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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Request ID: cder_iqp_wp045

Request Description: In this report we aimed to describe the incidence and prevalence of key confounding characteristics for patients of all ages with a visit in the years 2017-2023 within the TriNetX Live "USA Network No Shift" network.

Data Source: We ran this query on September 19, 2024. We queried data from 54 health care organizations (HCOs), provided through the TriNetX Live™ platform in their USA Network No Shift (includes HCOs that do not date shift.) Data from all HCOs that contributed at least one individual to the analysis was included.

TriNetX aggregates electronic health record (EHR) systems data from its partner HCOs to create queryable datasets. TriNetX datasets primarily comprise 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 a visit in the year of interest and at least one other visit in the prior year (denominator cohorts) as well as cohorts of patients with evidence of incident and prevalent characteristics of interest (numerator cohorts). We built 77 distinct cohorts using the Query Builder module in the TriNetX Live™ platform.

Cohort Eligibility Criteria: Individuals of all ages were included. **They were eligible to be in a denominator if they had:**

1) Evidence of a visit in the window of interest, and
2) Evidence of an additional visit in the year prior to their first visit in the window of interest

Windows of interest included: 2017, 2018, 2019, 2020, 2021, 2022, and 2023.

Individuals were eligible to be in an incident numerator if they had:

1) Evidence of the characteristic of interest in the window of interest,
2) Evidence of a visit in the year prior to their first instance of the characteristic in the window of interest, and
3) No evidence of the characteristic of interest in the year prior to their first instance of the characteristic in the window of interest.

Windows of interest included: 2017, 2018, 2019, 2020, 2021, 2022, and 2023.
Characteristics of interest included: obesity, body mass index (BMI), smoking, diastolic blood pressure, and systolic blood pressure.

Individuals were eligible to be in a prevalent numerator if they had:

1) Evidence of the characteristic of interest in the window of interest, and
2) Evidence of a visit in the year prior to their first instance of the characteristic in the window of interest

Windows of interest included: 2017, 2018, 2019, 2020, 2021, 2022, and 2023.
Characteristics of interest included: obesity, BMI, smoking, diastolic blood pressure, and systolic blood pressure.

Please see **Appendix A** for the list of codes used to define inclusion and exclusion criteria in this request.

Please see **Appendix B** for specifications defining query builder modules in this request. Please see **Appendix C** for design diagrams for this request.

Limitations: Algorithms used to define exposures, characteristics, and pregnancy, and mapping of source data to the data model are imperfect and susceptible to misclassification. Additionally, EHR data in the United States 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 or route 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%.

The TriNetX Live™ platform uses RxNorm terms to identify medications, specifically the primary ingredient RxNorm terms.

In the case of fixed dose combinations/co-packaged medications, the drugs are identified in the platform as the presence of primary ingredient RxNorm terms for all the individual medications on the same day (even if a multiple ingredient RxNorm term is made available by the National Library of Medicine), under the assumption that this refers only to the combined drugs and not two individual drugs prescribed concomitantly.

Notes: We ran this query on September 19, 2024. 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).

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 (eg, -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.

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 certain laboratory terms, TriNetX aggregates Logical Observation Identifiers Names and Codes (LOINC) laboratory codes 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.

*all terms may not be used in this report

Table 1. Summary of Selected Confounding Covariates among Individuals of all Ages in the TriNetX Live™ USA Network No Shift, by Year

	Patients with a visit in the year of interest and in the 365 days prior to first visit in year of interest	Patients with the covariate in the year of interest and a visit (without evidence of the covariate of interest) in the 365 days prior to first instance of the covariate in the year of interest	Patients with the covariate in the year of interest and a visit in the 365 days prior to first instance of the covariate in the year of interest	Patients with the covariate in the year of interest and a visit (without evidence of the covariate of interest) in the 365 days prior to first instance of the covariate in the year of interest/ Patients with a visit in the year of interest and in the 365 days prior to the first visit in the year of interest	Patients with the covariate in the year of interest and a visit in the 365 days prior to first instance of the covariate in the year of interest/ Patients with a visit in the year of interest and in the 365 days prior to the first visit in the year of interest
2017					
Obesity	11,046,660	708,350	1,214,620	0.06	0.11
Any Body Mass Index Observation	11,046,660	2,270,200	5,878,340	0.21	0.53
Smoking	11,046,660	819,540	1,288,240	0.07	0.12
Diastolic Blood Pressure	11,046,660	2,465,160	6,283,550	0.22	0.57
Systolic Blood Pressure	11,046,660	2,466,460	6,285,720	0.22	0.57
2018					
Obesity	12,286,910	818,660	1,470,210	0.07	0.12
Any Body Mass Index Observation	12,286,910	2,143,180	6,394,630	0.17	0.52
Smoking	12,286,910	822,240	1,415,520	0.07	0.12
Diastolic Blood Pressure	12,286,910	2,421,280	6,746,610	0.20	0.55
Systolic Blood Pressure	12,286,910	2,421,980	6,748,540	0.20	0.55
2019					
Obesity	13,230,670	891,150	1,688,290	0.07	0.13
Any Body Mass Index Observation	13,230,670	2,383,530	6,745,280	0.18	0.51
Smoking	13,230,670	861,990	1,494,650	0.07	0.11
Diastolic Blood Pressure	13,230,670	2,760,660	7,176,830	0.21	0.54
Systolic Blood Pressure	13,230,670	2,807,590	7,362,830	0.21	0.56
2020					
Obesity	13,742,460	807,180	1,585,300	0.06	0.12
Any Body Mass Index Observation	13,742,460	2,629,870	6,932,350	0.19	0.50
Smoking	13,742,460	816,550	1,433,850	0.06	0.10
Diastolic Blood Pressure	13,742,460	2,535,650	6,839,080	0.18	0.50
Systolic Blood Pressure	13,742,460	2,992,410	7,454,330	0.22	0.54
2021					

Table 1. Summary of Selected Confounding Covariates among Individuals of all Ages in the TriNetX Live™ USA Network No Shift, by Year

	Patients with a visit in the year of interest and in the 365 days prior to first visit in year of interest	Patients with the covariate in the year of interest and a visit (without evidence of the covariate of interest) in the 365 days prior to first instance of the covariate in the year of interest	Patients with the covariate in the year of interest and a visit in the 365 days prior to first instance of the covariate in the year of interest	Patients with the covariate in the year of interest and a visit (without evidence of the covariate of interest) in the 365 days prior to first instance of the covariate in the year of interest/ Patients with a visit in the year of interest and in the 365 days prior to the first visit in the year of interest	Patients with the covariate in the year of interest and a visit in the 365 days prior to first instance of the covariate in the year of interest/ Patients with a visit in the year of interest and in the 365 days prior to the first visit in the year of interest
Obesity	15,727,080	1,060,340	1,842,580	0.07	0.12
Any Body Mass Index Observation	15,727,080	3,926,970	8,445,420	0.25	0.54
Smoking	15,727,080	998,460	1,669,430	0.06	0.11
Diastolic Blood Pressure	15,727,080	4,188,620	8,280,200	0.27	0.53
Systolic Blood Pressure	15,727,080	4,387,900	8,919,790	0.28	0.57
2022					
Obesity	17,240,150	1,117,950	2,049,980	0.06	0.12
Any Body Mass Index Observation	17,240,150	3,552,860	9,046,640	0.21	0.52
Smoking	17,240,150	930,530	1,649,010	0.05	0.10
Diastolic Blood Pressure	17,240,150	3,632,800	8,932,040	0.21	0.52
Systolic Blood Pressure	17,240,150	3,930,760	9,540,120	0.23	0.55
2023					
Obesity	15,163,230	1,086,990	2,143,820	0.07	0.14
Any Body Mass Index Observation	15,163,230	3,206,090	9,175,540	0.21	0.61
Smoking	15,163,230	1,025,660	1,755,380	0.07	0.12
Diastolic Blood Pressure	15,163,230	3,263,850	8,851,720	0.22	0.58
Systolic Blood Pressure	15,163,230	3,532,560	9,606,090	0.23	0.63

NOTE: All counts provided through the TriNetX Live™ platform are rounded up to the nearest 10 to protect patient privacy.

