

## 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\_mpl2r\_wp020, Report 1

**Request ID:** cder\_mpl2r\_wp020

**Request Description:** In this request, we assessed the risk of angioedema following initiation of treatment with angiotensin converting enzyme inhibitors (ACEi) or beta blockers (BB) using data from 2018 to 2022. To estimate changes in healthcare utilization throughout the pandemic, we selected three time periods to study, resulting in three reports: Report 1: pre-pandemic (2018 and 2019 years) which is this report, Report 2: mix of pre-pandemic and pandemic (2019 and 2020), and Report 3: pandemic (2020 to 2022).

**Sentinel Routine Querying Module:** Cohort Identification and Descriptive Analysis (CIDA) module, version 12.1.2, with Propensity Score Analysis (PSA) module

**Data Source:** We ran this query against Merative™ MarketScan® Research Databases on September 13, 2023. The study period included data from May 22, 2018 through April 1, 2022. Please see Appendix A for dates of available data.

**Study Design:** We identified individuals newly initiating treatment with ACEi or BB with no history of use of other antihypertensive medications or angioedema and evaluated the occurrence of angioedema during the first qualifying (index) exposure episode. We used propensity score methods to control for confounding. We selected three time periods to study: pre-pandemic (2018 and 2019 years), mix (2019 and 2020), and pandemic (2020 to 2022). We also used two lookback periods, which are represented in each report.

**Exposure of Interest:** New use of ACEi or BB was defined as no prior use of either study drug in the baseline period. We defined exposures of interest using NDCs. Please see Appendix B for a list of generic names of medical products used to define exposures of interest.

**Outcome of Interest:** We defined our outcome of interest, angioedema, as an angioedema diagnosis code recorded in any diagnostic position of an inpatient, emergency department, or outpatient encounter. Please see Appendix C for a list of ICD-10-CM diagnosis codes used to define the outcome of interest.

**Follow-up Time:** We followed individuals in an as-treated fashion up to a maximum of 90 days and therefore, the follow-up time was based on the length of the exposure episode. We created exposure episodes using days supply recorded in the outpatient pharmacy dispensing data. We bridged together dispensings less than 14 days apart in covered days and added 14 days at the end of each exposure episode to create continuous treatment episodes. Follow-up began on the day after treatment initiation and continued until the earliest of any of the following: 1) outcome occurrence; 2) treatment discontinuation or crossover; 3) initiation of treatment with aliskiren or ARBs; 4) disenrollment; 5) recorded death; or 5) 90 days since treatment initiation. Only the first valid exposure episode that occurred during the study period was included per patient.

**Baseline Characteristics:** We measured demographic characteristics such as age, sex, race, ethnicity, and year of treatment initiation for all individuals who entered the study cohorts on the day of cohort entry. Additionally, we measured the following clinical characteristics at baseline: allergic reaction, diabetes, heart failure, ischemic heart disease, NSAID use, acquired hypothyroidism, acute myocardial infarction, Alzheimer's disease and related disorders or senile dementia, anemia, asthma, atrial fibrillation, benign prostatic hyperplasia, cataract, chronic kidney disease, chronic obstructive pulmonary disease and bronchiectasis, depression, glaucoma, hip or pelvic fracture, hyperlipidemia, hypertension, osteoporosis, rheumatoid arthritis or osteoarthritis, stroke or transient ischemic attack, breast cancer, colorectal cancer, prostate cancer, lung cancer, endometrial cancer, urologic cancer, and the Charlson-Elixhauser Combined Comorbidity Index. We defined NSAID use using NDCs. Please see Appendix F for a list of generic names of medical products and Appendix G for a list of ICD-10-CM diagnosis codes used to define baseline characteristics.

**Propensity Score Estimation:** We estimated the probability of initiating treatment with ACEi using logistic regression models run at each data partner site. These models included the following characteristics: age, sex, history of diabetes, allergic reactions, heart failure, ischemic heart disease, NSAID use, Charlson-Elixhauser Combined Comorbidity Index, and health care utilization (number of inpatient hospital stays, non-acute institutional stays, emergency department visits, ambulatory visits, and other ambulatory visits) and drug utilization measures (number of dispensings, unique generics dispensed, and unique drug classes dispensed). We used propensity scores to perform matching and stratification separately in order to control for confounding.

### Overview for Request: cder\_mpl2r\_wp020, Report 1

**Matching:** We matched ACEi new users to BB new users at each data partner site on their estimated propensity scores. We conducted 1:1 nearest neighbor matching without replacement using a caliper of 0.025 on the propensity score scale.

**Stratification:** We created five strata based on quintiles of the overall propensity score distribution among ACEi and BB new users. The overall propensity score distribution was trimmed to exclude regions of non-overlap between ACEi and BB new users.

**Statistical Analysis:** We used a risk set-based approach (case centered logistic regression) to estimate the hazard ratio and 95% confidence intervals for the site-adjusted, unconditional (matched), and conditional analyses.

**Subgroup analysis:** We estimated the risk of angioedema following initiation of ACEi relative to BB in subgroups created by year of cohort entry. In the propensity score matched analysis, subgroups were created from the overall matched population, and individuals were re-matched within the subgroup based on their overall propensity score. In the propensity score stratified analysis, subgroups were created from the overall trimmed population.

Please see Appendices H and I for the specifications of parameters used in this request and a design diagram.

**Limitations:** Algorithms used to define exposures, outcomes, inclusion and exclusion criteria, and covariates are imperfect and may be misclassified. Therefore, data should be interpreted with this limitation in mind.

**Notes:** Please contact the Sentinel Operations Center ([info@sentinelssystem.org](mailto:info@sentinelssystem.org)) for questions and to provide comments/suggestions for future enhancements to this document. For more information on Sentinel's routine querying modules, please refer to the documentation (<https://dev.sentinelssystem.org/projects/SETINEL/repos/sentinel-routine-querying-tool-documentation/browse>).

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

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

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

**Care Setting** - type of medical encounter or facility where the exposure, event, or condition code was recorded.

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

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

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

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

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

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

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

**Code Days** - the minimum number of times the diagnosis must be found during the evaluation period in order to fulfill the algorithm to identify the corresponding patient characteristic.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\*all terms may not be used in this report

**Glossary of Terms for Analyses Using  
Propensity Score Analysis (PSA) Module\***

**Covariate** - requester defined binary variable to include in the propensity score estimation model (e.g., diabetes, heart failure, etc.) during requester-defined lookback period. Requester may also choose to add any of the following categorical, continuous, or count metrics to the propensity score estimation model:

1. Age (continuous)
2. Sex
3. Time period (i.e., monitoring period for sequential analyses)
4. Year of exposure
5. Comorbidity score
6. Medical utilization – number of inpatient stays
7. Medical utilization – number of institutional stays
8. Medical utilization – number of emergency department visits
9. Medical utilization – number of outpatient visits
10. Health care utilization – number of other ambulatory encounters (e.g., telemedicine, email consults)
11. Drug utilization – number of dispensings
12. Drug utilization – number of unique generics dispensed
13. Drug Utilization – number of unique drug classes dispensed

**Covariate Evaluation Window** - specified number of days relative to index date to evaluate the occurrence of covariates of interest. Note: members are required to have continuous enrollment during the covariate evaluation window, regardless of the value included in the "Continuous enrollment before exposure" field.

**Individual Level Data Return** - program may return individual-level, de-identified datasets to the Sentinel Operations Center (SOC). While the datasets contain a single row per patient for each specified analysis, patient identifiers such as a patient ID are not included in the output. Individual-level datasets are returned to the SOC, aggregated, and used to calculate effect estimates via Cox (proportional hazards) regression.

**Mahalanobis Distance** - provides a measure of balance across all variables while accounting for their correlation.

**Matching Caliper** - maximum allowed difference in propensity scores between treatment and control patients. Requester may select any caliper (e.g., 0.01, 0.025, and 0.05).

**Matching Ratio** - patients in exposed and comparator groups are nearest neighbor matched by a 1:1 or 1:n (up to 10) matching

**Matched Conditional and Unconditional Analysis** - in a conditional matched analysis, a Cox model, stratified by Data Partner site and matched set, is run on the matched population. This can be done for both the both 1:1 and 1:n matched cohorts. In an unconditional analysis, a Cox model, stratified by Data Partner site only, is run on the matched population. This can be done for the 1:1 matched cohort only.

**Propensity Score Stratification** - option to stratify propensity scores based on requester-defined percentiles in the unmatched population. In a stratified analysis, a Cox model, stratified by Data Partner site, is run on the stratified population. Note that all patients identified in exposure and comparator cohorts are used in the analysis.

**PSM Tool** - performs effect estimation by comparing exposure propensity-score matched parallel new user cohorts. Propensity score estimation and matching are conducted within each Sentinel Data Partner site via distributed programming code; data are returned to the SOC, aggregated, and used to calculate effect estimates.

**Glossary of Terms for Analyses Using  
Propensity Score Analysis (PSA) Module\***

**Risk-set Level Data Return** - alternative to the patient-level data return approach. In this approach, the PSM tool will produce de-identified, risk-set level datasets instead of or in addition to individual-level output. Whereas each observation in the patient-level datasets represents one patient in the cohort, each observation in the risk set dataset represents one event. Risk sets are created at the Data Partner site, returned to the SOC, aggregated, and used to calculate effect estimates via case-centered logistic regression.

**Subgroup Analysis** -may be conducted using any requester-defined covariates. Subgroup analyses may be performed in the

**Zero Cell Correction** - indicator for whether to screen variables with a zero correction added to each cell in the confounder/outcome 2x2 table. Recommended when the number of exposed outcomes is fewer than 150.

\*all terms may not be used in this report

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	253,313	100.0%	235,735	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.5	45.6	15.1	4.787	0.357
Age						
18-44 years	76,952	30.4%	113,754	48.3%	-17.877	-0.372
45-64 years	162,417	64.1%	105,686	44.8%	19.285	0.395
≥ 65 years	13,944	5.5%	16,295	6.9%	-1.408	-0.058
Sex						
Female	109,094	43.1%	144,628	61.4%	-18.285	-0.372
Male	144,219	56.9%	91,107	38.6%	18.285	0.372
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	253,313	100.0%	235,735	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	253,313	100.0%	235,735	100.0%	0.000	NaN
Year						
2018	99,808	39.4%	93,967	39.9%	-0.460	-0.009
2019	153,505	60.6%	141,768	60.1%	0.460	0.009
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.1	0.8	1.7	-0.657	-0.446
Allergic Reaction	14,616	5.8%	20,368	8.6%	-2.870	-0.111
Diabetes	41,334	16.3%	18,265	7.7%	8.569	0.266
Heart Failure	2,367	0.9%	9,239	3.9%	-2.985	-0.195
Ischemic Heart Disease	6,290	2.5%	22,092	9.4%	-6.888	-0.295
NSAID Use	38,907	15.4%	38,292	16.2%	-0.884	-0.024

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	16,880	6.7%	20,357	8.6%	-1.972	-0.074
Acute Myocardial Infarction <sup>5</sup>	1,225	0.5%	8,869	3.8%	-3.279	-0.229
Alzheimers Disease and Related Disorders <sup>5</sup>	769	0.3%	1,660	0.7%	-0.401	-0.057
Anemia <sup>5</sup>	10,981	4.3%	21,349	9.1%	-4.721	-0.190
Asthma <sup>5</sup>	9,229	3.6%	12,528	5.3%	-1.671	-0.081
Atrial Fibrillation <sup>5</sup>	2,033	0.8%	13,225	5.6%	-4.808	-0.275
Benign Prostatic Hyperplasia <sup>5</sup>	4,788	1.9%	4,617	2.0%	-0.068	-0.005
Cataract <sup>5</sup>	9,133	3.6%	7,893	3.3%	0.257	0.014
Chronic Kidney Disease <sup>5</sup>	21,429	8.5%	16,956	7.2%	1.267	0.047
Bronchiectasis <sup>5</sup>	6,685	2.6%	9,524	4.0%	-1.401	-0.078
Depression <sup>5</sup>	19,563	7.7%	39,090	16.6%	-8.859	-0.274
Glaucoma <sup>5</sup>	6,413	2.5%	5,687	2.4%	0.119	0.008
Hip or Pelvic Fracture <sup>5</sup>	241	0.1%	478	0.2%	-0.108	-0.028
Hyperlipidemia <sup>5</sup>	60,658	23.9%	50,862	21.6%	2.370	0.057
Hypertension <sup>5</sup>	96,582	38.1%	66,791	28.3%	9.794	0.209
Osteoporosis <sup>5</sup>	1,980	0.8%	2,846	1.2%	-0.426	-0.043
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	24,800	9.8%	24,404	10.4%	-0.562	-0.019
Stroke or Transient Ischemic Attack <sup>5</sup>	3,917	1.5%	5,106	2.2%	-0.620	-0.046
Breast Cancer <sup>5</sup>	2,310	0.9%	3,110	1.3%	-0.407	-0.039
Colorectal Cancer <sup>5</sup>	809	0.3%	921	0.4%	-0.071	-0.012
Prostate Cancer <sup>5</sup>	1,458	0.6%	1,392	0.6%	-0.015	-0.002
Lung Cancer <sup>5</sup>	284	0.1%	969	0.4%	-0.299	-0.059
Endometrial Cancer <sup>5</sup>	309	0.1%	310	0.1%	-0.010	-0.003
Urologic Cancer <sup>5</sup>	363	0.1%	487	0.2%	-0.063	-0.015
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.6	9.3	-2.941	-0.366
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.180	-0.210
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.166	-0.368
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.023
Mean number of other ambulatory encounters	1.0	2.7	1.7	4.4	-0.709	-0.194
Mean number of filled prescriptions	6.2	8.2	8.4	10.2	-2.252	-0.243



**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.2	4.1	-1.042	-0.280
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.7	-0.993	-0.291

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1b. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	146,561	57.9%	146,561	62.2%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.9	13.9	-0.674	-0.052
Age						
18-44 years	55,851	38.1%	55,269	37.7%	0.397	0.008
45-64 years	84,113	57.4%	79,784	54.4%	2.954	0.060
≥ 65 years	6,597	4.5%	11,508	7.9%	-3.351	-0.140
Sex						
Female	79,282	54.1%	76,213	52.0%	2.094	0.042
Male	67,279	45.9%	70,348	48.0%	-2.094	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	146,561	100.0%	146,561	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	146,561	100.0%	146,561	100.0%	0.000	NaN
Year						
2018	57,825	39.5%	58,665	40.0%	-0.573	-0.012
2019	88,736	60.5%	87,896	60.0%	0.573	0.012
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.051	-0.040
Allergic Reaction	10,095	6.9%	10,079	6.9%	0.011	0.000
Diabetes	15,054	10.3%	13,832	9.4%	0.834	0.028
Heart Failure	2,212	1.5%	2,778	1.9%	-0.386	-0.030
Ischemic Heart Disease	5,995	4.1%	6,419	4.4%	-0.289	-0.014
NSAID Use	23,024	15.7%	22,927	15.6%	0.066	0.002

**Table 1b. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,951	7.5%	11,444	7.8%	-0.336	-0.013
Acute Myocardial Infarction <sup>5</sup>	1,189	0.8%	2,243	1.5%	-0.719	-0.067
Alzheimers Disease and Related Disorders <sup>5</sup>	604	0.4%	599	0.4%	0.003	0.001
Anemia <sup>5</sup>	8,495	5.8%	7,841	5.3%	0.446	0.019
Asthma <sup>5</sup>	7,282	5.0%	5,073	3.5%	1.507	0.075
Atrial Fibrillation <sup>5</sup>	1,536	1.0%	7,423	5.1%	-4.017	-0.235
Benign Prostatic Hyperplasia <sup>5</sup>	2,130	1.5%	3,285	2.2%	-0.788	-0.059
Cataract <sup>5</sup>	4,595	3.1%	5,566	3.8%	-0.663	-0.036
Chronic Kidney Disease <sup>5</sup>	11,186	7.6%	8,659	5.9%	1.724	0.069
Bronchiectasis <sup>5</sup>	5,040	3.4%	4,062	2.8%	0.667	0.038
Depression <sup>5</sup>	15,670	10.7%	15,443	10.5%	0.155	0.005
Glaucoma <sup>5</sup>	3,345	2.3%	3,876	2.6%	-0.362	-0.023
Hip or Pelvic Fracture <sup>5</sup>	204	0.1%	196	0.1%	0.005	0.001
Hyperlipidemia <sup>5</sup>	31,373	21.4%	33,019	22.5%	-1.123	-0.027
Hypertension <sup>5</sup>	53,144	36.3%	44,918	30.6%	5.613	0.119
Osteoporosis <sup>5</sup>	1,297	0.9%	1,701	1.2%	-0.276	-0.027
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	15,491	10.6%	14,735	10.1%	0.516	0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	2,733	1.9%	2,497	1.7%	0.161	0.012
Breast Cancer <sup>5</sup>	1,859	1.3%	1,495	1.0%	0.248	0.023
Colorectal Cancer <sup>5</sup>	615	0.4%	372	0.3%	0.166	0.029
Prostate Cancer <sup>5</sup>	746	0.5%	907	0.6%	-0.110	-0.015
Lung Cancer <sup>5</sup>	248	0.2%	241	0.2%	0.005	0.001
Endometrial Cancer <sup>5</sup>	251	0.2%	144	0.1%	0.073	0.020
Urologic Cancer <sup>5</sup>	265	0.2%	220	0.2%	0.031	0.008
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.7	5.6	6.7	-0.044	-0.006
Mean number of emergency room encounters	0.3	0.8	0.3	0.8	-0.010	-0.013
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.011	-0.030
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.003
Mean number of other ambulatory encounters	1.1	3.2	1.2	3.2	-0.053	-0.017
Mean number of filled prescriptions	7.0	9.0	7.0	8.7	0.011	0.001

**Table 1b. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.005	0.001
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.2	0.007	0.002

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1c. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	57,825	100.0%	58,665	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.3	11.9	49.0	13.8	-0.756	-0.059
Age						
18-44 years	21,805	37.7%	21,793	37.1%	0.560	0.012
45-64 years	33,488	57.9%	32,286	55.0%	2.878	0.058
≥ 65 years	2,532	4.4%	4,586	7.8%	-3.439	-0.144
Sex						
Female	31,453	54.4%	30,660	52.3%	2.131	0.043
Male	26,372	45.6%	28,005	47.7%	-2.131	-0.043
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	57,825	100.0%	58,665	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	-	-	-	-	-	-
Year						
2018	57,825	100.0%	58,665	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.039	-0.030
Allergic Reaction	3,829	6.6%	3,895	6.6%	-0.018	-0.001
Diabetes	6,092	10.5%	5,411	9.2%	1.312	0.044
Heart Failure	891	1.5%	1,096	1.9%	-0.327	-0.025
Ischemic Heart Disease	2,348	4.1%	2,558	4.4%	-0.300	-0.015
NSAID Use	9,149	15.8%	9,450	16.1%	-0.287	-0.008

**Table 1c. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,290	7.4%	4,515	7.7%	-0.277	-0.010
Acute Myocardial Infarction <sup>5</sup>	484	0.8%	865	1.5%	-0.637	-0.060
Alzheimers Disease and Related Disorders <sup>5</sup>	243	0.4%	244	0.4%	0.004	0.001
Anemia <sup>5</sup>	3,335	5.8%	3,119	5.3%	0.451	0.020
Asthma <sup>5</sup>	2,871	5.0%	2,013	3.4%	1.534	0.077
Atrial Fibrillation <sup>5</sup>	593	1.0%	2,932	5.0%	-3.972	-0.234
Benign Prostatic Hyperplasia <sup>5</sup>	819	1.4%	1,256	2.1%	-0.725	-0.055
Cataract <sup>5</sup>	1,750	3.0%	2,111	3.6%	-0.572	-0.032
Chronic Kidney Disease <sup>5</sup>	4,477	7.7%	3,362	5.7%	2.011	0.080
Bronchiectasis <sup>5</sup>	1,943	3.4%	1,604	2.7%	0.626	0.036
Depression <sup>5</sup>	5,986	10.4%	5,988	10.2%	0.145	0.005
Glaucoma <sup>5</sup>	1,235	2.1%	1,527	2.6%	-0.467	-0.031
Hip or Pelvic Fracture <sup>5</sup>	80	0.1%	89	0.2%	-0.013	-0.004
Hyperlipidemia <sup>5</sup>	12,318	21.3%	13,091	22.3%	-1.013	-0.025
Hypertension <sup>5</sup>	20,982	36.3%	17,865	30.5%	5.833	0.124
Osteoporosis <sup>5</sup>	519	0.9%	671	1.1%	-0.246	-0.025
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,083	10.5%	5,872	10.0%	0.510	0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	1,083	1.9%	1,018	1.7%	0.138	0.010
Breast Cancer <sup>5</sup>	765	1.3%	575	1.0%	0.343	0.032
Colorectal Cancer <sup>5</sup>	233	0.4%	165	0.3%	0.122	0.021
Prostate Cancer <sup>5</sup>	271	0.5%	377	0.6%	-0.174	-0.023
Lung Cancer <sup>5</sup>	109	0.2%	87	0.1%	0.040	0.010
Endometrial Cancer <sup>5</sup>	96	0.2%	49	0.1%	0.082	0.023
Urologic Cancer <sup>5</sup>	117	0.2%	80	0.1%	0.066	0.016
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.7	5.6	6.8	0.004	0.001
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.007	-0.009
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.008	-0.021
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.003
Mean number of other ambulatory encounters	1.1	3.1	1.1	2.9	-0.029	-0.010
Mean number of filled prescriptions	7.1	9.2	7.2	8.9	-0.044	-0.005



**Table 1c. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.6	-0.024	-0.007
Mean number of unique drug classes dispensed	3.3	3.3	3.3	3.3	-0.024	-0.007

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1d. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	57,713	99.8%	57,713	98.4%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.3	11.9	49.0	13.8	-0.758	-0.059
Age						
18-44 years	21,782	37.7%	21,461	37.2%	0.556	0.011
45-64 years	33,423	57.9%	31,759	55.0%	2.883	0.058
≥ 65 years	2,508	4.3%	4,493	7.8%	-3.439	-0.144
Sex						
Female	31,394	54.4%	30,187	52.3%	2.091	0.042
Male	26,319	45.6%	27,526	47.7%	-2.091	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	.	.	.	.	.	.
Asian	.	.	.	.	.	.
Black or African American	.	.	.	.	.	.
Multi-racial	.	.	.	.	.	.
Unknown	57,713	100.0%	57,713	100.0%	0.000	NaN
White	.	.	.	.	.	.
Hispanic origin						
Yes	.	.	.	.	.	.
No	.	.	.	.	.	.
Unknown	57,713	100.0%	57,713	100.0%	0.000	NaN
Year						
2018	57,713	100.0%	57,713	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.043	-0.034
Allergic Reaction	3,817	6.6%	3,832	6.6%	-0.026	-0.001
Diabetes	6,054	10.5%	5,317	9.2%	1.277	0.043
Heart Failure	874	1.5%	1,077	1.9%	-0.352	-0.027
Ischemic Heart Disease	2,319	4.0%	2,517	4.4%	-0.343	-0.017
NSAID Use	9,136	15.8%	9,321	16.2%	-0.321	-0.009

**Table 1d. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,276	7.4%	4,451	7.7%	-0.303	-0.011
Acute Myocardial Infarction <sup>5</sup>	472	0.8%	851	1.5%	-0.657	-0.062
Alzheimers Disease and Related Disorders <sup>5</sup>	240	0.4%	239	0.4%	0.002	0.000
Anemia <sup>5</sup>	3,312	5.7%	3,078	5.3%	0.405	0.018
Asthma <sup>5</sup>	2,863	5.0%	1,974	3.4%	1.540	0.077
Atrial Fibrillation <sup>5</sup>	586	1.0%	2,885	5.0%	-3.984	-0.235
Benign Prostatic Hyperplasia <sup>5</sup>	817	1.4%	1,233	2.1%	-0.721	-0.055
Cataract <sup>5</sup>	1,746	3.0%	2,075	3.6%	-0.570	-0.032
Chronic Kidney Disease <sup>5</sup>	4,457	7.7%	3,307	5.7%	1.993	0.080
Bronchiectasis <sup>5</sup>	1,928	3.3%	1,587	2.7%	0.591	0.034
Depression <sup>5</sup>	5,961	10.3%	5,892	10.2%	0.120	0.004
Glaucoma <sup>5</sup>	1,233	2.1%	1,501	2.6%	-0.464	-0.031
Hip or Pelvic Fracture <sup>5</sup>	80	0.1%	89	0.2%	-0.016	-0.004
Hyperlipidemia <sup>5</sup>	12,271	21.3%	12,860	22.3%	-1.021	-0.025
Hypertension <sup>5</sup>	20,923	36.3%	17,577	30.5%	5.798	0.123
Osteoporosis <sup>5</sup>	518	0.9%	663	1.1%	-0.251	-0.025
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,067	10.5%	5,781	10.0%	0.496	0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	1,072	1.9%	1,004	1.7%	0.118	0.009
Breast Cancer <sup>5</sup>	760	1.3%	564	1.0%	0.340	0.032
Colorectal Cancer <sup>5</sup>	227	0.4%	163	0.3%	0.111	0.019
Prostate Cancer <sup>5</sup>	270	0.5%	371	0.6%	-0.175	-0.024
Lung Cancer <sup>5</sup>	105	0.2%	86	0.1%	0.033	0.008
Endometrial Cancer <sup>5</sup>	94	0.2%	49	0.1%	0.078	0.022
Urologic Cancer <sup>5</sup>	116	0.2%	78	0.1%	0.066	0.016
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.5	7.7	5.6	6.8	-0.012	-0.002
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.007	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.009	-0.024
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.003
Mean number of other ambulatory encounters	1.1	3.1	1.1	2.9	-0.035	-0.012
Mean number of filled prescriptions	7.1	9.2	7.2	8.9	-0.057	-0.006

**Table 1d. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.6	-0.030	-0.008
Mean number of unique drug classes dispensed	3.3	3.3	3.3	3.3	-0.029	-0.009

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1e. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	88,736	100.0%	87,896	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.8	13.9	-0.619	-0.048
Age						
18-44 years	34,046	38.4%	33,476	38.1%	0.282	0.006
45-64 years	50,625	57.1%	47,498	54.0%	3.012	0.061
≥ 65 years	4,065	4.6%	6,922	7.9%	-3.294	-0.137
Sex						
Female	47,829	53.9%	45,553	51.8%	2.074	0.042
Male	40,907	46.1%	42,343	48.2%	-2.074	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	88,736	100.0%	87,896	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	88,736	100.0%	87,896	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	88,736	100.0%	87,896	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.060	-0.046
Allergic Reaction	6,266	7.1%	6,184	7.0%	0.026	0.001
Diabetes	8,962	10.1%	8,421	9.6%	0.519	0.017
Heart Failure	1,321	1.5%	1,682	1.9%	-0.425	-0.033
Ischemic Heart Disease	3,647	4.1%	3,861	4.4%	-0.283	-0.014
NSAID Use	13,875	15.6%	13,477	15.3%	0.303	0.008

**Table 1e. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,661	7.5%	6,929	7.9%	-0.377	-0.014
Acute Myocardial Infarction <sup>5</sup>	705	0.8%	1,378	1.6%	-0.773	-0.072
Alzheimers Disease and Related Disorders <sup>5</sup>	361	0.4%	355	0.4%	0.003	0.000
Anemia <sup>5</sup>	5,160	5.8%	4,722	5.4%	0.443	0.019
Asthma <sup>5</sup>	4,411	5.0%	3,060	3.5%	1.490	0.074
Atrial Fibrillation <sup>5</sup>	943	1.1%	4,491	5.1%	-4.047	-0.236
Benign Prostatic Hyperplasia <sup>5</sup>	1,311	1.5%	2,029	2.3%	-0.831	-0.061
Cataract <sup>5</sup>	2,845	3.2%	3,455	3.9%	-0.725	-0.039
Chronic Kidney Disease <sup>5</sup>	6,709	7.6%	5,297	6.0%	1.534	0.061
Bronchiectasis <sup>5</sup>	3,097	3.5%	2,458	2.8%	0.694	0.040
Depression <sup>5</sup>	9,684	10.9%	9,455	10.8%	0.156	0.005
Glaucoma <sup>5</sup>	2,110	2.4%	2,349	2.7%	-0.295	-0.019
Hip or Pelvic Fracture <sup>5</sup>	124	0.1%	107	0.1%	0.018	0.005
Hyperlipidemia <sup>5</sup>	19,055	21.5%	19,928	22.7%	-1.198	-0.029
Hypertension <sup>5</sup>	32,162	36.2%	27,053	30.8%	5.466	0.116
Osteoporosis <sup>5</sup>	778	0.9%	1,030	1.2%	-0.295	-0.029
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,408	10.6%	8,863	10.1%	0.519	0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	1,650	1.9%	1,479	1.7%	0.177	0.013
Breast Cancer <sup>5</sup>	1,094	1.2%	920	1.0%	0.186	0.018
Colorectal Cancer <sup>5</sup>	382	0.4%	207	0.2%	0.195	0.034
Prostate Cancer <sup>5</sup>	475	0.5%	530	0.6%	-0.068	-0.009
Lung Cancer <sup>5</sup>	139	0.2%	154	0.2%	-0.019	-0.005
Endometrial Cancer <sup>5</sup>	155	0.2%	95	0.1%	0.067	0.018
Urologic Cancer <sup>5</sup>	148	0.2%	140	0.2%	0.008	0.002
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.6	5.7	6.7	-0.077	-0.011
Mean number of emergency room encounters	0.3	0.8	0.3	0.8	-0.012	-0.015
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.013	-0.036
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.002
Mean number of other ambulatory encounters	1.2	3.2	1.2	3.4	-0.070	-0.021
Mean number of filled prescriptions	6.9	8.9	6.9	8.5	0.049	0.006

**Table 1e. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.025	0.007
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.2	0.028	0.008

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 1f. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	87,782	98.9%	87,782	99.9%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.8	13.9	-0.624	-0.048
Age						
18-44 years	33,726	38.4%	33,433	38.1%	0.334	0.007
45-64 years	50,040	57.0%	47,455	54.1%	2.945	0.059
≥ 65 years	4,016	4.6%	6,894	7.9%	-3.279	-0.136
Sex						
Female	47,376	54.0%	45,485	51.8%	2.154	0.043
Male	40,406	46.0%	42,297	48.2%	-2.154	-0.043
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	87,782	100.0%	87,782	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	87,782	100.0%	87,782	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	87,782	100.0%	87,782	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.058	-0.045
Allergic Reaction	6,203	7.1%	6,170	7.0%	0.038	0.001
Diabetes	8,840	10.1%	8,389	9.6%	0.514	0.017
Heart Failure	1,310	1.5%	1,672	1.9%	-0.412	-0.032
Ischemic Heart Disease	3,611	4.1%	3,842	4.4%	-0.263	-0.013
NSAID Use	13,723	15.6%	13,454	15.3%	0.306	0.008

**Table 1f. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,583	7.5%	6,914	7.9%	-0.377	-0.014
Acute Myocardial Infarction <sup>5</sup>	699	0.8%	1,374	1.6%	-0.769	-0.071
Alzheimers Disease and Related Disorders <sup>5</sup>	358	0.4%	352	0.4%	0.007	0.001
Anemia <sup>5</sup>	5,102	5.8%	4,695	5.3%	0.464	0.020
Asthma <sup>5</sup>	4,345	4.9%	3,046	3.5%	1.480	0.074
Atrial Fibrillation <sup>5</sup>	936	1.1%	4,482	5.1%	-4.040	-0.235
Benign Prostatic Hyperplasia <sup>5</sup>	1,289	1.5%	2,025	2.3%	-0.838	-0.062
Cataract <sup>5</sup>	2,813	3.2%	3,443	3.9%	-0.718	-0.039
Chronic Kidney Disease <sup>5</sup>	6,625	7.5%	5,280	6.0%	1.532	0.061
Bronchiectasis <sup>5</sup>	3,056	3.5%	2,450	2.8%	0.690	0.040
Depression <sup>5</sup>	9,563	10.9%	9,425	10.7%	0.157	0.005
Glaucoma <sup>5</sup>	2,082	2.4%	2,345	2.7%	-0.300	-0.019
Hip or Pelvic Fracture <sup>5</sup>	122	0.1%	105	0.1%	0.019	0.005
Hyperlipidemia <sup>5</sup>	18,843	21.5%	19,886	22.7%	-1.188	-0.029
Hypertension <sup>5</sup>	31,811	36.2%	26,997	30.8%	5.484	0.116
Osteoporosis <sup>5</sup>	766	0.9%	1,025	1.2%	-0.295	-0.029
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,320	10.6%	8,836	10.1%	0.551	0.018
Stroke or Transient Ischemic Attack <sup>5</sup>	1,634	1.9%	1,469	1.7%	0.188	0.014
Breast Cancer <sup>5</sup>	1,084	1.2%	914	1.0%	0.194	0.018
Colorectal Cancer <sup>5</sup>	379	0.4%	206	0.2%	0.197	0.034
Prostate Cancer <sup>5</sup>	468	0.5%	528	0.6%	-0.068	-0.009
Lung Cancer <sup>5</sup>	137	0.2%	152	0.2%	-0.017	-0.004
Endometrial Cancer <sup>5</sup>	151	0.2%	95	0.1%	0.064	0.017
Urologic Cancer <sup>5</sup>	144	0.2%	140	0.2%	0.005	0.001
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.6	5.7	6.7	-0.066	-0.009
Mean number of emergency room encounters	0.3	0.8	0.3	0.8	-0.011	-0.015
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.012	-0.034
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.002
Mean number of other ambulatory encounters	1.2	3.2	1.2	3.4	-0.067	-0.020
Mean number of filled prescriptions	6.9	8.9	6.9	8.5	0.049	0.006

**Table 1f. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.025	0.007
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.2	0.027	0.008

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1g. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	253,313	100.0%	235,735	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.5	45.6	15.1	4.787	0.357
Age						
18-44 years	76,952	30.4%	113,754	48.3%	-17.877	-0.372
45-64 years	162,417	64.1%	105,686	44.8%	19.285	0.395
≥ 65 years	13,944	5.5%	16,295	6.9%	-1.408	-0.058
Sex						
Female	109,094	43.1%	144,628	61.4%	-18.285	-0.372
Male	144,219	56.9%	91,107	38.6%	18.285	0.372
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	253,313	100.0%	235,735	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	253,313	100.0%	235,735	100.0%	0.000	NaN
Year						
2018	99,808	39.4%	93,967	39.9%	-0.460	-0.009
2019	153,505	60.6%	141,768	60.1%	0.460	0.009
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.1	0.8	1.7	-0.657	-0.446
Allergic Reaction	14,616	5.8%	20,368	8.6%	-2.870	-0.111
Diabetes	41,334	16.3%	18,265	7.7%	8.569	0.266
Heart Failure	2,367	0.9%	9,239	3.9%	-2.985	-0.195
Ischemic Heart Disease	6,290	2.5%	22,092	9.4%	-6.888	-0.295
NSAID Use	38,907	15.4%	38,292	16.2%	-0.884	-0.024

**Table 1g. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	16,880	6.7%	20,357	8.6%	-1.972	-0.074
Acute Myocardial Infarction <sup>5</sup>	1,225	0.5%	8,869	3.8%	-3.279	-0.229
Alzheimers Disease and Related Disorders <sup>5</sup>	769	0.3%	1,660	0.7%	-0.401	-0.057
Anemia <sup>5</sup>	10,981	4.3%	21,349	9.1%	-4.721	-0.190
Asthma <sup>5</sup>	9,229	3.6%	12,528	5.3%	-1.671	-0.081
Atrial Fibrillation <sup>5</sup>	2,033	0.8%	13,225	5.6%	-4.808	-0.275
Benign Prostatic Hyperplasia <sup>5</sup>	4,788	1.9%	4,617	2.0%	-0.068	-0.005
Cataract <sup>5</sup>	9,133	3.6%	7,893	3.3%	0.257	0.014
Chronic Kidney Disease <sup>5</sup>	21,429	8.5%	16,956	7.2%	1.267	0.047
Bronchiectasis <sup>5</sup>	6,685	2.6%	9,524	4.0%	-1.401	-0.078
Depression <sup>5</sup>	19,563	7.7%	39,090	16.6%	-8.859	-0.274
Glaucoma <sup>5</sup>	6,413	2.5%	5,687	2.4%	0.119	0.008
Hip or Pelvic Fracture <sup>5</sup>	241	0.1%	478	0.2%	-0.108	-0.028
Hyperlipidemia <sup>5</sup>	60,658	23.9%	50,862	21.6%	2.370	0.057
Hypertension <sup>5</sup>	96,582	38.1%	66,791	28.3%	9.794	0.209
Osteoporosis <sup>5</sup>	1,980	0.8%	2,846	1.2%	-0.426	-0.043
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	24,800	9.8%	24,404	10.4%	-0.562	-0.019
Stroke or Transient Ischemic Attack <sup>5</sup>	3,917	1.5%	5,106	2.2%	-0.620	-0.046
Breast Cancer <sup>5</sup>	2,310	0.9%	3,110	1.3%	-0.407	-0.039
Colorectal Cancer <sup>5</sup>	809	0.3%	921	0.4%	-0.071	-0.012
Prostate Cancer <sup>5</sup>	1,458	0.6%	1,392	0.6%	-0.015	-0.002
Lung Cancer <sup>5</sup>	284	0.1%	969	0.4%	-0.299	-0.059
Endometrial Cancer <sup>5</sup>	309	0.1%	310	0.1%	-0.010	-0.003
Urologic Cancer <sup>5</sup>	363	0.1%	487	0.2%	-0.063	-0.015
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.6	9.3	-2.941	-0.366
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.180	-0.210
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.166	-0.368
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.023
Mean number of other ambulatory encounters	1.0	2.7	1.7	4.4	-0.709	-0.194
Mean number of filled prescriptions	6.2	8.2	8.4	10.2	-2.252	-0.243

