previous cesarean delivery	Procedure	ICD-10-CM	
59612	Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps);	Procedure	ICD-10-CM	
59614	Vaginal delivery only, after previous cesarean delivery (with or without episiotomy and/or forceps); including postpartum care	Procedure	ICD-10-CM	
59618	Routine obstetric care including antepartum care, cesarean delivery, and postpartum care, following attempted vaginal delivery after previous cesarean delivery	Procedure	ICD-10-CM	
59620	Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery;	Procedure	ICD-10-CM	
59622	Cesarean delivery only, following attempted vaginal delivery after previous cesarean delivery; including postpartum care	Procedure	ICD-10-CM	
O1002	Pre-existing essential hypertension complicating childbirth	Procedure	ICD-10-CM	
O1012	Pre-existing hypertensive heart disease complicating childbirth	Procedure	ICD-10-CM	
O1022	Pre-existing hypertensive chronic kidney disease complicating childbirth	Procedure	ICD-10-CM	
O1032	Pre-existing hypertensive heart and chronic kidney disease complicating childbirth	Procedure	ICD-10-CM	
O1042	Pre-existing secondary hypertension complicating childbirth	Procedure	ICD-10-CM	
O1092	Unspecified pre-existing hypertension complicating childbirth	Procedure	ICD-10-CM	
O114	Pre-existing hypertension with pre-eclampsia, complicating childbirth	Procedure	ICD-10-CM	
O1204	Gestational edema, complicating childbirth	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O1214	Gestational proteinuria, complicating childbirth	Procedure	ICD-10-CM	
O1224	Gestational edema with proteinuria, complicating childbirth	Procedure	ICD-10-CM	
O134	Gestational [pregnancy-induced] hypertension without significant proteinuria, complicating childbirth	Procedure	ICD-10-CM	
O1404	Mild to moderate pre-eclampsia, complicating childbirth	Procedure	ICD-10-CM	
O1414	Severe pre-eclampsia complicating childbirth	Procedure	ICD-10-CM	
O1424	HELLP syndrome, complicating childbirth	Procedure	ICD-10-CM	
O1494	Unspecified pre-eclampsia, complicating childbirth	Procedure	ICD-10-CM	
O164	Unspecified maternal hypertension, complicating childbirth	Procedure	ICD-10-CM	
O2402	Pre-existing type 1 diabetes mellitus, in childbirth	Procedure	ICD-10-CM	
O2412	Pre-existing type 2 diabetes mellitus, in childbirth	Procedure	ICD-10-CM	
O2432	Unspecified pre-existing diabetes mellitus in childbirth	Procedure	ICD-10-CM	
O24420	Gestational diabetes mellitus in childbirth, diet controlled	Procedure	ICD-10-CM	
O24424	Gestational diabetes mellitus in childbirth, insulin controlled	Procedure	ICD-10-CM	
O24425	Gestational diabetes mellitus in childbirth, controlled by oral hypoglycemic drugs	Procedure	ICD-10-CM	
O24429	Gestational diabetes mellitus in childbirth, unspecified control	Procedure	ICD-10-CM	
O2482	Other pre-existing diabetes mellitus in childbirth	Procedure	ICD-10-CM	
O2492	Unspecified diabetes mellitus in childbirth	Procedure	ICD-10-CM	
O252	Malnutrition in childbirth	Procedure	ICD-10-CM	
O2662	Liver and biliary tract disorders in childbirth	Procedure	ICD-10-CM	
O2672	Subluxation of symphysis (pubis) in childbirth	Procedure	ICD-10-CM	
O6012X0	Preterm labor second trimester with preterm delivery second trimester, not applicable or unspecified	Procedure	ICD-10-CM	
O6012X1	Preterm labor second trimester with preterm delivery second trimester, fetus 1	Procedure	ICD-10-CM	
O6012X2	Preterm labor second trimester with preterm delivery second trimester, fetus 2	Procedure	ICD-10-CM	