Figure 1a. Impact on 2017 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year

Figure 1b. Impact on 2018 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year

Figure 1c. Impact on 2019 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year

Figure 1d. Impact on 2020 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year

Figure 1e. Impact on 2021 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year
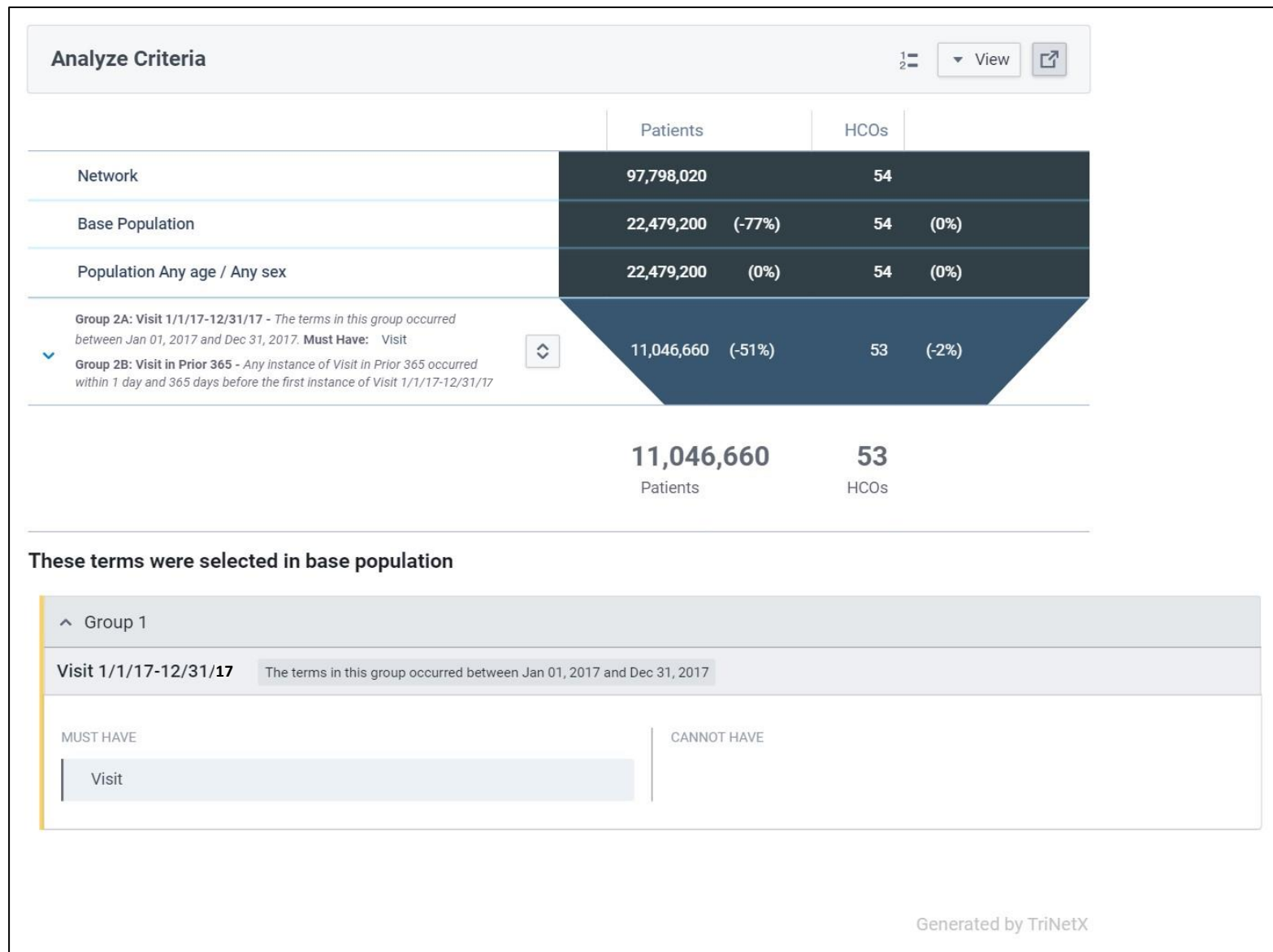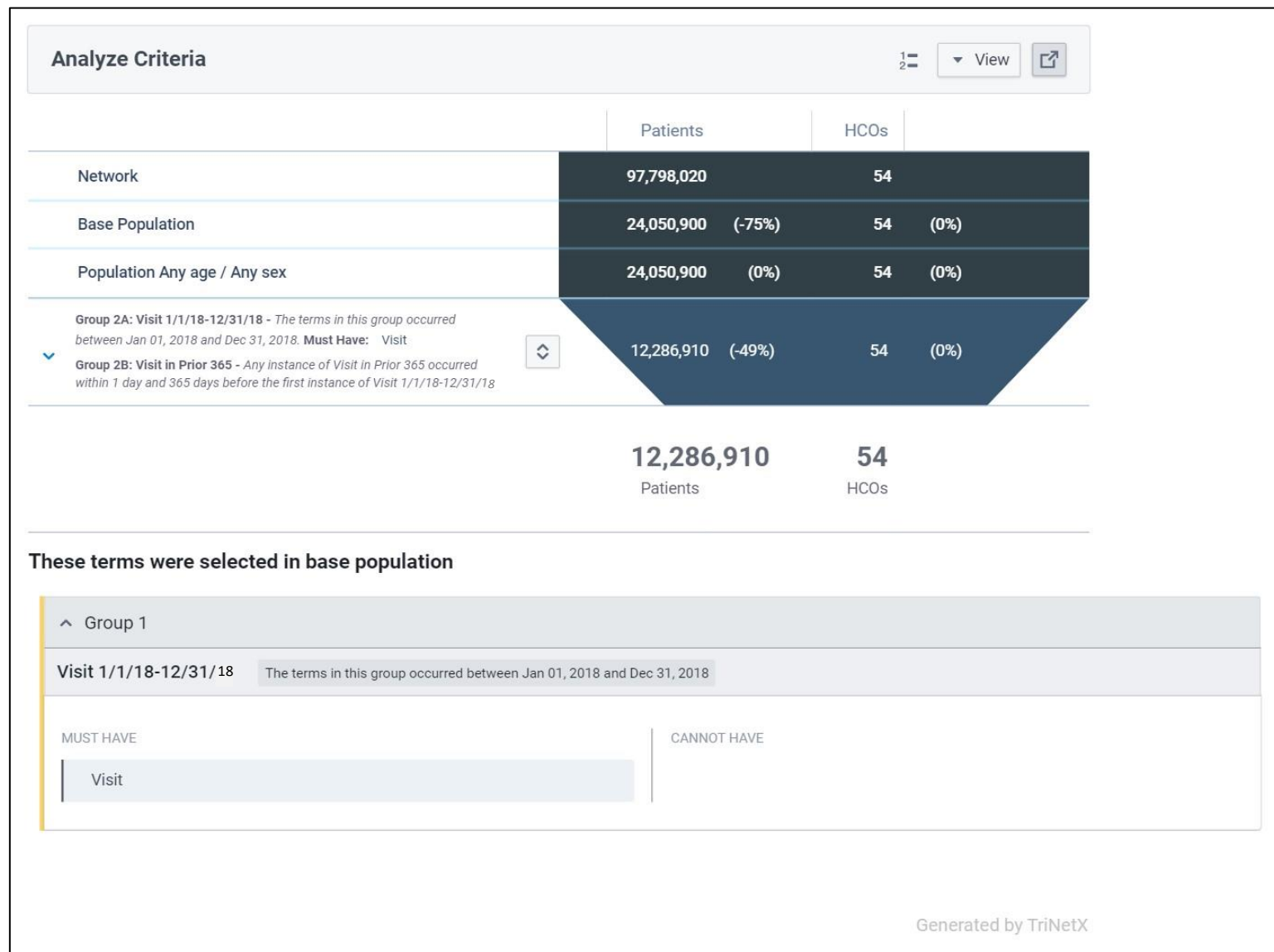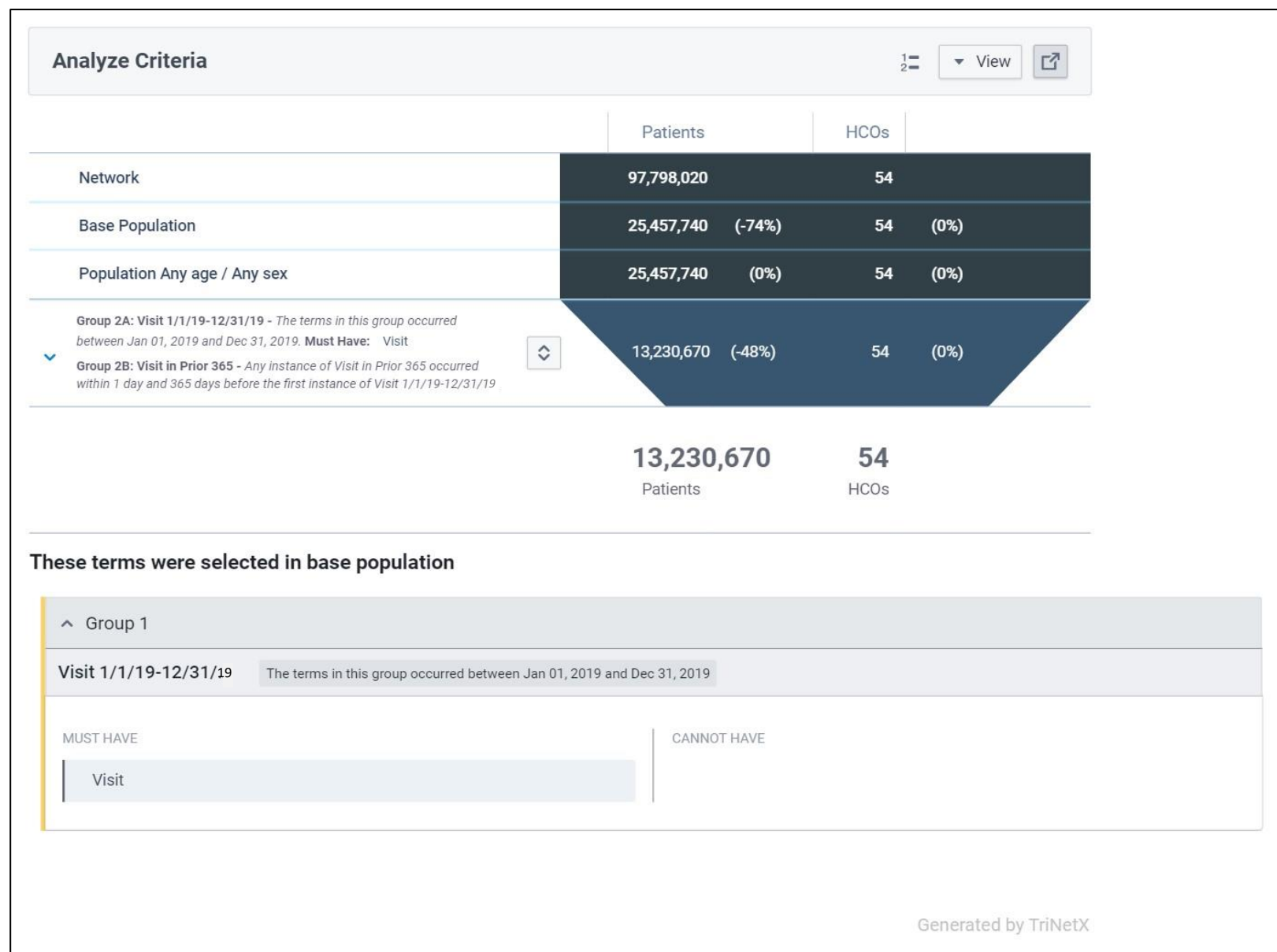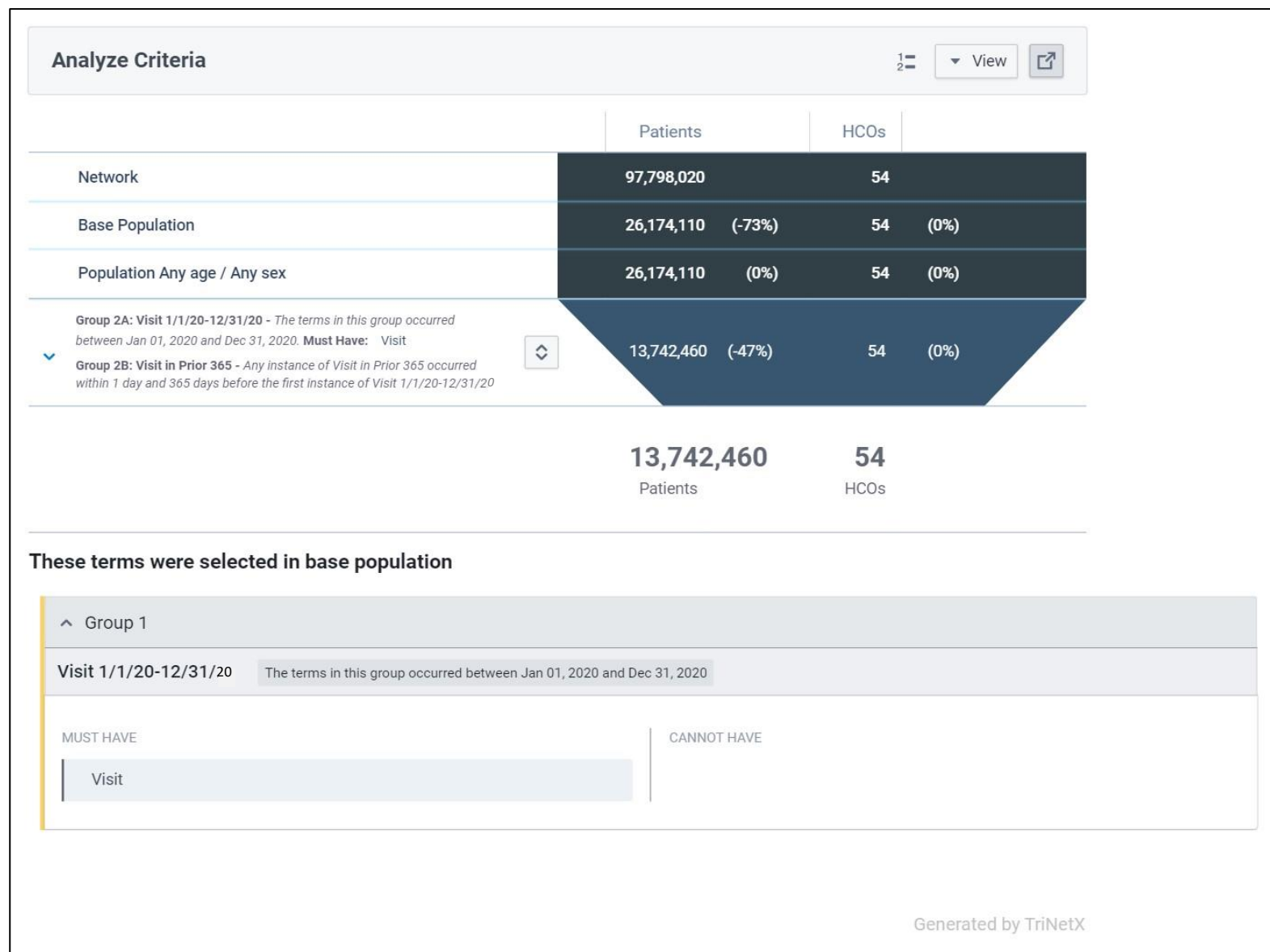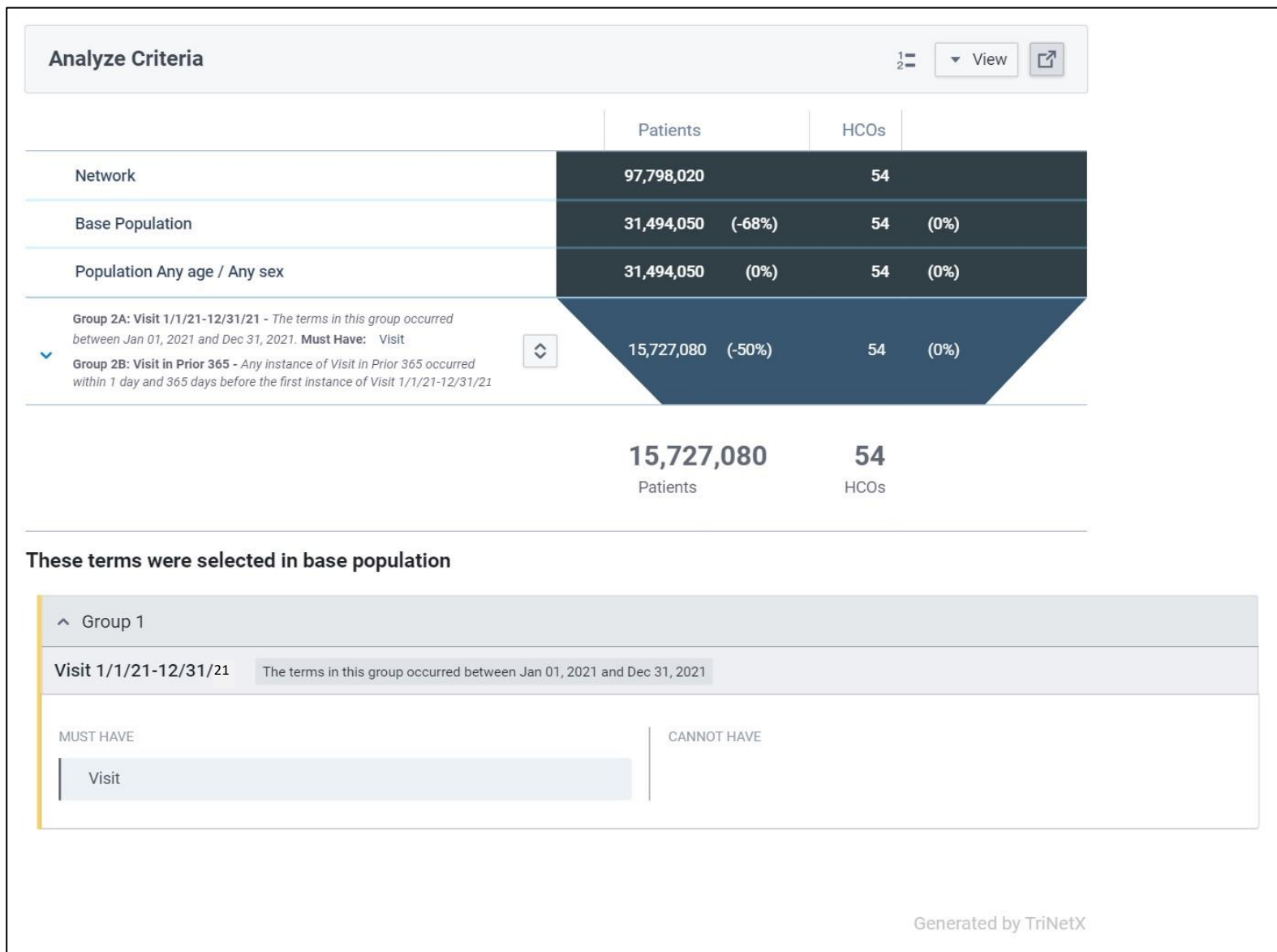
Figure 1f. Impact on 2022 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year
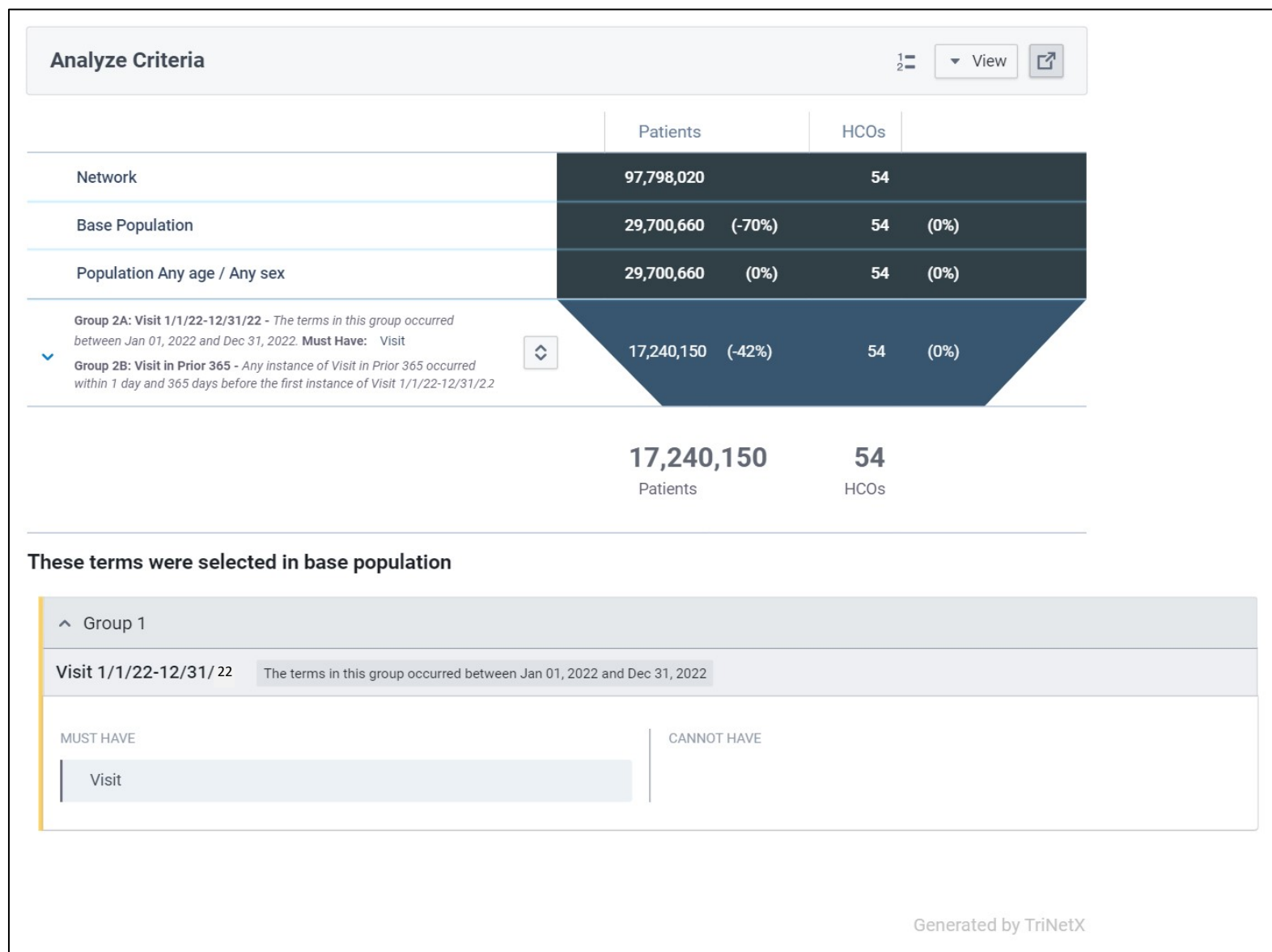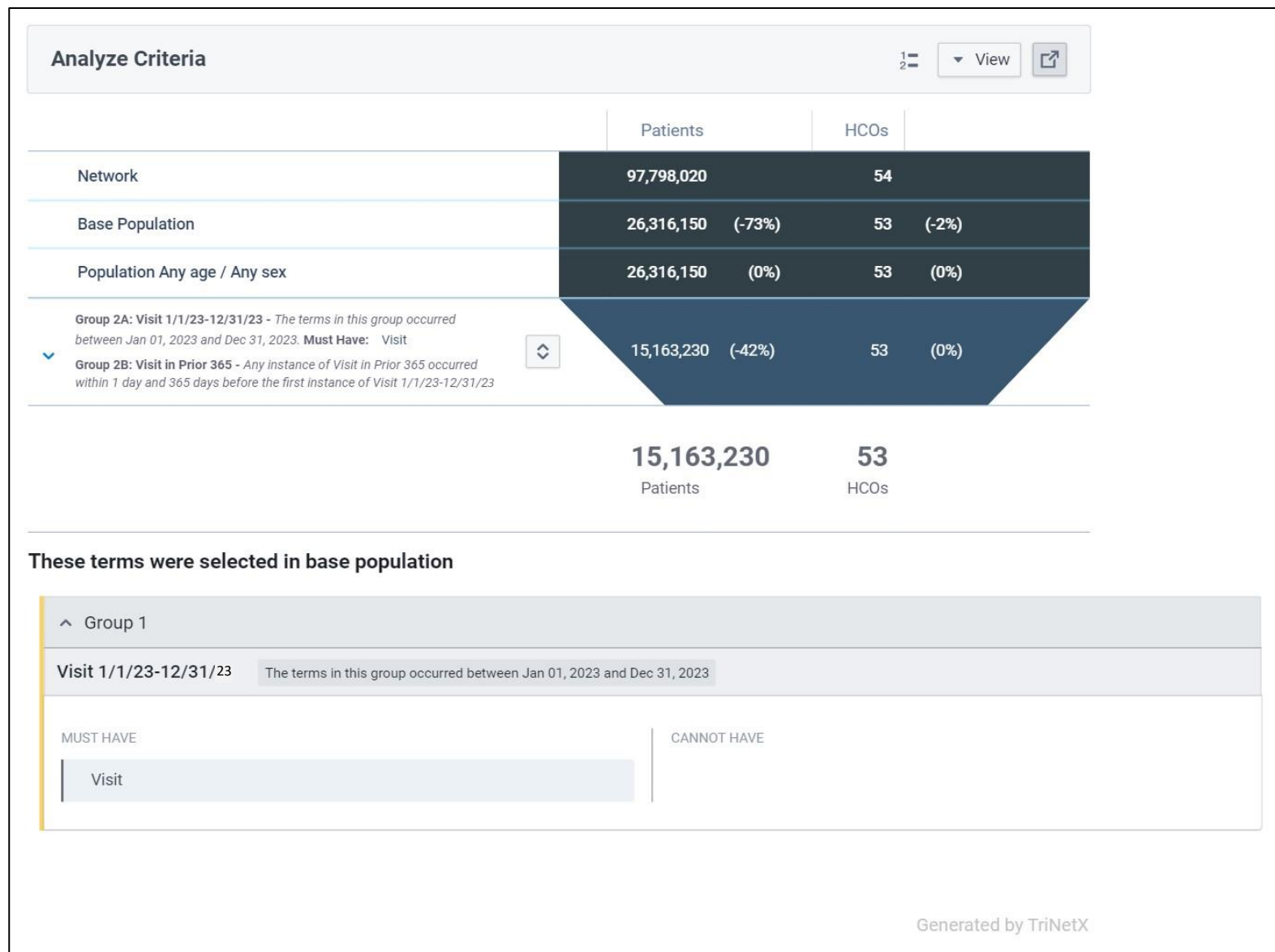
Figure 1g. Impact on 2023 Base Population (Patient Counts and Contributing Health Care Organizations) when Requiring a Visit in the Prior Year