**Table 1g. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.2	4.1	-1.042	-0.280
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.7	-0.993	-0.291

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1h. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	146,532	57.8%	146,532	62.2%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.9	13.9	-0.700	-0.054
Age						
18-44 years	55,729	38.0%	55,229	37.7%	0.341	0.007
45-64 years	84,242	57.5%	79,672	54.4%	3.119	0.063
≥ 65 years	6,561	4.5%	11,631	7.9%	-3.460	-0.144
Sex						
Female	79,343	54.1%	76,039	51.9%	2.255	0.045
Male	67,189	45.9%	70,493	48.1%	-2.255	-0.045
Race <sup>3</sup>						
American Indian or Alaska Native	.	.	.	.	.	.
Asian	.	.	.	.	.	.
Black or African American	.	.	.	.	.	.
Multi-racial	.	.	.	.	.	.
Unknown	146,532	100.0%	146,532	100.0%	0.000	NaN
White	.	.	.	.	.	.
Hispanic origin						
Yes	.	.	.	.	.	.
No	.	.	.	.	.	.
Unknown	146,532	100.0%	146,532	100.0%	0.000	NaN
Year						
2018	58,037	39.6%	58,197	39.7%	-0.109	-0.002
2019	88,495	60.4%	88,335	60.3%	0.109	0.002
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.055	-0.043
Allergic Reaction	10,153	6.9%	10,121	6.9%	0.022	0.001
Diabetes	15,159	10.3%	13,873	9.5%	0.878	0.029
Heart Failure	2,207	1.5%	2,722	1.9%	-0.351	-0.027
Ischemic Heart Disease	6,002	4.1%	6,496	4.4%	-0.337	-0.017
NSAID Use	23,051	15.7%	22,922	15.6%	0.088	0.002



**Table 1h. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,995	7.5%	11,405	7.8%	-0.280	-0.011
Acute Myocardial Infarction <sup>5</sup>	1,191	0.8%	2,300	1.6%	-0.757	-0.070
Alzheimers Disease and Related Disorders <sup>5</sup>	619	0.4%	627	0.4%	-0.005	-0.001
Anemia <sup>5</sup>	8,539	5.8%	7,917	5.4%	0.424	0.018
Asthma <sup>5</sup>	7,275	5.0%	5,107	3.5%	1.480	0.074
Atrial Fibrillation <sup>5</sup>	1,564	1.1%	7,413	5.1%	-3.992	-0.233
Benign Prostatic Hyperplasia <sup>5</sup>	2,187	1.5%	3,298	2.3%	-0.758	-0.056
Cataract <sup>5</sup>	4,580	3.1%	5,565	3.8%	-0.672	-0.037
Chronic Kidney Disease <sup>5</sup>	11,250	7.7%	8,705	5.9%	1.737	0.069
Bronchiectasis <sup>5</sup>	5,060	3.5%	4,110	2.8%	0.648	0.037
Depression <sup>5</sup>	15,723	10.7%	15,415	10.5%	0.210	0.007
Glaucoma <sup>5</sup>	3,442	2.3%	3,922	2.7%	-0.328	-0.021
Hip or Pelvic Fracture <sup>5</sup>	204	0.1%	197	0.1%	0.005	0.001
Hyperlipidemia <sup>5</sup>	31,673	21.6%	33,091	22.6%	-0.968	-0.023
Hypertension <sup>5</sup>	53,565	36.6%	44,899	30.6%	5.914	0.125
Osteoporosis <sup>5</sup>	1,303	0.9%	1,656	1.1%	-0.241	-0.024
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	15,599	10.6%	14,869	10.1%	0.498	0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	2,804	1.9%	2,508	1.7%	0.202	0.015
Breast Cancer <sup>5</sup>	1,848	1.3%	1,477	1.0%	0.253	0.024
Colorectal Cancer <sup>5</sup>	607	0.4%	368	0.3%	0.163	0.028
Prostate Cancer <sup>5</sup>	734	0.5%	906	0.6%	-0.117	-0.016
Lung Cancer <sup>5</sup>	241	0.2%	264	0.2%	-0.016	-0.004
Endometrial Cancer <sup>5</sup>	247	0.2%	130	0.1%	0.080	0.022
Urologic Cancer <sup>5</sup>	275	0.2%	213	0.1%	0.042	0.010
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.7	5.7	6.8	-0.041	-0.006
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.009	-0.012
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.011	-0.029
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	0.000	0.000
Mean number of other ambulatory encounters	1.2	3.1	1.2	3.2	-0.047	-0.015
Mean number of filled prescriptions	7.0	9.0	7.0	8.7	0.028	0.003

**Table 1h. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.016	0.005
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.3	0.017	0.005

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1i. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	58,037	100.0%	58,197	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.3	11.9	49.1	13.9	-0.836	-0.065
Age						
18-44 years	21,904	37.7%	21,473	36.9%	0.844	0.017
45-64 years	33,586	57.9%	32,124	55.2%	2.671	0.054
≥ 65 years	2,547	4.4%	4,600	7.9%	-3.516	-0.147
Sex						
Female	31,543	54.3%	30,223	51.9%	2.418	0.048
Male	26,494	45.7%	27,974	48.1%	-2.418	-0.048
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	58,037	100.0%	58,197	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	58,037	100.0%	58,197	100.0%	0.000	NaN
Year						
2018	58,037	100.0%	58,197	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.047	-0.036
Allergic Reaction	3,890	6.7%	3,885	6.7%	0.027	0.001
Diabetes	6,154	10.6%	5,398	9.3%	1.328	0.044
Heart Failure	882	1.5%	1,052	1.8%	-0.288	-0.023
Ischemic Heart Disease	2,351	4.1%	2,572	4.4%	-0.369	-0.018
NSAID Use	9,268	16.0%	9,345	16.1%	-0.088	-0.002

**Table 1i. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,307	7.4%	4,454	7.7%	-0.232	-0.009
Acute Myocardial Infarction <sup>5</sup>	484	0.8%	905	1.6%	-0.721	-0.066
Alzheimers Disease and Related Disorders <sup>5</sup>	246	0.4%	251	0.4%	-0.007	-0.001
Anemia <sup>5</sup>	3,365	5.8%	3,121	5.4%	0.435	0.019
Asthma <sup>5</sup>	2,842	4.9%	2,025	3.5%	1.417	0.071
Atrial Fibrillation <sup>5</sup>	604	1.0%	2,908	5.0%	-3.956	-0.233
Benign Prostatic Hyperplasia <sup>5</sup>	884	1.5%	1,257	2.2%	-0.637	-0.047
Cataract <sup>5</sup>	1,759	3.0%	2,102	3.6%	-0.581	-0.032
Chronic Kidney Disease <sup>5</sup>	4,514	7.8%	3,387	5.8%	1.958	0.078
Bronchiectasis <sup>5</sup>	1,975	3.4%	1,635	2.8%	0.594	0.034
Depression <sup>5</sup>	6,050	10.4%	5,880	10.1%	0.321	0.011
Glaucoma <sup>5</sup>	1,290	2.2%	1,534	2.6%	-0.413	-0.027
Hip or Pelvic Fracture <sup>5</sup>	84	0.1%	89	0.2%	-0.008	-0.002
Hyperlipidemia <sup>5</sup>	12,479	21.5%	12,991	22.3%	-0.821	-0.020
Hypertension <sup>5</sup>	21,179	36.5%	17,782	30.6%	5.937	0.126
Osteoporosis <sup>5</sup>	520	0.9%	660	1.1%	-0.238	-0.024
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,166	10.6%	5,906	10.1%	0.476	0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	1,110	1.9%	1,024	1.8%	0.153	0.011
Breast Cancer <sup>5</sup>	753	1.3%	561	1.0%	0.333	0.032
Colorectal Cancer <sup>5</sup>	232	0.4%	150	0.3%	0.142	0.025
Prostate Cancer <sup>5</sup>	267	0.5%	364	0.6%	-0.165	-0.023
Lung Cancer <sup>5</sup>	109	0.2%	97	0.2%	0.021	0.005
Endometrial Cancer <sup>5</sup>	100	0.2%	44	0.1%	0.097	0.027
Urologic Cancer <sup>5</sup>	118	0.2%	83	0.1%	0.061	0.015
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.7	5.6	6.8	0.015	0.002
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.008	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.010	-0.026
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	0.000	0.001
Mean number of other ambulatory encounters	1.1	3.1	1.1	3.0	-0.031	-0.010
Mean number of filled prescriptions	7.2	9.2	7.1	8.9	0.032	0.003

**Table 1i. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.6	0.013	0.004
Mean number of unique drug classes dispensed	3.3	3.3	3.3	3.3	0.012	0.004

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1j. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	57,569	99.2%	57,569	98.9%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.3	11.9	49.1	13.8	-0.811	-0.063
Age						
18-44 years	21,701	37.7%	21,279	37.0%	0.733	0.015
45-64 years	33,353	57.9%	31,758	55.2%	2.771	0.056
≥ 65 years	2,515	4.4%	4,532	7.9%	-3.504	-0.147
Sex						
Female	31,204	54.2%	29,956	52.0%	2.168	0.043
Male	26,365	45.8%	27,613	48.0%	-2.168	-0.043
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	57,569	100.0%	57,569	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	57,569	100.0%	57,569	100.0%	0.000	NaN
Year						
2018	57,569	100.0%	57,569	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.050	-0.039
Allergic Reaction	3,849	6.7%	3,851	6.7%	-0.003	-0.000
Diabetes	6,095	10.6%	5,333	9.3%	1.324	0.044
Heart Failure	868	1.5%	1,046	1.8%	-0.309	-0.024
Ischemic Heart Disease	2,318	4.0%	2,538	4.4%	-0.382	-0.019
NSAID Use	9,194	16.0%	9,256	16.1%	-0.108	-0.003

**Table 1j. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,269	7.4%	4,412	7.7%	-0.248	-0.009
Acute Myocardial Infarction <sup>5</sup>	480	0.8%	894	1.6%	-0.719	-0.066
Alzheimers Disease and Related Disorders <sup>5</sup>	237	0.4%	250	0.4%	-0.023	-0.003
Anemia <sup>5</sup>	3,329	5.8%	3,089	5.4%	0.417	0.018
Asthma <sup>5</sup>	2,815	4.9%	2,005	3.5%	1.407	0.070
Atrial Fibrillation <sup>5</sup>	594	1.0%	2,883	5.0%	-3.976	-0.234
Benign Prostatic Hyperplasia <sup>5</sup>	876	1.5%	1,236	2.1%	-0.625	-0.047
Cataract <sup>5</sup>	1,742	3.0%	2,068	3.6%	-0.566	-0.032
Chronic Kidney Disease <sup>5</sup>	4,464	7.8%	3,348	5.8%	1.939	0.077
Bronchiectasis <sup>5</sup>	1,955	3.4%	1,618	2.8%	0.585	0.034
Depression <sup>5</sup>	5,978	10.4%	5,808	10.1%	0.295	0.010
Glaucoma <sup>5</sup>	1,271	2.2%	1,508	2.6%	-0.412	-0.027
Hip or Pelvic Fracture <sup>5</sup>	81	0.1%	88	0.2%	-0.012	-0.003
Hyperlipidemia <sup>5</sup>	12,367	21.5%	12,832	22.3%	-0.808	-0.020
Hypertension <sup>5</sup>	20,999	36.5%	17,572	30.5%	5.953	0.126
Osteoporosis <sup>5</sup>	514	0.9%	654	1.1%	-0.243	-0.024
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,103	10.6%	5,850	10.2%	0.439	0.014
Stroke or Transient Ischemic Attack <sup>5</sup>	1,100	1.9%	1,016	1.8%	0.146	0.011
Breast Cancer <sup>5</sup>	747	1.3%	557	1.0%	0.330	0.031
Colorectal Cancer <sup>5</sup>	229	0.4%	149	0.3%	0.139	0.024
Prostate Cancer <sup>5</sup>	265	0.5%	360	0.6%	-0.165	-0.022
Lung Cancer <sup>5</sup>	106	0.2%	97	0.2%	0.016	0.004
Endometrial Cancer <sup>5</sup>	98	0.2%	44	0.1%	0.094	0.027
Urologic Cancer <sup>5</sup>	114	0.2%	82	0.1%	0.056	0.013
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.7	5.6	6.7	0.003	0.000
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.009	-0.011
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.010	-0.027
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	0.000	0.001
Mean number of other ambulatory encounters	1.1	3.1	1.1	3.0	-0.033	-0.011
Mean number of filled prescriptions	7.2	9.2	7.1	8.9	0.019	0.002



**Table 1j. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.6	0.007	0.002
Mean number of unique drug classes dispensed	3.3	3.3	3.3	3.3	0.006	0.002

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1k. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	88,495	100.0%	88,335	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.8	13.9	-0.611	-0.047
Age						
18-44 years	33,825	38.2%	33,756	38.2%	0.009	0.000
45-64 years	50,656	57.2%	47,548	53.8%	3.415	0.069
≥ 65 years	4,014	4.5%	7,031	8.0%	-3.424	-0.142
Sex						
Female	47,800	54.0%	45,816	51.9%	2.148	0.043
Male	40,695	46.0%	42,519	48.1%	-2.148	-0.043
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	88,495	100.0%	88,335	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	88,495	100.0%	88,335	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	88,495	100.0%	88,335	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.061	-0.047
Allergic Reaction	6,263	7.1%	6,236	7.1%	0.018	0.001
Diabetes	9,005	10.2%	8,475	9.6%	0.582	0.019
Heart Failure	1,325	1.5%	1,670	1.9%	-0.393	-0.030
Ischemic Heart Disease	3,651	4.1%	3,924	4.4%	-0.317	-0.016
NSAID Use	13,783	15.6%	13,577	15.4%	0.205	0.006

**Table 1k. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,688	7.6%	6,951	7.9%	-0.311	-0.012
Acute Myocardial Infarction <sup>5</sup>	707	0.8%	1,395	1.6%	-0.780	-0.072
Alzheimers Disease and Related Disorders <sup>5</sup>	373	0.4%	376	0.4%	-0.004	-0.001
Anemia <sup>5</sup>	5,174	5.8%	4,796	5.4%	0.417	0.018
Asthma <sup>5</sup>	4,433	5.0%	3,082	3.5%	1.520	0.075
Atrial Fibrillation <sup>5</sup>	960	1.1%	4,505	5.1%	-4.015	-0.234
Benign Prostatic Hyperplasia <sup>5</sup>	1,303	1.5%	2,041	2.3%	-0.838	-0.062
Cataract <sup>5</sup>	2,821	3.2%	3,463	3.9%	-0.733	-0.040
Chronic Kidney Disease <sup>5</sup>	6,736	7.6%	5,318	6.0%	1.591	0.063
Bronchiectasis <sup>5</sup>	3,085	3.5%	2,475	2.8%	0.684	0.039
Depression <sup>5</sup>	9,673	10.9%	9,535	10.8%	0.136	0.004
Glaucoma <sup>5</sup>	2,152	2.4%	2,388	2.7%	-0.272	-0.017
Hip or Pelvic Fracture <sup>5</sup>	120	0.1%	108	0.1%	0.013	0.004
Hyperlipidemia <sup>5</sup>	19,194	21.7%	20,100	22.8%	-1.065	-0.026
Hypertension <sup>5</sup>	32,386	36.6%	27,117	30.7%	5.899	0.125
Osteoporosis <sup>5</sup>	783	0.9%	996	1.1%	-0.243	-0.024
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,433	10.7%	8,963	10.1%	0.513	0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	1,694	1.9%	1,484	1.7%	0.234	0.018
Breast Cancer <sup>5</sup>	1,095	1.2%	916	1.0%	0.200	0.019
Colorectal Cancer <sup>5</sup>	375	0.4%	218	0.2%	0.177	0.031
Prostate Cancer <sup>5</sup>	467	0.5%	542	0.6%	-0.086	-0.011
Lung Cancer <sup>5</sup>	132	0.1%	167	0.2%	-0.040	-0.010
Endometrial Cancer <sup>5</sup>	147	0.2%	86	0.1%	0.069	0.019
Urologic Cancer <sup>5</sup>	157	0.2%	130	0.1%	0.030	0.008
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.6	5.7	6.9	-0.077	-0.011
Mean number of emergency room encounters	0.3	0.8	0.3	0.8	-0.009	-0.012
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.011	-0.032
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.000
Mean number of other ambulatory encounters	1.2	3.1	1.2	3.3	-0.057	-0.018
Mean number of filled prescriptions	6.9	8.9	6.9	8.6	0.026	0.003

**Table 1k. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.018	0.005
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.2	0.021	0.006

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1I. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	87,862	99.3%	87,862	99.5%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.2	12.0	48.8	13.9	-0.645	-0.050
Age						
18-44 years	33,644	38.3%	33,509	38.1%	0.154	0.003
45-64 years	50,251	57.2%	47,375	53.9%	3.273	0.066
≥ 65 years	3,967	4.5%	6,978	7.9%	-3.427	-0.142
Sex						
Female	47,555	54.1%	45,496	51.8%	2.343	0.047
Male	40,307	45.9%	42,366	48.2%	-2.343	-0.047
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	87,862	100.0%	87,862	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	87,862	100.0%	87,862	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	87,862	100.0%	87,862	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	0.4	1.2	-0.061	-0.047
Allergic Reaction	6,219	7.1%	6,198	7.1%	0.024	0.001
Diabetes	8,912	10.1%	8,423	9.6%	0.557	0.019
Heart Failure	1,314	1.5%	1,656	1.9%	-0.389	-0.030
Ischemic Heart Disease	3,600	4.1%	3,891	4.4%	-0.331	-0.016
NSAID Use	13,675	15.6%	13,507	15.4%	0.191	0.005

**Table 1I. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,647	7.6%	6,905	7.9%	-0.294	-0.011
Acute Myocardial Infarction <sup>5</sup>	699	0.8%	1,382	1.6%	-0.777	-0.072
Alzheimers Disease and Related Disorders <sup>5</sup>	370	0.4%	374	0.4%	-0.005	-0.001
Anemia <sup>5</sup>	5,119	5.8%	4,753	5.4%	0.417	0.018
Asthma <sup>5</sup>	4,401	5.0%	3,056	3.5%	1.531	0.076
Atrial Fibrillation <sup>5</sup>	944	1.1%	4,481	5.1%	-4.026	-0.234
Benign Prostatic Hyperplasia <sup>5</sup>	1,291	1.5%	2,035	2.3%	-0.847	-0.062
Cataract <sup>5</sup>	2,797	3.2%	3,444	3.9%	-0.736	-0.040
Chronic Kidney Disease <sup>5</sup>	6,671	7.6%	5,284	6.0%	1.579	0.063
Bronchiectasis <sup>5</sup>	3,060	3.5%	2,452	2.8%	0.692	0.040
Depression <sup>5</sup>	9,594	10.9%	9,460	10.8%	0.153	0.005
Glaucoma <sup>5</sup>	2,135	2.4%	2,377	2.7%	-0.275	-0.017
Hip or Pelvic Fracture <sup>5</sup>	118	0.1%	106	0.1%	0.014	0.004
Hyperlipidemia <sup>5</sup>	19,027	21.7%	20,000	22.8%	-1.107	-0.027
Hypertension <sup>5</sup>	32,126	36.6%	26,987	30.7%	5.849	0.124
Osteoporosis <sup>5</sup>	776	0.9%	990	1.1%	-0.244	-0.024
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,342	10.6%	8,914	10.1%	0.487	0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	1,680	1.9%	1,476	1.7%	0.232	0.017
Breast Cancer <sup>5</sup>	1,091	1.2%	909	1.0%	0.207	0.020
Colorectal Cancer <sup>5</sup>	370	0.4%	217	0.2%	0.174	0.030
Prostate Cancer <sup>5</sup>	462	0.5%	539	0.6%	-0.088	-0.012
Lung Cancer <sup>5</sup>	128	0.1%	161	0.2%	-0.038	-0.009
Endometrial Cancer <sup>5</sup>	146	0.2%	86	0.1%	0.068	0.019
Urologic Cancer <sup>5</sup>	157	0.2%	130	0.1%	0.031	0.008
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	5.6	7.6	5.7	6.8	-0.073	-0.010
Mean number of emergency room encounters	0.3	0.8	0.3	0.7	-0.009	-0.012
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.011	-0.031
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	0.000	0.000
Mean number of other ambulatory encounters	1.2	3.1	1.2	3.2	-0.056	-0.018
Mean number of filled prescriptions	6.9	8.9	6.9	8.6	0.028	0.003

**Table 1I. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.5	3.6	3.5	3.5	0.021	0.006
Mean number of unique drug classes dispensed	3.3	3.4	3.3	3.2	0.023	0.007

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 1m. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	191,799	100.0%	180,617	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.7	11.6	45.8	15.4	4.891	0.359
Age						
18-44 years	57,039	29.7%	86,598	47.9%	-18.207	-0.380
45-64 years	123,162	64.2%	80,316	44.5%	19.747	0.404
≥ 65 years	11,598	6.0%	13,703	7.6%	-1.540	-0.061
Sex						
Female	83,324	43.4%	111,331	61.6%	-18.196	-0.371
Male	108,475	56.6%	69,286	38.4%	18.196	0.371
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	191,799	100.0%	180,617	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	191,799	100.0%	180,617	100.0%	0.000	NaN
Year						
2018	68,205	35.6%	65,471	36.2%	-0.688	-0.014
2019	123,594	64.4%	115,146	63.8%	0.688	0.014
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.753	-0.461
Allergic Reaction	18,335	9.6%	24,543	13.6%	-4.029	-0.126
Diabetes	33,304	17.4%	14,681	8.1%	9.236	0.280
Heart Failure	2,047	1.1%	7,592	4.2%	-3.136	-0.197
Ischemic Heart Disease	5,874	3.1%	18,720	10.4%	-7.302	-0.295
NSAID Use	42,149	22.0%	43,281	24.0%	-1.987	-0.047

**Table 1m. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	16,787	8.8%	19,638	10.9%	-2.120	-0.071
Acute Myocardial Infarction <sup>5</sup>	1,079	0.6%	7,341	4.1%	-3.502	-0.235
Alzheimers Disease and Related Disorders <sup>5</sup>	764	0.4%	1,605	0.9%	-0.490	-0.061
Anemia <sup>5</sup>	11,638	6.1%	20,947	11.6%	-5.530	-0.196
Asthma <sup>5</sup>	10,250	5.3%	13,559	7.5%	-2.163	-0.088
Atrial Fibrillation <sup>5</sup>	1,783	0.9%	11,155	6.2%	-5.246	-0.286
Benign Prostatic Hyperplasia <sup>5</sup>	5,630	2.9%	5,290	2.9%	0.007	0.000
Cataract <sup>5</sup>	11,629	6.1%	10,374	5.7%	0.319	0.014
Chronic Kidney Disease <sup>5</sup>	18,976	9.9%	14,636	8.1%	1.790	0.063
Bronchiectasis <sup>5</sup>	7,981	4.2%	10,494	5.8%	-1.649	-0.076
Depression <sup>5</sup>	19,602	10.2%	37,050	20.5%	-10.293	-0.288
Glaucoma <sup>5</sup>	7,396	3.9%	6,607	3.7%	0.198	0.010
Hip or Pelvic Fracture <sup>5</sup>	275	0.1%	506	0.3%	-0.137	-0.030
Hyperlipidemia <sup>5</sup>	59,255	30.9%	48,548	26.9%	4.015	0.089
Hypertension <sup>5</sup>	82,876	43.2%	55,448	30.7%	12.511	0.261
Osteoporosis <sup>5</sup>	2,423	1.3%	3,307	1.8%	-0.568	-0.046
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	26,750	13.9%	26,329	14.6%	-0.630	-0.018
Stroke or Transient Ischemic Attack <sup>5</sup>	3,622	1.9%	4,796	2.7%	-0.767	-0.051
Breast Cancer <sup>5</sup>	2,239	1.2%	2,977	1.6%	-0.481	-0.041
Colorectal Cancer <sup>5</sup>	774	0.4%	904	0.5%	-0.097	-0.014
Prostate Cancer <sup>5</sup>	1,375	0.7%	1,349	0.7%	-0.030	-0.004
Lung Cancer <sup>5</sup>	274	0.1%	893	0.5%	-0.352	-0.062
Endometrial Cancer <sup>5</sup>	308	0.2%	321	0.2%	-0.017	-0.004
Urologic Cancer <sup>5</sup>	358	0.2%	447	0.2%	-0.061	-0.013
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.8	11.3	13.8	16.0	-5.003	-0.362
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.266	-0.225
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.357
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.026
Mean number of other ambulatory encounters	1.7	4.4	2.8	6.8	-1.094	-0.191
Mean number of filled prescriptions	12.1	15.7	16.3	19.4	-4.211	-0.239

**Table 1m. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.6	4.5	6.2	5.5	-1.595	-0.319
Mean number of unique drug classes dispensed	4.2	4.0	5.7	4.8	-1.459	-0.331

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1n. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	120,456	62.8%	120,456	66.7%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.2	14.3	-0.549	-0.041
Age						
18-44 years	44,208	36.7%	44,827	37.2%	-0.514	-0.011
45-64 years	70,155	58.2%	64,702	53.7%	4.527	0.091
≥ 65 years	6,093	5.1%	10,927	9.1%	-4.013	-0.157
Sex						
Female	65,081	54.0%	62,659	52.0%	2.011	0.040
Male	55,375	46.0%	57,797	48.0%	-2.011	-0.040
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	120,456	100.0%	120,456	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	120,456	100.0%	120,456	100.0%	0.000	NaN
Year						
2018	43,012	35.7%	43,714	36.3%	-0.583	-0.012
2019	77,444	64.3%	76,742	63.7%	0.583	0.012
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.058	-0.040
Allergic Reaction	12,910	10.7%	14,324	11.9%	-1.174	-0.037
Diabetes	22,888	19.0%	9,230	7.7%	11.339	0.338
Heart Failure	1,865	1.5%	3,278	2.7%	-1.173	-0.081
Ischemic Heart Disease	4,149	3.4%	12,738	10.6%	-7.130	-0.282
NSAID Use	29,106	24.2%	26,208	21.8%	2.406	0.057

**Table 1n. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	12,126	10.1%	12,133	10.1%	-0.006	-0.000
Acute Myocardial Infarction <sup>5</sup>	916	0.8%	4,686	3.9%	-3.130	-0.209
Alzheimer's Disease and Related Disorders <sup>5</sup>	658	0.5%	748	0.6%	-0.075	-0.010
Anemia <sup>5</sup>	9,930	8.2%	9,124	7.6%	0.669	0.025
Asthma <sup>5</sup>	8,508	7.1%	6,291	5.2%	1.841	0.077
Atrial Fibrillation <sup>5</sup>	1,351	1.1%	7,218	6.0%	-4.871	-0.265
Benign Prostatic Hyperplasia <sup>5</sup>	2,814	2.3%	4,350	3.6%	-1.275	-0.075
Cataract <sup>5</sup>	6,855	5.7%	7,930	6.6%	-0.892	-0.037
Chronic Kidney Disease <sup>5</sup>	14,594	12.1%	7,556	6.3%	5.843	0.203
Bronchiectasis <sup>5</sup>	6,292	5.2%	5,624	4.7%	0.555	0.026
Depression <sup>5</sup>	16,583	13.8%	17,073	14.2%	-0.407	-0.012
Glaucoma <sup>5</sup>	4,519	3.8%	4,922	4.1%	-0.335	-0.017
Hip or Pelvic Fracture <sup>5</sup>	232	0.2%	240	0.2%	-0.007	-0.002
Hyperlipidemia <sup>5</sup>	36,543	30.3%	36,162	30.0%	0.316	0.007
Hypertension <sup>5</sup>	50,186	41.7%	40,845	33.9%	7.755	0.160
Osteoporosis <sup>5</sup>	1,704	1.4%	2,224	1.8%	-0.432	-0.034
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	18,131	15.1%	17,635	14.6%	0.412	0.012
Stroke or Transient Ischemic Attack <sup>5</sup>	2,776	2.3%	2,587	2.1%	0.157	0.011
Breast Cancer <sup>5</sup>	1,899	1.6%	1,622	1.3%	0.230	0.019
Colorectal Cancer <sup>5</sup>	603	0.5%	439	0.4%	0.136	0.021
Prostate Cancer <sup>5</sup>	739	0.6%	1,024	0.9%	-0.237	-0.028
Lung Cancer <sup>5</sup>	247	0.2%	292	0.2%	-0.037	-0.008
Endometrial Cancer <sup>5</sup>	265	0.2%	150	0.1%	0.095	0.023
Urologic Cancer <sup>5</sup>	292	0.2%	242	0.2%	0.042	0.009
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.0	10.7	11.9	-0.165	-0.013
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.019	-0.018
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.023	-0.051
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.009
Mean number of other ambulatory encounters	2.0	5.0	2.1	5.5	-0.099	-0.019
Mean number of filled prescriptions	13.9	17.2	14.0	17.2	-0.052	-0.003

**Table 1n. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.3	4.8	5.3	4.8	-0.002	-0.001
Mean number of unique drug classes dispensed	4.9	4.3	4.9	4.3	0.004	0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1o. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	43,012	100.0%	43,714	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.1	49.3	14.2	-0.623	-0.047
Age						
18-44 years	15,852	36.9%	16,027	36.7%	0.192	0.004
45-64 years	24,987	58.1%	23,844	54.5%	3.548	0.072
≥ 65 years	2,173	5.1%	3,843	8.8%	-3.739	-0.148
Sex						
Female	23,391	54.4%	22,845	52.3%	2.122	0.043
Male	19,621	45.6%	20,869	47.7%	-2.122	-0.043
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	43,012	100.0%	43,714	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	43,012	100.0%	43,714	100.0%	0.000	NaN
Year						
2018	43,012	100.0%	43,714	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.045	-0.030
Allergic Reaction	4,492	10.4%	5,080	11.6%	-1.177	-0.038
Diabetes	8,218	19.1%	3,200	7.3%	11.786	0.353
Heart Failure	691	1.6%	1,156	2.6%	-1.038	-0.072
Ischemic Heart Disease	1,479	3.4%	4,597	10.5%	-7.078	-0.281
NSAID Use	10,506	24.4%	9,975	22.8%	1.607	0.038

**Table 1o. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,289	10.0%	4,320	9.9%	0.089	0.003
Acute Myocardial Infarction <sup>5</sup>	336	0.8%	1,695	3.9%	-3.096	-0.206
Alzheimer's Disease and Related Disorders <sup>5</sup>	225	0.5%	290	0.7%	-0.140	-0.018
Anemia <sup>5</sup>	3,504	8.1%	3,337	7.6%	0.513	0.019
Asthma <sup>5</sup>	3,117	7.2%	2,298	5.3%	1.990	0.082
Atrial Fibrillation <sup>5</sup>	486	1.1%	2,568	5.9%	-4.745	-0.260
Benign Prostatic Hyperplasia <sup>5</sup>	1,019	2.4%	1,567	3.6%	-1.216	-0.072
Cataract <sup>5</sup>	2,442	5.7%	2,847	6.5%	-0.835	-0.035
Chronic Kidney Disease <sup>5</sup>	5,233	12.2%	2,633	6.0%	6.143	0.215
Bronchiectasis <sup>5</sup>	2,376	5.5%	2,132	4.9%	0.647	0.029
Depression <sup>5</sup>	5,781	13.4%	6,056	13.9%	-0.413	-0.012
Glaucoma <sup>5</sup>	1,572	3.7%	1,751	4.0%	-0.351	-0.018
Hip or Pelvic Fracture <sup>5</sup>	84	0.2%	102	0.2%	-0.038	-0.008
Hyperlipidemia <sup>5</sup>	12,936	30.1%	12,975	29.7%	0.394	0.009
Hypertension <sup>5</sup>	17,827	41.4%	14,782	33.8%	7.631	0.158
Osteoporosis <sup>5</sup>	620	1.4%	782	1.8%	-0.347	-0.028
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,514	15.1%	6,487	14.8%	0.305	0.009
Stroke or Transient Ischemic Attack <sup>5</sup>	985	2.3%	945	2.2%	0.128	0.009
Breast Cancer <sup>5</sup>	733	1.7%	575	1.3%	0.389	0.032
Colorectal Cancer <sup>5</sup>	215	0.5%	165	0.4%	0.122	0.019
Prostate Cancer <sup>5</sup>	257	0.6%	377	0.9%	-0.265	-0.031
Lung Cancer <sup>5</sup>	107	0.2%	113	0.3%	-0.010	-0.002
Endometrial Cancer <sup>5</sup>	90	0.2%	53	0.1%	0.088	0.022
Urologic Cancer <sup>5</sup>	119	0.3%	84	0.2%	0.085	0.017
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.6	13.0	10.7	11.8	-0.070	-0.006
Mean number of emergency room encounters	0.4	1.1	0.5	1.0	-0.024	-0.023
Mean number of inpatient hospital encounters	0.1	0.5	0.2	0.4	-0.021	-0.044
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.015
Mean number of other ambulatory encounters	2.0	4.6	2.0	4.9	-0.042	-0.009
Mean number of filled prescriptions	14.4	17.6	14.5	17.6	-0.072	-0.004



**Table 1o. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.4	4.9	5.4	4.9	-0.011	-0.002
Mean number of unique drug classes dispensed	5.0	4.4	5.0	4.3	-0.005	-0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1p. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	42,854	99.6%	42,854	98.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.3	14.2	-0.591	-0.045
Age						
18-44 years	15,787	36.8%	15,769	36.8%	0.042	0.001
45-64 years	24,915	58.1%	23,336	54.5%	3.685	0.074
≥ 65 years	2,152	5.0%	3,749	8.7%	-3.727	-0.148
Sex						
Female	23,319	54.4%	22,493	52.5%	1.927	0.039
Male	19,535	45.6%	20,361	47.5%	-1.927	-0.039
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	42,854	100.0%	42,854	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	42,854	100.0%	42,854	100.0%	0.000	NaN
Year						
2018	42,854	100.0%	42,854	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.056	-0.038
Allergic Reaction	4,471	10.4%	4,993	11.7%	-1.218	-0.039
Diabetes	8,182	19.1%	3,134	7.3%	11.780	0.353
Heart Failure	682	1.6%	1,141	2.7%	-1.071	-0.074
Ischemic Heart Disease	1,471	3.4%	4,509	10.5%	-7.089	-0.281
NSAID Use	10,466	24.4%	9,778	22.8%	1.605	0.038

**Table 1p. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,270	10.0%	4,245	9.9%	0.058	0.002
Acute Myocardial Infarction <sup>5</sup>	334	0.8%	1,673	3.9%	-3.125	-0.208
Alzheimers Disease and Related Disorders <sup>5</sup>	222	0.5%	285	0.7%	-0.147	-0.019
Anemia <sup>5</sup>	3,477	8.1%	3,286	7.7%	0.446	0.017
Asthma <sup>5</sup>	3,101	7.2%	2,263	5.3%	1.955	0.081
Atrial Fibrillation <sup>5</sup>	481	1.1%	2,533	5.9%	-4.788	-0.262
Benign Prostatic Hyperplasia <sup>5</sup>	1,009	2.4%	1,517	3.5%	-1.185	-0.070
Cataract <sup>5</sup>	2,426	5.7%	2,789	6.5%	-0.847	-0.035
Chronic Kidney Disease <sup>5</sup>	5,208	12.2%	2,599	6.1%	6.088	0.213
Bronchiectasis <sup>5</sup>	2,365	5.5%	2,098	4.9%	0.623	0.028
Depression <sup>5</sup>	5,751	13.4%	5,986	14.0%	-0.548	-0.016
Glaucoma <sup>5</sup>	1,562	3.6%	1,717	4.0%	-0.362	-0.019
Hip or Pelvic Fracture <sup>5</sup>	83	0.2%	102	0.2%	-0.044	-0.010
Hyperlipidemia <sup>5</sup>	12,880	30.1%	12,725	29.7%	0.362	0.008
Hypertension <sup>5</sup>	17,740	41.4%	14,455	33.7%	7.666	0.159
Osteoporosis <sup>5</sup>	616	1.4%	773	1.8%	-0.366	-0.029
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,485	15.1%	6,351	14.8%	0.313	0.009
Stroke or Transient Ischemic Attack <sup>5</sup>	974	2.3%	932	2.2%	0.098	0.007
Breast Cancer <sup>5</sup>	725	1.7%	568	1.3%	0.366	0.030
Colorectal Cancer <sup>5</sup>	213	0.5%	163	0.4%	0.117	0.018
Prostate Cancer <sup>5</sup>	256	0.6%	365	0.9%	-0.254	-0.030
Lung Cancer <sup>5</sup>	106	0.2%	112	0.3%	-0.014	-0.003
Endometrial Cancer <sup>5</sup>	90	0.2%	52	0.1%	0.089	0.022
Urologic Cancer <sup>5</sup>	119	0.3%	82	0.2%	0.086	0.018
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.6	12.9	10.7	11.9	-0.134	-0.011
Mean number of emergency room encounters	0.4	1.1	0.5	1.0	-0.028	-0.026
Mean number of inpatient hospital encounters	0.1	0.5	0.2	0.5	-0.024	-0.051
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.015
Mean number of other ambulatory encounters	1.9	4.6	2.0	5.0	-0.060	-0.013
Mean number of filled prescriptions	14.4	17.6	14.5	17.6	-0.126	-0.007

**Table 1p. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.4	4.9	5.4	4.9	-0.030	-0.006
Mean number of unique drug classes dispensed	5.0	4.4	5.0	4.3	-0.022	-0.005