O6012X3	Preterm labor second trimester with preterm delivery second trimester, fetus 3	Procedure	ICD-10-CM	
O6012X4	Preterm labor second trimester with preterm delivery second trimester, fetus 4	Procedure	ICD-10-CM	
O6012X5	Preterm labor second trimester with preterm delivery second trimester, fetus 5	Procedure	ICD-10-CM	
O6012X9	Preterm labor second trimester with preterm delivery second trimester, other fetus	Procedure	ICD-10-CM	
O6013X0	Preterm labor second trimester with preterm delivery third trimester, not applicable or unspecified	Procedure	ICD-10-CM	
O6013X1	Preterm labor second trimester with preterm delivery third trimester, fetus 1	Procedure	ICD-10-CM	
O6013X2	Preterm labor second trimester with preterm delivery third trimester, fetus 2	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O6013X3	Preterm labor second trimester with preterm delivery third trimester, fetus 3	Procedure	ICD-10-CM	
O6013X4	Preterm labor second trimester with preterm delivery third trimester, fetus 4	Procedure	ICD-10-CM	
O6013X5	Preterm labor second trimester with preterm delivery third trimester, fetus 5	Procedure	ICD-10-CM	
O6013X9	Preterm labor second trimester with preterm delivery third trimester, other fetus	Procedure	ICD-10-CM	
O6014X0	Preterm labor third trimester with preterm delivery third trimester, not applicable or unspecified	Procedure	ICD-10-CM	
O6014X1	Preterm labor third trimester with preterm delivery third trimester, fetus 1	Procedure	ICD-10-CM	
O6014X2	Preterm labor third trimester with preterm delivery third trimester, fetus 2	Procedure	ICD-10-CM	
O6014X3	Preterm labor third trimester with preterm delivery third trimester, fetus 3	Procedure	ICD-10-CM	
O6014X4	Preterm labor third trimester with preterm delivery third trimester, fetus 4	Procedure	ICD-10-CM	
O6014X5	Preterm labor third trimester with preterm delivery third trimester, fetus 5	Procedure	ICD-10-CM	
O6014X9	Preterm labor third trimester with preterm delivery third trimester, other fetus	Procedure	ICD-10-CM	
O6022X0	Term delivery with preterm labor, second trimester, not applicable or unspecified	Procedure	ICD-10-CM	
O6022X1	Term delivery with preterm labor, second trimester, fetus 1	Procedure	ICD-10-CM	
O6022X2	Term delivery with preterm labor, second trimester, fetus 2	Procedure	ICD-10-CM	
O6022X3	Term delivery with preterm labor, second trimester, fetus 3	Procedure	ICD-10-CM	
O6022X4	Term delivery with preterm labor, second trimester, fetus 4	Procedure	ICD-10-CM	
O6022X5	Term delivery with preterm labor, second trimester, fetus 5	Procedure	ICD-10-CM	
O6022X9	Term delivery with preterm labor, second trimester, other fetus	Procedure	ICD-10-CM	
O6023X0	Term delivery with preterm labor, third trimester, not applicable or unspecified	Procedure	ICD-10-CM	
O6023X1	Term delivery with preterm labor, third trimester, fetus 1	Procedure	ICD-10-CM	
O6023X2	Term delivery with preterm labor, third trimester, fetus 2	Procedure	ICD-10-CM	
O6023X3	Term delivery with preterm labor, third trimester, fetus 3	Procedure	ICD-10-CM	
O6023X4	Term delivery with preterm labor, third trimester, fetus 4	Procedure	ICD-10-CM	
O6023X5	Term delivery with preterm labor, third trimester, fetus 5	Procedure	ICD-10-CM	
O6023X9	Term delivery with preterm labor, third trimester, other fetus	Procedure	ICD-10-CM	
O632	Delayed delivery of second twin, triplet, etc	Procedure	ICD-10-CM	