Appendix A. List of Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Code Type	Description	Filter
		Visit	
TNX:Visit[1]	Visit	Visit	Not Applicable
		Body Mass Index (BMI)	
TNX:9083[2]	Laboratory	BMI	Not Applicable
		Diastolic Blood Pressure	
TNX:9086[3]	Laboratory	Blood Pressure, Diastolic	Not Applicable
		Systolic Blood Pressure	
TNX:9085[4]	Laboratory	Blood Pressure, Systolic	Not Applicable
		Obesity	
UMLS:ICD10CM:E66.0	Diagnosis	Obesity due to excess calories	Not Applicable
UMLS:ICD10CM:E66.1	Diagnosis	Drug-induced obesity	Not Applicable
UMLS:ICD10CM:E66.2	Diagnosis	Morbid (severe) obesity with alveolar hypoventilation	Not Applicable
UMLS:ICD10CM:E66.8	Diagnosis	Other obesity	Not Applicable
UMLS:ICD10CM:E66.9	Diagnosis	Obesity, unspecified	Not Applicable
UMLS:ICD10CM:O99.21	Diagnosis	Obesity complicating pregnancy, childbirth, and the puerperium	Not Applicable
UMLS:ICD10CM:O99.84	Diagnosis	Bariatric surgery status complicating pregnancy, childbirth and the puerperium	Not Applicable
UMLS:ICD10CM:Z68.3	Diagnosis	Body mass index [BMI] 30-39, adult	Not Applicable
UMLS:ICD10CM:Z68.4	Diagnosis	Body mass index [BMI] 40 or greater, adult	Not Applicable
UMLS:ICD10CM:Z68.54	Diagnosis	Body mass index [BMI] pediatric, greater than or equal to 95th percentile for age	Not Applicable
UMLS:CPT:00797	Procedure	Anesthesia for intraperitoneal procedures in upper abdomen including laparoscopy; gastric restrictive procedure for morbid obesity	Not Applicable
UMLS:CPT:43290	Procedure	Esophagogastroduodenoscopy, flexible, transoral; with deployment of intragastric bariatric balloon	Not Applicable
UMLS:CPT:43291	Procedure	Esophagogastroduodenoscopy, flexible, transoral; with removal of intragastric bariatric balloon(s)	Not Applicable
UMLS:CPT:43644	Procedure	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)	Not Applicable
UMLS:CPT:43645	Procedure	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and small intestine reconstruction to limit absorption	Not Applicable
UMLS:CPT:1007387	Procedure	Laparoscopy, surgical, gastric restrictive procedure	Not Applicable
UMLS:CPT:1007403	Procedure	Gastric restrictive procedure, without gastric bypass, for morbid obesity	Not Applicable
UMLS:CPT:43846	Procedure	Gastric restrictive procedure, with gastric bypass for morbid obesity; with short limb (150 cm or less) Roux-en-Y gastroenterostomy	Not Applicable
UMLS:CPT:43845	Procedure	Gastric restrictive procedure with partial gastrectomy, pylorus-preserving duodenoileostomy and ileoileostomy (50 to 100 cm common channel) to limit absorption (biliopancreatic diversion with duodenal switch)	Not Applicable
UMLS:CPT:43847	Procedure	Gastric restrictive procedure, with gastric bypass for morbid obesity; with small intestine reconstruction to limit absorption	Not Applicable