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1q. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	77,444	100.0%	76,742	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.2	14.4	-0.507	-0.038
Age						
18-44 years	28,356	36.6%	28,800	37.5%	-0.913	-0.019
45-64 years	45,168	58.3%	40,858	53.2%	5.083	0.102
≥ 65 years	3,920	5.1%	7,084	9.2%	-4.169	-0.162
Sex						
Female	41,690	53.8%	39,814	51.9%	1.952	0.039
Male	35,754	46.2%	36,928	48.1%	-1.952	-0.039
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	77,444	100.0%	76,742	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	77,444	100.0%	76,742	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	77,444	100.0%	76,742	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.066	-0.045
Allergic Reaction	8,418	10.9%	9,244	12.0%	-1.176	-0.037
Diabetes	14,670	18.9%	6,030	7.9%	11.085	0.330
Heart Failure	1,174	1.5%	2,122	2.8%	-1.249	-0.086
Ischemic Heart Disease	2,670	3.4%	8,141	10.6%	-7.161	-0.283
NSAID Use	18,600	24.0%	16,233	21.2%	2.865	0.069

**Table 1q. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	7,837	10.1%	7,813	10.2%	-0.061	-0.002
Acute Myocardial Infarction <sup>5</sup>	580	0.7%	2,991	3.9%	-3.149	-0.210
Alzheimer's Disease and Related Disorders <sup>5</sup>	433	0.6%	458	0.6%	-0.038	-0.005
Anemia <sup>5</sup>	6,426	8.3%	5,787	7.5%	0.757	0.028
Asthma <sup>5</sup>	5,391	7.0%	3,993	5.2%	1.758	0.074
Atrial Fibrillation <sup>5</sup>	865	1.1%	4,650	6.1%	-4.942	-0.268
Benign Prostatic Hyperplasia <sup>5</sup>	1,795	2.3%	2,783	3.6%	-1.309	-0.077
Cataract <sup>5</sup>	4,413	5.7%	5,083	6.6%	-0.925	-0.038
Chronic Kidney Disease <sup>5</sup>	9,361	12.1%	4,923	6.4%	5.672	0.197
Bronchiectasis <sup>5</sup>	3,916	5.1%	3,492	4.6%	0.506	0.024
Depression <sup>5</sup>	10,802	13.9%	11,017	14.4%	-0.408	-0.012
Glaucoma <sup>5</sup>	2,947	3.8%	3,171	4.1%	-0.327	-0.017
Hip or Pelvic Fracture <sup>5</sup>	148	0.2%	138	0.2%	0.011	0.003
Hyperlipidemia <sup>5</sup>	23,607	30.5%	23,187	30.2%	0.268	0.006
Hypertension <sup>5</sup>	32,359	41.8%	26,063	34.0%	7.822	0.162
Osteoporosis <sup>5</sup>	1,084	1.4%	1,442	1.9%	-0.479	-0.038
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	11,617	15.0%	11,148	14.5%	0.474	0.013
Stroke or Transient Ischemic Attack <sup>5</sup>	1,791	2.3%	1,642	2.1%	0.173	0.012
Breast Cancer <sup>5</sup>	1,166	1.5%	1,047	1.4%	0.141	0.012
Colorectal Cancer <sup>5</sup>	388	0.5%	274	0.4%	0.144	0.022
Prostate Cancer <sup>5</sup>	482	0.6%	647	0.8%	-0.221	-0.026
Lung Cancer <sup>5</sup>	140	0.2%	179	0.2%	-0.052	-0.012
Endometrial Cancer <sup>5</sup>	175	0.2%	97	0.1%	0.100	0.024
Urologic Cancer <sup>5</sup>	173	0.2%	158	0.2%	0.018	0.004
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.1	10.7	11.9	-0.217	-0.017
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.016	-0.016
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.024	-0.055
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.004
Mean number of other ambulatory encounters	2.0	5.1	2.2	5.8	-0.132	-0.024
Mean number of filled prescriptions	13.7	17.0	13.7	17.0	-0.034	-0.002

**Table 1q. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.2	4.8	5.2	4.8	0.004	0.001
Mean number of unique drug classes dispensed	4.8	4.3	4.8	4.2	0.010	0.002

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1r. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	76,583	98.9%	76,583	99.8%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.2	14.4	-0.522	-0.039
Age						
18-44 years	28,126	36.7%	28,739	37.5%	-0.800	-0.017
45-64 years	44,580	58.2%	40,792	53.3%	4.946	0.100
≥ 65 years	3,877	5.1%	7,052	9.2%	-4.146	-0.162
Sex						
Female	41,349	54.0%	39,735	51.9%	2.108	0.042
Male	35,234	46.0%	36,848	48.1%	-2.108	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	76,583	100.0%	76,583	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	76,583	100.0%	76,583	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	76,583	100.0%	76,583	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.060	-0.042
Allergic Reaction	8,349	10.9%	9,221	12.0%	-1.139	-0.036
Diabetes	14,529	19.0%	6,010	7.8%	11.124	0.331
Heart Failure	1,164	1.5%	2,113	2.8%	-1.239	-0.086
Ischemic Heart Disease	2,640	3.4%	8,117	10.6%	-7.152	-0.283
NSAID Use	18,421	24.1%	16,196	21.1%	2.905	0.070



**Table 1r. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	7,772	10.1%	7,787	10.2%	-0.020	-0.001
Acute Myocardial Infarction <sup>5</sup>	575	0.8%	2,984	3.9%	-3.146	-0.210
Alzheimer's Disease and Related Disorders <sup>5</sup>	427	0.6%	456	0.6%	-0.038	-0.005
Anemia <sup>5</sup>	6,377	8.3%	5,759	7.5%	0.807	0.030
Asthma <sup>5</sup>	5,342	7.0%	3,984	5.2%	1.773	0.074
Atrial Fibrillation <sup>5</sup>	858	1.1%	4,636	6.1%	-4.933	-0.268
Benign Prostatic Hyperplasia <sup>5</sup>	1,767	2.3%	2,778	3.6%	-1.320	-0.078
Cataract <sup>5</sup>	4,362	5.7%	5,068	6.6%	-0.922	-0.038
Chronic Kidney Disease <sup>5</sup>	9,283	12.1%	4,901	6.4%	5.722	0.198
Bronchiectasis <sup>5</sup>	3,887	5.1%	3,484	4.5%	0.526	0.025
Depression <sup>5</sup>	10,706	14.0%	10,982	14.3%	-0.360	-0.010
Glaucoma <sup>5</sup>	2,914	3.8%	3,163	4.1%	-0.325	-0.017
Hip or Pelvic Fracture <sup>5</sup>	148	0.2%	137	0.2%	0.014	0.003
Hyperlipidemia <sup>5</sup>	23,357	30.5%	23,130	30.2%	0.296	0.006
Hypertension <sup>5</sup>	31,998	41.8%	25,989	33.9%	7.846	0.162
Osteoporosis <sup>5</sup>	1,077	1.4%	1,439	1.9%	-0.473	-0.037
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	11,499	15.0%	11,127	14.5%	0.486	0.014
Stroke or Transient Ischemic Attack <sup>5</sup>	1,778	2.3%	1,632	2.1%	0.191	0.013
Breast Cancer <sup>5</sup>	1,155	1.5%	1,042	1.4%	0.148	0.012
Colorectal Cancer <sup>5</sup>	384	0.5%	273	0.4%	0.145	0.022
Prostate Cancer <sup>5</sup>	477	0.6%	646	0.8%	-0.221	-0.026
Lung Cancer <sup>5</sup>	140	0.2%	178	0.2%	-0.050	-0.011
Endometrial Cancer <sup>5</sup>	174	0.2%	96	0.1%	0.102	0.024
Urologic Cancer <sup>5</sup>	171	0.2%	157	0.2%	0.018	0.004
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.1	10.7	11.9	-0.184	-0.015
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.014	-0.014
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.022	-0.051
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.004
Mean number of other ambulatory encounters	2.1	5.1	2.2	5.8	-0.122	-0.022
Mean number of filled prescriptions	13.7	17.0	13.7	17.0	-0.007	-0.000

**Table 1r. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.2	4.8	5.2	4.8	0.016	0.003
Mean number of unique drug classes dispensed	4.8	4.3	4.8	4.2	0.020	0.005

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1s. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	191,799	100.0%	180,617	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.7	11.6	45.8	15.4	4.891	0.359
Age						
18-44 years	57,039	29.7%	86,598	47.9%	-18.207	-0.380
45-64 years	123,162	64.2%	80,316	44.5%	19.747	0.404
≥ 65 years	11,598	6.0%	13,703	7.6%	-1.540	-0.061
Sex						
Female	83,324	43.4%	111,331	61.6%	-18.196	-0.371
Male	108,475	56.6%	69,286	38.4%	18.196	0.371
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	191,799	100.0%	180,617	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	191,799	100.0%	180,617	100.0%	0.000	NaN
Year						
2018	68,205	35.6%	65,471	36.2%	-0.688	-0.014
2019	123,594	64.4%	115,146	63.8%	0.688	0.014
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.753	-0.461
Allergic Reaction	18,335	9.6%	24,543	13.6%	-4.029	-0.126
Diabetes	33,304	17.4%	14,681	8.1%	9.236	0.280
Heart Failure	2,047	1.1%	7,592	4.2%	-3.136	-0.197
Ischemic Heart Disease	5,874	3.1%	18,720	10.4%	-7.302	-0.295
NSAID Use	42,149	22.0%	43,281	24.0%	-1.987	-0.047

**Table 1s. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	16,787	8.8%	19,638	10.9%	-2.120	-0.071
Acute Myocardial Infarction <sup>5</sup>	1,079	0.6%	7,341	4.1%	-3.502	-0.235
Alzheimers Disease and Related Disorders <sup>5</sup>	764	0.4%	1,605	0.9%	-0.490	-0.061
Anemia <sup>5</sup>	11,638	6.1%	20,947	11.6%	-5.530	-0.196
Asthma <sup>5</sup>	10,250	5.3%	13,559	7.5%	-2.163	-0.088
Atrial Fibrillation <sup>5</sup>	1,783	0.9%	11,155	6.2%	-5.246	-0.286
Benign Prostatic Hyperplasia <sup>5</sup>	5,630	2.9%	5,290	2.9%	0.007	0.000
Cataract <sup>5</sup>	11,629	6.1%	10,374	5.7%	0.319	0.014
Chronic Kidney Disease <sup>5</sup>	18,976	9.9%	14,636	8.1%	1.790	0.063
Bronchiectasis <sup>5</sup>	7,981	4.2%	10,494	5.8%	-1.649	-0.076
Depression <sup>5</sup>	19,602	10.2%	37,050	20.5%	-10.293	-0.288
Glaucoma <sup>5</sup>	7,396	3.9%	6,607	3.7%	0.198	0.010
Hip or Pelvic Fracture <sup>5</sup>	275	0.1%	506	0.3%	-0.137	-0.030
Hyperlipidemia <sup>5</sup>	59,255	30.9%	48,548	26.9%	4.015	0.089
Hypertension <sup>5</sup>	82,876	43.2%	55,448	30.7%	12.511	0.261
Osteoporosis <sup>5</sup>	2,423	1.3%	3,307	1.8%	-0.568	-0.046
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	26,750	13.9%	26,329	14.6%	-0.630	-0.018
Stroke or Transient Ischemic Attack <sup>5</sup>	3,622	1.9%	4,796	2.7%	-0.767	-0.051
Breast Cancer <sup>5</sup>	2,239	1.2%	2,977	1.6%	-0.481	-0.041
Colorectal Cancer <sup>5</sup>	774	0.4%	904	0.5%	-0.097	-0.014
Prostate Cancer <sup>5</sup>	1,375	0.7%	1,349	0.7%	-0.030	-0.004
Lung Cancer <sup>5</sup>	274	0.1%	893	0.5%	-0.352	-0.062
Endometrial Cancer <sup>5</sup>	308	0.2%	321	0.2%	-0.017	-0.004
Urologic Cancer <sup>5</sup>	358	0.2%	447	0.2%	-0.061	-0.013
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.8	11.3	13.8	16.0	-5.003	-0.362
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.266	-0.225
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.357
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.026
Mean number of other ambulatory encounters	1.7	4.4	2.8	6.8	-1.094	-0.191
Mean number of filled prescriptions	12.1	15.7	16.3	19.4	-4.211	-0.239

**Table 1s. Unadjusted Characteristics of New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® from May 22, 2018 to December 11, 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.6	4.5	6.2	5.5	-1.595	-0.319
Mean number of unique drug classes dispensed	4.2	4.0	5.7	4.8	-1.459	-0.331

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1t. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	120,459	62.8%	120,459	66.7%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.1	49.2	14.3	-0.533	-0.040
Age						
18-44 years	44,190	36.7%	44,733	37.1%	-0.451	-0.009
45-64 years	70,129	58.2%	64,876	53.9%	4.361	0.088
≥ 65 years	6,140	5.1%	10,850	9.0%	-3.910	-0.153
Sex						
Female	65,146	54.1%	62,708	52.1%	2.024	0.041
Male	55,313	45.9%	57,751	47.9%	-2.024	-0.041
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	120,459	100.0%	120,459	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	120,459	100.0%	120,459	100.0%	0.000	NaN
Year						
2018	43,399	36.0%	43,417	36.0%	-0.015	-0.000
2019	77,060	64.0%	77,042	64.0%	0.015	0.000
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.057	-0.039
Allergic Reaction	12,922	10.7%	14,358	11.9%	-1.192	-0.038
Diabetes	22,876	19.0%	9,239	7.7%	11.321	0.338
Heart Failure	1,863	1.5%	3,322	2.8%	-1.211	-0.084
Ischemic Heart Disease	4,155	3.4%	12,754	10.6%	-7.139	-0.282
NSAID Use	29,079	24.1%	26,111	21.7%	2.464	0.059

**Table 1t. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	12,127	10.1%	12,164	10.1%	-0.031	-0.001
Acute Myocardial Infarction <sup>5</sup>	912	0.8%	4,688	3.9%	-3.135	-0.209
Alzheimer's Disease and Related Disorders <sup>5</sup>	653	0.5%	695	0.6%	-0.035	-0.005
Anemia <sup>5</sup>	9,963	8.3%	9,023	7.5%	0.780	0.029
Asthma <sup>5</sup>	8,499	7.1%	6,313	5.2%	1.815	0.076
Atrial Fibrillation <sup>5</sup>	1,388	1.2%	7,205	6.0%	-4.829	-0.263
Benign Prostatic Hyperplasia <sup>5</sup>	2,726	2.3%	4,304	3.6%	-1.310	-0.078
Cataract <sup>5</sup>	6,932	5.8%	7,902	6.6%	-0.805	-0.034
Chronic Kidney Disease <sup>5</sup>	14,628	12.1%	7,601	6.3%	5.834	0.203
Bronchiectasis <sup>5</sup>	6,286	5.2%	5,579	4.6%	0.587	0.027
Depression <sup>5</sup>	16,573	13.8%	17,097	14.2%	-0.435	-0.013
Glaucoma <sup>5</sup>	4,580	3.8%	4,948	4.1%	-0.305	-0.016
Hip or Pelvic Fracture <sup>5</sup>	237	0.2%	219	0.2%	0.015	0.003
Hyperlipidemia <sup>5</sup>	36,499	30.3%	36,264	30.1%	0.195	0.004
Hypertension <sup>5</sup>	50,331	41.8%	40,843	33.9%	7.877	0.163
Osteoporosis <sup>5</sup>	1,681	1.4%	2,213	1.8%	-0.442	-0.035
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	18,098	15.0%	17,649	14.7%	0.373	0.010
Stroke or Transient Ischemic Attack <sup>5</sup>	2,806	2.3%	2,612	2.2%	0.161	0.011
Breast Cancer <sup>5</sup>	1,896	1.6%	1,649	1.4%	0.205	0.017
Colorectal Cancer <sup>5</sup>	626	0.5%	432	0.4%	0.161	0.024
Prostate Cancer <sup>5</sup>	804	0.7%	1,014	0.8%	-0.174	-0.020
Lung Cancer <sup>5</sup>	243	0.2%	296	0.2%	-0.044	-0.009
Endometrial Cancer <sup>5</sup>	270	0.2%	152	0.1%	0.098	0.023
Urologic Cancer <sup>5</sup>	285	0.2%	230	0.2%	0.046	0.010
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.0	10.6	11.8	-0.131	-0.011
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.018	-0.017
Mean number of inpatient hospital encounters	0.1	0.5	0.1	0.4	-0.024	-0.053
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.005
Mean number of other ambulatory encounters	2.0	4.8	2.1	5.2	-0.093	-0.018
Mean number of filled prescriptions	13.9	17.2	14.0	17.2	-0.078	-0.005

**Table 1t. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.3	4.8	5.3	4.8	-0.003	-0.001
Mean number of unique drug classes dispensed	4.9	4.3	4.9	4.3	0.003	0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 1u. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	43,399	100.0%	43,417	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.3	14.2	-0.640	-0.049
Age						
18-44 years	15,957	36.8%	15,855	36.5%	0.250	0.005
45-64 years	25,264	58.2%	23,766	54.7%	3.474	0.070
≥ 65 years	2,178	5.0%	3,796	8.7%	-3.725	-0.148
Sex						
Female	23,547	54.3%	22,647	52.2%	2.095	0.042
Male	19,852	45.7%	20,770	47.8%	-2.095	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	43,399	100.0%	43,417	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	43,399	100.0%	43,417	100.0%	0.000	NaN
Year						
2018	43,399	100.0%	43,417	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.051	-0.035
Allergic Reaction	4,520	10.4%	5,062	11.7%	-1.244	-0.040
Diabetes	8,342	19.2%	3,216	7.4%	11.814	0.353
Heart Failure	683	1.6%	1,154	2.7%	-1.084	-0.075
Ischemic Heart Disease	1,489	3.4%	4,544	10.5%	-7.035	-0.279
NSAID Use	10,547	24.3%	9,821	22.6%	1.682	0.040

**Table 1u. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,331	10.0%	4,326	10.0%	0.016	0.001
Acute Myocardial Infarction <sup>5</sup>	336	0.8%	1,675	3.9%	-3.084	-0.206
Alzheimer's Disease and Related Disorders <sup>5</sup>	231	0.5%	259	0.6%	-0.064	-0.009
Anemia <sup>5</sup>	3,541	8.2%	3,309	7.6%	0.538	0.020
Asthma <sup>5</sup>	3,109	7.2%	2,319	5.3%	1.823	0.075
Atrial Fibrillation <sup>5</sup>	500	1.2%	2,554	5.9%	-4.730	-0.259
Benign Prostatic Hyperplasia <sup>5</sup>	1,001	2.3%	1,537	3.5%	-1.234	-0.073
Cataract <sup>5</sup>	2,500	5.8%	2,815	6.5%	-0.723	-0.030
Chronic Kidney Disease <sup>5</sup>	5,262	12.1%	2,667	6.1%	5.982	0.209
Bronchiectasis <sup>5</sup>	2,386	5.5%	2,107	4.9%	0.645	0.029
Depression <sup>5</sup>	5,831	13.4%	5,956	13.7%	-0.282	-0.008
Glaucoma <sup>5</sup>	1,575	3.6%	1,749	4.0%	-0.399	-0.021
Hip or Pelvic Fracture <sup>5</sup>	91	0.2%	88	0.2%	0.007	0.002
Hyperlipidemia <sup>5</sup>	13,004	30.0%	12,920	29.8%	0.206	0.004
Hypertension <sup>5</sup>	18,052	41.6%	14,623	33.7%	7.915	0.164
Osteoporosis <sup>5</sup>	632	1.5%	780	1.8%	-0.340	-0.027
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,591	15.2%	6,431	14.8%	0.375	0.010
Stroke or Transient Ischemic Attack <sup>5</sup>	1,028	2.4%	947	2.2%	0.188	0.013
Breast Cancer <sup>5</sup>	741	1.7%	571	1.3%	0.392	0.032
Colorectal Cancer <sup>5</sup>	220	0.5%	159	0.4%	0.141	0.021
Prostate Cancer <sup>5</sup>	269	0.6%	366	0.8%	-0.223	-0.026
Lung Cancer <sup>5</sup>	106	0.2%	118	0.3%	-0.028	-0.005
Endometrial Cancer <sup>5</sup>	92	0.2%	49	0.1%	0.099	0.025
Urologic Cancer <sup>5</sup>	118	0.3%	77	0.2%	0.095	0.020
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.6	12.9	10.7	11.9	-0.091	-0.007
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.023	-0.022
Mean number of inpatient hospital encounters	0.1	0.5	0.2	0.5	-0.025	-0.053
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.013
Mean number of other ambulatory encounters	1.9	4.6	2.0	4.7	-0.056	-0.012
Mean number of filled prescriptions	14.3	17.5	14.5	17.7	-0.141	-0.008

**Table 1u. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.4	4.9	5.4	4.9	-0.025	-0.005
Mean number of unique drug classes dispensed	5.0	4.3	5.0	4.3	-0.013	-0.003

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1v. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	43,119	99.4%	43,119	99.3%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.3	14.2	-0.601	-0.046
Age						
18-44 years	15,839	36.7%	15,790	36.6%	0.114	0.002
45-64 years	25,131	58.3%	23,601	54.7%	3.548	0.072
≥ 65 years	2,149	5.0%	3,728	8.6%	-3.662	-0.146
Sex						
Female	23,381	54.2%	22,539	52.3%	1.953	0.039
Male	19,738	45.8%	20,580	47.7%	-1.953	-0.039
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	43,119	100.0%	43,119	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	43,119	100.0%	43,119	100.0%	0.000	NaN
Year						
2018	43,119	100.0%	43,119	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.056	-0.039
Allergic Reaction	4,482	10.4%	5,033	11.7%	-1.278	-0.041
Diabetes	8,274	19.2%	3,185	7.4%	11.802	0.353
Heart Failure	672	1.6%	1,148	2.7%	-1.104	-0.077
Ischemic Heart Disease	1,482	3.4%	4,515	10.5%	-7.034	-0.279
NSAID Use	10,463	24.3%	9,747	22.6%	1.661	0.039

**Table 1v. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	4,304	10.0%	4,297	10.0%	0.016	0.001
Acute Myocardial Infarction <sup>5</sup>	333	0.8%	1,671	3.9%	-3.103	-0.207
Alzheimer's Disease and Related Disorders <sup>5</sup>	226	0.5%	256	0.6%	-0.070	-0.009
Anemia <sup>5</sup>	3,501	8.1%	3,295	7.6%	0.478	0.018
Asthma <sup>5</sup>	3,081	7.1%	2,296	5.3%	1.821	0.075
Atrial Fibrillation <sup>5</sup>	488	1.1%	2,541	5.9%	-4.761	-0.261
Benign Prostatic Hyperplasia <sup>5</sup>	992	2.3%	1,509	3.5%	-1.199	-0.071
Cataract <sup>5</sup>	2,475	5.7%	2,783	6.5%	-0.714	-0.030
Chronic Kidney Disease <sup>5</sup>	5,211	12.1%	2,651	6.1%	5.937	0.207
Bronchiectasis <sup>5</sup>	2,357	5.5%	2,092	4.9%	0.615	0.028
Depression <sup>5</sup>	5,780	13.4%	5,918	13.7%	-0.320	-0.009
Glaucoma <sup>5</sup>	1,558	3.6%	1,733	4.0%	-0.406	-0.021
Hip or Pelvic Fracture <sup>5</sup>	91	0.2%	87	0.2%	0.009	0.002
Hyperlipidemia <sup>5</sup>	12,905	29.9%	12,808	29.7%	0.225	0.005
Hypertension <sup>5</sup>	17,930	41.6%	14,499	33.6%	7.957	0.165
Osteoporosis <sup>5</sup>	624	1.4%	777	1.8%	-0.355	-0.028
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	6,540	15.2%	6,390	14.8%	0.348	0.010
Stroke or Transient Ischemic Attack <sup>5</sup>	1,015	2.4%	938	2.2%	0.179	0.012
Breast Cancer <sup>5</sup>	736	1.7%	566	1.3%	0.394	0.032
Colorectal Cancer <sup>5</sup>	217	0.5%	158	0.4%	0.137	0.021
Prostate Cancer <sup>5</sup>	268	0.6%	361	0.8%	-0.216	-0.025
Lung Cancer <sup>5</sup>	105	0.2%	117	0.3%	-0.028	-0.005
Endometrial Cancer <sup>5</sup>	90	0.2%	49	0.1%	0.095	0.024
Urologic Cancer <sup>5</sup>	118	0.3%	76	0.2%	0.097	0.021
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	12.9	10.7	11.8	-0.131	-0.011
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.024	-0.023
Mean number of inpatient hospital encounters	0.1	0.5	0.2	0.5	-0.026	-0.056
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.013
Mean number of other ambulatory encounters	1.9	4.6	2.0	4.7	-0.060	-0.013
Mean number of filled prescriptions	14.3	17.4	14.5	17.7	-0.174	-0.010

**Table 1v. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.4	4.9	5.4	4.9	-0.035	-0.007
Mean number of unique drug classes dispensed	5.0	4.3	5.0	4.3	-0.022	-0.005

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1w. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	77,060	100.0%	77,042	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.1	49.2	14.4	-0.473	-0.036
Age						
18-44 years	28,233	36.6%	28,878	37.5%	-0.846	-0.018
45-64 years	44,865	58.2%	41,110	53.4%	4.860	0.098
≥ 65 years	3,962	5.1%	7,054	9.2%	-4.015	-0.156
Sex						
Female	41,599	54.0%	40,061	52.0%	1.984	0.040
Male	35,461	46.0%	36,981	48.0%	-1.984	-0.040
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	77,060	100.0%	77,042	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	77,060	100.0%	77,042	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	77,060	100.0%	77,042	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.060	-0.042
Allergic Reaction	8,402	10.9%	9,296	12.1%	-1.163	-0.036
Diabetes	14,534	18.9%	6,023	7.8%	11.043	0.329
Heart Failure	1,180	1.5%	2,168	2.8%	-1.283	-0.088
Ischemic Heart Disease	2,666	3.5%	8,210	10.7%	-7.197	-0.284
NSAID Use	18,532	24.0%	16,290	21.1%	2.904	0.069

**Table 1w. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	7,796	10.1%	7,838	10.2%	-0.057	-0.002
Acute Myocardial Infarction <sup>5</sup>	576	0.7%	3,013	3.9%	-3.163	-0.211
Alzheimer's Disease and Related Disorders <sup>5</sup>	422	0.5%	436	0.6%	-0.018	-0.002
Anemia <sup>5</sup>	6,422	8.3%	5,714	7.4%	0.917	0.034
Asthma <sup>5</sup>	5,390	7.0%	3,994	5.2%	1.810	0.076
Atrial Fibrillation <sup>5</sup>	888	1.2%	4,651	6.0%	-4.885	-0.265
Benign Prostatic Hyperplasia <sup>5</sup>	1,725	2.2%	2,767	3.6%	-1.353	-0.080
Cataract <sup>5</sup>	4,432	5.8%	5,087	6.6%	-0.852	-0.035
Chronic Kidney Disease <sup>5</sup>	9,366	12.2%	4,934	6.4%	5.750	0.199
Bronchiectasis <sup>5</sup>	3,900	5.1%	3,472	4.5%	0.554	0.026
Depression <sup>5</sup>	10,742	13.9%	11,141	14.5%	-0.521	-0.015
Glaucoma <sup>5</sup>	3,005	3.9%	3,199	4.2%	-0.253	-0.013
Hip or Pelvic Fracture <sup>5</sup>	146	0.2%	131	0.2%	0.019	0.005
Hyperlipidemia <sup>5</sup>	23,495	30.5%	23,344	30.3%	0.189	0.004
Hypertension <sup>5</sup>	32,279	41.9%	26,220	34.0%	7.855	0.162
Osteoporosis <sup>5</sup>	1,049	1.4%	1,433	1.9%	-0.499	-0.040
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	11,507	14.9%	11,218	14.6%	0.372	0.010
Stroke or Transient Ischemic Attack <sup>5</sup>	1,778	2.3%	1,665	2.2%	0.146	0.010
Breast Cancer <sup>5</sup>	1,155	1.5%	1,078	1.4%	0.100	0.008
Colorectal Cancer <sup>5</sup>	406	0.5%	273	0.4%	0.173	0.026
Prostate Cancer <sup>5</sup>	535	0.7%	648	0.8%	-0.147	-0.017
Lung Cancer <sup>5</sup>	137	0.2%	178	0.2%	-0.053	-0.012
Endometrial Cancer <sup>5</sup>	178	0.2%	103	0.1%	0.097	0.023
Urologic Cancer <sup>5</sup>	167	0.2%	153	0.2%	0.018	0.004
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.1	10.6	11.8	-0.153	-0.012
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.015	-0.014
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.024	-0.053
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.001
Mean number of other ambulatory encounters	2.0	5.0	2.2	5.5	-0.114	-0.022
Mean number of filled prescriptions	13.7	17.0	13.7	17.0	-0.042	-0.002



**Table 1w. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.2	4.8	5.2	4.8	0.009	0.002
Mean number of unique drug classes dispensed	4.8	4.3	4.8	4.2	0.012	0.003

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1x. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	76,734	99.6%	76,734	99.6%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.7	12.0	49.2	14.4	-0.505	-0.038
Age						
18-44 years	28,169	36.7%	28,727	37.4%	-0.727	-0.015
45-64 years	44,634	58.2%	40,976	53.4%	4.767	0.096
≥ 65 years	3,931	5.1%	7,031	9.2%	-4.040	-0.157
Sex						
Female	41,490	54.1%	39,863	51.9%	2.120	0.042
Male	35,244	45.9%	36,871	48.1%	-2.120	-0.042
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	76,734	100.0%	76,734	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	76,734	100.0%	76,734	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	76,734	100.0%	76,734	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.5	1.5	0.6	1.4	-0.058	-0.040
Allergic Reaction	8,375	10.9%	9,256	12.1%	-1.148	-0.036
Diabetes	14,470	18.9%	5,991	7.8%	11.050	0.329
Heart Failure	1,174	1.5%	2,158	2.8%	-1.282	-0.088
Ischemic Heart Disease	2,653	3.5%	8,190	10.7%	-7.216	-0.284
NSAID Use	18,471	24.1%	16,227	21.1%	2.924	0.070

**Table 1x. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	7,778	10.1%	7,804	10.2%	-0.034	-0.001
Acute Myocardial Infarction <sup>5</sup>	571	0.7%	3,008	3.9%	-3.176	-0.212
Alzheimer's Disease and Related Disorders <sup>5</sup>	421	0.5%	434	0.6%	-0.017	-0.002
Anemia <sup>5</sup>	6,400	8.3%	5,680	7.4%	0.938	0.035
Asthma <sup>5</sup>	5,366	7.0%	3,974	5.2%	1.814	0.076
Atrial Fibrillation <sup>5</sup>	886	1.2%	4,636	6.0%	-4.887	-0.265
Benign Prostatic Hyperplasia <sup>5</sup>	1,713	2.2%	2,758	3.6%	-1.362	-0.081
Cataract <sup>5</sup>	4,410	5.7%	5,066	6.6%	-0.855	-0.036
Chronic Kidney Disease <sup>5</sup>	9,333	12.2%	4,914	6.4%	5.759	0.199
Bronchiectasis <sup>5</sup>	3,891	5.1%	3,453	4.5%	0.571	0.027
Depression <sup>5</sup>	10,709	14.0%	11,083	14.4%	-0.487	-0.014
Glaucoma <sup>5</sup>	2,994	3.9%	3,182	4.1%	-0.245	-0.012
Hip or Pelvic Fracture <sup>5</sup>	146	0.2%	130	0.2%	0.021	0.005
Hyperlipidemia <sup>5</sup>	23,392	30.5%	23,257	30.3%	0.176	0.004
Hypertension <sup>5</sup>	32,135	41.9%	26,132	34.1%	7.823	0.162
Osteoporosis <sup>5</sup>	1,049	1.4%	1,423	1.9%	-0.487	-0.039
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	11,464	14.9%	11,172	14.6%	0.381	0.011
Stroke or Transient Ischemic Attack <sup>5</sup>	1,769	2.3%	1,653	2.2%	0.151	0.010
Breast Cancer <sup>5</sup>	1,153	1.5%	1,073	1.4%	0.104	0.009
Colorectal Cancer <sup>5</sup>	401	0.5%	273	0.4%	0.167	0.025
Prostate Cancer <sup>5</sup>	532	0.7%	647	0.8%	-0.150	-0.017
Lung Cancer <sup>5</sup>	137	0.2%	177	0.2%	-0.052	-0.012
Endometrial Cancer <sup>5</sup>	178	0.2%	103	0.1%	0.098	0.023
Urologic Cancer <sup>5</sup>	167	0.2%	153	0.2%	0.018	0.004
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	10.5	13.1	10.6	11.7	-0.137	-0.011
Mean number of emergency room encounters	0.4	1.1	0.4	1.0	-0.014	-0.013
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.4	-0.023	-0.053
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.001
Mean number of other ambulatory encounters	2.0	5.0	2.2	5.5	-0.112	-0.021
Mean number of filled prescriptions	13.7	17.0	13.7	17.0	-0.024	-0.001

**Table 1x. Adjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) (Propensity Score Matched, Fixed Ratio 1:1, Caliper: 0.025) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	5.2	4.8	5.2	4.8	0.016	0.003
Mean number of unique drug classes dispensed	4.8	4.3	4.8	4.2	0.019	0.004

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1y. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	253,311	100.0%	235,734	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.9	12.4	48.9	14.6	0.024	0.002
Age						
18-44 years	91,632	36.2%	89,570	38.0%	-1.822	-0.038
45-64 years	148,021	58.4%	125,519	53.2%	5.188	0.105
≥ 65 years	13,658	5.4%	20,645	8.8%	-3.366	-0.132
Sex						
Female	130,952	51.7%	121,622	51.6%	0.104	0.002
Male	122,359	48.3%	114,112	48.4%	-0.104	-0.002
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	253,311	100.0%	235,734	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	253,311	100.0%	235,734	100.0%	0.000	NaN
Year						
2018	99,570	39.3%	94,345	40.0%	-0.715	-0.015
2019	153,741	60.7%	141,389	60.0%	0.715	0.015
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.032	-0.021
Allergic Reaction	18,587	7.3%	17,324	7.3%	-0.011	-0.000
Diabetes	33,536	13.2%	25,084	10.6%	2.598	0.080
Heart Failure	5,737	2.3%	6,218	2.6%	-0.373	-0.024
Ischemic Heart Disease	15,218	6.0%	14,502	6.2%	-0.144	-0.006
NSAID Use	41,084	16.2%	37,610	16.0%	0.264	0.007

**Table 1y. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	20,086	7.9%	18,833	8.0%	-0.060	-0.002
Acute Myocardial Infarction <sup>6</sup>	3,316	1.3%	5,602	2.4%	-1.067	-0.079
Alzheimers Disease and Related Disorders <sup>6</sup>	1,475	0.6%	1,251	0.5%	0.052	0.007
Anemia <sup>6</sup>	17,860	7.1%	15,932	6.8%	0.293	0.012
Asthma <sup>6</sup>	14,047	5.5%	9,397	4.0%	1.559	0.073
Atrial Fibrillation <sup>6</sup>	3,518	1.4%	12,480	5.3%	-3.905	-0.219
Benign Prostatic Hyperplasia <sup>6</sup>	4,526	1.8%	5,790	2.5%	-0.669	-0.046
Cataract <sup>6</sup>	8,961	3.5%	9,317	4.0%	-0.415	-0.022
Chronic Kidney Disease <sup>6</sup>	23,636	9.3%	16,149	6.9%	2.480	0.091
Bronchiectasis <sup>6</sup>	10,263	4.1%	7,607	3.2%	0.825	0.044
Depression <sup>6</sup>	30,768	12.1%	28,848	12.2%	-0.091	-0.003
Glaucoma <sup>6</sup>	6,396	2.5%	6,458	2.7%	-0.214	-0.013
Hip or Pelvic Fracture <sup>6</sup>	450	0.2%	380	0.2%	0.016	0.004
Hyperlipidemia <sup>6</sup>	60,572	23.9%	55,545	23.6%	0.350	0.008
Hypertension <sup>6</sup>	98,374	38.8%	74,750	31.7%	7.126	0.150
Osteoporosis <sup>6</sup>	2,492	1.0%	2,722	1.2%	-0.171	-0.017
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	28,657	11.3%	24,483	10.4%	0.927	0.030
Stroke or Transient Ischemic Attack <sup>6</sup>	5,751	2.3%	4,543	1.9%	0.343	0.024
Breast Cancer <sup>6</sup>	3,721	1.5%	2,562	1.1%	0.382	0.034
Colorectal Cancer <sup>6</sup>	1,418	0.6%	726	0.3%	0.252	0.038
Prostate Cancer <sup>6</sup>	1,554	0.6%	1,574	0.7%	-0.054	-0.007
Lung Cancer <sup>6</sup>	655	0.3%	628	0.3%	-0.008	-0.002
Endometrial Cancer <sup>6</sup>	524	0.2%	247	0.1%	0.102	0.026
Urologic Cancer <sup>6</sup>	628	0.2%	412	0.2%	0.073	0.016
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.3	8.7	6.3	7.9	-0.041	-0.005
Mean number of emergency room encounters	0.3	0.9	0.3	0.9	-0.006	-0.007
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.022	-0.049
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.007
Mean number of other ambulatory encounters	1.4	3.7	1.4	3.7	-0.043	-0.011
Mean number of filled prescriptions	7.6	9.8	7.4	9.3	0.190	0.020

**Table 1y. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.8	0.075	0.019
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.5	0.067	0.019