O670	Intrapartum hemorrhage with coagulation defect	Procedure	ICD-10-CM	
O678	Other intrapartum hemorrhage	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O679	Intrapartum hemorrhage, unspecified	Procedure	ICD-10-CM	
O68	Labor and delivery complicated by abnormality of fetal acid-base balance	Procedure	ICD-10-CM	
O690XX0	Labor and delivery complicated by prolapse of cord, not applicable or unspecified	Procedure	ICD-10-CM	
O690XX1	Labor and delivery complicated by prolapse of cord, fetus 1	Procedure	ICD-10-CM	
O690XX2	Labor and delivery complicated by prolapse of cord, fetus 2	Procedure	ICD-10-CM	
O690XX3	Labor and delivery complicated by prolapse of cord, fetus 3	Procedure	ICD-10-CM	
O690XX4	Labor and delivery complicated by prolapse of cord, fetus 4	Procedure	ICD-10-CM	
O690XX5	Labor and delivery complicated by prolapse of cord, fetus 5	Procedure	ICD-10-CM	
O690XX9	Labor and delivery complicated by prolapse of cord, other fetus	Procedure	ICD-10-CM	
O691XX0	Labor and delivery complicated by cord around neck, with compression, not applicable or unspecified	Procedure	ICD-10-CM	
O691XX1	Labor and delivery complicated by cord around neck, with compression, fetus 1	Procedure	ICD-10-CM	
O691XX2	Labor and delivery complicated by cord around neck, with compression, fetus 2	Procedure	ICD-10-CM	
O691XX3	Labor and delivery complicated by cord around neck, with compression, fetus 3	Procedure	ICD-10-CM	
O691XX4	Labor and delivery complicated by cord around neck, with compression, fetus 4	Procedure	ICD-10-CM	
O691XX5	Labor and delivery complicated by cord around neck, with compression, fetus 5	Procedure	ICD-10-CM	
O691XX9	Labor and delivery complicated by cord around neck, with compression, other fetus	Procedure	ICD-10-CM	
O692XX0	Labor and delivery complicated by other cord entanglement, with compression, not applicable or unspecified	Procedure	ICD-10-CM	
O692XX1	Labor and delivery complicated by other cord entanglement, with compression, fetus 1	Procedure	ICD-10-CM	
O692XX2	Labor and delivery complicated by other cord entanglement, with compression, fetus 2	Procedure	ICD-10-CM	
O692XX3	Labor and delivery complicated by other cord entanglement, with compression, fetus 3	Procedure	ICD-10-CM	
O692XX4	Labor and delivery complicated by other cord entanglement, with compression, fetus 4	Procedure	ICD-10-CM	
O692XX5	Labor and delivery complicated by other cord entanglement, with compression, fetus 5	Procedure	ICD-10-CM	
O692XX9	Labor and delivery complicated by other cord entanglement, with compression, other fetus	Procedure	ICD-10-CM	
O693XX0	Labor and delivery complicated by short cord, not applicable or unspecified	Procedure	ICD-10-CM	
O693XX1	Labor and delivery complicated by short cord, fetus 1	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O693XX2	Labor and delivery complicated by short cord, fetus 2	Procedure	ICD-10-CM	
O693XX3	Labor and delivery complicated by short cord, fetus 3	Procedure	ICD-10-CM	
O693XX4	Labor and delivery complicated by short cord, fetus 4	Procedure	ICD-10-CM	
O693XX5	Labor and delivery complicated by short cord, fetus 5	Procedure	ICD-10-CM	
O693XX9	Labor and delivery complicated by short cord, other fetus	Procedure	ICD-10-CM	
O694XX0	Labor and delivery complicated by vasa previa, not applicable or unspecified	Procedure	ICD-10-CM	
O694XX1	Labor and delivery complicated by vasa previa, fetus 1	Procedure	ICD-10-CM	
O694XX2	Labor and delivery complicated by vasa previa, fetus 2	Procedure	ICD-10-CM	