Code	Code Type	Description	Filter
UMLS:CPT:43848	Procedure	Revision, open, of gastric restrictive procedure for morbid obesity, other than adjustable gastric restrictive device (separate procedure)	Not Applicable
UMLS:CPT:43886	Procedure	Gastric restrictive procedure, open; revision of subcutaneous port component only	Not Applicable
UMLS:CPT:43887	Procedure	Gastric restrictive procedure, open; removal of subcutaneous port component only	Not Applicable
UMLS:CPT:43888	Procedure	Gastric restrictive procedure, open; removal and replacement of subcutaneous port component only	Not Applicable
UMLS:CPT:1021177	Procedure	Vagus nerve blocking therapy (morbid obesity) (deprecated 2023)	Not Applicable
UMLS:ICD10PCS:0D16079	Procedure	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1607A	Procedure	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1607B	Procedure	Bypass Stomach to Ileum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1607L	Procedure	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160J9	Procedure	Bypass Stomach to Duodenum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160JA	Procedure	Bypass Stomach to Jejunum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160JB	Procedure	Bypass Stomach to Ileum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160K9	Procedure	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160KA	Procedure	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160KL	Procedure	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160KB	Procedure	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160Z9	Procedure	Bypass Stomach to Duodenum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160ZA	Procedure	Bypass Stomach to Jejunum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160ZB	Procedure	Bypass Stomach to Ileum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D160ZL	Procedure	Bypass Stomach to Transverse Colon, Open Approach	Not Applicable
UMLS:ICD10PCS:0D16479	Procedure	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1647A	Procedure	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1647B	Procedure	Bypass Stomach to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1647L	Procedure	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164J9	Procedure	Bypass Stomach to Duodenum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164JA	Procedure	Bypass Stomach to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0D164JB	Procedure	Bypass Stomach to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164JL	Procedure	Bypass Stomach to Transverse Colon with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164K9	Procedure	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164KA	Procedure	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164KB	Procedure	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164KL	Procedure	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164Z9	Procedure	Bypass Stomach to Duodenum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164ZA	Procedure	Bypass Stomach to Jejunum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164ZB	Procedure	Bypass Stomach to Ileum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D164ZL	Procedure	Bypass Stomach to Transverse Colon, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D16879	Procedure	Bypass Stomach to Duodenum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1687A	Procedure	Bypass Stomach to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1687B	Procedure	Bypass Stomach to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1687L	Procedure	Bypass Stomach to Transverse Colon with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168J9	Procedure	Bypass Stomach to Duodenum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168JA	Procedure	Bypass Stomach to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168JB	Procedure	Bypass Stomach to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168JL	Procedure	Bypass Stomach to Transverse Colon with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168K9	Procedure	Bypass Stomach to Duodenum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168KA	Procedure	Bypass Stomach to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0D168KB	Procedure	Bypass Stomach to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168KL	Procedure	Bypass Stomach to Transverse Colon with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168Z9	Procedure	Bypass Stomach to Duodenum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168ZA	Procedure	Bypass Stomach to Jejunum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168ZB	Procedure	Bypass Stomach to Ileum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D168ZL	Procedure	Bypass Stomach to Transverse Colon, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D19079	Procedure	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1907A	Procedure	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1907B	Procedure	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190J9	Procedure	Bypass Duodenum to Duodenum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190JA	Procedure	Bypass Duodenum to Jejunum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190JB	Procedure	Bypass Duodenum to Ileum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190K9	Procedure	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190KA	Procedure	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190KB	Procedure	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190Z9	Procedure	Bypass Duodenum to Duodenum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190ZA	Procedure	Bypass Duodenum to Jejunum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D190ZB	Procedure	Bypass Duodenum to Ileum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D19479	Procedure	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1947A	Procedure	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1947B	Procedure	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194J9	Procedure	Bypass Duodenum to Duodenum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194JA	Procedure	Bypass Duodenum to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194JB	Procedure	Bypass Duodenum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194K9	Procedure	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable