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1z. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	99,808	100.0%	93,967	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.5	45.7	15.0	4.683	0.350
Age						
18-44 years	30,053	30.1%	44,829	47.7%	-17.596	-0.367
45-64 years	64,338	64.5%	42,732	45.5%	18.986	0.389
≥ 65 years	5,417	5.4%	6,406	6.8%	-1.390	-0.058
Sex						
Female	43,160	43.2%	57,663	61.4%	-18.122	-0.369
Male	56,648	56.8%	36,304	38.6%	18.122	0.369
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	99,808	100.0%	93,967	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	99,808	100.0%	93,967	100.0%	0.000	NaN
Year						
2018	99,808	100.0%	93,967	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.2	0.8	1.7	-0.651	-0.440
Allergic Reaction	5,624	5.6%	7,892	8.4%	-2.764	-0.108
Diabetes	16,534	16.6%	7,146	7.6%	8.961	0.278
Heart Failure	958	1.0%	3,646	3.9%	-2.920	-0.191
Ischemic Heart Disease	2,459	2.5%	8,789	9.4%	-6.890	-0.295
NSAID Use	15,542	15.6%	15,600	16.6%	-1.030	-0.028



**Table 1z. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,590	6.6%	8,005	8.5%	-1.916	-0.073
Acute Myocardial Infarction <sup>5</sup>	496	0.5%	3,490	3.7%	-3.217	-0.226
Alzheimers Disease and Related Disorders <sup>5</sup>	313	0.3%	671	0.7%	-0.400	-0.056
Anemia <sup>5</sup>	4,270	4.3%	8,580	9.1%	-4.853	-0.195
Asthma <sup>5</sup>	3,607	3.6%	4,961	5.3%	-1.666	-0.081
Atrial Fibrillation <sup>5</sup>	801	0.8%	5,267	5.6%	-4.803	-0.275
Benign Prostatic Hyperplasia <sup>5</sup>	1,884	1.9%	1,801	1.9%	-0.029	-0.002
Cataract <sup>5</sup>	3,505	3.5%	3,021	3.2%	0.297	0.016
Chronic Kidney Disease <sup>5</sup>	8,500	8.5%	6,758	7.2%	1.324	0.049
Bronchiectasis <sup>5</sup>	2,548	2.6%	3,784	4.0%	-1.474	-0.083
Depression <sup>5</sup>	7,525	7.5%	14,948	15.9%	-8.368	-0.262
Glaucoma <sup>5</sup>	2,422	2.4%	2,259	2.4%	0.023	0.001
Hip or Pelvic Fracture <sup>5</sup>	93	0.1%	215	0.2%	-0.136	-0.034
Hyperlipidemia <sup>5</sup>	23,730	23.8%	20,107	21.4%	2.378	0.057
Hypertension <sup>5</sup>	38,052	38.1%	26,566	28.3%	9.854	0.210
Osteoporosis <sup>5</sup>	788	0.8%	1,112	1.2%	-0.394	-0.040
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,791	9.8%	9,673	10.3%	-0.484	-0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	1,536	1.5%	2,061	2.2%	-0.654	-0.048
Breast Cancer <sup>5</sup>	941	0.9%	1,183	1.3%	-0.316	-0.030
Colorectal Cancer <sup>5</sup>	317	0.3%	387	0.4%	-0.094	-0.016
Prostate Cancer <sup>5</sup>	546	0.5%	562	0.6%	-0.051	-0.007
Lung Cancer <sup>5</sup>	126	0.1%	389	0.4%	-0.288	-0.055
Endometrial Cancer <sup>5</sup>	122	0.1%	119	0.1%	-0.004	-0.001
Urologic Cancer <sup>5</sup>	159	0.2%	198	0.2%	-0.051	-0.012
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.6	9.5	-2.908	-0.357
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.182	-0.214
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.167	-0.366
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.021
Mean number of other ambulatory encounters	1.0	2.7	1.6	4.2	-0.678	-0.193
Mean number of filled prescriptions	6.3	8.4	8.6	10.4	-2.263	-0.239

**Table 1z. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.2	4.1	-1.048	-0.280
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.8	-1.001	-0.292

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1aa. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	99,806	100.0%	93,965	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.0	12.3	49.0	14.6	-0.024	-0.002
Age						
18-44 years	35,730	35.8%	35,267	37.5%	-1.733	-0.036
45-64 years	58,780	58.9%	50,529	53.8%	5.120	0.103
≥ 65 years	5,296	5.3%	8,169	8.7%	-3.387	-0.133
Sex						
Female	51,672	51.8%	48,617	51.7%	0.033	0.001
Male	48,134	48.2%	45,348	48.3%	-0.033	-0.001
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	99,806	100.0%	93,965	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	99,806	100.0%	93,965	100.0%	0.000	NaN
Year						
2018	99,806	100.0%	93,965	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.019	-0.012
Allergic Reaction	7,087	7.1%	6,695	7.1%	-0.024	-0.001
Diabetes	13,451	13.5%	9,697	10.3%	3.158	0.098
Heart Failure	2,354	2.4%	2,450	2.6%	-0.248	-0.016
Ischemic Heart Disease	5,995	6.0%	5,782	6.2%	-0.147	-0.006
NSAID Use	16,403	16.4%	15,382	16.4%	0.065	0.002

**Table 1aa. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	7,926	7.9%	7,382	7.9%	0.085	0.003
Acute Myocardial Infarction <sup>6</sup>	1,336	1.3%	2,210	2.4%	-1.013	-0.075
Alzheimers Disease and Related Disorders <sup>6</sup>	607	0.6%	497	0.5%	0.080	0.011
Anemia <sup>6</sup>	7,078	7.1%	6,392	6.8%	0.289	0.011
Asthma <sup>6</sup>	5,515	5.5%	3,708	3.9%	1.579	0.074
Atrial Fibrillation <sup>6</sup>	1,410	1.4%	4,908	5.2%	-3.810	-0.214
Benign Prostatic Hyperplasia <sup>6</sup>	1,770	1.8%	2,230	2.4%	-0.599	-0.042
Cataract <sup>6</sup>	3,427	3.4%	3,499	3.7%	-0.290	-0.016
Chronic Kidney Disease <sup>6</sup>	9,413	9.4%	6,328	6.7%	2.697	0.099
Bronchiectasis <sup>6</sup>	3,971	4.0%	3,022	3.2%	0.762	0.041
Depression <sup>6</sup>	11,859	11.9%	11,035	11.7%	0.138	0.004
Glaucoma <sup>6</sup>	2,402	2.4%	2,510	2.7%	-0.265	-0.017
Hip or Pelvic Fracture <sup>6</sup>	188	0.2%	166	0.2%	0.011	0.003
Hyperlipidemia <sup>6</sup>	23,839	23.9%	21,723	23.1%	0.766	0.018
Hypertension <sup>6</sup>	38,949	39.0%	29,441	31.3%	7.692	0.162
Osteoporosis <sup>6</sup>	1,002	1.0%	1,063	1.1%	-0.128	-0.012
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	11,360	11.4%	9,712	10.3%	1.047	0.034
Stroke or Transient Ischemic Attack <sup>6</sup>	2,256	2.3%	1,801	1.9%	0.344	0.024
Breast Cancer <sup>6</sup>	1,573	1.6%	971	1.0%	0.543	0.048
Colorectal Cancer <sup>6</sup>	543	0.5%	310	0.3%	0.215	0.033
Prostate Cancer <sup>6</sup>	583	0.6%	644	0.7%	-0.101	-0.013
Lung Cancer <sup>6</sup>	291	0.3%	250	0.3%	0.025	0.005
Endometrial Cancer <sup>6</sup>	197	0.2%	92	0.1%	0.100	0.026
Urologic Cancer <sup>6</sup>	289	0.3%	166	0.2%	0.113	0.023
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.2	8.8	6.2	8.1	0.020	0.002
Mean number of emergency room encounters	0.3	0.9	0.3	0.8	-0.003	-0.004
Mean number of inpatient hospital encounters	0.1	0.4	0.2	0.5	-0.017	-0.037
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.008
Mean number of other ambulatory encounters	1.3	3.7	1.3	3.5	-0.014	-0.004
Mean number of filled prescriptions	7.8	10.0	7.6	9.5	0.198	0.020

**Table 1aa. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.8	0.068	0.018
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.5	0.058	0.016

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ab. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	153,505	100.0%	141,768	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.6	45.5	15.1	4.857	0.361
Age						
18-44 years	46,899	30.6%	68,925	48.6%	-18.066	-0.376
45-64 years	98,079	63.9%	62,954	44.4%	19.487	0.399
≥ 65 years	8,527	5.6%	9,889	7.0%	-1.421	-0.059
Sex						
Female	65,934	43.0%	86,965	61.3%	-18.391	-0.375
Male	87,571	57.0%	54,803	38.7%	18.391	0.375
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	153,505	100.0%	141,768	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	153,505	100.0%	141,768	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	153,505	100.0%	141,768	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.1	0.8	1.7	-0.662	-0.450
Allergic Reaction	8,992	5.9%	12,476	8.8%	-2.943	-0.113
Diabetes	24,800	16.2%	11,119	7.8%	8.313	0.258
Heart Failure	1,409	0.9%	5,593	3.9%	-3.027	-0.197
Ischemic Heart Disease	3,831	2.5%	13,303	9.4%	-6.888	-0.295
NSAID Use	23,365	15.2%	22,692	16.0%	-0.785	-0.022

**Table 1ab. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,290	6.7%	12,352	8.7%	-2.009	-0.075
Acute Myocardial Infarction <sup>5</sup>	729	0.5%	5,379	3.8%	-3.319	-0.231
Alzheimers Disease and Related Disorders <sup>5</sup>	456	0.3%	989	0.7%	-0.401	-0.057
Anemia <sup>5</sup>	6,711	4.4%	12,769	9.0%	-4.635	-0.186
Asthma <sup>5</sup>	5,622	3.7%	7,567	5.3%	-1.675	-0.081
Atrial Fibrillation <sup>5</sup>	1,232	0.8%	7,958	5.6%	-4.811	-0.276
Benign Prostatic Hyperplasia <sup>5</sup>	2,904	1.9%	2,816	2.0%	-0.095	-0.007
Cataract <sup>5</sup>	5,628	3.7%	4,872	3.4%	0.230	0.012
Chronic Kidney Disease <sup>5</sup>	12,929	8.4%	10,198	7.2%	1.229	0.046
Bronchiectasis <sup>5</sup>	4,137	2.7%	5,740	4.0%	-1.354	-0.075
Depression <sup>5</sup>	12,038	7.8%	24,142	17.0%	-9.187	-0.281
Glaucoma <sup>5</sup>	3,991	2.6%	3,428	2.4%	0.182	0.012
Hip or Pelvic Fracture <sup>5</sup>	148	0.1%	263	0.2%	-0.089	-0.024
Hyperlipidemia <sup>5</sup>	36,928	24.1%	30,755	21.7%	2.363	0.056
Hypertension <sup>5</sup>	58,530	38.1%	40,225	28.4%	9.755	0.208
Osteoporosis <sup>5</sup>	1,192	0.8%	1,734	1.2%	-0.447	-0.045
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	15,009	9.8%	14,731	10.4%	-0.613	-0.020
Stroke or Transient Ischemic Attack <sup>5</sup>	2,381	1.6%	3,045	2.1%	-0.597	-0.044
Breast Cancer <sup>5</sup>	1,369	0.9%	1,927	1.4%	-0.467	-0.044
Colorectal Cancer <sup>5</sup>	492	0.3%	534	0.4%	-0.056	-0.010
Prostate Cancer <sup>5</sup>	912	0.6%	830	0.6%	0.009	0.001
Lung Cancer <sup>5</sup>	158	0.1%	580	0.4%	-0.306	-0.061
Endometrial Cancer <sup>5</sup>	187	0.1%	191	0.1%	-0.013	-0.004
Urologic Cancer <sup>5</sup>	204	0.1%	289	0.2%	-0.071	-0.017
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.7	9.2	-2.963	-0.372
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.179	-0.207
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.165	-0.369
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.025
Mean number of other ambulatory encounters	1.0	2.8	1.7	4.5	-0.730	-0.195
Mean number of filled prescriptions	6.1	8.1	8.3	10.1	-2.244	-0.246

**Table 1ab. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.1	4.1	-1.037	-0.279
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.7	-0.988	-0.290

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 1ac. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	153,503	100.0%	141,762	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.9	12.4	48.8	14.6	0.054	0.004
Age						
18-44 years	55,906	36.4%	54,296	38.3%	-1.880	-0.039
45-64 years	89,243	58.1%	74,996	52.9%	5.235	0.105
≥ 65 years	8,354	5.4%	12,471	8.8%	-3.355	-0.131
Sex						
Female	79,277	51.6%	72,994	51.5%	0.155	0.003
Male	74,226	48.4%	68,768	48.5%	-0.155	-0.003
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	153,503	100.0%	141,762	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	153,503	100.0%	141,762	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	153,503	100.0%	141,762	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.041	-0.027
Allergic Reaction	11,490	7.5%	10,624	7.5%	-0.009	-0.000
Diabetes	20,081	13.1%	15,393	10.9%	2.224	0.069
Heart Failure	3,382	2.2%	3,767	2.7%	-0.454	-0.029
Ischemic Heart Disease	9,224	6.0%	8,718	6.1%	-0.141	-0.006
NSAID Use	24,680	16.1%	22,219	15.7%	0.405	0.011

**Table 1ac. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	12,164	7.9%	11,456	8.1%	-0.157	-0.006
Acute Myocardial Infarction <sup>6</sup>	1,981	1.3%	3,392	2.4%	-1.102	-0.082
Alzheimers Disease and Related Disorders <sup>6</sup>	868	0.6%	754	0.5%	0.034	0.005
Anemia <sup>6</sup>	10,775	7.0%	9,534	6.7%	0.294	0.012
Asthma <sup>6</sup>	8,530	5.6%	5,689	4.0%	1.544	0.072
Atrial Fibrillation <sup>6</sup>	2,108	1.4%	7,571	5.3%	-3.967	-0.222
Benign Prostatic Hyperplasia <sup>6</sup>	2,756	1.8%	3,563	2.5%	-0.718	-0.049
Cataract <sup>6</sup>	5,528	3.6%	5,823	4.1%	-0.506	-0.026
Chronic Kidney Disease <sup>6</sup>	14,221	9.3%	9,823	6.9%	2.335	0.086
Bronchiectasis <sup>6</sup>	6,288	4.1%	4,586	3.2%	0.861	0.046
Depression <sup>6</sup>	18,901	12.3%	17,808	12.6%	-0.248	-0.008
Glaucoma <sup>6</sup>	3,994	2.6%	3,950	2.8%	-0.185	-0.011
Hip or Pelvic Fracture <sup>6</sup>	263	0.2%	215	0.2%	0.020	0.005
Hyperlipidemia <sup>6</sup>	36,734	23.9%	33,829	23.9%	0.067	0.002
Hypertension <sup>6</sup>	59,420	38.7%	45,329	32.0%	6.734	0.141
Osteoporosis <sup>6</sup>	1,490	1.0%	1,659	1.2%	-0.200	-0.019
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	17,293	11.3%	14,771	10.4%	0.846	0.027
Stroke or Transient Ischemic Attack <sup>6</sup>	3,496	2.3%	2,742	1.9%	0.343	0.024
Breast Cancer <sup>6</sup>	2,146	1.4%	1,593	1.1%	0.275	0.025
Colorectal Cancer <sup>6</sup>	875	0.6%	417	0.3%	0.276	0.042
Prostate Cancer <sup>6</sup>	970	0.6%	930	0.7%	-0.024	-0.003
Lung Cancer <sup>6</sup>	365	0.2%	378	0.3%	-0.029	-0.006
Endometrial Cancer <sup>6</sup>	327	0.2%	155	0.1%	0.103	0.026
Urologic Cancer <sup>6</sup>	340	0.2%	246	0.2%	0.048	0.011
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.3	8.7	6.3	7.9	-0.083	-0.010
Mean number of emergency room encounters	0.3	0.9	0.3	0.9	-0.008	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.025	-0.056
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.006
Mean number of other ambulatory encounters	1.4	3.7	1.4	3.9	-0.063	-0.017
Mean number of filled prescriptions	7.5	9.7	7.3	9.2	0.189	0.020

**Table 1ac. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.7	0.080	0.021
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.4	0.073	0.021

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ad. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	253,311	100.0%	235,734	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.9	12.4	48.9	14.6	0.021	0.002
Age						
18-44 years	91,642	36.2%	89,568	38.0%	-1.818	-0.038
45-64 years	148,024	58.4%	125,525	53.2%	5.187	0.105
≥ 65 years	13,645	5.4%	20,640	8.8%	-3.369	-0.132
Sex						
Female	130,954	51.7%	121,594	51.6%	0.116	0.002
Male	122,357	48.3%	114,140	48.4%	-0.116	-0.002
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	253,311	100.0%	235,734	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	253,311	100.0%	235,734	100.0%	0.000	NaN
Year						
2018	100,358	39.6%	93,653	39.7%	-0.110	-0.002
2019	152,953	60.4%	142,081	60.3%	0.110	0.002
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.032	-0.021
Allergic Reaction	18,595	7.3%	17,319	7.3%	-0.006	-0.000
Diabetes	33,527	13.2%	25,080	10.6%	2.596	0.080
Heart Failure	5,747	2.3%	6,218	2.6%	-0.369	-0.024
Ischemic Heart Disease	15,208	6.0%	14,511	6.2%	-0.152	-0.006
NSAID Use	41,082	16.2%	37,609	16.0%	0.264	0.007

**Table 1ad. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	20,079	7.9%	18,831	8.0%	-0.062	-0.002
Acute Myocardial Infarction <sup>6</sup>	3,316	1.3%	5,603	2.4%	-1.068	-0.079
Alzheimers Disease and Related Disorders <sup>6</sup>	1,474	0.6%	1,251	0.5%	0.051	0.007
Anemia <sup>6</sup>	17,859	7.1%	15,933	6.8%	0.291	0.011
Asthma <sup>6</sup>	14,043	5.5%	9,398	4.0%	1.557	0.073
Atrial Fibrillation <sup>6</sup>	3,516	1.4%	12,485	5.3%	-3.908	-0.219
Benign Prostatic Hyperplasia <sup>6</sup>	4,516	1.8%	5,793	2.5%	-0.675	-0.047
Cataract <sup>6</sup>	8,954	3.5%	9,316	4.0%	-0.417	-0.022
Chronic Kidney Disease <sup>6</sup>	23,630	9.3%	16,150	6.9%	2.477	0.091
Bronchiectasis <sup>6</sup>	10,258	4.0%	7,599	3.2%	0.826	0.044
Depression <sup>6</sup>	30,732	12.1%	28,843	12.2%	-0.103	-0.003
Glaucoma <sup>6</sup>	6,392	2.5%	6,452	2.7%	-0.214	-0.013
Hip or Pelvic Fracture <sup>6</sup>	449	0.2%	380	0.2%	0.016	0.004
Hyperlipidemia <sup>6</sup>	60,571	23.9%	55,536	23.6%	0.353	0.008
Hypertension <sup>6</sup>	98,383	38.8%	74,774	31.7%	7.119	0.149
Osteoporosis <sup>6</sup>	2,493	1.0%	2,718	1.2%	-0.169	-0.016
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	28,644	11.3%	24,486	10.4%	0.921	0.030
Stroke or Transient Ischemic Attack <sup>6</sup>	5,746	2.3%	4,543	1.9%	0.341	0.024
Breast Cancer <sup>6</sup>	3,722	1.5%	2,560	1.1%	0.383	0.034
Colorectal Cancer <sup>6</sup>	1,418	0.6%	725	0.3%	0.252	0.038
Prostate Cancer <sup>6</sup>	1,558	0.6%	1,576	0.7%	-0.053	-0.007
Lung Cancer <sup>6</sup>	650	0.3%	627	0.3%	-0.009	-0.002
Endometrial Cancer <sup>6</sup>	523	0.2%	248	0.1%	0.101	0.026
Urologic Cancer <sup>6</sup>	630	0.2%	411	0.2%	0.074	0.016
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.2	8.7	6.3	7.9	-0.042	-0.005
Mean number of emergency room encounters	0.3	0.9	0.3	0.9	-0.007	-0.008
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.022	-0.049
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.007
Mean number of other ambulatory encounters	1.4	3.7	1.4	3.7	-0.044	-0.012
Mean number of filled prescriptions	7.6	9.8	7.4	9.3	0.186	0.019

**Table 1ad. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.8	0.074	0.019
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.5	0.066	0.019

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ae. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	99,808	100.0%	93,967	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.5	45.7	15.0	4.683	0.350
Age						
18-44 years	30,053	30.1%	44,829	47.7%	-17.596	-0.367
45-64 years	64,338	64.5%	42,732	45.5%	18.986	0.389
≥ 65 years	5,417	5.4%	6,406	6.8%	-1.390	-0.058
Sex						
Female	43,160	43.2%	57,663	61.4%	-18.122	-0.369
Male	56,648	56.8%	36,304	38.6%	18.122	0.369
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	99,808	100.0%	93,967	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	99,808	100.0%	93,967	100.0%	0.000	NaN
Year						
2018	99,808	100.0%	93,967	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.2	0.8	1.7	-0.651	-0.440
Allergic Reaction	5,624	5.6%	7,892	8.4%	-2.764	-0.108
Diabetes	16,534	16.6%	7,146	7.6%	8.961	0.278
Heart Failure	958	1.0%	3,646	3.9%	-2.920	-0.191
Ischemic Heart Disease	2,459	2.5%	8,789	9.4%	-6.890	-0.295
NSAID Use	15,542	15.6%	15,600	16.6%	-1.030	-0.028

**Table 1ae. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	6,590	6.6%	8,005	8.5%	-1.916	-0.073
Acute Myocardial Infarction <sup>5</sup>	496	0.5%	3,490	3.7%	-3.217	-0.226
Alzheimers Disease and Related Disorders <sup>5</sup>	313	0.3%	671	0.7%	-0.400	-0.056
Anemia <sup>5</sup>	4,270	4.3%	8,580	9.1%	-4.853	-0.195
Asthma <sup>5</sup>	3,607	3.6%	4,961	5.3%	-1.666	-0.081
Atrial Fibrillation <sup>5</sup>	801	0.8%	5,267	5.6%	-4.803	-0.275
Benign Prostatic Hyperplasia <sup>5</sup>	1,884	1.9%	1,801	1.9%	-0.029	-0.002
Cataract <sup>5</sup>	3,505	3.5%	3,021	3.2%	0.297	0.016
Chronic Kidney Disease <sup>5</sup>	8,500	8.5%	6,758	7.2%	1.324	0.049
Bronchiectasis <sup>5</sup>	2,548	2.6%	3,784	4.0%	-1.474	-0.083
Depression <sup>5</sup>	7,525	7.5%	14,948	15.9%	-8.368	-0.262
Glaucoma <sup>5</sup>	2,422	2.4%	2,259	2.4%	0.023	0.001
Hip or Pelvic Fracture <sup>5</sup>	93	0.1%	215	0.2%	-0.136	-0.034
Hyperlipidemia <sup>5</sup>	23,730	23.8%	20,107	21.4%	2.378	0.057
Hypertension <sup>5</sup>	38,052	38.1%	26,566	28.3%	9.854	0.210
Osteoporosis <sup>5</sup>	788	0.8%	1,112	1.2%	-0.394	-0.040
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,791	9.8%	9,673	10.3%	-0.484	-0.016
Stroke or Transient Ischemic Attack <sup>5</sup>	1,536	1.5%	2,061	2.2%	-0.654	-0.048
Breast Cancer <sup>5</sup>	941	0.9%	1,183	1.3%	-0.316	-0.030
Colorectal Cancer <sup>5</sup>	317	0.3%	387	0.4%	-0.094	-0.016
Prostate Cancer <sup>5</sup>	546	0.5%	562	0.6%	-0.051	-0.007
Lung Cancer <sup>5</sup>	126	0.1%	389	0.4%	-0.288	-0.055
Endometrial Cancer <sup>5</sup>	122	0.1%	119	0.1%	-0.004	-0.001
Urologic Cancer <sup>5</sup>	159	0.2%	198	0.2%	-0.051	-0.012
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.6	9.5	-2.908	-0.357
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.182	-0.214
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.167	-0.366
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.021
Mean number of other ambulatory encounters	1.0	2.7	1.6	4.2	-0.678	-0.193
Mean number of filled prescriptions	6.3	8.4	8.6	10.4	-2.263	-0.239



**Table 1ae. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.2	4.1	-1.048	-0.280
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.8	-1.001	-0.292

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1af. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	99,806	100.0%	93,965	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.0	12.3	49.0	14.6	-0.024	-0.002
Age						
18-44 years	35,731	35.8%	35,268	37.5%	-1.733	-0.036
45-64 years	58,778	58.9%	50,526	53.8%	5.121	0.103
≥ 65 years	5,297	5.3%	8,171	8.7%	-3.388	-0.133
Sex						
Female	51,671	51.8%	48,618	51.7%	0.031	0.001
Male	48,135	48.2%	45,347	48.3%	-0.031	-0.001
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	99,806	100.0%	93,965	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	99,806	100.0%	93,965	100.0%	0.000	NaN
Year						
2018	99,806	100.0%	93,965	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.019	-0.012
Allergic Reaction	7,092	7.1%	6,695	7.1%	-0.019	-0.001
Diabetes	13,451	13.5%	9,699	10.3%	3.154	0.098
Heart Failure	2,352	2.4%	2,450	2.6%	-0.251	-0.016
Ischemic Heart Disease	5,995	6.0%	5,783	6.2%	-0.148	-0.006
NSAID Use	16,402	16.4%	15,384	16.4%	0.062	0.002

**Table 1af. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	7,927	7.9%	7,383	7.9%	0.085	0.003
Acute Myocardial Infarction <sup>6</sup>	1,334	1.3%	2,210	2.4%	-1.015	-0.076
Alzheimers Disease and Related Disorders <sup>6</sup>	607	0.6%	497	0.5%	0.079	0.011
Anemia <sup>6</sup>	7,078	7.1%	6,392	6.8%	0.289	0.011
Asthma <sup>6</sup>	5,514	5.5%	3,708	3.9%	1.579	0.074
Atrial Fibrillation <sup>6</sup>	1,410	1.4%	4,908	5.2%	-3.810	-0.214
Benign Prostatic Hyperplasia <sup>6</sup>	1,770	1.8%	2,230	2.4%	-0.600	-0.042
Cataract <sup>6</sup>	3,427	3.4%	3,499	3.7%	-0.290	-0.016
Chronic Kidney Disease <sup>6</sup>	9,413	9.4%	6,329	6.7%	2.696	0.099
Bronchiectasis <sup>6</sup>	3,970	4.0%	3,022	3.2%	0.762	0.041
Depression <sup>6</sup>	11,858	11.9%	11,036	11.7%	0.136	0.004
Glaucoma <sup>6</sup>	2,402	2.4%	2,511	2.7%	-0.265	-0.017
Hip or Pelvic Fracture <sup>6</sup>	188	0.2%	166	0.2%	0.011	0.003
Hyperlipidemia <sup>6</sup>	23,837	23.9%	21,725	23.1%	0.763	0.018
Hypertension <sup>6</sup>	38,947	39.0%	29,442	31.3%	7.690	0.162
Osteoporosis <sup>6</sup>	1,002	1.0%	1,063	1.1%	-0.128	-0.012
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	11,360	11.4%	9,713	10.3%	1.046	0.034
Stroke or Transient Ischemic Attack <sup>6</sup>	2,255	2.3%	1,801	1.9%	0.342	0.024
Breast Cancer <sup>6</sup>	1,573	1.6%	971	1.0%	0.542	0.048
Colorectal Cancer <sup>6</sup>	543	0.5%	310	0.3%	0.215	0.033
Prostate Cancer <sup>6</sup>	585	0.6%	644	0.7%	-0.100	-0.013
Lung Cancer <sup>6</sup>	291	0.3%	250	0.3%	0.025	0.005
Endometrial Cancer <sup>6</sup>	197	0.2%	92	0.1%	0.100	0.026
Urologic Cancer <sup>6</sup>	289	0.3%	166	0.2%	0.113	0.023
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.2	8.8	6.2	8.1	0.020	0.002
Mean number of emergency room encounters	0.3	0.9	0.3	0.8	-0.003	-0.004
Mean number of inpatient hospital encounters	0.1	0.4	0.2	0.5	-0.017	-0.037
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.008
Mean number of other ambulatory encounters	1.3	3.7	1.3	3.5	-0.014	-0.004
Mean number of filled prescriptions	7.8	10.0	7.6	9.5	0.196	0.020

**Table 1af. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.8	0.068	0.018
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.5	0.058	0.016

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ag. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	153,505	100.0%	141,768	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.4	11.6	45.5	15.1	4.857	0.361
Age						
18-44 years	46,899	30.6%	68,925	48.6%	-18.066	-0.376
45-64 years	98,079	63.9%	62,954	44.4%	19.487	0.399
≥ 65 years	8,527	5.6%	9,889	7.0%	-1.421	-0.059
Sex						
Female	65,934	43.0%	86,965	61.3%	-18.391	-0.375
Male	87,571	57.0%	54,803	38.7%	18.391	0.375
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	153,505	100.0%	141,768	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	153,505	100.0%	141,768	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	153,505	100.0%	141,768	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.2	1.1	0.8	1.7	-0.662	-0.450
Allergic Reaction	8,992	5.9%	12,476	8.8%	-2.943	-0.113
Diabetes	24,800	16.2%	11,119	7.8%	8.313	0.258
Heart Failure	1,409	0.9%	5,593	3.9%	-3.027	-0.197
Ischemic Heart Disease	3,831	2.5%	13,303	9.4%	-6.888	-0.295
NSAID Use	23,365	15.2%	22,692	16.0%	-0.785	-0.022

**Table 1ag. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,290	6.7%	12,352	8.7%	-2.009	-0.075
Acute Myocardial Infarction <sup>5</sup>	729	0.5%	5,379	3.8%	-3.319	-0.231
Alzheimers Disease and Related Disorders <sup>5</sup>	456	0.3%	989	0.7%	-0.401	-0.057
Anemia <sup>5</sup>	6,711	4.4%	12,769	9.0%	-4.635	-0.186
Asthma <sup>5</sup>	5,622	3.7%	7,567	5.3%	-1.675	-0.081
Atrial Fibrillation <sup>5</sup>	1,232	0.8%	7,958	5.6%	-4.811	-0.276
Benign Prostatic Hyperplasia <sup>5</sup>	2,904	1.9%	2,816	2.0%	-0.095	-0.007
Cataract <sup>5</sup>	5,628	3.7%	4,872	3.4%	0.230	0.012
Chronic Kidney Disease <sup>5</sup>	12,929	8.4%	10,198	7.2%	1.229	0.046
Bronchiectasis <sup>5</sup>	4,137	2.7%	5,740	4.0%	-1.354	-0.075
Depression <sup>5</sup>	12,038	7.8%	24,142	17.0%	-9.187	-0.281
Glaucoma <sup>5</sup>	3,991	2.6%	3,428	2.4%	0.182	0.012
Hip or Pelvic Fracture <sup>5</sup>	148	0.1%	263	0.2%	-0.089	-0.024
Hyperlipidemia <sup>5</sup>	36,928	24.1%	30,755	21.7%	2.363	0.056
Hypertension <sup>5</sup>	58,530	38.1%	40,225	28.4%	9.755	0.208
Osteoporosis <sup>5</sup>	1,192	0.8%	1,734	1.2%	-0.447	-0.045
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	15,009	9.8%	14,731	10.4%	-0.613	-0.020
Stroke or Transient Ischemic Attack <sup>5</sup>	2,381	1.6%	3,045	2.1%	-0.597	-0.044
Breast Cancer <sup>5</sup>	1,369	0.9%	1,927	1.4%	-0.467	-0.044
Colorectal Cancer <sup>5</sup>	492	0.3%	534	0.4%	-0.056	-0.010
Prostate Cancer <sup>5</sup>	912	0.6%	830	0.6%	0.009	0.001
Lung Cancer <sup>5</sup>	158	0.1%	580	0.4%	-0.306	-0.061
Endometrial Cancer <sup>5</sup>	187	0.1%	191	0.1%	-0.013	-0.004
Urologic Cancer <sup>5</sup>	204	0.1%	289	0.2%	-0.071	-0.017
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	4.7	6.5	7.7	9.2	-2.963	-0.372
Mean number of emergency room encounters	0.2	0.7	0.4	1.0	-0.179	-0.207
Mean number of inpatient hospital encounters	0.1	0.3	0.2	0.6	-0.165	-0.369
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.025
Mean number of other ambulatory encounters	1.0	2.8	1.7	4.5	-0.730	-0.195
Mean number of filled prescriptions	6.1	8.1	8.3	10.1	-2.244	-0.246

**Table 1ag. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	3.1	3.3	4.1	4.1	-1.037	-0.279
Mean number of unique drug classes dispensed	2.9	3.1	3.9	3.7	-0.988	-0.290

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ah. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	153,504	100.0%	141,762	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	48.9	12.4	48.8	14.6	0.054	0.004
Age						
18-44 years	55,910	36.4%	54,296	38.3%	-1.878	-0.039
45-64 years	89,236	58.1%	74,996	52.9%	5.230	0.105
≥ 65 years	8,358	5.4%	12,470	8.8%	-3.352	-0.131
Sex						
Female	79,277	51.6%	72,997	51.5%	0.153	0.003
Male	74,227	48.4%	68,765	48.5%	-0.153	-0.003
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	153,504	100.0%	141,762	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	153,504	100.0%	141,762	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	153,504	100.0%	141,762	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.5	1.6	0.5	1.5	-0.040	-0.026
Allergic Reaction	11,495	7.5%	10,620	7.5%	-0.003	-0.000
Diabetes	20,083	13.1%	15,391	10.9%	2.226	0.069
Heart Failure	3,386	2.2%	3,767	2.7%	-0.452	-0.029
Ischemic Heart Disease	9,225	6.0%	8,718	6.1%	-0.140	-0.006
NSAID Use	24,678	16.1%	22,220	15.7%	0.402	0.011



**Table 1ah. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	12,162	7.9%	11,457	8.1%	-0.159	-0.006
Acute Myocardial Infarction <sup>6</sup>	1,981	1.3%	3,392	2.4%	-1.102	-0.082
Alzheimers Disease and Related Disorders <sup>6</sup>	868	0.6%	754	0.5%	0.034	0.005
Anemia <sup>6</sup>	10,785	7.0%	9,534	6.7%	0.300	0.012
Asthma <sup>6</sup>	8,531	5.6%	5,689	4.0%	1.544	0.072
Atrial Fibrillation <sup>6</sup>	2,109	1.4%	7,571	5.3%	-3.967	-0.222
Benign Prostatic Hyperplasia <sup>6</sup>	2,756	1.8%	3,563	2.5%	-0.718	-0.049
Cataract <sup>6</sup>	5,531	3.6%	5,823	4.1%	-0.504	-0.026
Chronic Kidney Disease <sup>6</sup>	14,224	9.3%	9,822	6.9%	2.337	0.086
Bronchiectasis <sup>6</sup>	6,292	4.1%	4,586	3.2%	0.864	0.046
Depression <sup>6</sup>	18,904	12.3%	17,807	12.6%	-0.246	-0.007
Glaucoma <sup>6</sup>	3,994	2.6%	3,951	2.8%	-0.185	-0.011
Hip or Pelvic Fracture <sup>6</sup>	263	0.2%	215	0.2%	0.020	0.005
Hyperlipidemia <sup>6</sup>	36,734	23.9%	33,827	23.9%	0.068	0.002
Hypertension <sup>6</sup>	59,425	38.7%	45,329	32.0%	6.737	0.141
Osteoporosis <sup>6</sup>	1,490	1.0%	1,659	1.2%	-0.199	-0.019
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	17,295	11.3%	14,770	10.4%	0.848	0.027
Stroke or Transient Ischemic Attack <sup>6</sup>	3,494	2.3%	2,741	1.9%	0.342	0.024
Breast Cancer <sup>6</sup>	2,150	1.4%	1,592	1.1%	0.277	0.025
Colorectal Cancer <sup>6</sup>	875	0.6%	417	0.3%	0.276	0.042
Prostate Cancer <sup>6</sup>	971	0.6%	930	0.7%	-0.023	-0.003
Lung Cancer <sup>6</sup>	365	0.2%	378	0.3%	-0.029	-0.006
Endometrial Cancer <sup>6</sup>	327	0.2%	155	0.1%	0.103	0.026
Urologic Cancer <sup>6</sup>	340	0.2%	246	0.2%	0.048	0.011
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	6.3	8.7	6.3	7.9	-0.081	-0.010
Mean number of emergency room encounters	0.3	0.9	0.3	0.9	-0.008	-0.010
Mean number of inpatient hospital encounters	0.1	0.4	0.1	0.5	-0.025	-0.056
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.006
Mean number of other ambulatory encounters	1.4	3.7	1.4	3.9	-0.062	-0.016
Mean number of filled prescriptions	7.5	9.7	7.3	9.2	0.188	0.020

**Table 1ah. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	3.8	3.9	3.7	3.7	0.080	0.021
Mean number of unique drug classes dispensed	3.6	3.6	3.5	3.4	0.073	0.021

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ai. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	191,796	100.0%	180,617	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	49.0	15.0	0.134	0.010
Age						
18-44 years	68,073	35.5%	68,898	38.1%	-2.653	-0.055
45-64 years	113,028	58.9%	94,357	52.2%	6.690	0.135
≥ 65 years	10,695	5.6%	17,362	9.6%	-4.037	-0.153
Sex						
Female	100,208	52.2%	93,860	52.0%	0.281	0.006
Male	91,588	47.8%	86,757	48.0%	-0.281	-0.006
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	191,796	100.0%	180,617	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	191,796	100.0%	180,617	100.0%	0.000	NaN
Year						
2018	68,468	35.7%	65,433	36.2%	-0.529	-0.011
2019	123,328	64.3%	115,184	63.8%	0.529	0.011
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.6	-0.045	-0.026
Allergic Reaction	21,506	11.2%	22,231	12.3%	-1.095	-0.034
Diabetes	37,586	19.6%	14,361	8.0%	11.646	0.343
Heart Failure	3,833	2.0%	5,703	3.2%	-1.159	-0.073
Ischemic Heart Disease	7,352	3.8%	19,320	10.7%	-6.864	-0.267
NSAID Use	46,800	24.4%	40,073	22.2%	2.214	0.052