O694XX3	Labor and delivery complicated by vasa previa, fetus 3	Procedure	ICD-10-CM	
O694XX4	Labor and delivery complicated by vasa previa, fetus 4	Procedure	ICD-10-CM	
O694XX5	Labor and delivery complicated by vasa previa, fetus 5	Procedure	ICD-10-CM	
O694XX9	Labor and delivery complicated by vasa previa, other fetus	Procedure	ICD-10-CM	
O695XX0	Labor and delivery complicated by vascular lesion of cord, not applicable or unspecified	Procedure	ICD-10-CM	
O695XX1	Labor and delivery complicated by vascular lesion of cord, fetus 1	Procedure	ICD-10-CM	
O695XX2	Labor and delivery complicated by vascular lesion of cord, fetus 2	Procedure	ICD-10-CM	
O695XX3	Labor and delivery complicated by vascular lesion of cord, fetus 3	Procedure	ICD-10-CM	
O695XX4	Labor and delivery complicated by vascular lesion of cord, fetus 4	Procedure	ICD-10-CM	
O695XX5	Labor and delivery complicated by vascular lesion of cord, fetus 5	Procedure	ICD-10-CM	
O695XX9	Labor and delivery complicated by vascular lesion of cord, other fetus	Procedure	ICD-10-CM	
O6981X0	Labor and delivery complicated by cord around neck, without compression, not applicable or unspecified	Procedure	ICD-10-CM	
O6981X1	Labor and delivery complicated by cord around neck, without compression, fetus 1	Procedure	ICD-10-CM	
O6981X2	Labor and delivery complicated by cord around neck, without compression, fetus 2	Procedure	ICD-10-CM	
O6981X3	Labor and delivery complicated by cord around neck, without compression, fetus 3	Procedure	ICD-10-CM	
O6981X4	Labor and delivery complicated by cord around neck, without compression, fetus 4	Procedure	ICD-10-CM	
O6981X5	Labor and delivery complicated by cord around neck, without compression, fetus 5	Procedure	ICD-10-CM	
O6981X9	Labor and delivery complicated by cord around neck, without compression, other fetus	Procedure	ICD-10-CM	
O6982X0	Labor and delivery complicated by other cord entanglement, without compression, not applicable or unspecified	Procedure	ICD-10-CM	
O6982X1	Labor and delivery complicated by other cord entanglement, without compression, fetus 1	Procedure	ICD-10-CM	
O6982X2	Labor and delivery complicated by other cord entanglement, without compression, fetus 2	Procedure	ICD-10-CM	

Code	Description	Code Category	Code Type	Filter
O6982X3	Labor and delivery complicated by other cord entanglement, without compression, fetus 3	Procedure	ICD-10-CM	
O6982X4	Labor and delivery complicated by other cord entanglement, without compression, fetus 4	Procedure	ICD-10-CM	
O6982X5	Labor and delivery complicated by other cord entanglement, without compression, fetus 5	Procedure	ICD-10-CM	
O6982X9	Labor and delivery complicated by other cord entanglement, without compression, other fetus	Procedure	ICD-10-CM	
O6989X0	Labor and delivery complicated by other cord complications, not applicable or unspecified	Procedure	ICD-10-CM	
O6989X1	Labor and delivery complicated by other cord complications, fetus 1	Procedure	ICD-10-CM	
O6989X2	Labor and delivery complicated by other cord complications, fetus 2	Procedure	ICD-10-CM	
O6989X3	Labor and delivery complicated by other cord complications, fetus 3	Procedure	ICD-10-CM	
O6989X4	Labor and delivery complicated by other cord complications, fetus 4	Procedure	ICD-10-CM	
O6989X5	Labor and delivery complicated by other cord complications, fetus 5	Procedure	ICD-10-CM	
O6989X9	Labor and delivery complicated by other cord complications, other	Procedure	ICD-10-CM	