Appendix A. List of Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0D194KA	Procedure	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194KB	Procedure	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194Z9	Procedure	Bypass Duodenum to Duodenum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194ZA	Procedure	Bypass Duodenum to Jejunum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D194ZB	Procedure	Bypass Duodenum to Ileum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D19879	Procedure	Bypass Duodenum to Duodenum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1987A	Procedure	Bypass Duodenum to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1987B	Procedure	Bypass Duodenum to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198J9	Procedure	Bypass Duodenum to Duodenum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198JA	Procedure	Bypass Duodenum to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198JB	Procedure	Bypass Duodenum to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198K9	Procedure	Bypass Duodenum to Duodenum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198KA	Procedure	Bypass Duodenum to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198KB	Procedure	Bypass Duodenum to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198Z9	Procedure	Bypass Duodenum to Duodenum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198ZA	Procedure	Bypass Duodenum to Jejunum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D198ZB	Procedure	Bypass Duodenum to Ileum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A07A	Procedure	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A07B	Procedure	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A0JA	Procedure	Bypass Jejunum to Jejunum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A0JB	Procedure	Bypass Jejunum to Ileum with Synthetic Substitute, Open Approach	Not Applicable

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0D1A0KA	Procedure	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A0KB	Procedure	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A0ZA	Procedure	Bypass Jejunum to Jejunum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A0ZB	Procedure	Bypass Jejunum to Ileum, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1A47A	Procedure	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A47B	Procedure	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4JA	Procedure	Bypass Jejunum to Jejunum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4JB	Procedure	Bypass Jejunum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4KA	Procedure	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4KB	Procedure	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4ZA	Procedure	Bypass Jejunum to Jejunum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A4ZB	Procedure	Bypass Jejunum to Ileum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1A87A	Procedure	Bypass Jejunum to Jejunum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A87B	Procedure	Bypass Jejunum to Ileum with Autologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8JA	Procedure	Bypass Jejunum to Jejunum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8JB	Procedure	Bypass Jejunum to Ileum with Synthetic Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8KA	Procedure	Bypass Jejunum to Jejunum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8KB	Procedure	Bypass Jejunum to Ileum with Nonautologous Tissue Substitute, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8ZA	Procedure	Bypass Jejunum to Jejunum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1A8ZB	Procedure	Bypass Jejunum to Ileum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1B07B	Procedure	Bypass Ileum to Ileum with Autologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1B0JB	Procedure	Bypass Ileum to Ileum with Synthetic Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1B0KB	Procedure	Bypass Ileum to Ileum with Nonautologous Tissue Substitute, Open Approach	Not Applicable
UMLS:ICD10PCS:0D1B0ZB	Procedure	Bypass Ileum to Ileum, Open Approach	Not Applicable
UMLS:ICD10PCS:0DB60Z3	Procedure	Excision of Stomach, Open Approach, Vertical	Not Applicable
UMLS:ICD10PCS:0DB60ZZ	Procedure	Excision of Stomach, Open Approach	Not Applicable

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0DB63Z3	Procedure	Excision of Stomach, Percutaneous Approach, Vertical	Not Applicable
UMLS:ICD10PCS:0DB63ZZ	Procedure	Excision of Stomach, Percutaneous Approach	Not Applicable
UMLS:ICD10PCS:0DB67Z3	Procedure	Excision of Stomach, Via Natural or Artificial Opening, Vertical	Not Applicable
UMLS:ICD10PCS:0DB67ZZ	Procedure	Excision of Stomach, Via Natural or Artificial Opening	Not Applicable
UMLS:ICD10PCS:0DB68Z3	Procedure	Excision of Stomach, Via Natural or Artificial Opening Endoscopic, Vertical	Not Applicable
UMLS:ICD10PCS:0DB80ZZ	Procedure	Excision of Small Intestine, Open Approach	Not Applicable
UMLS:ICD10PCS:0DB90ZZ	Procedure	Excision of Duodenum, Open Approach	Not Applicable
UMLS:ICD10PCS:0DBB0ZZ	Procedure	Excision of Ileum, Open Approach	Not Applicable
UMLS:ICD10PCS:0DQ64ZZ	Procedure	Repair Stomach, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0DV64CZ	Procedure	Restriction of Stomach with Extraluminal Device, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0F190Z3	Procedure	Bypass Common Bile Duct to Duodenum, Open Approach	Not Applicable
UMLS:HCPCS:G0447	Procedure	Face-to-face behavioral counseling for obesity, 15 minutes	Not Applicable
UMLS:HCPCS:G0473	Procedure	Face-to-face behavioral counseling for obesity, group (2-10), 30 minutes	Not Applicable
NLM:RXNORM:1000492	Medication	resveratrol	(Strength: 50 MG)
NLM:RXNORM:42347	Medication	bupropion	(Strength: 90 MG)
NLM:RXNORM:42347	Medication	bupropion	(Brand: Contrave)
NLM:RXNORM:7243	Medication	naltrexone	(Strength: 8 MG)
NLM:RXNORM:7243	Medication	naltrexone	(Brand: Contrave)
NLM:RXNORM:8152	Medication	phentermine	(Strength: 3.75 MG or 7.5 MG or 11.25 MG)
NLM:RXNORM:8152	Medication	phentermine	(Brand: Qsymia)
NLM:RXNORM:38404	Medication	topiramate	(Strength: 23 MG or 46 MG or 69 MG or 92 MG)
NLM:RXNORM:38404	Medication	topiramate	(Brand: Qsymia)
NLM:RXNORM:1991302	Medication	semaglutide	Not Applicable
NLM:RXNORM:2601723	Medication	tirzepatide	Not Applicable
NLM:RXNORM:36514	Medication	sibutramine	Not Applicable
NLM:RXNORM:1300701	Medication	lorcaserin	Not Applicable
NLM:RXNORM:2469247	Medication	setmelanotide	Not Applicable
NLM:RXNORM:1422	Medication	benzphetamine	Not Applicable
NLM:RXNORM:3389	Medication	diethylpropion	Not Applicable
NLM:RXNORM:33272	Medication	phendimetrazine	Not Applicable
NLM:RXNORM:37925	Medication	orlistat	Not Applicable
NLM:RXNORM:475968	Medication	liraglutide	Not Applicable
NLM:RXNORM:8152	Medication	phentermine	Not Applicable
UMLS:ICD10CM:K95.01	Diagnosis	Infection due to gastric band procedure	Not Applicable
UMLS:ICD10CM:K95.09	Diagnosis	Other complications of gastric band procedure	Not Applicable
UMLS:ICD10CM:K95.81	Diagnosis	Infection due to other bariatric procedure	Not Applicable
UMLS:ICD10CM:K95.89	Diagnosis	Other complications of other bariatric procedure	Not Applicable
UMLS:ICD10PCS:0D1A8ZH	Procedure	Bypass Jejunum to Cecum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1B47B	Procedure	Bypass Ileum to Ileum with Autologous Tissue Substitute, Percutaneous Endoscopic Approach	Not Applicable