**Table 1ai. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	19,715	10.3%	18,222	10.1%	0.190	0.006
Acute Myocardial Infarction <sup>6</sup>	1,699	0.9%	6,871	3.8%	-2.918	-0.194
Alzheimers Disease and Related Disorders <sup>6</sup>	1,296	0.7%	1,261	0.7%	-0.022	-0.003
Anemia <sup>6</sup>	17,985	9.4%	15,887	8.8%	0.581	0.020
Asthma <sup>6</sup>	14,492	7.6%	10,550	5.8%	1.715	0.069
Atrial Fibrillation <sup>6</sup>	2,555	1.3%	10,982	6.1%	-4.748	-0.253
Benign Prostatic Hyperplasia <sup>6</sup>	4,951	2.6%	6,836	3.8%	-1.203	-0.069
Cataract <sup>6</sup>	11,470	6.0%	12,073	6.7%	-0.704	-0.029
Chronic Kidney Disease <sup>6</sup>	25,189	13.1%	12,447	6.9%	6.242	0.209
Bronchiectasis <sup>6</sup>	10,918	5.7%	8,903	4.9%	0.763	0.034
Depression <sup>6</sup>	28,756	15.0%	28,426	15.7%	-0.745	-0.021
Glaucoma <sup>6</sup>	7,381	3.8%	7,395	4.1%	-0.246	-0.013
Hip or Pelvic Fracture <sup>6</sup>	452	0.2%	397	0.2%	0.016	0.003
Hyperlipidemia <sup>6</sup>	59,539	31.0%	53,958	29.9%	1.169	0.025
Hypertension <sup>6</sup>	82,438	43.0%	61,694	34.2%	8.825	0.182
Osteoporosis <sup>6</sup>	2,853	1.5%	3,269	1.8%	-0.322	-0.025
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	29,980	15.6%	26,542	14.7%	0.936	0.026
Stroke or Transient Ischemic Attack <sup>6</sup>	5,072	2.6%	4,248	2.4%	0.292	0.019
Breast Cancer <sup>6</sup>	3,390	1.8%	2,516	1.4%	0.374	0.030
Colorectal Cancer <sup>6</sup>	1,236	0.6%	753	0.4%	0.228	0.031
Prostate Cancer <sup>6</sup>	1,351	0.7%	1,607	0.9%	-0.186	-0.021
Lung Cancer <sup>6</sup>	534	0.3%	620	0.3%	-0.065	-0.012
Endometrial Cancer <sup>6</sup>	507	0.3%	255	0.1%	0.123	0.027
Urologic Cancer <sup>6</sup>	544	0.3%	394	0.2%	0.065	0.013
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.3	14.6	11.6	13.8	-0.300	-0.021
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.028	-0.023
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.031	-0.057
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.010
Mean number of other ambulatory encounters	2.2	5.4	2.4	6.2	-0.132	-0.023
Mean number of filled prescriptions	14.6	18.2	14.5	17.9	0.068	0.004

**Table 1ai. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.5	5.1	5.5	5.1	0.001	0.000
Mean number of unique drug classes dispensed	5.1	4.6	5.1	4.5	0.004	0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1aj. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	68,205	100.0%	65,471	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.6	11.6	45.9	15.3	4.793	0.353
Age						
18-44 years	20,281	29.7%	31,040	47.4%	-17.675	-0.369
45-64 years	43,843	64.3%	29,573	45.2%	19.112	0.391
≥ 65 years	4,081	6.0%	4,858	7.4%	-1.437	-0.057
Sex						
Female	29,819	43.7%	40,483	61.8%	-18.114	-0.369
Male	38,386	56.3%	24,988	38.2%	18.114	0.369
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	68,205	100.0%	65,471	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	68,205	100.0%	65,471	100.0%	0.000	NaN
Year						
2018	68,205	100.0%	65,471	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.740	-0.452
Allergic Reaction	6,395	9.4%	8,679	13.3%	-3.880	-0.123
Diabetes	11,932	17.5%	5,106	7.8%	9.695	0.295
Heart Failure	749	1.1%	2,687	4.1%	-3.006	-0.190
Ischemic Heart Disease	2,067	3.0%	6,751	10.3%	-7.281	-0.295
NSAID Use	15,175	22.2%	16,235	24.8%	-2.548	-0.060

**Table 1aj. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	5,892	8.6%	7,014	10.7%	-2.074	-0.070
Acute Myocardial Infarction <sup>5</sup>	395	0.6%	2,632	4.0%	-3.441	-0.231
Alzheimers Disease and Related Disorders <sup>5</sup>	265	0.4%	597	0.9%	-0.523	-0.065
Anemia <sup>5</sup>	4,064	6.0%	7,686	11.7%	-5.781	-0.205
Asthma <sup>5</sup>	3,736	5.5%	5,025	7.7%	-2.198	-0.089
Atrial Fibrillation <sup>5</sup>	640	0.9%	4,043	6.2%	-5.237	-0.286
Benign Prostatic Hyperplasia <sup>5</sup>	2,040	3.0%	1,914	2.9%	0.068	0.004
Cataract <sup>5</sup>	4,137	6.1%	3,736	5.7%	0.359	0.015
Chronic Kidney Disease <sup>5</sup>	6,748	9.9%	5,220	8.0%	1.921	0.067
Bronchiectasis <sup>5</sup>	2,979	4.4%	3,954	6.0%	-1.672	-0.075
Depression <sup>5</sup>	6,875	10.1%	13,002	19.9%	-9.779	-0.277
Glaucoma <sup>5</sup>	2,568	3.8%	2,350	3.6%	0.176	0.009
Hip or Pelvic Fracture <sup>5</sup>	103	0.2%	211	0.3%	-0.171	-0.035
Hyperlipidemia <sup>5</sup>	20,938	30.7%	17,418	26.6%	4.094	0.091
Hypertension <sup>5</sup>	29,289	42.9%	20,004	30.6%	12.389	0.259
Osteoporosis <sup>5</sup>	895	1.3%	1,174	1.8%	-0.481	-0.039
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,592	14.1%	9,596	14.7%	-0.593	-0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	1,292	1.9%	1,775	2.7%	-0.817	-0.054
Breast Cancer <sup>5</sup>	854	1.3%	1,040	1.6%	-0.336	-0.028
Colorectal Cancer <sup>5</sup>	274	0.4%	350	0.5%	-0.133	-0.019
Prostate Cancer <sup>5</sup>	479	0.7%	499	0.8%	-0.060	-0.007
Lung Cancer <sup>5</sup>	119	0.2%	334	0.5%	-0.336	-0.057
Endometrial Cancer <sup>5</sup>	107	0.2%	116	0.2%	-0.020	-0.005
Urologic Cancer <sup>5</sup>	144	0.2%	156	0.2%	-0.027	-0.006
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.9	11.3	13.8	16.1	-4.906	-0.353
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.270	-0.230
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.355
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.030
Mean number of other ambulatory encounters	1.7	4.2	2.7	6.4	-1.024	-0.189
Mean number of filled prescriptions	12.6	16.2	16.8	19.6	-4.214	-0.234

**Table 1aj. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.7	4.5	6.3	5.5	-1.602	-0.317
Mean number of unique drug classes dispensed	4.4	4.0	5.8	4.8	-1.464	-0.329

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 1ak. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	68,203	100.0%	65,470	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	48.9	14.9	0.145	0.011
Age						
18-44 years	24,195	35.5%	24,733	37.8%	-2.303	-0.048
45-64 years	40,202	58.9%	34,653	52.9%	6.014	0.121
≥ 65 years	3,807	5.6%	6,084	9.3%	-3.711	-0.142
Sex						
Female	35,878	52.6%	34,260	52.3%	0.276	0.006
Male	32,325	47.4%	31,210	47.7%	-0.276	-0.006
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	68,203	100.0%	65,470	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	68,203	100.0%	65,470	100.0%	0.000	NaN
Year						
2018	68,203	100.0%	65,470	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.7	-0.031	-0.019
Allergic Reaction	7,487	11.0%	7,896	12.1%	-1.084	-0.034
Diabetes	13,475	19.8%	4,974	7.6%	12.159	0.360
Heart Failure	1,405	2.1%	2,018	3.1%	-1.022	-0.065
Ischemic Heart Disease	2,621	3.8%	6,918	10.6%	-6.724	-0.262
NSAID Use	16,809	24.6%	15,156	23.1%	1.496	0.035

**Table 1ak. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	6,971	10.2%	6,507	9.9%	0.283	0.009
Acute Myocardial Infarction <sup>6</sup>	632	0.9%	2,473	3.8%	-2.851	-0.189
Alzheimers Disease and Related Disorders <sup>6</sup>	438	0.6%	461	0.7%	-0.062	-0.008
Anemia <sup>6</sup>	6,367	9.3%	5,850	8.9%	0.400	0.014
Asthma <sup>6</sup>	5,260	7.7%	3,911	6.0%	1.739	0.069
Atrial Fibrillation <sup>6</sup>	917	1.3%	3,926	6.0%	-4.652	-0.249
Benign Prostatic Hyperplasia <sup>6</sup>	1,802	2.6%	2,438	3.7%	-1.081	-0.062
Cataract <sup>6</sup>	4,052	5.9%	4,306	6.6%	-0.636	-0.026
Chronic Kidney Disease <sup>6</sup>	8,982	13.2%	4,382	6.7%	6.475	0.218
Bronchiectasis <sup>6</sup>	4,087	6.0%	3,379	5.2%	0.830	0.036
Depression <sup>6</sup>	10,008	14.7%	10,039	15.3%	-0.660	-0.018
Glaucoma <sup>6</sup>	2,526	3.7%	2,610	4.0%	-0.283	-0.015
Hip or Pelvic Fracture <sup>6</sup>	178	0.3%	165	0.3%	0.008	0.002
Hyperlipidemia <sup>6</sup>	21,056	30.9%	19,276	29.4%	1.430	0.031
Hypertension <sup>6</sup>	29,180	42.8%	22,095	33.7%	9.034	0.187
Osteoporosis <sup>6</sup>	1,063	1.6%	1,150	1.8%	-0.199	-0.016
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	10,836	15.9%	9,678	14.8%	1.106	0.031
Stroke or Transient Ischemic Attack <sup>6</sup>	1,808	2.7%	1,548	2.4%	0.286	0.018
Breast Cancer <sup>6</sup>	1,330	2.0%	872	1.3%	0.619	0.049
Colorectal Cancer <sup>6</sup>	436	0.6%	287	0.4%	0.201	0.027
Prostate Cancer <sup>6</sup>	462	0.7%	589	0.9%	-0.221	-0.025
Lung Cancer <sup>6</sup>	226	0.3%	232	0.4%	-0.023	-0.004
Endometrial Cancer <sup>6</sup>	174	0.3%	91	0.1%	0.117	0.026
Urologic Cancer <sup>6</sup>	228	0.3%	132	0.2%	0.132	0.026
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.4	14.4	11.7	13.9	-0.231	-0.016
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.030	-0.025
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.028	-0.050
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.019
Mean number of other ambulatory encounters	2.2	5.3	2.2	5.7	-0.060	-0.011
Mean number of filled prescriptions	15.1	18.7	15.1	18.3	0.043	0.002

**Table 1ak. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.6	5.2	5.7	5.1	-0.005	-0.001
Mean number of unique drug classes dispensed	5.2	4.6	5.2	4.5	-0.005	-0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	123,594	100.0%	115,146	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.7	11.6	45.7	15.4	4.946	0.363
Age						
18-44 years	36,758	29.7%	55,558	48.3%	-18.509	-0.387
45-64 years	79,319	64.2%	50,743	44.1%	20.109	0.412
≥ 65 years	7,517	6.1%	8,845	7.7%	-1.600	-0.063
Sex						
Female	53,505	43.3%	70,848	61.5%	-18.238	-0.371
Male	70,089	56.7%	44,298	38.5%	18.238	0.371
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	123,594	100.0%	115,146	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	123,594	100.0%	115,146	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	123,594	100.0%	115,146	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.760	-0.466
Allergic Reaction	11,940	9.7%	15,864	13.8%	-4.117	-0.128
Diabetes	21,372	17.3%	9,575	8.3%	8.977	0.271
Heart Failure	1,298	1.1%	4,905	4.3%	-3.210	-0.201
Ischemic Heart Disease	3,807	3.1%	11,969	10.4%	-7.314	-0.295
NSAID Use	26,974	21.8%	27,046	23.5%	-1.664	-0.040

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,895	8.8%	12,624	11.0%	-2.148	-0.072
Acute Myocardial Infarction <sup>5</sup>	684	0.6%	4,709	4.1%	-3.536	-0.236
Alzheimers Disease and Related Disorders <sup>5</sup>	499	0.4%	1,008	0.9%	-0.472	-0.059
Anemia <sup>5</sup>	7,574	6.1%	13,261	11.5%	-5.389	-0.191
Asthma <sup>5</sup>	6,514	5.3%	8,534	7.4%	-2.141	-0.088
Atrial Fibrillation <sup>5</sup>	1,143	0.9%	7,112	6.2%	-5.252	-0.287
Benign Prostatic Hyperplasia <sup>5</sup>	3,590	2.9%	3,376	2.9%	-0.027	-0.002
Cataract <sup>5</sup>	7,492	6.1%	6,638	5.8%	0.297	0.013
Chronic Kidney Disease <sup>5</sup>	12,228	9.9%	9,416	8.2%	1.716	0.060
Bronchiectasis <sup>5</sup>	5,002	4.0%	6,540	5.7%	-1.633	-0.076
Depression <sup>5</sup>	12,727	10.3%	24,048	20.9%	-10.587	-0.295
Glaucoma <sup>5</sup>	4,828	3.9%	4,257	3.7%	0.209	0.011
Hip or Pelvic Fracture <sup>5</sup>	172	0.1%	295	0.3%	-0.117	-0.026
Hyperlipidemia <sup>5</sup>	38,317	31.0%	31,130	27.0%	3.967	0.087
Hypertension <sup>5</sup>	53,587	43.4%	35,444	30.8%	12.575	0.263
Osteoporosis <sup>5</sup>	1,528	1.2%	2,133	1.9%	-0.616	-0.050
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	17,158	13.9%	16,733	14.5%	-0.649	-0.019
Stroke or Transient Ischemic Attack <sup>5</sup>	2,330	1.9%	3,021	2.6%	-0.738	-0.050
Breast Cancer <sup>5</sup>	1,385	1.1%	1,937	1.7%	-0.562	-0.048
Colorectal Cancer <sup>5</sup>	500	0.4%	554	0.5%	-0.077	-0.012
Prostate Cancer <sup>5</sup>	896	0.7%	850	0.7%	-0.013	-0.002
Lung Cancer <sup>5</sup>	155	0.1%	559	0.5%	-0.360	-0.065
Endometrial Cancer <sup>5</sup>	201	0.2%	205	0.2%	-0.015	-0.004
Urologic Cancer <sup>5</sup>	214	0.2%	291	0.3%	-0.080	-0.017
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.8	11.3	13.8	15.9	-5.057	-0.367
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.264	-0.222
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.358
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.024
Mean number of other ambulatory encounters	1.7	4.6	2.9	6.9	-1.135	-0.193
Mean number of filled prescriptions	11.9	15.5	16.1	19.2	-4.202	-0.241

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.5	4.4	6.1	5.5	-1.588	-0.320
Mean number of unique drug classes dispensed	4.2	3.9	5.6	4.8	-1.454	-0.332

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1am. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	123,592	100.0%	115,141	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	49.0	15.0	0.133	0.010
Age						
18-44 years	43,861	35.5%	44,169	38.4%	-2.872	-0.060
45-64 years	72,848	58.9%	59,693	51.8%	7.099	0.143
≥ 65 years	6,883	5.6%	11,279	9.8%	-4.227	-0.159
Sex						
Female	64,325	52.0%	59,612	51.8%	0.273	0.005
Male	59,267	48.0%	55,529	48.2%	-0.273	-0.005
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	123,592	100.0%	115,141	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	123,592	100.0%	115,141	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	123,592	100.0%	115,141	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.6	-0.052	-0.031
Allergic Reaction	14,013	11.3%	14,331	12.4%	-1.109	-0.034
Diabetes	24,109	19.5%	9,385	8.2%	11.356	0.334
Heart Failure	2,426	2.0%	3,685	3.2%	-1.237	-0.078
Ischemic Heart Disease	4,727	3.8%	12,405	10.8%	-6.949	-0.270
NSAID Use	29,995	24.3%	24,915	21.6%	2.631	0.063

**Table 1am. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	12,736	10.3%	11,722	10.2%	0.125	0.004
Acute Myocardial Infarction <sup>6</sup>	1,062	0.9%	4,401	3.8%	-2.962	-0.197
Alzheimers Disease and Related Disorders <sup>6</sup>	858	0.7%	800	0.7%	-0.001	-0.000
Anemia <sup>6</sup>	11,611	9.4%	10,036	8.7%	0.678	0.024
Asthma <sup>6</sup>	9,240	7.5%	6,642	5.8%	1.707	0.069
Atrial Fibrillation <sup>6</sup>	1,631	1.3%	7,057	6.1%	-4.809	-0.256
Benign Prostatic Hyperplasia <sup>6</sup>	3,147	2.5%	4,396	3.8%	-1.271	-0.072
Cataract <sup>6</sup>	7,415	6.0%	7,763	6.7%	-0.743	-0.030
Chronic Kidney Disease <sup>6</sup>	16,208	13.1%	8,057	7.0%	6.116	0.204
Bronchiectasis <sup>6</sup>	6,828	5.5%	5,522	4.8%	0.729	0.033
Depression <sup>6</sup>	18,742	15.2%	18,384	16.0%	-0.802	-0.022
Glaucoma <sup>6</sup>	4,856	3.9%	4,786	4.2%	-0.228	-0.012
Hip or Pelvic Fracture <sup>6</sup>	274	0.2%	232	0.2%	0.020	0.004
Hyperlipidemia <sup>6</sup>	38,488	31.1%	34,678	30.1%	1.023	0.022
Hypertension <sup>6</sup>	53,253	43.1%	39,595	34.4%	8.699	0.179
Osteoporosis <sup>6</sup>	1,783	1.4%	2,122	1.8%	-0.400	-0.032
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	19,147	15.5%	16,862	14.6%	0.848	0.024
Stroke or Transient Ischemic Attack <sup>6</sup>	3,263	2.6%	2,698	2.3%	0.297	0.019
Breast Cancer <sup>6</sup>	2,059	1.7%	1,646	1.4%	0.237	0.019
Colorectal Cancer <sup>6</sup>	797	0.6%	465	0.4%	0.241	0.033
Prostate Cancer <sup>6</sup>	889	0.7%	1,020	0.9%	-0.167	-0.019
Lung Cancer <sup>6</sup>	307	0.2%	388	0.3%	-0.088	-0.016
Endometrial Cancer <sup>6</sup>	332	0.3%	165	0.1%	0.126	0.028
Urologic Cancer <sup>6</sup>	317	0.3%	262	0.2%	0.029	0.006
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.3	14.6	11.6	13.7	-0.337	-0.024
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.026	-0.022
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.033	-0.061
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.006
Mean number of other ambulatory encounters	2.3	5.5	2.4	6.4	-0.174	-0.029
Mean number of filled prescriptions	14.3	18.0	14.2	17.7	0.087	0.005



**Table 1am. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.4	5.1	5.4	5.1	0.007	0.001
Mean number of unique drug classes dispensed	5.0	4.5	5.0	4.5	0.010	0.002

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1an. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	191,796	100.0%	180,615	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	49.0	15.0	0.136	0.010
Age						
18-44 years	68,076	35.5%	68,908	38.2%	-2.657	-0.055
45-64 years	113,026	58.9%	94,347	52.2%	6.694	0.135
≥ 65 years	10,694	5.6%	17,360	9.6%	-4.036	-0.153
Sex						
Female	100,205	52.2%	93,837	52.0%	0.292	0.006
Male	91,591	47.8%	86,778	48.0%	-0.292	-0.006
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	191,796	100.0%	180,615	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	191,796	100.0%	180,615	100.0%	0.000	NaN
Year						
2018	68,926	35.9%	65,013	36.0%	-0.058	-0.001
2019	122,870	64.1%	115,602	64.0%	0.058	0.001
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.6	-0.044	-0.026
Allergic Reaction	21,505	11.2%	22,234	12.3%	-1.097	-0.034
Diabetes	37,570	19.6%	14,364	8.0%	11.636	0.343
Heart Failure	3,830	2.0%	5,703	3.2%	-1.161	-0.073
Ischemic Heart Disease	7,350	3.8%	19,318	10.7%	-6.863	-0.267
NSAID Use	46,799	24.4%	40,083	22.2%	2.208	0.052

**Table 1an. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	19,721	10.3%	18,220	10.1%	0.195	0.006
Acute Myocardial Infarction <sup>6</sup>	1,699	0.9%	6,876	3.8%	-2.921	-0.194
Alzheimers Disease and Related Disorders <sup>6</sup>	1,303	0.7%	1,260	0.7%	-0.018	-0.002
Anemia <sup>6</sup>	18,006	9.4%	15,882	8.8%	0.595	0.021
Asthma <sup>6</sup>	14,504	7.6%	10,552	5.8%	1.720	0.069
Atrial Fibrillation <sup>6</sup>	2,559	1.3%	10,977	6.1%	-4.743	-0.253
Benign Prostatic Hyperplasia <sup>6</sup>	4,950	2.6%	6,835	3.8%	-1.203	-0.069
Cataract <sup>6</sup>	11,475	6.0%	12,064	6.7%	-0.696	-0.029
Chronic Kidney Disease <sup>6</sup>	25,195	13.1%	12,448	6.9%	6.244	0.209
Bronchiectasis <sup>6</sup>	10,931	5.7%	8,892	4.9%	0.776	0.035
Depression <sup>6</sup>	28,740	15.0%	28,432	15.7%	-0.757	-0.021
Glaucoma <sup>6</sup>	7,382	3.8%	7,400	4.1%	-0.248	-0.013
Hip or Pelvic Fracture <sup>6</sup>	452	0.2%	397	0.2%	0.016	0.003
Hyperlipidemia <sup>6</sup>	59,525	31.0%	53,954	29.9%	1.163	0.025
Hypertension <sup>6</sup>	82,439	43.0%	61,687	34.2%	8.829	0.182
Osteoporosis <sup>6</sup>	2,855	1.5%	3,271	1.8%	-0.323	-0.025
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	29,985	15.6%	26,538	14.7%	0.941	0.026
Stroke or Transient Ischemic Attack <sup>6</sup>	5,077	2.6%	4,251	2.4%	0.294	0.019
Breast Cancer <sup>6</sup>	3,392	1.8%	2,515	1.4%	0.376	0.030
Colorectal Cancer <sup>6</sup>	1,230	0.6%	752	0.4%	0.225	0.031
Prostate Cancer <sup>6</sup>	1,355	0.7%	1,607	0.9%	-0.184	-0.021
Lung Cancer <sup>6</sup>	535	0.3%	619	0.3%	-0.064	-0.011
Endometrial Cancer <sup>6</sup>	503	0.3%	255	0.1%	0.121	0.027
Urologic Cancer <sup>6</sup>	545	0.3%	394	0.2%	0.066	0.013
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.3	14.6	11.6	13.8	-0.298	-0.021
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.028	-0.023
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.031	-0.057
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.010
Mean number of other ambulatory encounters	2.2	5.4	2.4	6.2	-0.131	-0.023
Mean number of filled prescriptions	14.6	18.2	14.5	17.9	0.069	0.004

**Table 1an. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.5	5.1	5.5	5.1	0.002	0.000
Mean number of unique drug classes dispensed	5.1	4.6	5.1	4.5	0.004	0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. *J Clin Epidemiol.* 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. *Med Care.* 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1a0. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	68,205	100.0%	65,471	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.6	11.6	45.9	15.3	4.793	0.353
Age						
18-44 years	20,281	29.7%	31,040	47.4%	-17.675	-0.369
45-64 years	43,843	64.3%	29,573	45.2%	19.112	0.391
≥ 65 years	4,081	6.0%	4,858	7.4%	-1.437	-0.057
Sex						
Female	29,819	43.7%	40,483	61.8%	-18.114	-0.369
Male	38,386	56.3%	24,988	38.2%	18.114	0.369
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	68,205	100.0%	65,471	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	68,205	100.0%	65,471	100.0%	0.000	NaN
Year						
2018	68,205	100.0%	65,471	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.740	-0.452
Allergic Reaction	6,395	9.4%	8,679	13.3%	-3.880	-0.123
Diabetes	11,932	17.5%	5,106	7.8%	9.695	0.295
Heart Failure	749	1.1%	2,687	4.1%	-3.006	-0.190
Ischemic Heart Disease	2,067	3.0%	6,751	10.3%	-7.281	-0.295
NSAID Use	15,175	22.2%	16,235	24.8%	-2.548	-0.060

**Table 1a0. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	5,892	8.6%	7,014	10.7%	-2.074	-0.070
Acute Myocardial Infarction <sup>5</sup>	395	0.6%	2,632	4.0%	-3.441	-0.231
Alzheimers Disease and Related Disorders <sup>5</sup>	265	0.4%	597	0.9%	-0.523	-0.065
Anemia <sup>5</sup>	4,064	6.0%	7,686	11.7%	-5.781	-0.205
Asthma <sup>5</sup>	3,736	5.5%	5,025	7.7%	-2.198	-0.089
Atrial Fibrillation <sup>5</sup>	640	0.9%	4,043	6.2%	-5.237	-0.286
Benign Prostatic Hyperplasia <sup>5</sup>	2,040	3.0%	1,914	2.9%	0.068	0.004
Cataract <sup>5</sup>	4,137	6.1%	3,736	5.7%	0.359	0.015
Chronic Kidney Disease <sup>5</sup>	6,748	9.9%	5,220	8.0%	1.921	0.067
Bronchiectasis <sup>5</sup>	2,979	4.4%	3,954	6.0%	-1.672	-0.075
Depression <sup>5</sup>	6,875	10.1%	13,002	19.9%	-9.779	-0.277
Glaucoma <sup>5</sup>	2,568	3.8%	2,350	3.6%	0.176	0.009
Hip or Pelvic Fracture <sup>5</sup>	103	0.2%	211	0.3%	-0.171	-0.035
Hyperlipidemia <sup>5</sup>	20,938	30.7%	17,418	26.6%	4.094	0.091
Hypertension <sup>5</sup>	29,289	42.9%	20,004	30.6%	12.389	0.259
Osteoporosis <sup>5</sup>	895	1.3%	1,174	1.8%	-0.481	-0.039
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	9,592	14.1%	9,596	14.7%	-0.593	-0.017
Stroke or Transient Ischemic Attack <sup>5</sup>	1,292	1.9%	1,775	2.7%	-0.817	-0.054
Breast Cancer <sup>5</sup>	854	1.3%	1,040	1.6%	-0.336	-0.028
Colorectal Cancer <sup>5</sup>	274	0.4%	350	0.5%	-0.133	-0.019
Prostate Cancer <sup>5</sup>	479	0.7%	499	0.8%	-0.060	-0.007
Lung Cancer <sup>5</sup>	119	0.2%	334	0.5%	-0.336	-0.057
Endometrial Cancer <sup>5</sup>	107	0.2%	116	0.2%	-0.020	-0.005
Urologic Cancer <sup>5</sup>	144	0.2%	156	0.2%	-0.027	-0.006
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.9	11.3	13.8	16.1	-4.906	-0.353
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.270	-0.230
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.355
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.030
Mean number of other ambulatory encounters	1.7	4.2	2.7	6.4	-1.024	-0.189
Mean number of filled prescriptions	12.6	16.2	16.8	19.6	-4.214	-0.234

**Table 1ao. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.7	4.5	6.3	5.5	-1.602	-0.317
Mean number of unique drug classes dispensed	4.4	4.0	5.8	4.8	-1.464	-0.329

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ap. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	68,204	100.0%	65,469	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	48.9	14.9	0.143	0.010
Age						
18-44 years	24,199	35.5%	24,730	37.8%	-2.294	-0.048
45-64 years	40,198	58.9%	34,655	52.9%	6.005	0.121
≥ 65 years	3,807	5.6%	6,084	9.3%	-3.710	-0.142
Sex						
Female	35,877	52.6%	34,258	52.3%	0.276	0.006
Male	32,327	47.4%	31,211	47.7%	-0.276	-0.006
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	68,204	100.0%	65,469	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	68,204	100.0%	65,469	100.0%	0.000	NaN
Year						
2018	68,204	100.0%	65,469	100.0%	0.000	NaN
2019	0	0.0%	0	0.0%	NaN	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.7	-0.031	-0.018
Allergic Reaction	7,488	11.0%	7,897	12.1%	-1.083	-0.034
Diabetes	13,473	19.8%	4,975	7.6%	12.156	0.359
Heart Failure	1,406	2.1%	2,018	3.1%	-1.021	-0.065
Ischemic Heart Disease	2,620	3.8%	6,916	10.6%	-6.723	-0.262
NSAID Use	16,810	24.6%	15,157	23.2%	1.494	0.035



**Table 1ap. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	6,972	10.2%	6,507	9.9%	0.284	0.009
Acute Myocardial Infarction <sup>6</sup>	632	0.9%	2,472	3.8%	-2.849	-0.189
Alzheimer's Disease and Related Disorders <sup>6</sup>	438	0.6%	460	0.7%	-0.061	-0.007
Anemia <sup>6</sup>	6,367	9.3%	5,849	8.9%	0.401	0.014
Asthma <sup>6</sup>	5,259	7.7%	3,910	6.0%	1.739	0.069
Atrial Fibrillation <sup>6</sup>	917	1.3%	3,926	6.0%	-4.652	-0.249
Benign Prostatic Hyperplasia <sup>6</sup>	1,802	2.6%	2,438	3.7%	-1.081	-0.062
Cataract <sup>6</sup>	4,051	5.9%	4,307	6.6%	-0.638	-0.026
Chronic Kidney Disease <sup>6</sup>	8,983	13.2%	4,383	6.7%	6.476	0.218
Bronchiectasis <sup>6</sup>	4,086	6.0%	3,379	5.2%	0.829	0.036
Depression <sup>6</sup>	10,011	14.7%	10,037	15.3%	-0.654	-0.018
Glaucoma <sup>6</sup>	2,525	3.7%	2,610	4.0%	-0.285	-0.015
Hip or Pelvic Fracture <sup>6</sup>	178	0.3%	165	0.3%	0.008	0.002
Hyperlipidemia <sup>6</sup>	21,055	30.9%	19,277	29.4%	1.427	0.031
Hypertension <sup>6</sup>	29,180	42.8%	22,097	33.8%	9.032	0.187
Osteoporosis <sup>6</sup>	1,062	1.6%	1,150	1.8%	-0.199	-0.016
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	10,836	15.9%	9,678	14.8%	1.105	0.031
Stroke or Transient Ischemic Attack <sup>6</sup>	1,806	2.6%	1,547	2.4%	0.285	0.018
Breast Cancer <sup>6</sup>	1,329	1.9%	871	1.3%	0.617	0.049
Colorectal Cancer <sup>6</sup>	437	0.6%	287	0.4%	0.201	0.027
Prostate Cancer <sup>6</sup>	462	0.7%	589	0.9%	-0.221	-0.025
Lung Cancer <sup>6</sup>	226	0.3%	232	0.4%	-0.022	-0.004
Endometrial Cancer <sup>6</sup>	174	0.3%	91	0.1%	0.117	0.026
Urologic Cancer <sup>6</sup>	228	0.3%	132	0.2%	0.133	0.026
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.4	14.4	11.7	13.9	-0.230	-0.016
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.030	-0.025
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.028	-0.050
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.019
Mean number of other ambulatory encounters	2.2	5.3	2.2	5.7	-0.058	-0.011
Mean number of filled prescriptions	15.1	18.6	15.1	18.3	0.038	0.002

**Table 1ap. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.6	5.2	5.7	5.1	-0.006	-0.001
Mean number of unique drug classes dispensed	5.2	4.6	5.2	4.5	-0.006	-0.001

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Unique patients	123,594	100.0%	115,146	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	50.7	11.6	45.7	15.4	4.946	0.363
Age						
18-44 years	36,758	29.7%	55,558	48.3%	-18.509	-0.387
45-64 years	79,319	64.2%	50,743	44.1%	20.109	0.412
≥ 65 years	7,517	6.1%	8,845	7.7%	-1.600	-0.063
Sex						
Female	53,505	43.3%	70,848	61.5%	-18.238	-0.371
Male	70,089	56.7%	44,298	38.5%	18.238	0.371
Race <sup>3</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	123,594	100.0%	115,146	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	123,594	100.0%	115,146	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	123,594	100.0%	115,146	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>4</sup>	0.3	1.3	1.0	1.9	-0.760	-0.466
Allergic Reaction	11,940	9.7%	15,864	13.8%	-4.117	-0.128
Diabetes	21,372	17.3%	9,575	8.3%	8.977	0.271
Heart Failure	1,298	1.1%	4,905	4.3%	-3.210	-0.201
Ischemic Heart Disease	3,807	3.1%	11,969	10.4%	-7.314	-0.295
NSAID Use	26,974	21.8%	27,046	23.5%	-1.664	-0.040

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Acquired Hypothyroidism <sup>5</sup>	10,895	8.8%	12,624	11.0%	-2.148	-0.072
Acute Myocardial Infarction <sup>5</sup>	684	0.6%	4,709	4.1%	-3.536	-0.236
Alzheimers Disease and Related Disorders <sup>5</sup>	499	0.4%	1,008	0.9%	-0.472	-0.059
Anemia <sup>5</sup>	7,574	6.1%	13,261	11.5%	-5.389	-0.191
Asthma <sup>5</sup>	6,514	5.3%	8,534	7.4%	-2.141	-0.088
Atrial Fibrillation <sup>5</sup>	1,143	0.9%	7,112	6.2%	-5.252	-0.287
Benign Prostatic Hyperplasia <sup>5</sup>	3,590	2.9%	3,376	2.9%	-0.027	-0.002
Cataract <sup>5</sup>	7,492	6.1%	6,638	5.8%	0.297	0.013
Chronic Kidney Disease <sup>5</sup>	12,228	9.9%	9,416	8.2%	1.716	0.060
Bronchiectasis <sup>5</sup>	5,002	4.0%	6,540	5.7%	-1.633	-0.076
Depression <sup>5</sup>	12,727	10.3%	24,048	20.9%	-10.587	-0.295
Glaucoma <sup>5</sup>	4,828	3.9%	4,257	3.7%	0.209	0.011
Hip or Pelvic Fracture <sup>5</sup>	172	0.1%	295	0.3%	-0.117	-0.026
Hyperlipidemia <sup>5</sup>	38,317	31.0%	31,130	27.0%	3.967	0.087
Hypertension <sup>5</sup>	53,587	43.4%	35,444	30.8%	12.575	0.263
Osteoporosis <sup>5</sup>	1,528	1.2%	2,133	1.9%	-0.616	-0.050
Rheumatoid Arthritis or Osteoarthritis <sup>5</sup>	17,158	13.9%	16,733	14.5%	-0.649	-0.019
Stroke or Transient Ischemic Attack <sup>5</sup>	2,330	1.9%	3,021	2.6%	-0.738	-0.050
Breast Cancer <sup>5</sup>	1,385	1.1%	1,937	1.7%	-0.562	-0.048
Colorectal Cancer <sup>5</sup>	500	0.4%	554	0.5%	-0.077	-0.012
Prostate Cancer <sup>5</sup>	896	0.7%	850	0.7%	-0.013	-0.002
Lung Cancer <sup>5</sup>	155	0.1%	559	0.5%	-0.360	-0.065
Endometrial Cancer <sup>5</sup>	201	0.2%	205	0.2%	-0.015	-0.004
Urologic Cancer <sup>5</sup>	214	0.2%	291	0.3%	-0.080	-0.017
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	8.8	11.3	13.8	15.9	-5.057	-0.367
Mean number of emergency room encounters	0.3	0.9	0.6	1.4	-0.264	-0.222
Mean number of inpatient hospital encounters	0.1	0.4	0.3	0.7	-0.196	-0.358
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.001	-0.024
Mean number of other ambulatory encounters	1.7	4.6	2.9	6.9	-1.135	-0.193
Mean number of filled prescriptions	11.9	15.5	16.1	19.2	-4.202	-0.241

**Table 1a. Unadjusted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
Patient Characteristics <sup>1</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>	Number/ Mean	Percent/ Standard Deviation <sup>2</sup>		
Mean number of generics dispensed	4.5	4.4	6.1	5.5	-1.588	-0.320
Mean number of unique drug classes dispensed	4.2	3.9	5.6	4.8	-1.454	-0.332

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Value represents standard deviation where no % follows the value.

<sup>3</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>4</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>5</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.