O699XX0	Labor and delivery complicated by cord complication, unspecified, not applicable or unspecified	Procedure	ICD-10-CM	
O699XX1	Labor and delivery complicated by cord complication, unspecified,	Procedure	ICD-10-CM	
O699XX2	Labor and delivery complicated by cord complication, unspecified,	Procedure	ICD-10-CM	
O699XX3	Labor and delivery complicated by cord complication, unspecified,	Procedure	ICD-10-CM	
O699XX4	Labor and delivery complicated by cord complication, unspecified,	Procedure	ICD-10-CM	
O699XX5	Labor and delivery complicated by cord complication, unspecified,	Procedure	ICD-10-CM	
O699XX9	Labor and delivery complicated by cord complication, unspecified, other fetus	Procedure	ICD-10-CM	
O700	First degree perineal laceration during delivery	Diagnosis	ICD-10-CM	
O701	Second degree perineal laceration during delivery	Diagnosis	ICD-10-CM	
O7020	Third degree perineal laceration during delivery, unspecified	Diagnosis	ICD-10-CM	
O7021	Third degree perineal laceration during delivery, IIIa	Diagnosis	ICD-10-CM	
O7022	Third degree perineal laceration during delivery, IIIb	Diagnosis	ICD-10-CM	
O7023	Third degree perineal laceration during delivery, IIIc	Diagnosis	ICD-10-CM	
O703	Fourth degree perineal laceration during delivery	Diagnosis	ICD-10-CM	
O704	Anal sphincter tear complicating delivery, not associated with third degree laceration	Diagnosis	ICD-10-CM	
O709	Perineal laceration during delivery, unspecified	Diagnosis	ICD-10-CM	
O740	Aspiration pneumonitis due to anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O741	Other pulmonary complications of anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O742	Cardiac complications of anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O743	Central nervous system complications of anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O744	Toxic reaction to local anesthesia during labor and delivery	Diagnosis	ICD-10-CM	

| Code	Description	Code Category	Code Type	Filter
O745	Spinal and epidural anesthesia-induced headache during labor and delivery	Diagnosis	ICD-10-CM	
O746	Other complications of spinal and epidural anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O747	Failed or difficult intubation for anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O748	Other complications of anesthesia during labor and delivery	Diagnosis	ICD-10-CM	
O749	Complication of anesthesia during labor and delivery, unspecified	Diagnosis	ICD-10-CM	
O750	Maternal distress during labor and delivery	Diagnosis	ICD-10-CM	
O751	Shock during or following labor and delivery	Diagnosis	ICD-10-CM	
O755	Delayed delivery after artificial rupture of membranes	Diagnosis	ICD-10-CM	
O7581	Maternal exhaustion complicating labor and delivery	Diagnosis	ICD-10-CM	
O7582	Onset (spontaneous) of labor after 37 completed weeks of gestation but before 39 completed weeks gestation, with delivery by (planned) cesarean section	Diagnosis	ICD-10-CM	
O7589	Other specified complications of labor and delivery	Diagnosis	ICD-10-CM	
O759	Complication of labor and delivery, unspecified	Diagnosis	ICD-10-CM	
O76	Abnormality in fetal heart rate and rhythm complicating labor and delivery	Diagnosis	ICD-10-CM	
O770	Labor and delivery complicated by meconium in amniotic fluid	Diagnosis	ICD-10-CM	
O778	Labor and delivery complicated by other evidence of fetal stress	Diagnosis	ICD-10-CM	
O779	Labor and delivery complicated by fetal stress, unspecified	Diagnosis	ICD-10-CM	