Appendix A. List of Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Code Type	Description	Filter
UMLS:ICD10PCS:0D1B4JB	Procedure	Bypass Ileum to Ileum with Synthetic Substitute, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1B4ZB	Procedure	Bypass Ileum to Ileum, Percutaneous Endoscopic Approach	Not Applicable
UMLS:ICD10PCS:0D1B8ZB	Procedure	Bypass Ileum to Ileum, Via Natural or Artificial Opening Endoscopic	Not Applicable
UMLS:ICD10PCS:0D1B8ZH	Procedure	Bypass Ileum to Cecum, Via Natural or Artificial Opening Endoscopic	Not Applicable
		Smoking	
UMLS:ICD10CM:F17	Diagnosis	Nicotine dependence	Not Applicable
UMLS:ICD10CM:O99.33	Diagnosis	Tobacco use disorder complicating pregnancy, childbirth, and the puerperium	Not Applicable
UMLS:ICD10CM:P04.2	Diagnosis	Newborn affected by maternal use of tobacco	Not Applicable
UMLS:ICD10CM:P96.81	Diagnosis	Exposure to (parental) (environmental) tobacco smoke in the perinatal period	Not Applicable
UMLS:ICD10CM:T65.2	Diagnosis	Toxic effect of tobacco and nicotine	Not Applicable
UMLS:ICD10CM:Z53.01	Diagnosis	Procedure and treatment not carried out due to patient smoking	Not Applicable
UMLS:ICD10CM:Z57.31	Diagnosis	Occupational exposure to environmental tobacco smoke	Not Applicable
UMLS:ICD10CM:Z71.6	Diagnosis	Tobacco abuse counseling	Not Applicable
UMLS:ICD10CM:Z72.0	Diagnosis	Tobacco use	Not Applicable
UMLS:ICD10CM:Z77.22	Diagnosis	Contact with and (suspected) exposure to environmental tobacco smoke (acute) (chronic)	Not Applicable
UMLS:ICD10CM:Z87.891	Diagnosis	Personal history of nicotine dependence	Not Applicable
UMLS:CPT:99406	Procedure	Smoking and tobacco use cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes	Not Applicable
UMLS:CPT:99407	Procedure	Smoking and tobacco use cessation counseling visit; intensive, greater than 10 minutes	Not Applicable
UMLS:HCPCS:D1320	Procedure	tobacco counseling for the control and prevention of oral disease	Not Applicable
UMLS:HCPCS:G0436	Procedure	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intermediate, greater than 3 minutes, up to 10 minutes	Not Applicable
UMLS:HCPCS:G0437	Procedure	Smoking and tobacco cessation counseling visit for the asymptomatic patient; intensive, greater than 10 minutes	Not Applicable
UMLS:HCPCS:G6055	Procedure	Assay of nicotine	Not Applicable
UMLS:HCPCS:G9016	Procedure	Smoking cessation counseling, individual, in the absence of or in addition to any other evaluation and management service, per session (6-10 minutes) [demo project code only]	Not Applicable
UMLS:HCPCS:G9275	Procedure	Documentation that patient is a current nontobacco user	Not Applicable
UMLS:HCPCS:G9276	Procedure	Documentation that patient is a current tobacco user	Not Applicable

Appendix A. List of Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Code Type	Description	Filter
UMLS:HCPCS:G9458	Procedure	Patient documented as tobacco user and received tobacco cessation intervention (must include at least one of the following: advice given to quit smoking or tobacco use, counseling on the benefits of quitting smoking or tobacco use, assistance with or referral to external smoking or tobacco cessation support programs, or current enrollment in smoking or tobacco use cessation program) if identified as a tobacco user	Not Applicable
UMLS:HCPCS:G9460	Procedure	Tobacco assessment or tobacco cessation intervention not performed, reason not given	Not Applicable
UMLS:HCPCS:G9497	Procedure	Received instruction from the anesthesiologist or proxy prior to the day of surgery to abstain from smoking on the day of surgery	Not Applicable
UMLS:HCPCS:G9644	Procedure	Patients who abstained from smoking prior to anesthesia on the day of surgery or procedure	Not Applicable
UMLS:HCPCS:G9645	Procedure	Patients who did not abstain from smoking prior to anesthesia on the day of surgery or procedure	Not Applicable
UMLS:HCPCS:G9792	Procedure	Most recent tobacco status is not tobacco free	Not Applicable
UMLS:HCPCS:G9902	Procedure	Patient screened for tobacco use and identified as a tobacco user	Not Applicable
UMLS:HCPCS:G9906	Procedure	Patient identified as a tobacco user received tobacco cessation intervention during the measurement period or in the 6 months prior to the measurement period (counseling and/or pharmacotherapy)	Not Applicable
UMLS:HCPCS:G9907	Procedure	Documentation of medical reason(s) for not providing tobacco cessation intervention on the date of the encounter or within the previous 12 months (e.g., limited life expectancy, other medical reason)	Not Applicable
UMLS:HCPCS:G9908	Procedure	Patient identified as tobacco user did not receive tobacco cessation intervention during the measurement period or in the 6 months prior to the measurement period (counseling and/or pharmacotherapy)	Not Applicable
UMLS:HCPCS:G9909	Procedure	Documentation of medical reason(s) for not providing tobacco cessation intervention on the date of the encounter or within the previous 12 months if identified as a tobacco user (e.g., limited life expectancy, other medical reason)	Not Applicable
UMLS:ICD10PCS:HZ80	Procedure	Medication Management / Nicotine Replacement	Not Applicable
UMLS:ICD10PCS:HZ90	Procedure	Pharmacotherapy / Nicotine Replacement	Not Applicable
UMLS:HCPCS:M1018	Procedure	Patients with an active diagnosis or history of cancer (except basal cell and squamous cell skin carcinoma), patients who are heavy tobacco smokers, lung cancer screening patients	Not Applicable
UMLS:HCPCS:S4990	Procedure	Nicotine patches, legend	Not Applicable
UMLS:HCPCS:S4991	Procedure	Nicotine patches, nonlegend	Not Applicable
UMLS:HCPCS:S4995	Procedure	Smoking cessation gum	Not Applicable
UMLS:HCPCS:S9453	Procedure	Smoking cessation classes, nonphysician provider, per session	Not Applicable
NLM:RXNORM:7407	Medication	nicotine	Not Applicable
NLM:RXNORM:1306107	Medication	nicotine bitartrate	Not Applicable

Appendix A. List of Codes Used to Define Inclusion and Exclusion Criteria in this Request

Code	Code Type	Description	Filter
NLM:RXNORM:591622	Medication	varenicline	Not Applicable

[1] Includes: Ambulatory, Emergency, Field, Home Health, Inpatient Encounter, Inpatient Non-acute, Laboratory, Observation Encounter, Pharmacy, Pre-admission, Short Stay, Unknown, Virtual

[2] LOINC 39156-5

[3] LOINC 87736-5, 8454-1, 87740-7, 76213-8, 8462-4, 76535-4, 8453-3, 8455-8

[4] LOINC 8480-6, 87741-5, 8460-8, 87739-9, 76215-3, 76534-7, 8461-6, 8459-0

Appendix B. Specifications Defining Query Builder Modules in this Request

Network:
TriNetX Live™ USA Network No Shift (Includes Health Care Organizations [HCOs] that do not date shift)

Cohort 1A (query name: Incident/Prevalent Denominator 2017[1])

This query was run on the USA Network No Shift 54 HCO(s) queried and 53* HCO(s) responded.