**Table 1ar. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Unique patients	123,591	100.0%	115,140	100.0%	N/A	N/A
<b>Demographic Characteristics</b>						
Age (years)	49.1	12.3	49.0	15.0	0.134	0.010
Age						
18-44 years	43,860	35.5%	44,168	38.4%	-2.872	-0.060
45-64 years	72,847	58.9%	59,696	51.8%	7.096	0.143
≥ 65 years	6,884	5.6%	11,277	9.8%	-4.224	-0.159
Sex						
Female	64,326	52.0%	59,613	51.8%	0.273	0.005
Male	59,265	48.0%	55,527	48.2%	-0.273	-0.005
Race <sup>4</sup>						
American Indian or Alaska Native	-	-	-	-	-	-
Asian	-	-	-	-	-	-
Black or African American	-	-	-	-	-	-
Multi-racial	-	-	-	-	-	-
Unknown	123,591	100.0%	115,140	100.0%	0.000	NaN
White	-	-	-	-	-	-
Hispanic origin						
Yes	-	-	-	-	-	-
No	-	-	-	-	-	-
Unknown	123,591	100.0%	115,140	100.0%	0.000	NaN
Year						
2018	0	0.0%	0	0.0%	NaN	NaN
2019	123,591	100.0%	115,140	100.0%	0.000	NaN
<b>Health Characteristics</b>						
Charlson/Elixhauser combined comorbidity score <sup>5</sup>	0.7	1.7	0.7	1.6	-0.052	-0.031
Allergic Reaction	14,009	11.3%	14,332	12.4%	-1.113	-0.034
Diabetes	24,109	19.5%	9,386	8.2%	11.356	0.333
Heart Failure	2,424	2.0%	3,684	3.2%	-1.238	-0.078
Ischemic Heart Disease	4,727	3.8%	12,407	10.8%	-6.951	-0.270
NSAID Use	29,994	24.3%	24,916	21.6%	2.629	0.063

**Table 1ar. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Acquired Hypothyroidism <sup>6</sup>	12,733	10.3%	11,722	10.2%	0.122	0.004
Acute Myocardial Infarction <sup>6</sup>	1,063	0.9%	4,402	3.8%	-2.963	-0.197
Alzheimers Disease and Related Disorders <sup>6</sup>	859	0.7%	800	0.7%	0.000	0.000
Anemia <sup>6</sup>	11,611	9.4%	10,036	8.7%	0.678	0.024
Asthma <sup>6</sup>	9,235	7.5%	6,642	5.8%	1.703	0.069
Atrial Fibrillation <sup>6</sup>	1,633	1.3%	7,056	6.1%	-4.807	-0.256
Benign Prostatic Hyperplasia <sup>6</sup>	3,147	2.5%	4,395	3.8%	-1.271	-0.072
Cataract <sup>6</sup>	7,416	6.0%	7,763	6.7%	-0.742	-0.030
Chronic Kidney Disease <sup>6</sup>	16,206	13.1%	8,057	7.0%	6.115	0.204
Bronchiectasis <sup>6</sup>	6,826	5.5%	5,523	4.8%	0.727	0.033
Depression <sup>6</sup>	18,742	15.2%	18,384	16.0%	-0.802	-0.022
Glaucoma <sup>6</sup>	4,856	3.9%	4,786	4.2%	-0.228	-0.012
Hip or Pelvic Fracture <sup>6</sup>	274	0.2%	232	0.2%	0.020	0.004
Hyperlipidemia <sup>6</sup>	38,489	31.1%	34,679	30.1%	1.023	0.022
Hypertension <sup>6</sup>	53,252	43.1%	39,597	34.4%	8.697	0.179
Osteoporosis <sup>6</sup>	1,783	1.4%	2,122	1.8%	-0.400	-0.031
Rheumatoid Arthritis or Osteoarthritis <sup>6</sup>	19,142	15.5%	16,864	14.6%	0.842	0.024
Stroke or Transient Ischemic Attack <sup>6</sup>	3,264	2.6%	2,698	2.3%	0.298	0.019
Breast Cancer <sup>6</sup>	2,059	1.7%	1,646	1.4%	0.237	0.019
Colorectal Cancer <sup>6</sup>	797	0.6%	465	0.4%	0.241	0.033
Prostate Cancer <sup>6</sup>	888	0.7%	1,020	0.9%	-0.167	-0.019
Lung Cancer <sup>6</sup>	307	0.2%	388	0.3%	-0.088	-0.016
Endometrial Cancer <sup>6</sup>	332	0.3%	165	0.1%	0.126	0.028
Urologic Cancer <sup>6</sup>	317	0.3%	262	0.2%	0.029	0.006
<b>Health Service Utilization Intensity Metrics</b>						
Mean number of ambulatory encounters	11.3	14.6	11.6	13.7	-0.337	-0.024
Mean number of emergency room encounters	0.5	1.2	0.5	1.2	-0.026	-0.022
Mean number of inpatient hospital encounters	0.2	0.5	0.2	0.6	-0.033	-0.062
Mean number of non-acute institutional encounters	0.0	0.0	0.0	0.0	-0.000	-0.006
Mean number of other ambulatory encounters	2.3	5.5	2.4	6.4	-0.174	-0.029
Mean number of filled prescriptions	14.3	18.0	14.2	17.7	0.081	0.005

**Table 1ar. Weighted Characteristics of New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) (Propensity Score Stratified, Percentiles: 5) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Patient Characteristics <sup>1,2</sup>	Medical Product				Covariate Balance	
	ACE Inhibitors		Beta Blockers		Absolute Difference	Standardized Difference
	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>	Number/ Mean	Percent/ Standard Deviation <sup>3</sup>		
Mean number of generics dispensed	5.4	5.1	5.4	5.1	0.006	0.001
Mean number of unique drug classes dispensed	5.0	4.5	5.0	4.5	0.009	0.002

<sup>1</sup>Covariates in blue show a standardized difference greater than 0.1.

<sup>2</sup>Weighted patient characteristics tables facilitate the assessment of covariate balance after propensity score (PS) stratification and should not be interpreted as a description of the unweighted population. Treated/control patients are weighted by the proportion of the total patient population included in their PS stratum divided by the proportion of the total treated/control patient population included in their PS stratum.

<sup>3</sup>Value represents standard deviation where no % follows the value.

<sup>4</sup>Data not available in Merative™ MarketScan® Research Databases

<sup>5</sup>The Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date. (Gagne JJ, Glynn RJ, Avorn J, Levin R, Schneeweiss S. A Combined Comorbidity Score Predicted Mortality in Elderly Patients Better Than Existing Scores. J Clin Epidemiol. 2011;64(7):749-759; Sun JW, Rogers JR, Her Q, Welch EC, Panozzo CA, Toh S, Gagne JJ. Adaptation and Validation of the Combined Comorbidity Score for ICD-10-CM. Med Care. 2017;55(12):1046-1051)

<sup>6</sup>Covariate not included in the propensity score logistic regression model.

Data presented by a dash represents missing information.

Data represented by NaN (Not a Number) is due to their inability to be calculated. This table may not use all data representations.



**Table 2a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence	Risk per 1,000	Hazard Ratio	Wald P-Value
						Rate per 1,000 Person-Years	New Users	(95% Confidence Interval)	
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<b>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	146,561	18,339.38	45.70	0.13	221	12.05	1.51	4.60 (3.37, 6.29)	<0.001
Beta Blockers	146,561	18,339.38	45.70	0.13	48	2.62	0.33		
<b>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	146,561	26,519.18	66.09	0.18	277	10.45	1.89	4.87 (3.62, 6.55)	<0.001
Beta Blockers	146,561	23,036.82	57.41	0.16	52	2.26	0.35		

**Table 2b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	146,561	18,339.38	45.70	0.13	221	12.05	1.51	4.60 (3.37, 6.29)	<0.001
Beta Blockers	146,561	18,339.38	45.70	0.13	48	2.62	0.33		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	146,561	26,519.18	66.09	0.18	277	10.45	1.89	4.87 (3.62, 6.55)	<0.001
Beta Blockers	146,561	23,036.82	57.41	0.16	52	2.26	0.35		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	57,825	11,049.78	69.80	0.19	114	10.32	1.97	4.62 (2.95, 7.23)	<0.001
Beta Blockers	58,665	9,759.66	60.76	0.17	23	2.36	0.39		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	57,713	7,922.91	50.14	0.14	96	12.12	1.66	4.80 (2.96, 7.77)	<0.001
Beta Blockers	57,713	7,922.91	50.14	0.14	20	2.52	0.35		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	57,713	11,028.75	69.80	0.19	114	10.34	1.98	4.55 (2.91, 7.13)	<0.001
Beta Blockers	57,713	9,602.15	60.77	0.17	23	2.40	0.40		

**Table 2b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	88,736	15,469.40	63.67	0.17	163	10.54	1.84	5.06 (3.41, 7.52)	<0.001
Beta Blockers	87,896	13,277.17	55.17	0.15	29	2.18	0.33		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	87,782	10,311.37	42.90	0.12	127	12.32	1.45	5.08 (3.31, 7.80)	<0.001
Beta Blockers	87,782	10,311.37	42.90	0.12	25	2.42	0.28		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	87,782	15,306.15	63.69	0.17	162	10.58	1.85	5.08 (3.42, 7.54)	<0.001
Beta Blockers	87,782	13,259.75	55.17	0.15	29	2.19	0.33		

**Table 3a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence		Hazard Ratio (95% Confidence Interval)	Wald P-Value
						Rate per 1,000 Person-Years	Risk per 1,000 New Users		
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<b>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	146,532	18,296.54	45.61	0.12	210	11.48	1.43	4.37 (3.20, 5.99)	<0.001
Beta Blockers	146,532	18,296.54	45.61	0.12	48	2.62	0.33		
<b>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	146,532	26,528.00	66.12	0.18	268	10.10	1.83	4.07 (3.07, 5.38)	<0.001
Beta Blockers	146,532	22,995.47	57.32	0.16	60	2.61	0.41		

**Table 3b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	146,532	18,296.54	45.61	0.12	210	11.48	1.43	4.37 (3.20, 5.99)	<0.001
Beta Blockers	146,532	18,296.54	45.61	0.12	48	2.62	0.33		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	146,532	26,528.00	66.12	0.18	268	10.10	1.83	4.07 (3.07, 5.38)	<0.001
Beta Blockers	146,532	22,995.47	57.32	0.16	60	2.61	0.41		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	58,037	11,072.67	69.68	0.19	106	9.57	1.83	3.91 (2.53, 6.05)	<0.001
Beta Blockers	58,197	9,662.12	60.64	0.17	25	2.59	0.43		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	57,569	7,891.27	50.07	0.14	82	10.39	1.42	3.90 (2.42, 6.31)	<0.001
Beta Blockers	57,569	7,891.27	50.07	0.14	21	2.66	0.36		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	57,569	10,984.10	69.69	0.19	105	9.56	1.82	3.86 (2.50, 5.98)	<0.001
Beta Blockers	57,569	9,561.71	60.66	0.17	25	2.61	0.43		

**Table 3b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	88,495	15,455.32	63.79	0.17	162	10.48	1.83	4.18 (2.90, 6.02)	<0.001
Beta Blockers	88,335	13,333.35	55.13	0.15	35	2.62	0.40		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	87,862	10,317.16	42.89	0.12	124	12.02	1.41	4.77 (3.12, 7.28)	<0.001
Beta Blockers	87,862	10,317.16	42.89	0.12	26	2.52	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	87,862	15,346.61	63.80	0.17	161	10.49	1.83	4.16 (2.88, 5.99)	<0.001
Beta Blockers	87,862	13,261.84	55.13	0.15	35	2.64	0.40		

**Table 4a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence		Hazard Ratio (95% Confidence Interval)	Wald P-Value
						Rate per 1,000 Person-Years	Risk per 1,000 New Users		
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<b>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	120,456	15,359.09	46.57	0.13	180	11.72	1.49	5.62 (3.86, 8.19)	<0.001
Beta Blockers	120,456	15,359.09	46.57	0.13	32	2.08	0.27		
<b>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	120,456	22,052.15	66.87	0.18	236	10.70	1.96	5.65 (4.01, 7.96)	<0.001
Beta Blockers	120,456	19,162.97	58.11	0.16	38	1.98	0.32		

**Table 4b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	120,456	15,359.09	46.57	0.13	180	11.72	1.49	5.62 (3.86, 8.19)	<0.001
Beta Blockers	120,456	15,359.09	46.57	0.13	32	2.08	0.27		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	120,456	22,052.15	66.87	0.18	236	10.70	1.96	5.65 (4.01, 7.96)	<0.001
Beta Blockers	120,456	19,162.97	58.11	0.16	38	1.98	0.32		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	43,012	8,360.68	71.00	0.19	79	9.45	1.84	5.28 (2.99, 9.32)	<0.001
Beta Blockers	43,714	7,443.29	62.19	0.17	14	1.88	0.32		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	42,854	6,107.52	52.06	0.14	63	10.32	1.47	4.85 (2.67, 8.80)	<0.001
Beta Blockers	42,854	6,107.52	52.06	0.14	13	2.13	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	42,854	8,332.13	71.02	0.19	79	9.48	1.84	5.19 (2.94, 9.17)	<0.001
Beta Blockers	42,854	7,292.31	62.15	0.17	14	1.92	0.33		



**Table 4b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	77,444	13,691.46	64.57	0.18	157	11.47	2.03	5.85 (3.81, 9.00)	<0.001
Beta Blockers	76,742	11,719.68	55.78	0.15	24	2.05	0.31		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	76,583	9,172.86	43.75	0.12	118	12.86	1.54	6.94 (4.17, 11.54)	<0.001
Beta Blockers	76,583	9,172.86	43.75	0.12	17	1.85	0.22		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	76,583	13,536.73	64.56	0.18	154	11.38	2.01	5.80 (3.77, 8.92)	<0.001
Beta Blockers	76,583	11,696.80	55.79	0.15	24	2.05	0.31		

**Table 5a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence		Hazard Ratio (95% Confidence Interval)	Wald P-Value
						Rate per 1,000 Person-Years	Risk per 1,000 New Users		
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<b>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	120,459	15,372.45	46.61	0.13	183	11.90	1.52	5.08 (3.56, 7.27)	<0.001
Beta Blockers	120,459	15,372.45	46.61	0.13	36	2.34	0.30		
<b>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</b>									
ACE Inhibitors	120,459	22,072.24	66.93	0.18	230	10.42	1.91	5.36 (3.81, 7.52)	<0.001
Beta Blockers	120,459	19,173.40	58.14	0.16	39	2.03	0.32		

**Table 5b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	120,459	15,372.45	46.61	0.13	183	11.90	1.52	5.08 (3.56, 7.27)	<0.001
Beta Blockers	120,459	15,372.45	46.61	0.13	36	2.34	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	120,459	22,072.24	66.93	0.18	230	10.42	1.91	5.36 (3.81, 7.52)	<0.001
Beta Blockers	120,459	19,173.40	58.14	0.16	39	2.03	0.32		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	43,399	8,448.56	71.10	0.19	74	8.76	1.71	4.54 (2.60, 7.91)	<0.001
Beta Blockers	43,417	7,399.23	62.25	0.17	15	2.03	0.35		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	43,119	6,151.67	52.11	0.14	59	9.59	1.37	4.54 (2.49, 8.27)	<0.001
Beta Blockers	43,119	6,151.67	52.11	0.14	13	2.11	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	43,119	8,395.27	71.11	0.19	74	8.81	1.72	4.53 (2.60, 7.90)	<0.001
Beta Blockers	43,119	7,347.72	62.24	0.17	15	2.04	0.35		

**Table 5b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	77,060	13,623.68	64.57	0.18	156	11.45	2.02	5.86 (3.81, 9.01)	<0.001
Beta Blockers	77,042	11,774.17	55.82	0.15	24	2.04	0.31		
<i>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	76,734	9,182.68	43.71	0.12	115	12.52	1.50	5.00 (3.20, 7.82)	<0.001
Beta Blockers	76,734	9,182.68	43.71	0.12	23	2.50	0.30		
<i>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper= 0.025</i>									
ACE Inhibitors	76,734	13,565.37	64.57	0.18	156	11.50	2.03	5.86 (3.81, 9.01)	<0.001
Beta Blockers	76,734	11,726.02	55.82	0.15	24	2.05	0.31		

**Table 6a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<b>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</b>									
ACE Inhibitors	253,311	46,437.64	66.96	0.18	418	9.00	1.65	4.89 (3.79, 6.31)	<0.001
Beta Blockers	235,734	36,648.76	56.78	0.16	84	2.29	0.36		

**Table 6b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	253,311	46,437.64	66.96	0.18	418	9.00	1.65	4.89 (3.79, 6.31)	<0.001
Beta Blockers	235,734	36,648.76	56.78	0.16	84	2.29	0.36		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	99,808	19,340.45	70.78	0.19	165	8.53	1.65	3.89 (2.71, 5.58)	<0.001
Beta Blockers	93,967	15,439.46	60.01	0.16	36	2.33	0.38		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	99,806	19,340.21	70.78	0.19	165	8.53	1.65	4.51 (3.04, 6.68)	<0.001
Beta Blockers	93,965	15,439.29	60.01	0.16	36	2.33	0.38		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	153,505	27,097.55	64.48	0.18	253	9.34	1.65	4.38 (3.22, 5.96)	<0.001
Beta Blockers	141,768	21,209.43	54.64	0.15	48	2.26	0.34		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	153,503	27,097.30	64.48	0.18	253	9.34	1.65	5.18 (3.71, 7.23)	<0.001
Beta Blockers	141,762	21,208.74	54.64	0.15	48	2.26	0.34		

**Table 7a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

<b>Medical Product</b>	<b>Number of New Users</b>	<b>Person-Years at Risk</b>	<b>Average Person-Days at Risk</b>	<b>Average Person-Years at Risk</b>	<b>Number of Events</b>	<b>Incidence Rate per 1,000 Person-Years</b>	<b>Risk per 1,000 New Users</b>	<b>Hazard Ratio (95% Confidence Interval)</b>	<b>Wald P-Value</b>
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<b>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</b>									
ACE Inhibitors	253,311	46,437.64	66.96	0.18	418	9.00	1.65	4.89 (3.79, 6.31)	<0.001
Beta Blockers	235,734	36,648.76	56.78	0.16	84	2.29	0.36		

**Table 7b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	253,313	46,438.00	66.96	0.18	418	9.00	1.65	4.17 (3.30, 5.28)	<0.001
Beta Blockers	235,735	36,648.88	56.78	0.16	84	2.29	0.36		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	253,311	46,437.64	66.96	0.18	418	9.00	1.65	4.89 (3.79, 6.31)	<0.001
Beta Blockers	235,734	36,648.76	56.78	0.16	84	2.29	0.36		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	99,808	19,340.45	70.78	0.19	165	8.53	1.65	3.89 (2.71, 5.58)	<0.001
Beta Blockers	93,967	15,439.46	60.01	0.16	36	2.33	0.38		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	99,806	19,340.21	70.78	0.19	165	8.53	1.65	4.51 (3.04, 6.68)	<0.001
Beta Blockers	93,965	15,439.29	60.01	0.16	36	2.33	0.38		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	153,505	27,097.55	64.48	0.18	253	9.34	1.65	4.38 (3.22, 5.96)	<0.001
Beta Blockers	141,768	21,209.43	54.64	0.15	48	2.26	0.34		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	153,504	27,097.31	64.48	0.18	253	9.34	1.65	5.18 (3.71, 7.23)	<0.001
Beta Blockers	141,762	21,208.74	54.64	0.15	48	2.26	0.34		



**Table 8a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<b>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</b>									
ACE Inhibitors	191,796	35,490.69	67.59	0.19	346	9.75	1.80	6.22 (4.60, 8.42)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		

**Table 8b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	191,796	35,490.69	67.59	0.19	346	9.75	1.80	6.22 (4.60, 8.42)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	68,205	13,435.36	71.95	0.20	124	9.23	1.82	4.73 (3.03, 7.39)	<0.001
Beta Blockers	65,471	10,974.75	61.23	0.17	23	2.10	0.35		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	68,203	13,434.99	71.95	0.20	124	9.23	1.82	5.39 (3.36, 8.63)	<0.001
Beta Blockers	65,470	10,974.50	61.23	0.17	23	2.10	0.35		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	123,594	22,055.92	65.18	0.18	222	10.07	1.80	5.99 (4.11, 8.72)	<0.001
Beta Blockers	115,146	17,407.80	55.22	0.15	31	1.78	0.27		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	123,592	22,055.45	65.18	0.18	222	10.07	1.80	6.78 (4.57, 10.05)	<0.001
Beta Blockers	115,141	17,407.13	55.22	0.15	31	1.78	0.27		

**Table 9a. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type**

<b>Medical Product</b>	<b>Number of New Users</b>	<b>Person-Years at Risk</b>	<b>Average Person-Days at Risk</b>	<b>Average Person-Years at Risk</b>	<b>Number of Events</b>	<b>Incidence Rate per 1,000 Person-Years</b>	<b>Risk per 1,000 New Users</b>	<b>Hazard Ratio (95% Confidence Interval)</b>	<b>Wald P-Value</b>
<b>Site-Adjusted Analysis</b>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<b>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</b>									
ACE Inhibitors	191,796	35,490.69	67.59	0.19	346	9.75	1.80	6.25 (4.62, 8.45)	<0.001
Beta Blockers	180,615	28,382.18	57.40	0.16	54	1.90	0.30		

**Table 9b. Effect Estimates for New Users of ACE Inhibitors vs. Beta Blockers and Angioedema, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, by Analysis Type and Year**

Medical Product	Number of New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1,000 Person-Years	Risk per 1,000 New Users	Hazard Ratio (95% Confidence Interval)	Wald P-Value
<b>New Users of ACE Inhibitors vs. Beta Blockers, Overall</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	191,799	35,491.28	67.59	0.19	346	9.75	1.80	5.46 (4.10, 7.27)	<0.001
Beta Blockers	180,617	28,382.55	57.40	0.16	54	1.90	0.30		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	191,796	35,490.69	67.59	0.19	346	9.75	1.80	6.25 (4.62, 8.45)	<0.001
Beta Blockers	180,615	28,382.18	57.40	0.16	54	1.90	0.30		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2018</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	68,205	13,435.36	71.95	0.20	124	9.23	1.82	4.73 (3.03, 7.39)	<0.001
Beta Blockers	65,471	10,974.75	61.23	0.17	23	2.10	0.35		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	68,204	13,435.24	71.95	0.20	124	9.23	1.82	5.39 (3.36, 8.63)	<0.001
Beta Blockers	65,469	10,974.49	61.23	0.17	23	2.10	0.35		
<b>New Users of ACE Inhibitors vs. Beta Blockers by Year, 2019</b>									
<i>Site-Adjusted Analysis</i>									
ACE Inhibitors	123,594	22,055.92	65.18	0.18	222	10.07	1.80	5.99 (4.11, 8.72)	<0.001
Beta Blockers	115,146	17,407.80	55.22	0.15	31	1.78	0.27		
<i>Propensity Score Adjusted Stratified Analysis; Percentiles= 5, Trimmed</i>									
ACE Inhibitors	123,591	22,055.31	65.18	0.18	222	10.07	1.80	6.78 (4.57, 10.05)	<0.001
Beta Blockers	115,140	17,406.89	55.22	0.15	31	1.78	0.27		

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
<b>Members meeting enrollment and demographic requirements</b>								
Enrolled at any point during the query period	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A
Had required coverage type (medical and/or drug coverage)	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500
Enrolled during specified age range	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103
Had requestable medical charts	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
Met demographic requirements (sex, race, and Hispanic origin)	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
<b>Members with a valid index event</b>								
Had any cohort-defining claim during the query period	2,007,552	22,239,289	1,878,894	22,367,947	2,007,552	22,239,289	1,878,894	22,367,947
Claim recorded during specified age range	2,007,095	457	1,876,924	1,970	2,007,095	457	1,876,924	1,970
Episode defining index claim recorded during the query period	594,539	1,412,556	591,955	1,284,969	594,539	1,412,556	591,955	1,284,969
<b>Members with required pre-index history</b>								
Had sufficient pre-index continuous enrollment	328,814	265,725	358,736	233,219	328,814	265,725	358,736	233,219
Met inclusion and exclusion criteria <sup>1</sup>	265,259	63,555	247,682	111,054	265,259	63,555	247,682	111,054
<i>Evidence of ACE Inhibitors, Beta Blockers, Angiotensin II Receptor Blockers, Aliskiren</i>	N/A	63,401	N/A	110,691	N/A	63,401	N/A	110,691
<i>Evidence of angioedema (exclusion)</i>	N/A	225	N/A	1,084	N/A	225	N/A	1,084
Met event incidence criteria	265,259	0	247,682	0	265,259	0	247,682	0
<b>Members with required post-index follow-up</b>								
Had sufficient post-index continuous enrollment	265,259	0	247,682	0	265,259	0	247,682	0
Had minimum days' supply on index date	265,259	0	247,682	0	265,259	0	247,682	0
Had index episode of at least required length	265,259	0	247,682	0	265,259	0	247,682	0
Had index episode longer than blackout period	265,259	0	247,682	0	265,259	0	247,682	0

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Did not have an event during blackout period	265,259	0	247,682	0	265,259	0	247,682	0
<b>Final cohort</b>								
Number of members	265,259	N/A	247,682	N/A	265,259	N/A	247,682	N/A
Number of episodes	265,259	N/A	247,682	N/A	265,259	N/A	247,682	N/A
<b>Members meeting comparative cohort eligibility requirements</b>								
Excluded due to same-day initiation of both exposure groups	253,727	11,532	236,150	11,532	253,727	11,532	236,150	11,532
Excluded due to prior initiation of other exposure group	253,313	414	235,735	415	253,313	414	235,735	415
Excluded due to propensity score trimming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Included in comparative analysis	146,561	106,752	146,561	89,174	146,532	106,781	146,532	89,203
<b>Additional information</b>								
Number of events in comparative analysis	277	N/A	52	N/A	268	N/A	60	N/A

<sup>1</sup>Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
<b>Members meeting enrollment and demographic requirements</b>								
Enrolled at any point during the query period	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A
Had required coverage type (medical and/or drug coverage)	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500
Enrolled during specified age range	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103
Had requestable medical charts	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
Met demographic requirements (sex, race, and Hispanic origin)	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
<b>Members with a valid index event</b>								
Had any cohort-defining claim during the query period	2,007,552	22,239,289	1,878,894	22,367,947	2,007,552	22,239,289	1,878,894	22,367,947
Claim recorded during specified age range	2,007,095	457	1,876,924	1,970	2,007,095	457	1,876,924	1,970
Episode defining index claim recorded during the query period	594,539	1,412,556	591,955	1,284,969	594,539	1,412,556	591,955	1,284,969
<b>Members with required pre-index history</b>								
Had sufficient pre-index continuous enrollment	256,754	337,785	285,532	306,423	256,754	337,785	285,532	306,423
Met inclusion and exclusion criteria <sup>1</sup>	200,121	56,633	188,926	96,606	200,121	56,633	188,926	96,606
<i>Evidence of ACE Inhibitors, Beta Blockers, Angiotensin II Receptor Blockers, Aliskiren</i>	N/A	56,445	N/A	96,166	N/A	56,445	N/A	96,166
<i>Evidence of angioedema (exclusion)</i>	N/A	283	N/A	1,209	N/A	283	N/A	1,209
Met event incidence criteria	200,121	0	188,926	0	200,121	0	188,926	0
<b>Members with required post-index follow-up</b>								
Had sufficient post-index continuous enrollment	200,121	0	188,926	0	200,121	0	188,926	0
Had minimum days' supply on index date	200,121	0	188,926	0	200,121	0	188,926	0
Had index episode of at least required length	200,121	0	188,926	0	200,121	0	188,926	0
Had index episode longer than blackout period	200,121	0	188,926	0	200,121	0	188,926	0

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Did not have an event during blackout period	200,121	0	188,926	0	200,121	0	188,926	0
<b>Final cohort</b>								
Number of members	200,121	N/A	188,926	N/A	200,121	N/A	188,926	N/A
Number of episodes	200,121	N/A	188,926	N/A	200,121	N/A	188,926	N/A
<b>Members meeting comparative cohort eligibility requirements</b>								
Excluded due to same-day initiation of both exposure groups	191,853	8,268	180,658	8,268	191,853	8,268	180,658	8,268
Excluded due to prior initiation of other exposure group	191,799	54	180,617	41	191,799	54	180,617	41
Excluded due to propensity score trimming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Included in comparative analysis	120,456	71,343	120,456	60,161	120,459	71,340	120,459	60,158
<b>Additional information</b>								
Number of events in comparative analysis	236	N/A	38	N/A	230	N/A	39	N/A

<sup>1</sup>Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.



**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
<b>Members meeting enrollment and demographic requirements</b>								
Enrolled at any point during the query period	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A
Had required coverage type (medical and/or drug coverage)	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500
Enrolled during specified age range	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103
Had requestable medical charts	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
Met demographic requirements (sex, race, and Hispanic origin)	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
<b>Members with a valid index event</b>								
Had any cohort-defining claim during the query period	2,007,552	22,239,289	1,878,894	22,367,947	2,007,552	22,239,289	1,878,894	22,367,947
Claim recorded during specified age range	2,007,095	457	1,876,924	1,970	2,007,095	457	1,876,924	1,970
Episode defining index claim recorded during the query period	594,539	1,412,556	591,955	1,284,969	594,539	1,412,556	591,955	1,284,969
<b>Members with required pre-index history</b>								
Had sufficient pre-index continuous enrollment	328,814	265,725	358,736	233,219	328,814	265,725	358,736	233,219
Met inclusion and exclusion criteria <sup>1</sup>	265,259	63,555	247,682	111,054	265,259	63,555	247,682	111,054
<i>Evidence of ACE Inhibitors, Beta Blockers, Angiotensin II Receptor Blockers, Aliskiren</i>	N/A	63,401	N/A	110,691	N/A	63,401	N/A	110,691
<i>Evidence of angioedema (exclusion)</i>	N/A	225	N/A	1,084	N/A	225	N/A	1,084
Met event incidence criteria	265,259	0	247,682	0	265,259	0	247,682	0
<b>Members with required post-index follow-up</b>								
Had sufficient post-index continuous enrollment	265,259	0	247,682	0	265,259	0	247,682	0
Had minimum days' supply on index date	265,259	0	247,682	0	265,259	0	247,682	0
Had index episode of at least required length	265,259	0	247,682	0	265,259	0	247,682	0
Had index episode longer than blackout period	265,259	0	247,682	0	265,259	0	247,682	0

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Did not have an event during blackout period	265,259	0	247,682	0	265,259	0	247,682	0
<b>Final cohort</b>								
Number of members	265,259	N/A	247,682	N/A	265,259	N/A	247,682	N/A
Number of episodes	265,259	N/A	247,682	N/A	265,259	N/A	247,682	N/A
<b>Members meeting comparative cohort eligibility requirements</b>								
Excluded due to same-day initiation of both exposure groups	253,727	11,532	236,150	11,532	253,727	11,532	236,150	11,532
Excluded due to prior initiation of other exposure group	253,313	414	235,735	415	253,313	414	235,735	415
Excluded due to propensity score trimming	253,311	2	235,734	1	253,311	2	235,734	1
Included in comparative analysis	253,311	0	235,734	0	253,311	0	235,734	0
<b>Additional information</b>								
Number of events in comparative analysis	418	N/A	84	N/A	418	N/A	84	N/A

<sup>1</sup>Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
<b>Members meeting enrollment and demographic requirements</b>								
Enrolled at any point during the query period	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A	32,466,444	N/A
Had required coverage type (medical and/or drug coverage)	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500	30,652,944	1,813,500
Enrolled during specified age range	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103	24,246,841	6,406,103
Had requestable medical charts	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
Met demographic requirements (sex, race, and Hispanic origin)	24,246,841	0	24,246,841	0	24,246,841	0	24,246,841	0
<b>Members with a valid index event</b>								
Had any cohort-defining claim during the query period	2,007,552	22,239,289	1,878,894	22,367,947	2,007,552	22,239,289	1,878,894	22,367,947
Claim recorded during specified age range	2,007,095	457	1,876,924	1,970	2,007,095	457	1,876,924	1,970
Episode defining index claim recorded during the query period	594,539	1,412,556	591,955	1,284,969	594,539	1,412,556	591,955	1,284,969
<b>Members with required pre-index history</b>								
Had sufficient pre-index continuous enrollment	256,754	337,785	285,532	306,423	256,754	337,785	285,532	306,423
Met inclusion and exclusion criteria <sup>1</sup>	200,121	56,633	188,926	96,606	200,121	56,633	188,926	96,606
<i>Evidence of ACE Inhibitors, Beta Blockers, Angiotensin II Receptor Blockers, Aliskiren</i>	N/A	56,445	N/A	96,166	N/A	56,445	N/A	96,166
<i>Evidence of angioedema (exclusion)</i>	N/A	283	N/A	1,209	N/A	283	N/A	1,209
Met event incidence criteria	200,121	0	188,926	0	200,121	0	188,926	0
<b>Members with required post-index follow-up</b>								
Had sufficient post-index continuous enrollment	200,121	0	188,926	0	200,121	0	188,926	0
Had minimum days' supply on index date	200,121	0	188,926	0	200,121	0	188,926	0
Had index episode of at least required length	200,121	0	188,926	0	200,121	0	188,926	0
Had index episode longer than blackout period	200,121	0	188,926	0	200,121	0	188,926	0

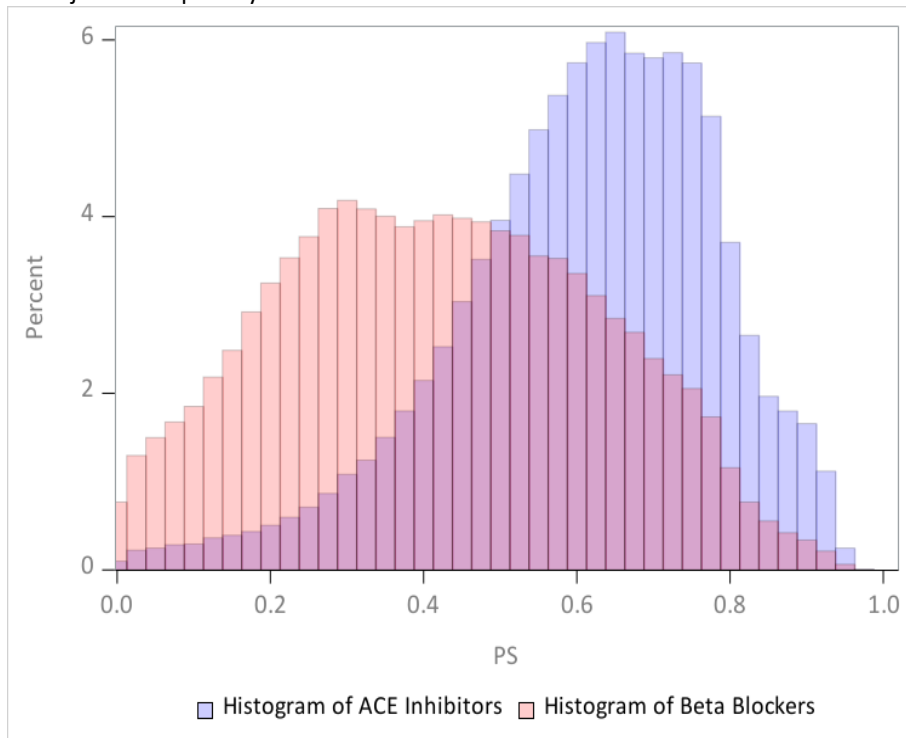
**Table 10. Summary of Patient-Level Cohort Attrition in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

	New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS)				New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS)			
	ACE Inhibitors		Beta Blockers		ACE Inhibitors		Beta Blockers	
	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded	Remaining	Excluded
Did not have an event during blackout period	200,121	0	188,926	0	200,121	0	188,926	0
<b>Final cohort</b>								
Number of members	200,121	N/A	188,926	N/A	200,121	N/A	188,926	N/A
Number of episodes	200,121	N/A	188,926	N/A	200,121	N/A	188,926	N/A
<b>Members meeting comparative cohort eligibility requirements</b>								
Excluded due to same-day initiation of both exposure groups	191,853	8,268	180,658	8,268	191,853	8,268	180,658	8,268
Excluded due to prior initiation of other exposure group	191,799	54	180,617	41	191,799	54	180,617	41
Excluded due to propensity score trimming	191,796	3	180,617	0	191,796	3	180,615	2
Included in comparative analysis	191,796	0	180,617	0	191,796	0	180,615	0
<b>Additional information</b>								
Number of events in comparative analysis	346	N/A	54	N/A	346	N/A	54	N/A

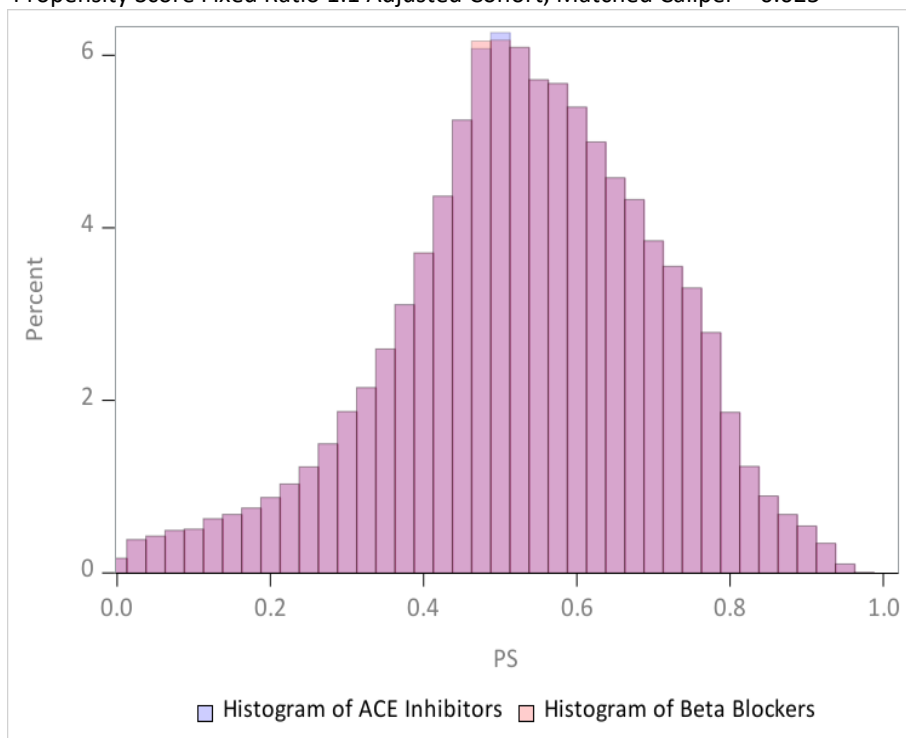
<sup>1</sup>Patients can meet multiple inclusion and/or exclusion criteria; therefore, the total number of patients excluded overall may not equal the sum of all patients in each criterion.