O80	Encounter for full-term uncomplicated delivery	Diagnosis	ICD-10-CM	
O82	Encounter for cesarean delivery without indication	Diagnosis	ICD-10-CM	
O8802	Air embolism in childbirth	Diagnosis	ICD-10-CM	
O8812	Amniotic fluid embolism in childbirth	Diagnosis	ICD-10-CM	
O8822	Thromboembolism in childbirth	Diagnosis	ICD-10-CM	
O8832	Pyemic and septic embolism in childbirth	Diagnosis	ICD-10-CM	
O8882	Other embolism in childbirth	Diagnosis	ICD-10-CM	
O9802	Tuberculosis complicating childbirth	Diagnosis	ICD-10-CM	
O9812	Syphilis complicating childbirth	Diagnosis	ICD-10-CM	
O9822	Gonorrhea complicating childbirth	Diagnosis	ICD-10-CM	
O9832	Other infections with a predominantly sexual mode of transmission complicating childbirth	Diagnosis	ICD-10-CM	
O9842	Viral hepatitis complicating childbirth	Diagnosis	ICD-10-CM	
O9852	Other viral diseases complicating childbirth	Diagnosis	ICD-10-CM	
O9862	Protozoal diseases complicating childbirth	Diagnosis	ICD-10-CM	
O9872	Human immunodeficiency virus [HIV] disease complicating childbirth	Diagnosis	ICD-10-CM	
O9882	Other maternal infectious and parasitic diseases complicating childbirth	Diagnosis	ICD-10-CM	

Appendix D. List of RxNorm Medication Terms, Logical Observation Identifiers, Names and Codes (LOINC) Laboratory Codes, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis Codes, and Current Procedural Terminology 4th Edition (CPT-4) Procedure Codes Used to Define Exclusions in this Request

Code	Description	Code Category	Code Type	Filter
O9892	Unspecified maternal infectious and parasitic disease complicating childbirth	Diagnosis	ICD-10-CM	
O9902	Anemia complicating childbirth	Diagnosis	ICD-10-CM	
O9912	Other diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism complicating childbirth	Diagnosis	ICD-10-CM	
O99214	Obesity complicating childbirth	Diagnosis	ICD-10-CM	
O99284	Endocrine, nutritional and metabolic diseases complicating childbirth	Diagnosis	ICD-10-CM	
O99314	Alcohol use complicating childbirth	Diagnosis	ICD-10-CM	
O99324	Drug use complicating childbirth	Diagnosis	ICD-10-CM	
O99334	Smoking (tobacco) complicating childbirth	Diagnosis	ICD-10-CM	
O99344	Other mental disorders complicating childbirth	Diagnosis	ICD-10-CM	
O99354	Diseases of the nervous system complicating childbirth	Diagnosis	ICD-10-CM	
O9942	Diseases of the circulatory system complicating childbirth	Diagnosis	ICD-10-CM	
O9952	Diseases of the respiratory system complicating childbirth	Diagnosis	ICD-10-CM	
O9962	Diseases of the digestive system complicating childbirth	Diagnosis	ICD-10-CM	
O9972	Diseases of the skin and subcutaneous tissue complicating childbirth	Diagnosis	ICD-10-CM	
O99814	Abnormal glucose complicating childbirth	Diagnosis	ICD-10-CM	
O99824	Streptococcus B carrier state complicating childbirth	Diagnosis	ICD-10-CM	
O99834	Other infection carrier state complicating childbirth	Diagnosis	ICD-10-CM	
O99844	Bariatric surgery status complicating childbirth	Diagnosis	ICD-10-CM	
O9A12	Malignant neoplasm complicating childbirth	Diagnosis	ICD-10-CM	
O9A22	Injury, poisoning and certain other consequences of external causes complicating childbirth	Diagnosis	ICD-10-CM	
O9A32	Physical abuse complicating childbirth	Diagnosis	ICD-10-CM	
O9A42	Sexual abuse complicating childbirth	Diagnosis	ICD-10-CM	
O9A52	Psychological abuse complicating childbirth	Diagnosis	ICD-10-CM	

*Green represents first trimester, blue represents second and third trimester classification.