Group 1	date constraint:		The terms in this group occurred between January 1, 2017 and December 31, 2017	
Group 1A Visit 1/1/17 - 12/31/17[1]				
must have	any of	visit	TNX:Visit	Visit

event relationship   Any instance of Group 1B (Visit in Prior 365) occurred within 1 day and 365 days before the first instance of Group 1A (Visit 1/1/17 - 12/31/17[1])

Group 1B Visit in Prior 365				
must have	any of	visit	TNX:Visit	Visit

Cohorts 1B - 1G (query name: Incident/Prevalent Denominator YYYY)

The following parameters change from Cohort 1A:

[1] change dates to match the year of interest: 2018-2023

Cohort 2A (query name: Incident Numerator Obesity[2] 2017[1])

This query was run on the USA Network No Shift 54 HCO(s) queried and 53* HCO(s) responded.

Group 1	date constraint:	The terms in this group occurred between January 1, 2017 and December 31, 2017
Group 1A Obesity[2] 1/1/17 - 12/31/17[1]		
must have	any of	*See Appendix A for details*

event relationship   Any instance of Group 1B (Visit in Prior 365) occurred within 1 day and 365 days before the first instance of Group 1A (Obesity[2] 1/1/17 - 12/31/17[1])

Group 1B Visit in Prior 365				
must have	any of	visit	TNX:Visit	Visit

Group 2	date constraint:	The terms in this group occurred between January 1, 2017 and December 31, 20171
Group 2A Obesity[2] 1/1/17 - 12/31/17[1]		
must have	any of	*See Appendix A for details*
	event relationship	Any instance of Group 2B (Obesity[2] in Prior 365) occurred within 1 day and 365 days before the first instance of Group 2A (

Appendix B. Specifications Defining Query Builder Modules in this Request

Group 2B Obesity[2] in Prior 365		
cannot have	any of	*See Appendix A for details*

Cohorts 2B - 2G (query name: Incident Numerator Obesity[2] YYYY)

The following parameters change from Cohort 2A:

[1] change dates to match the year of interest: 2018-2023

Replicate Cohorts 2A-G changing [2] to 1) BMI 2) smoking 3) diastolic blood pressure and 4) systolic blood pressure

Cohort 3A (query name: Prevalent Numerator Obesity[2] 2017[1])

This query was run on the USA Network No Shift 54 HCO(s) queried and 53* HCO(s) responded.

Group 1	date constraint:	*The terms in this group occurred between January 1, 2017 and December 31, 2017*

Group 1A Obesity[2] 1/1/17 - 12/31/17[1]		
must have	any of	*See Appendix A for details*

event relationship	Any instance of Group 1B (Visit in Prior 365) occurred within 1 day and 365 days before the first instance of Group 1A (Obesity[2] 1/1/17 - 12/31/17[1])

Group 1B Visit in Prior 365				
must have	any of	visit	TNX:Visit	Visit

Cohorts 3B - 3G (query name: Prevalent Numerator Obesity[2] YYYY)

The following parameters change from Cohort 3A:

[1] change dates to match the year of interest: 2018-2023

Replicate Cohorts 3A-G changing [2] to 1) BMI 2) smoking 3) diastolic blood pressure and 4) systolic blood pressure

*For the analyses covering the years 2017 and 2023, 53 HCOs contributed data, while 54 HCOs provided data for the years 2018 to 2022
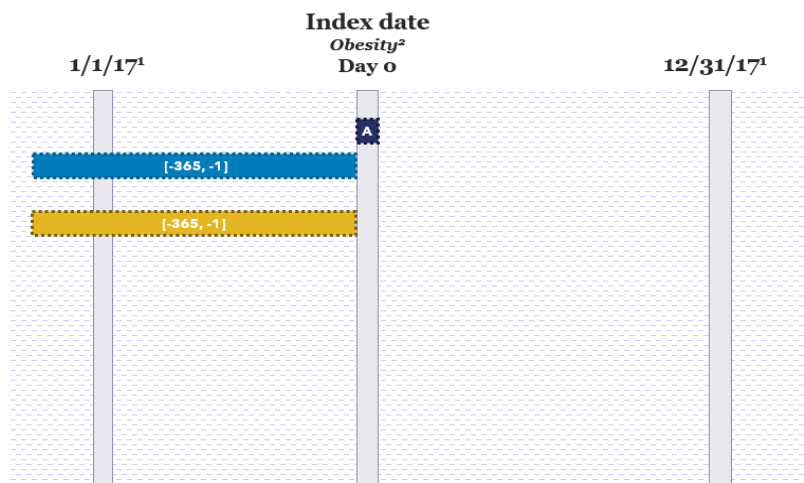
Appendix C. Design Diagram for this Request

TriNetX Design Diagram – Incident Numerator

Index date
Obesity²
1/1/17¹   Day 0   12/31/17¹

Cohort Identification Criteria
Criteria A: Obesity²

Inclusion Criteria
Visit in the 365-days before index

Exclusion Criteria
Any instance of obesity² occurred in the 365-days before index

[-365, -1]

[-365, -1]

A

NOTE: Data obtained from the TriNetX Live® platform in the USA Network No Shift.
Events occurring outside of a given HCO may not be captured due to the fragmented nature of electronic health care data.

1. Repeat for each additional year: 2018-2023
2. Repeat for each additional covariate of interest: BMI, smoking, diastolic blood pressure, and systolic blood pressure

TriNetX Design Diagram – Prevalent Numerator

Index date
Obesity²
1/1/17¹   Day 0   12/31/17¹

Cohort Identification Criteria
Criteria A: Obesity²

Inclusion Criteria
Visit in the 365-days before index

[-365, -1]

A

NOTE: Data obtained from the TriNetX Live® platform in the USA Network No Shift.
Events occurring outside of a given HCO may not be captured due to the fragmented nature of electronic health care data.
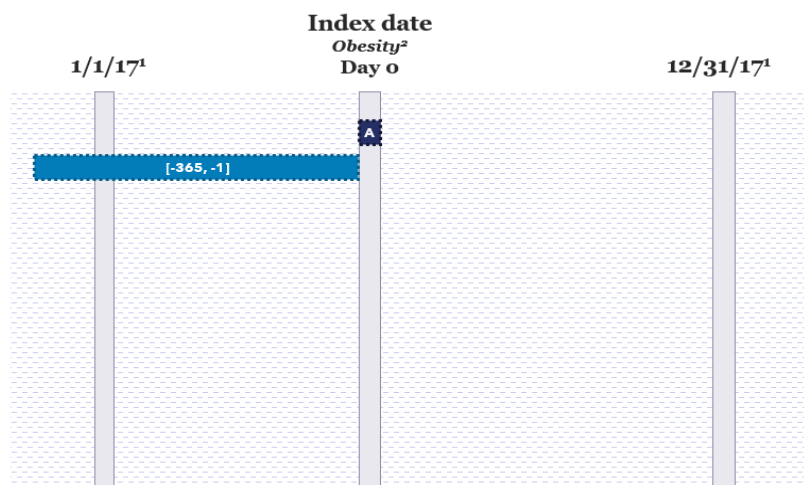
1. Repeat for each additional year: 2018-2023
2. Repeat for each additional covariate of interest: BMI, smoking, diastolic blood pressure, and systolic blood pressure

TriNetX Design Diagram – Incident & Prevalent Denominator

Cohort Identification Criteria
Criteria A: Visit

Inclusion Criteria
Additional visit in the 365-days before index

Index date
Visit
Day 0

1/1/17[1]

12/31/17[1]

A

[-365, -1]

NOTE: Data obtained from the TriNetX Live® platform in the USA Network No Shift.
Events occurring outside of a given HCO may not be captured due to the fragmented nature of electronic health care data.

1. Repeat for each additional year: 2018-2023