**Figure 1a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution

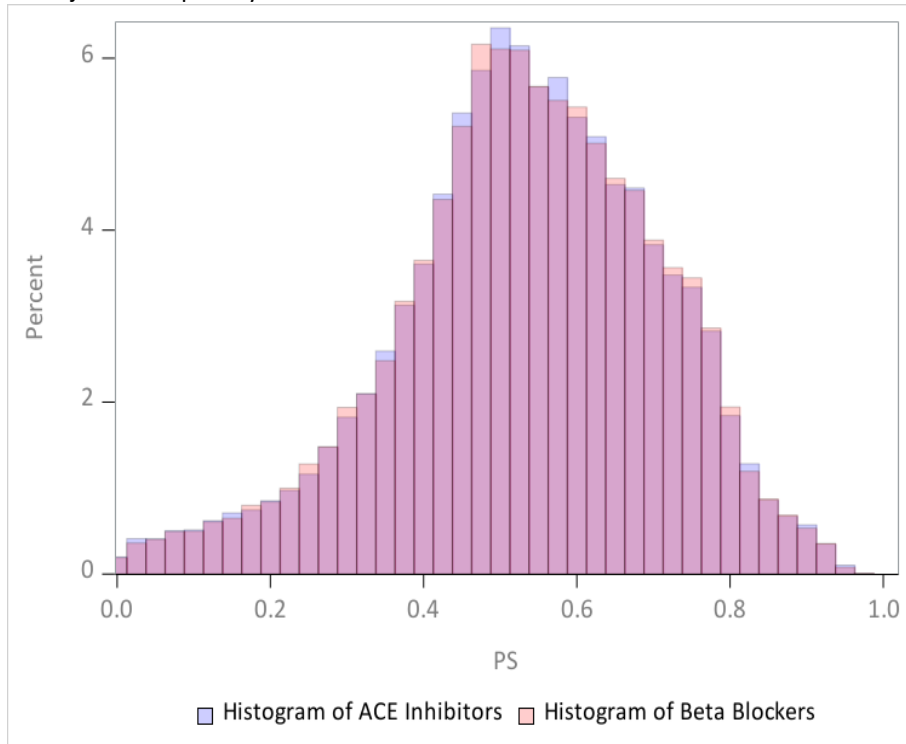


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

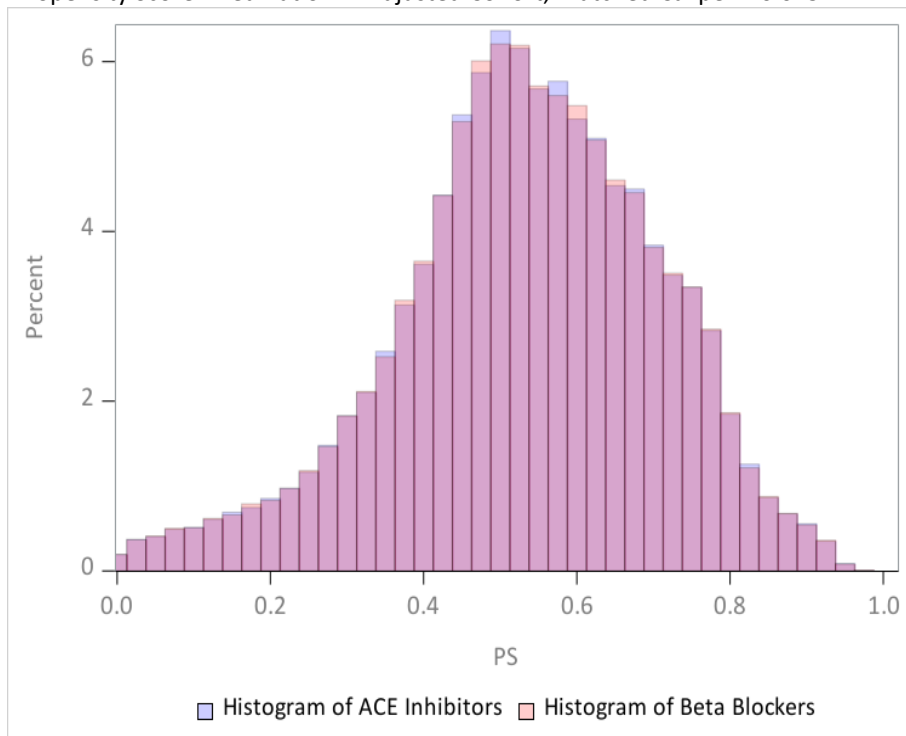


**Figure 1b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution

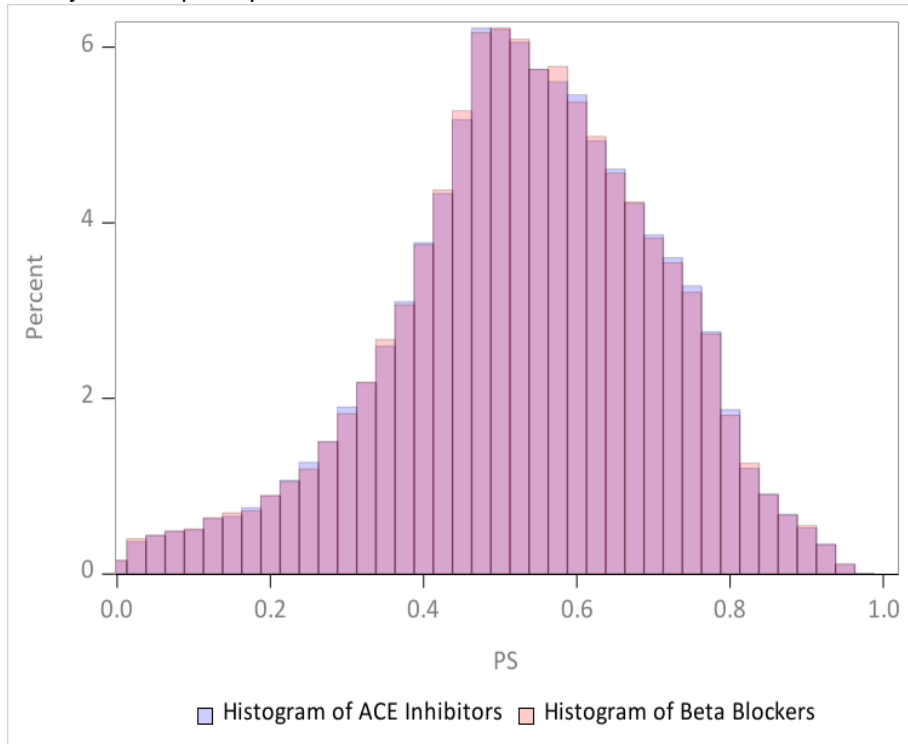


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

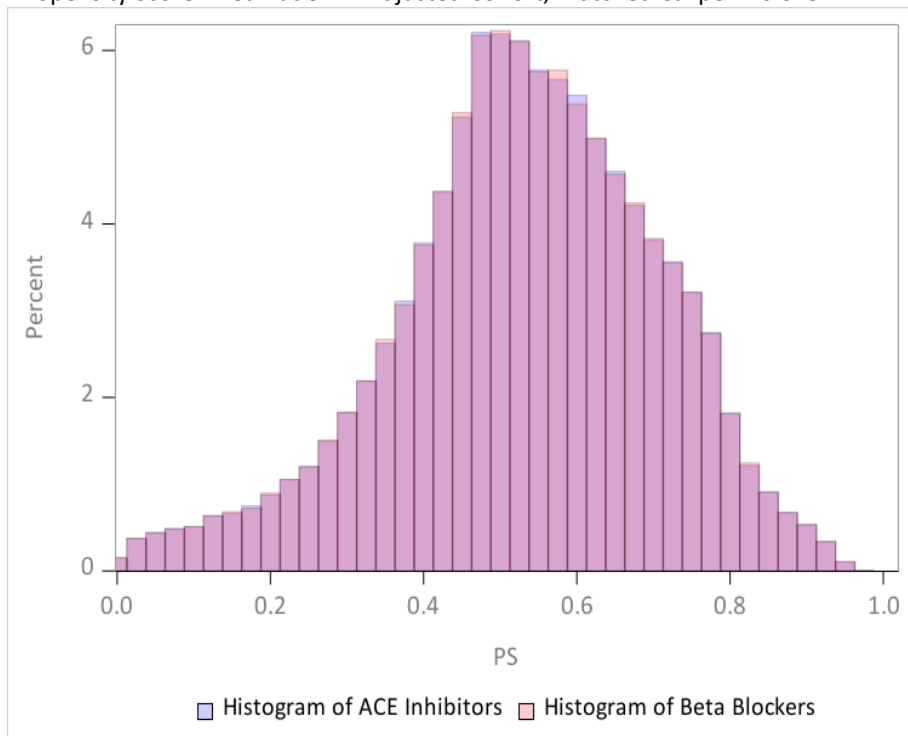


**Figure 1c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution

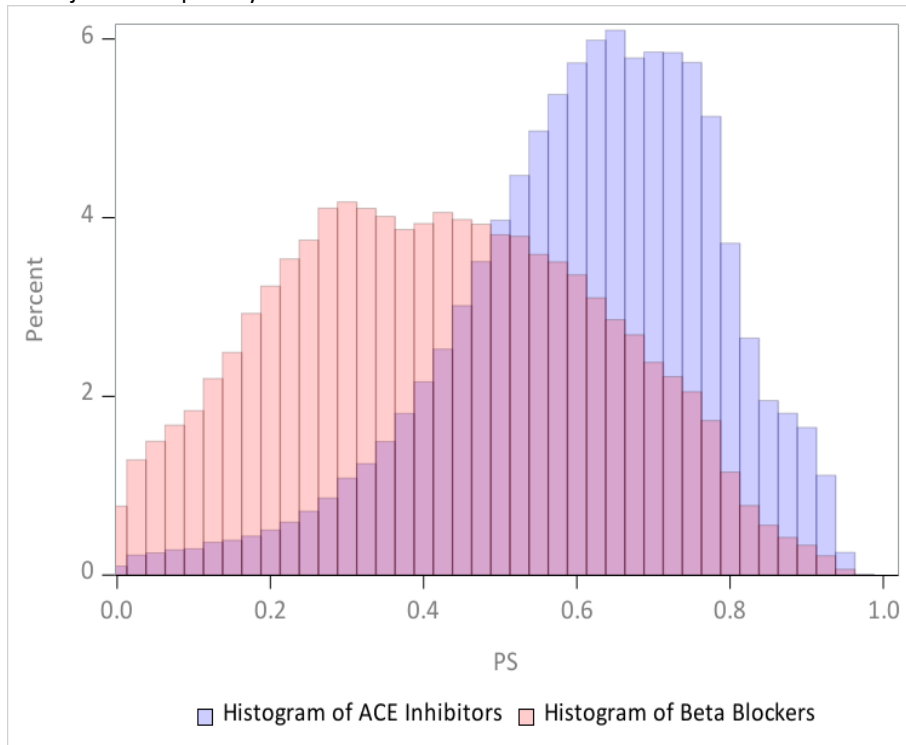


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

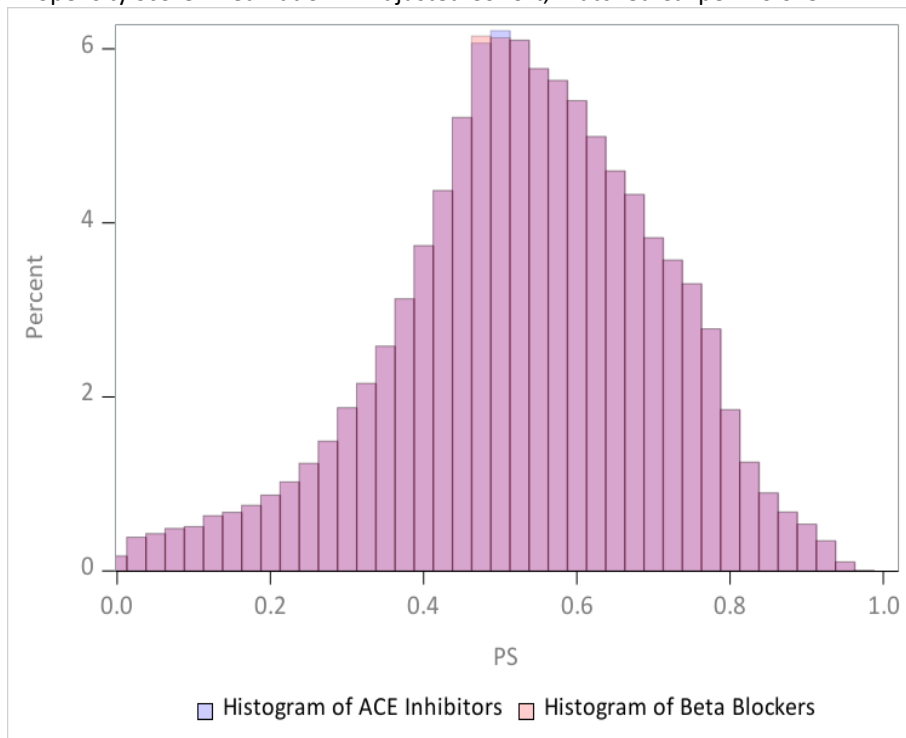


**Figure 2a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution



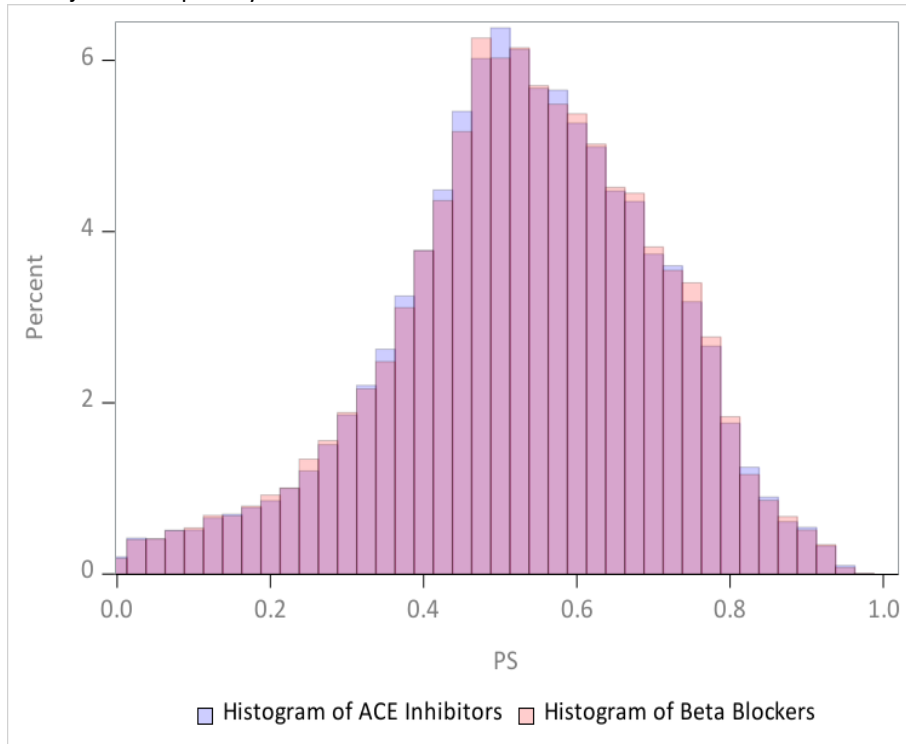
Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025



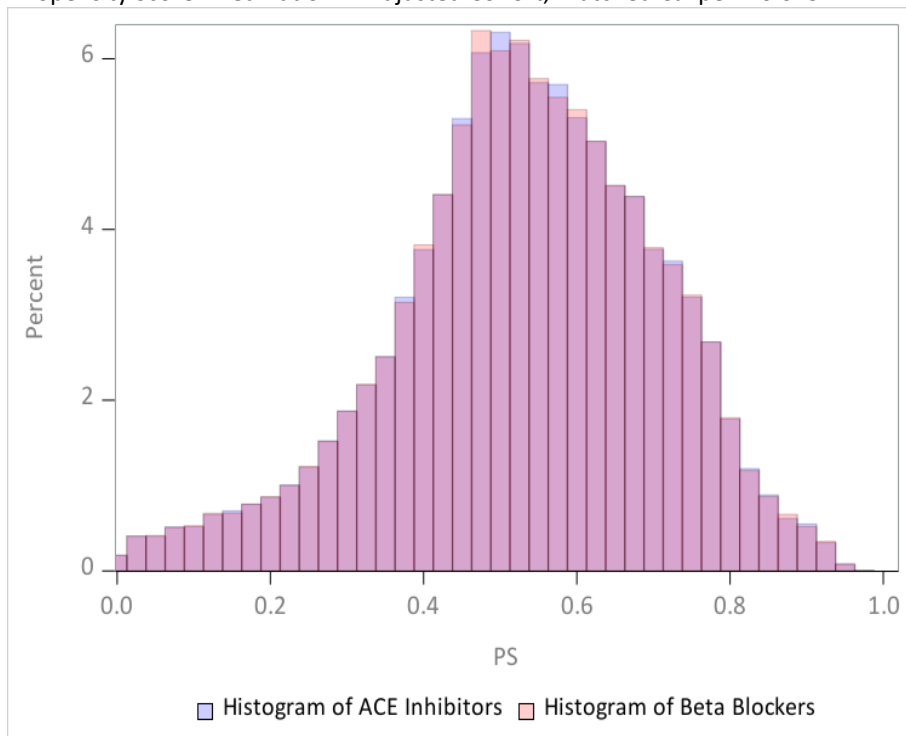


**Figure 2b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution

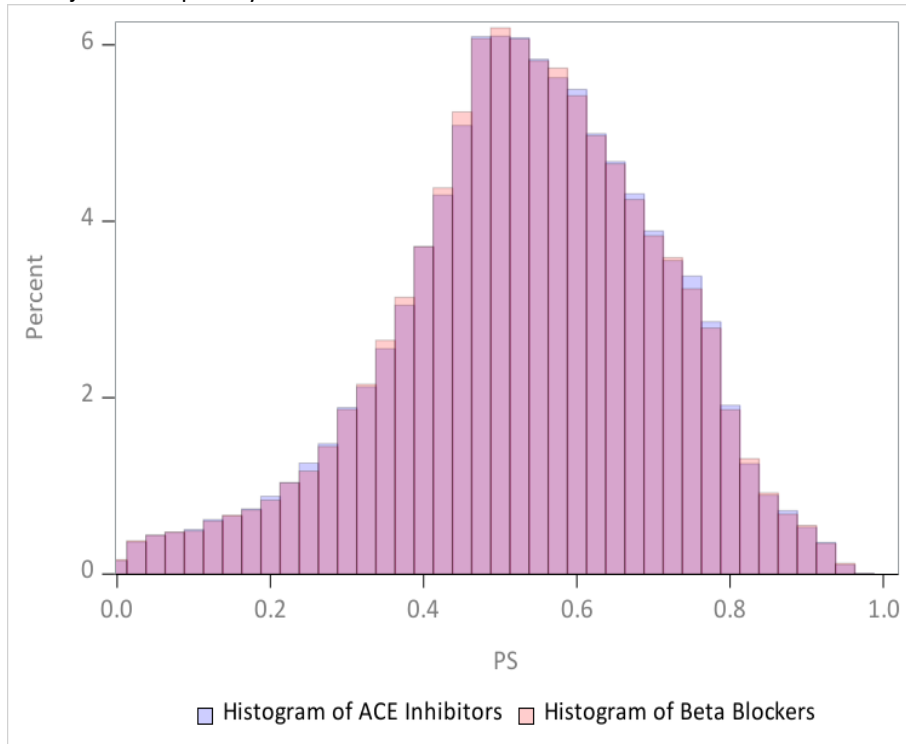


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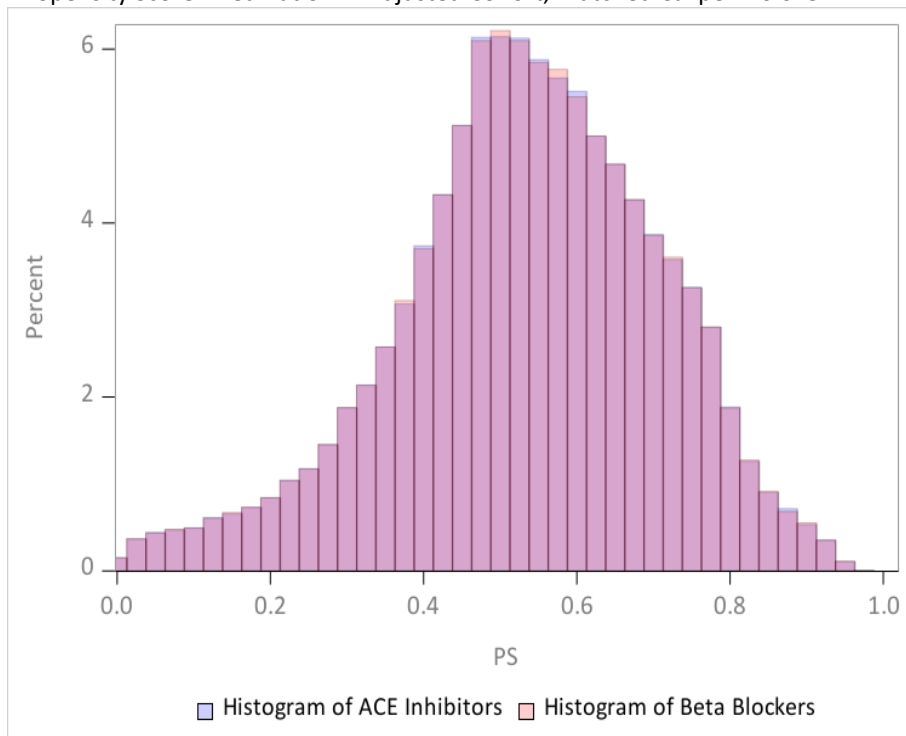