Appendix F. Specifications Defining Query Builder Modules in this Request

Cohort 1: Cannabis-Derived Product (CDP) other than cannabidiol/Epidiolex	
Group 1: Cannabis-Derived Product	**Time Restrictions**
Subgroup 1A	
Must Have:	
Cannabis-Derived Product	7/1/2018 - 1/26/2023
Subgroup 1B:	
Must Have:	
Visit	[-730, -1] days before Cannabis-Derived product
Cohort 2: Cannabidiol excluding Epidiolex	
Group 1: Cannabidiol	**Time Restrictions**
Subgroup 1A	
Must Have:	
Cannabidiol [FILTER: NLP]	7/1/2018 - 1/26/2023
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
Subgroup 1B	
Must Have:	
Visit	[-730, -1] days before cannabidiol
Cohort 3: CDP other than cannabidiol/Epidiolex, all pregnancy codes	
Group 1: Cannabis-Derived Product	**Time Restrictions**
Subgroup 1A	
Must Have:	
Cannabis-Derived Product	7/1/2018 - 1/26/2023
Subgroup 1B	
Must Have:	
All Pregnancy Codes (ultrasound, gestational age, and positive pregnancy test)	[-30, 30] days from Cannabis-Derived product
Cohort 4: Cannabidiol excluding Epidiolex, all pregnancy codes	
Group 1: Cannabis-Derived Product	**Time Restrictions**
Subgroup 1A	
Must Have:	
Cannabidiol [FILTER: NLP]	7/1/2018 - 1/26/2023
Must Not Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
Subgroup 1B	
Must Have:	
All Pregnancy Codes (ultrasound, gestational age, and positive pregnancy test)	[-30, 30] days from Cannabis-Derived product

Cohort 5: First trimester gestation age + CDP user and no second/third gestational age + No delivery before CDP	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabis-Derived Products	[-X, 42-X] weeks from first trimester GA code
Cannot Have:	
Gestational age 14-42 weeks	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabis-Derived Products	[-(X+1), 42-(X+1)] weeks from first trimester GA code
Cannot Have:	
Gestational age 14-42 weeks	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabis-Derived Products	7/1/2018 - 1/26/2023
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Cohort 6: Second/Third trimester gestation age + CDP user and no first trimester gestational age + No delivery before CDP	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabis-Derived Products	[-X, 42-X] weeks from second/third trimester GA code
Cannot Have:	
Gestational age 8-13 weeks	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabis-Derived Products	[-(X+1), 42-(X+1)] weeks from second/third trimester GA code
Cannot Have:	
Gestational age 8-13 weeks	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabis-Derived Products	7/1/2018 - 1/26/2023
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Cohort 7: First trimester gestational age + CDP user and second/third trimester gestational age + No delivery before CDP	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age 8-13 weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabis-Derived Products	[-X, 42-X] weeks from first trimester GA code
And	
Gestational age 14-42 weeks	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabis-Derived Products	[-(X+1), 42-(X+1)] weeks from first trimester GA code
And	
Gestational age 14-42 weeks	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabis-Derived Products	7/1/2018 - 1/26/2023
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Cohort 8: First trimester gestation age + Cannabidiol user and no second/third gestational age + No delivery before Cannabidiol	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabidiol	[-X, 42-X] weeks from first trimester GA code
Cannot Have:	
Gestational age 14-42 weeks	
Or	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabidiol	[-(X+1), 42-(X+1)] weeks from first trimester GA code
Cannot Have:	
Gestational age 14-42 weeks	
Or	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabidiol	7/1/2018 - 1/26/2023
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Appendix F. Specifications Defining Query Builder Modules in this Request

Cohort 9: Second/Third trimester gestation age + Cannabidiol user and no first trimester gestational age + No delivery before Cannabidiol	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabidiol	[-X, 42-X] weeks from second/third trimester GA code
Cannot Have:	
Gestational age 8-13 weeks	
Or	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabidiol	[-(X+1), 42-(X+1)] weeks from second/third trimester GA code
Cannot Have:	
Gestational age 8-13 weeks	
Or	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabidiol	7/1/2018 - 1/26/2023
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Cohort 10: First trimester gestational age + Cannabidiol user and second/third trimester gestational age + No delivery before Cannabidiol	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age 8-13 weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Cannabidiol	[-X, 42-X] weeks from first trimester GA code
And	
Gestational age 14-42 weeks	
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Cannabidiol	[-(X+1), 42-(X+1)] weeks from first trimester GA code
And	
Gestational age 14-42 weeks	
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
AND Group n+n:	**Time Restrictions**
Subgroup 3A:	
Must Have:	
Cannabidiol	7/1/2018 - 1/26/2023
Cannot Have:	
Cannabidiol [FILTER: Epidiolex brand]	
Cannabidiol [FILTER: 100 mg/ml strength]	
And Subgroup 3B:	
Cannot Have:	
Live birth delivery, stillbirth, or spontaneous abortion	[-90,0] days from any instance of CDP

Cohort 11: Overall pregnancy cohort	
Group 1:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
All Pregnancy codes (ultrasound, gestational age, positive pregnan	7/1/2018 - 1/26/2023
Cohort 12: First trimester gestation age and no second/third gestational age	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (8-13) weeks	7/1/2018 - 1/26/2023
Subgroup 1B:	
Cannot Have:	
Gestational age 14-42 weeks	[-X, 42-X] weeks from first trimester GA code
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
Subgroup 2B:	
Cannot Have:	
Gestational age 14-42 weeks	[-(X+1), 42-(X+1)] weeks from first trimester GA code
Cohort 13: Second/Third trimester gestation age + CDP user and no first trimester gestational age	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
Subgroup 1B:	
Cannot Have:	
Gestational age 8-13 weeks	[-X, 42-X] weeks from second/third trimester GA code
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for X (14-42) weeks	7/1/2018 - 1/26/2023
Subgroup 2B:	
Cannot Have:	
Gestational age 8-13 weeks	[-(X+1), 42-(X+1)] weeks from second/third trimester GA code

Appendix F. Specifications Defining Query Builder Modules in this Request

Cohort 14: First trimester gestational age + CDP user and second/third trimester gestational age	
Group n:	**Time Restrictions**
Subgroup 1A:	
Must Have:	
Gestational age 8-13 weeks	7/1/2018 - 1/26/2023
And Subgroup 1B:	
Must Have:	
Gestational age 14-42 weeks	[-X, 42-X] weeks from first trimester GA code
OR Group n+1 (ETC):	**Time Restrictions**
Subgroup 2A:	
Must Have:	
Gestational age code for (X+1) (8-13) weeks	7/1/2018 - 1/26/2023
And Subgroup 2B:	
Must Have:	
Gestational age 14-42 weeks	[-(X+1), 42-(X+1)] weeks from first trimester GA code

#	Module	Analysis Type	Cohort(s)	Window	Index Event(s)	Characteristics or Outcomes
1	Analyze Outcomes	Characteristics	Cohorts 1 and 2	[-365, 0]	All cohort-defining criteria	Baseline Clinical Characteristics (see Table Shell 1)
2	Analyze Outcomes	Characteristics	Cohorts 1 and 2	[-30, 0]	All cohort-defining criteria	Co-Exposures (see Table Shell 1)
3	Analyze Outcomes	Risk	Cohorts 1 and 2	[1,30]	All cohort-defining criteria	Co-exposures (see Table Shell 1)
4	Analyze Outcomes	Risk/Number of instances	Cohorts 1 and 2	[1,365]	All cohort-defining criteria	Subsequent index-defining exposure (cannabidiol, positive tetrahydrocannabinol (THC) test, cannabis or other CDP being captured)