**Figure 2c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution

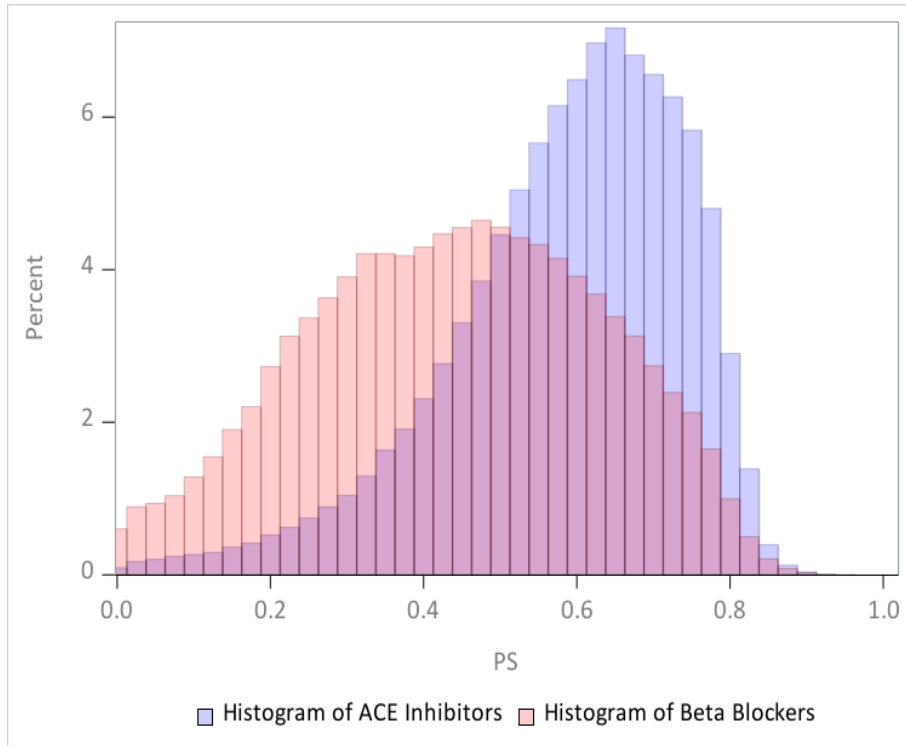


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

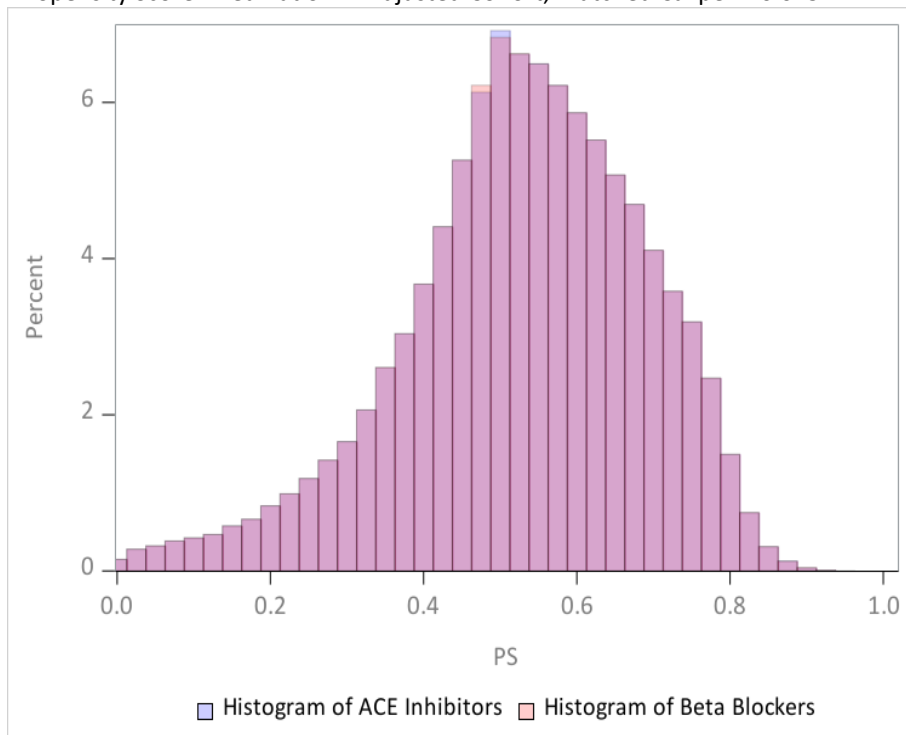


**Figure 3a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution

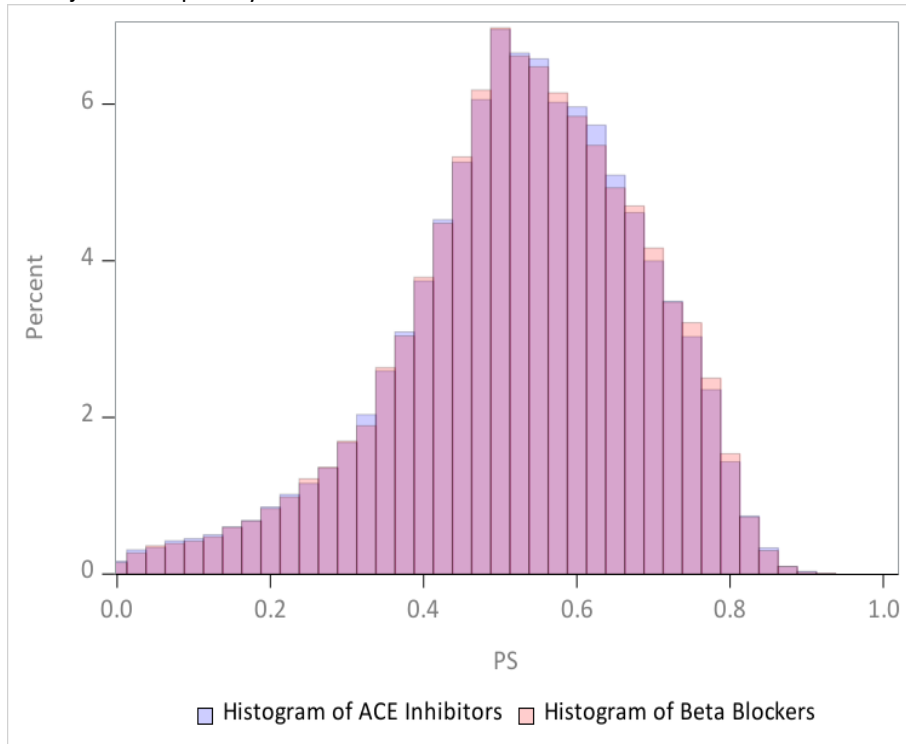


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

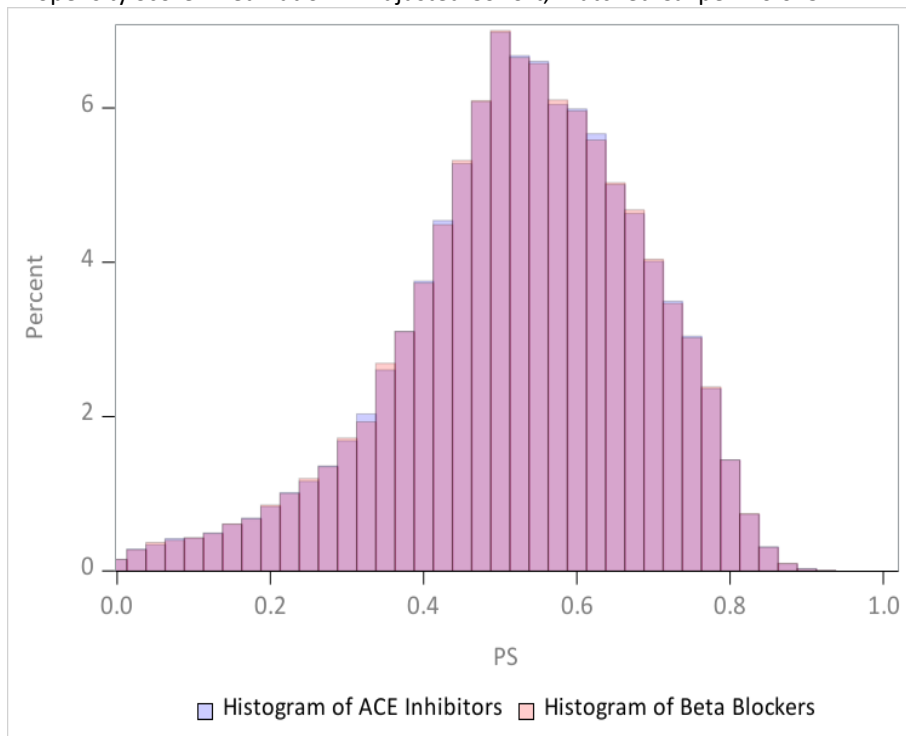


**Figure 3b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution

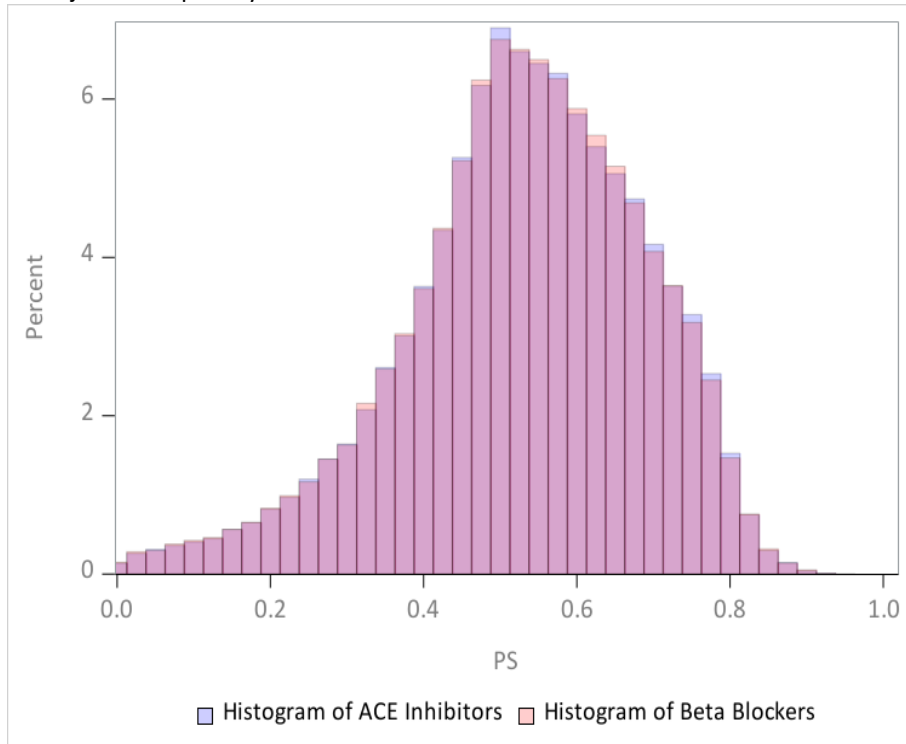


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

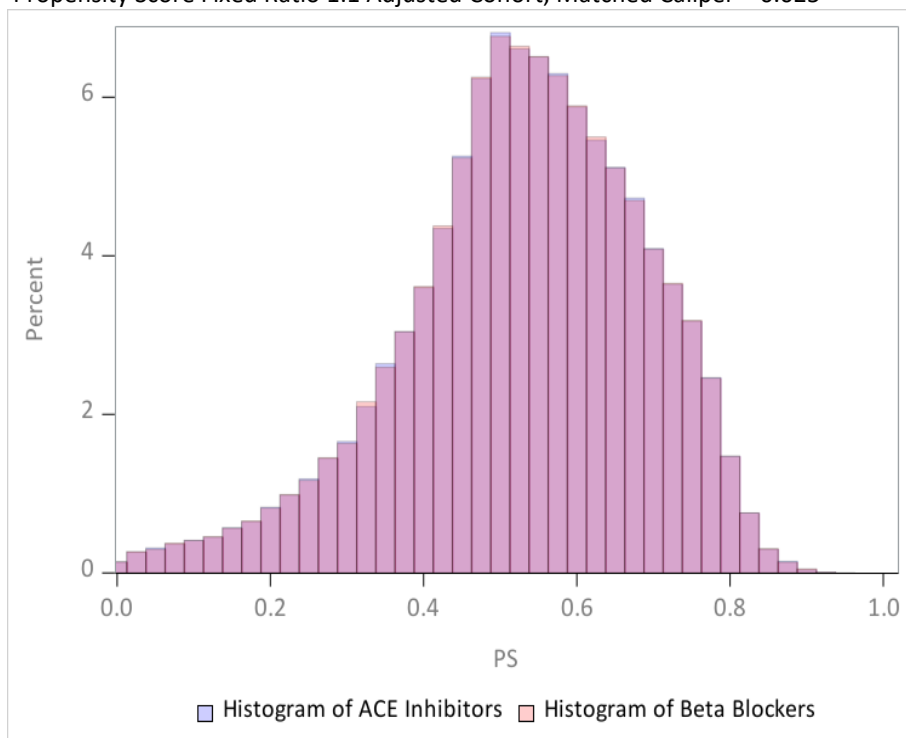


**Figure 3c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution

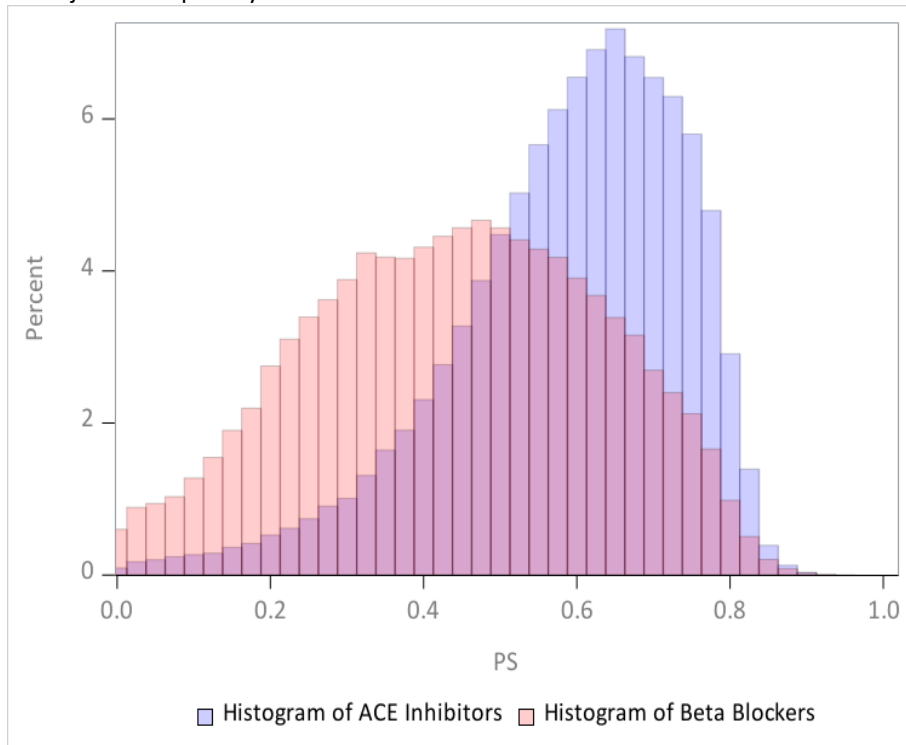


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

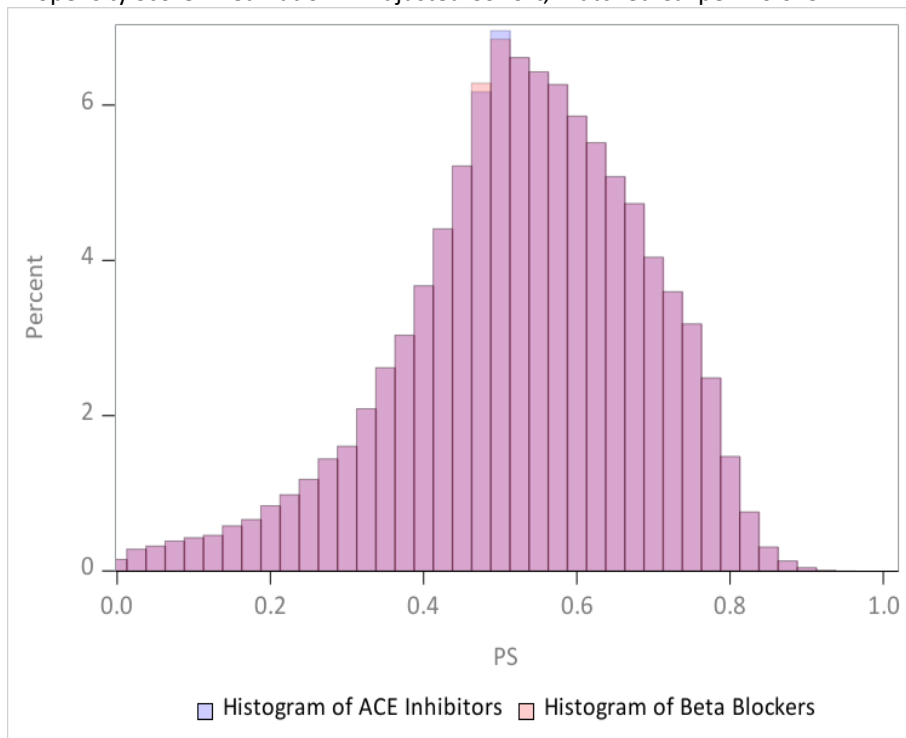


**Figure 4a. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution

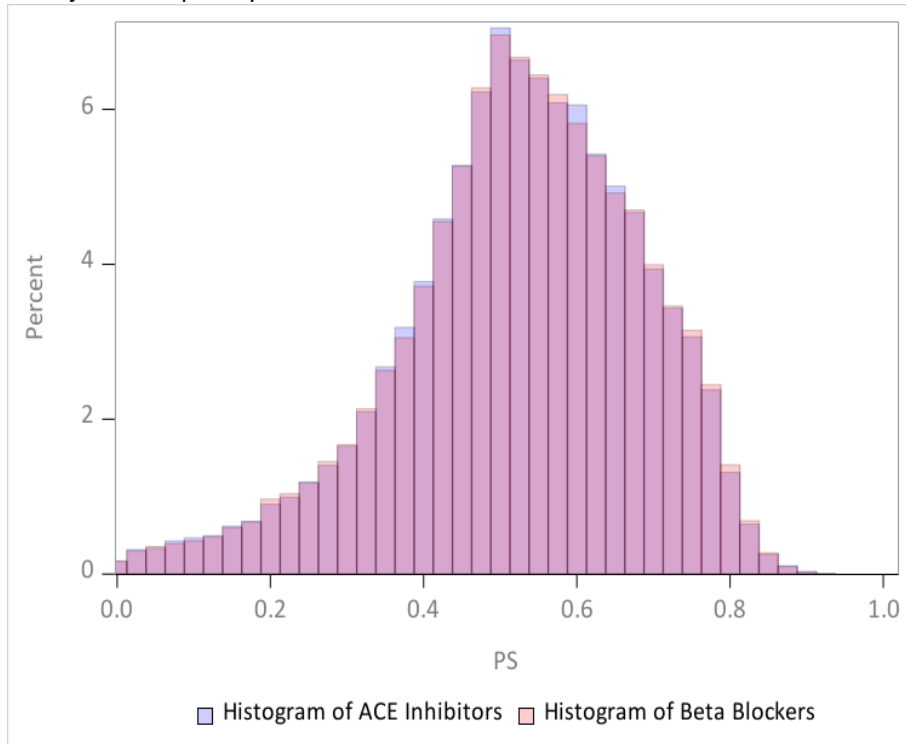


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

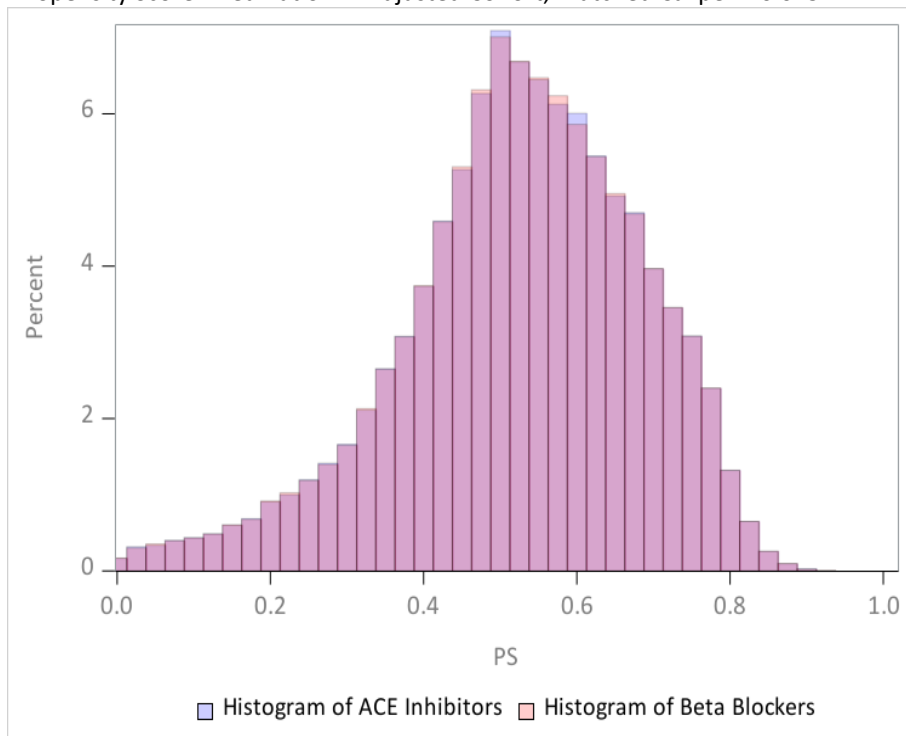


**Figure 4b. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution

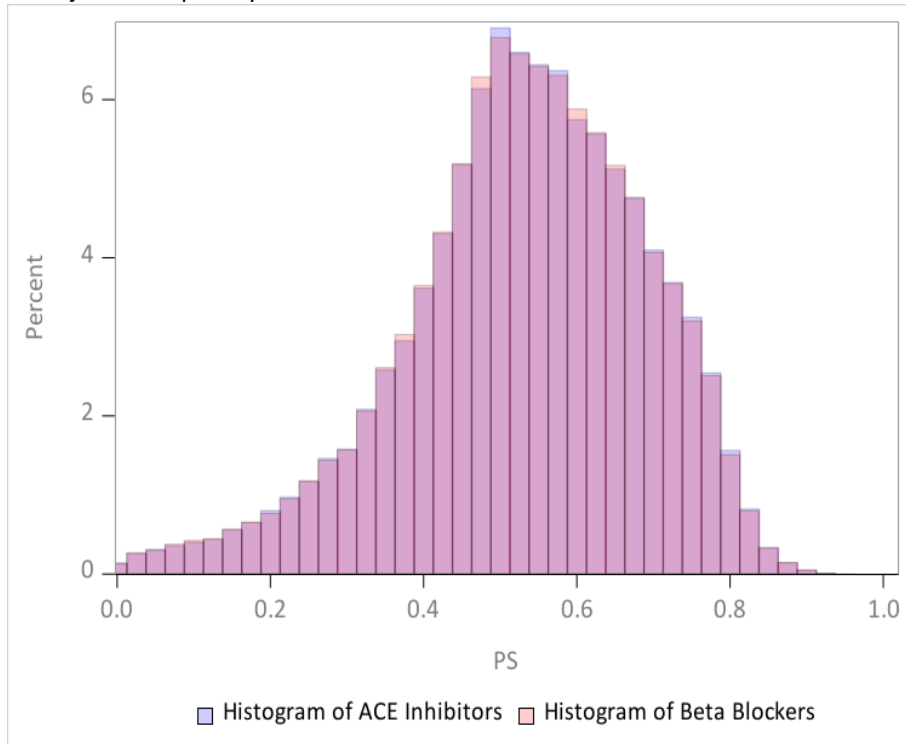


Propensity Score Fixed Ratio 1:1 Adjusted Cohort, Matched Caliper = 0.025

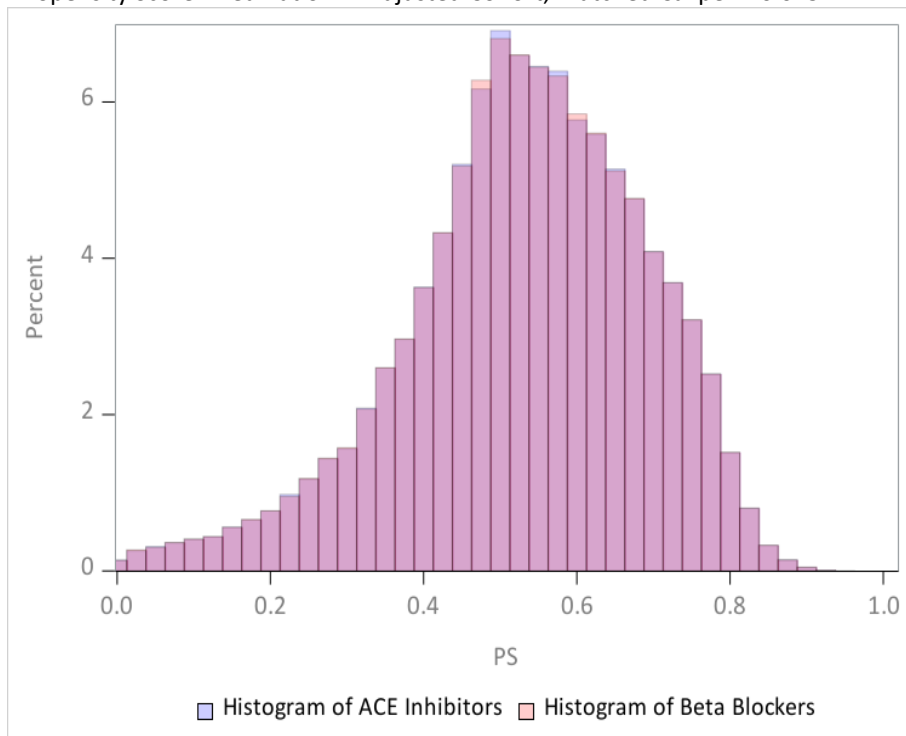


**Figure 4c. Histograms Depicting Propensity Score Distributions Before and After Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution



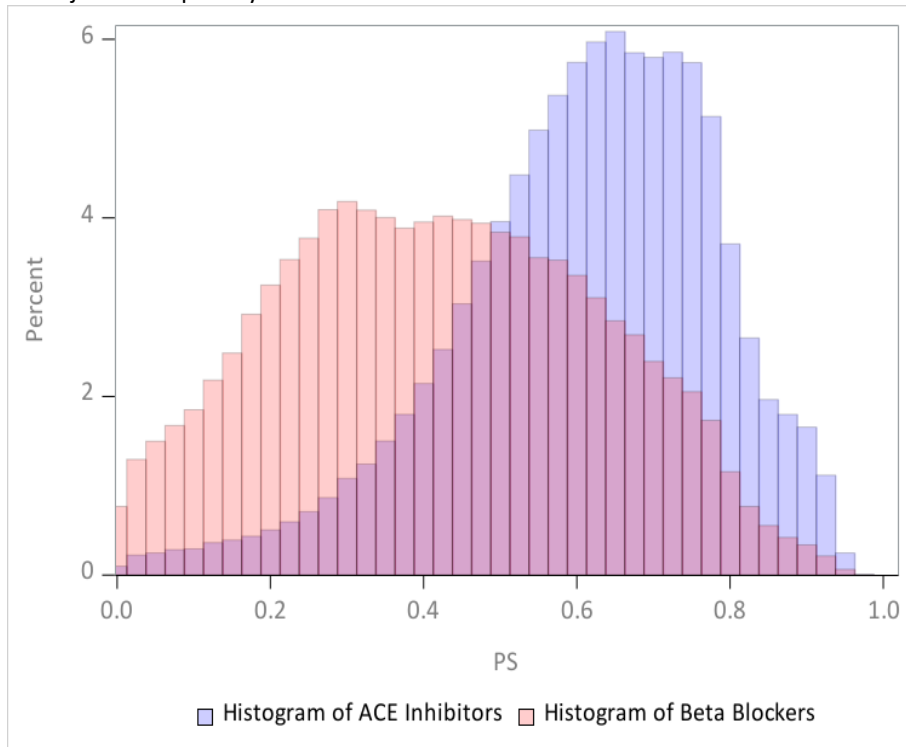
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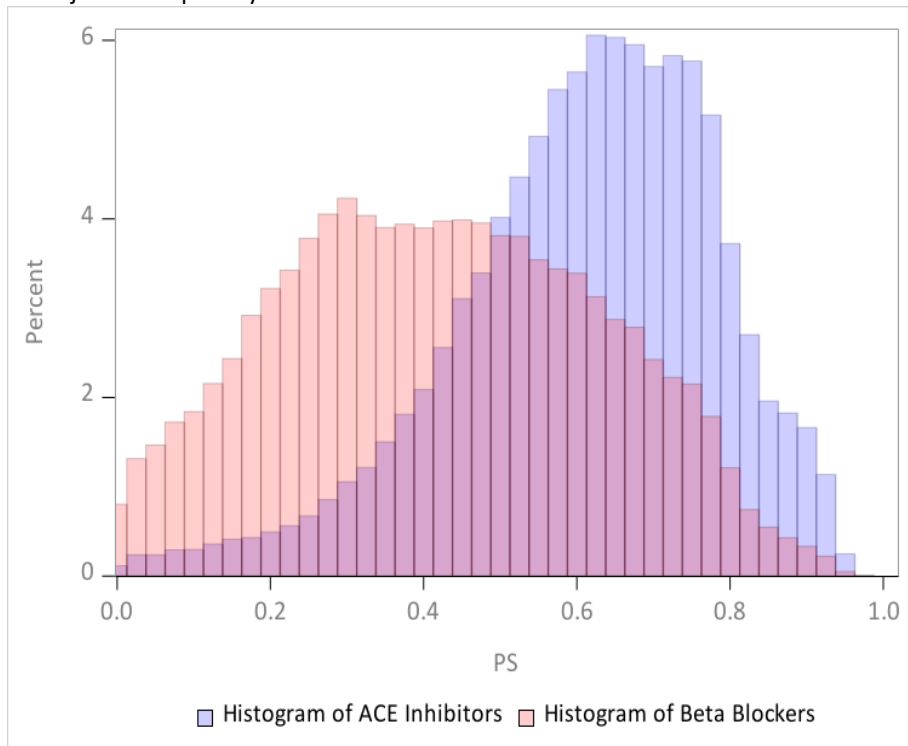
**Figure 5a. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution



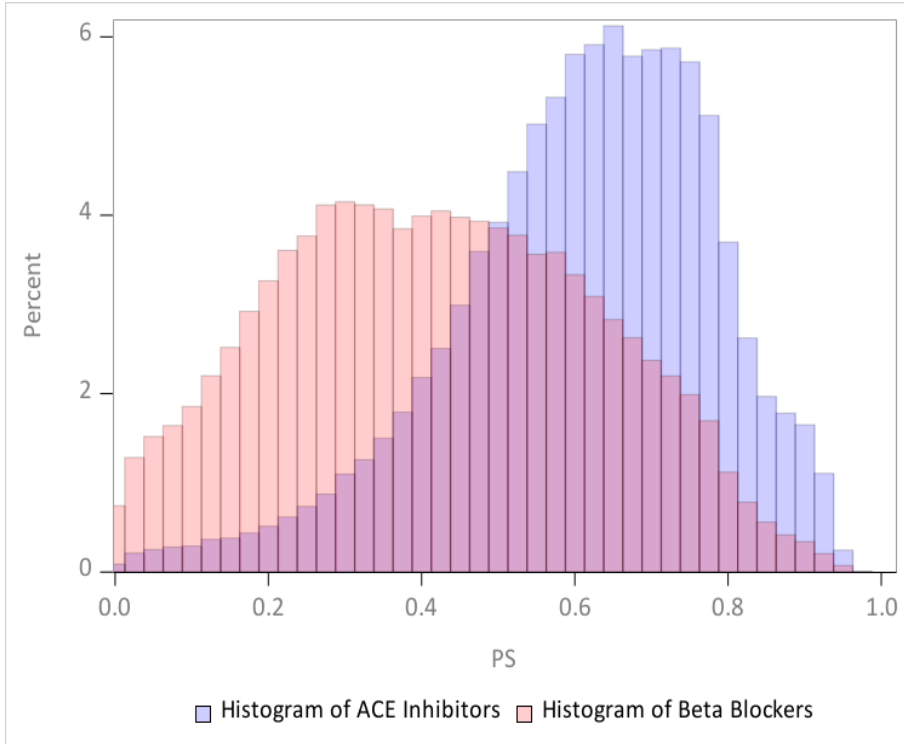
**Figure 5b. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution



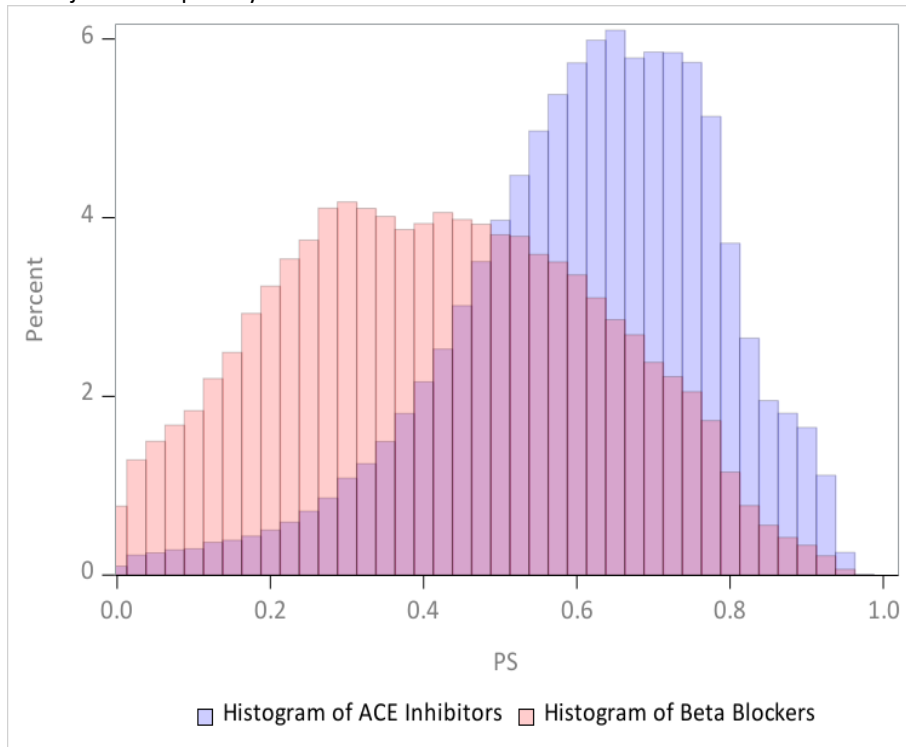
**Figure 5c. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution



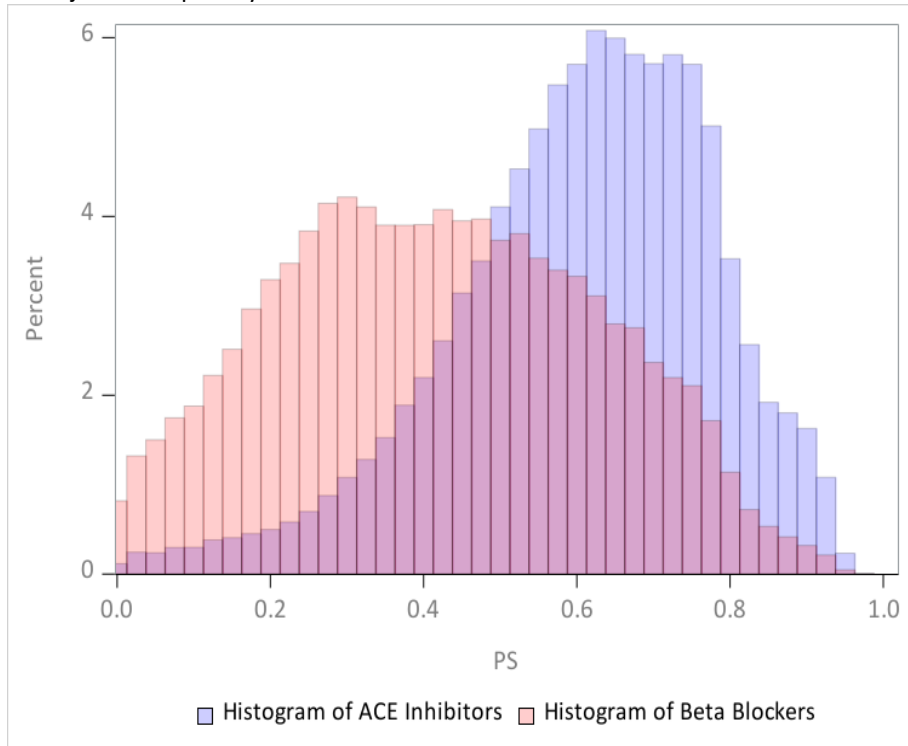
**Figure 6a. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution



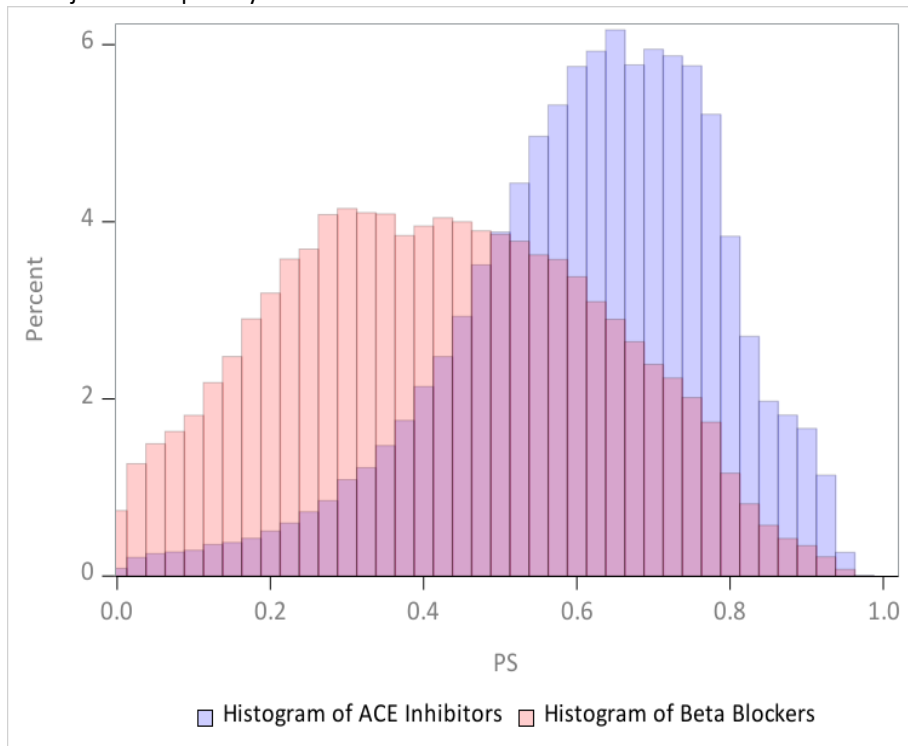
**Figure 6b. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution



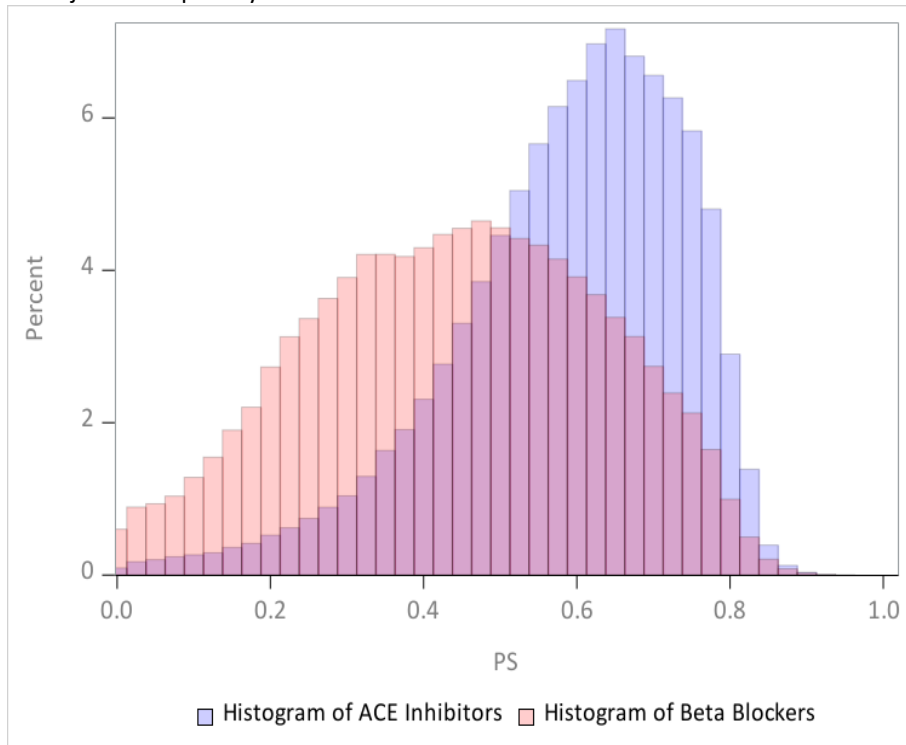
**Figure 6c. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution



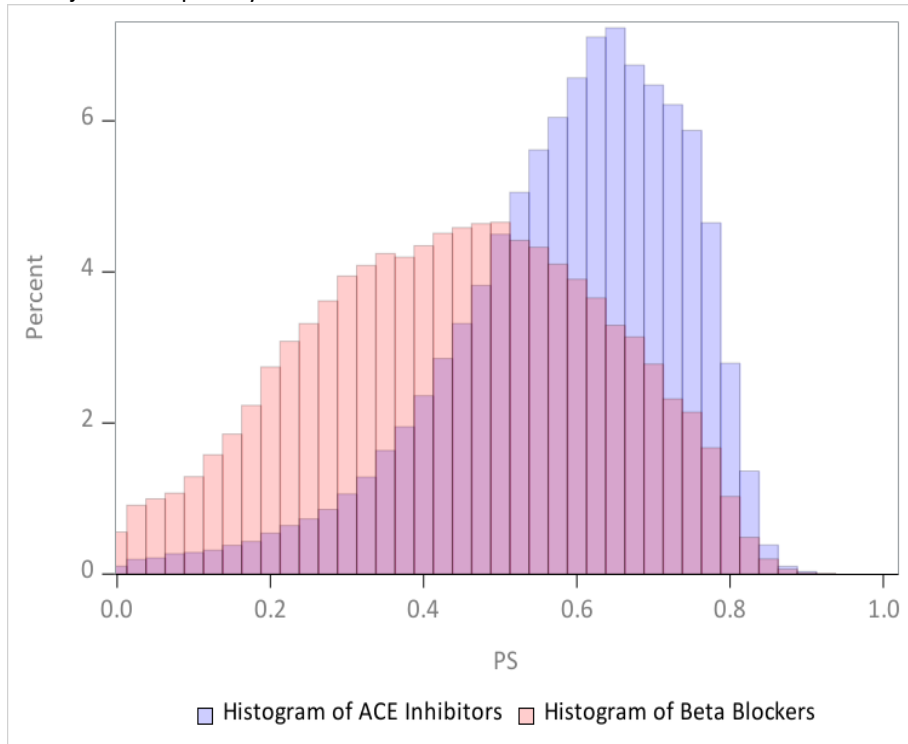
**Figure 7a. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution



**Figure 7b. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

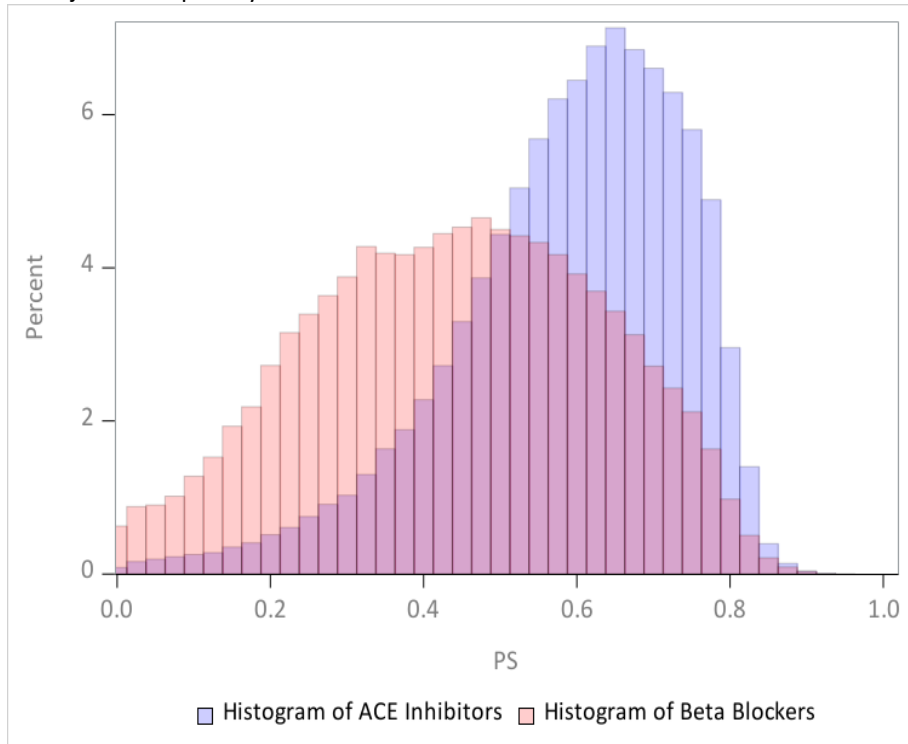
Unadjusted Propensity Score Distribution





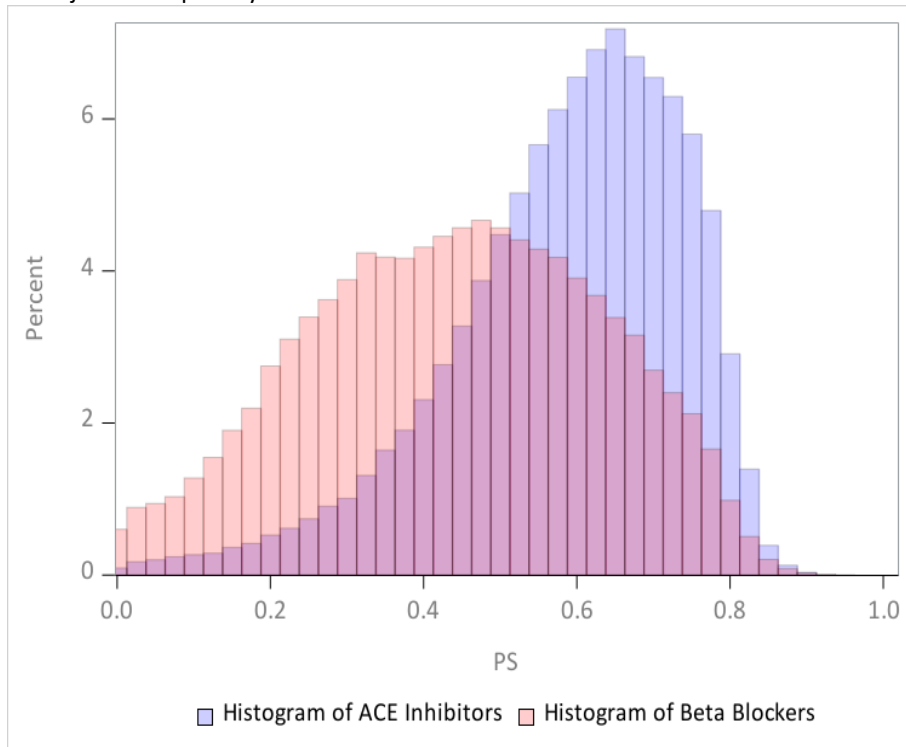
**Figure 7c. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution



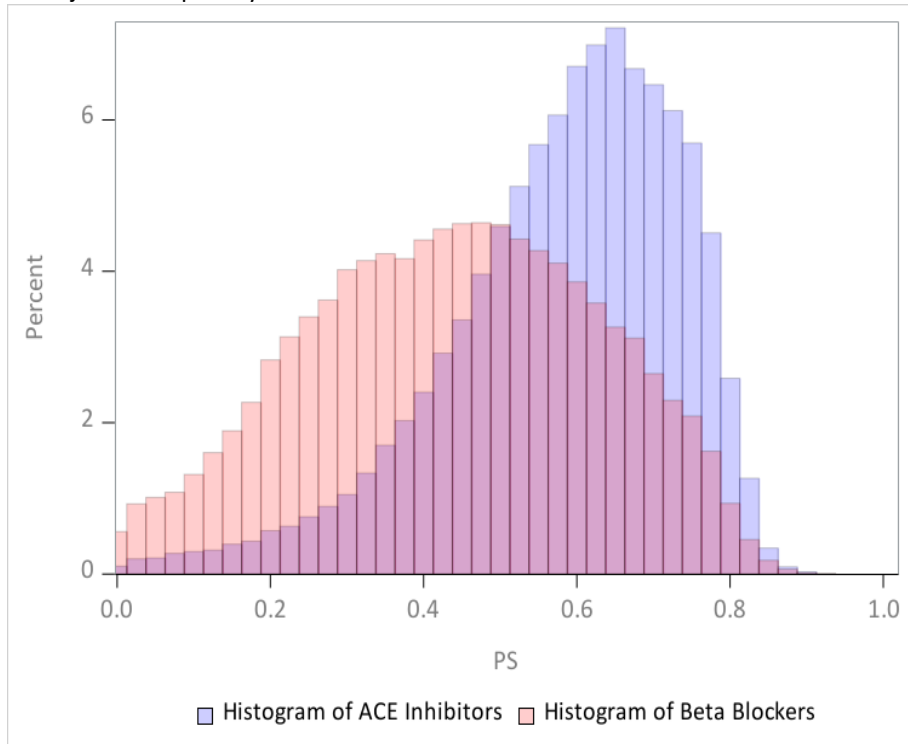
**Figure 8a. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

Unadjusted Propensity Score Distribution



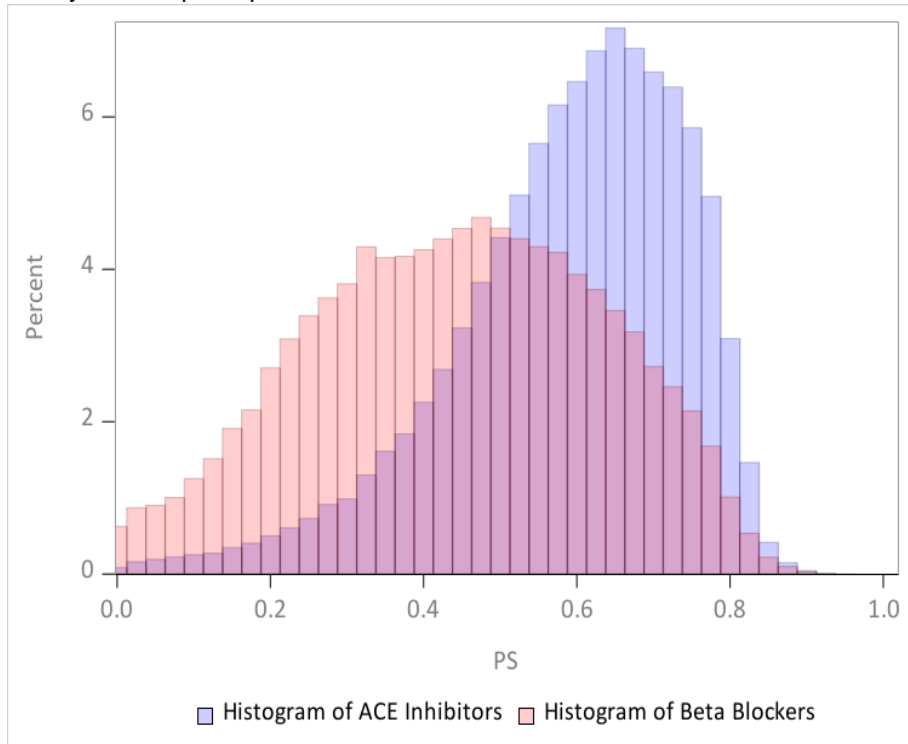
**Figure 8b. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

Unadjusted Propensity Score Distribution

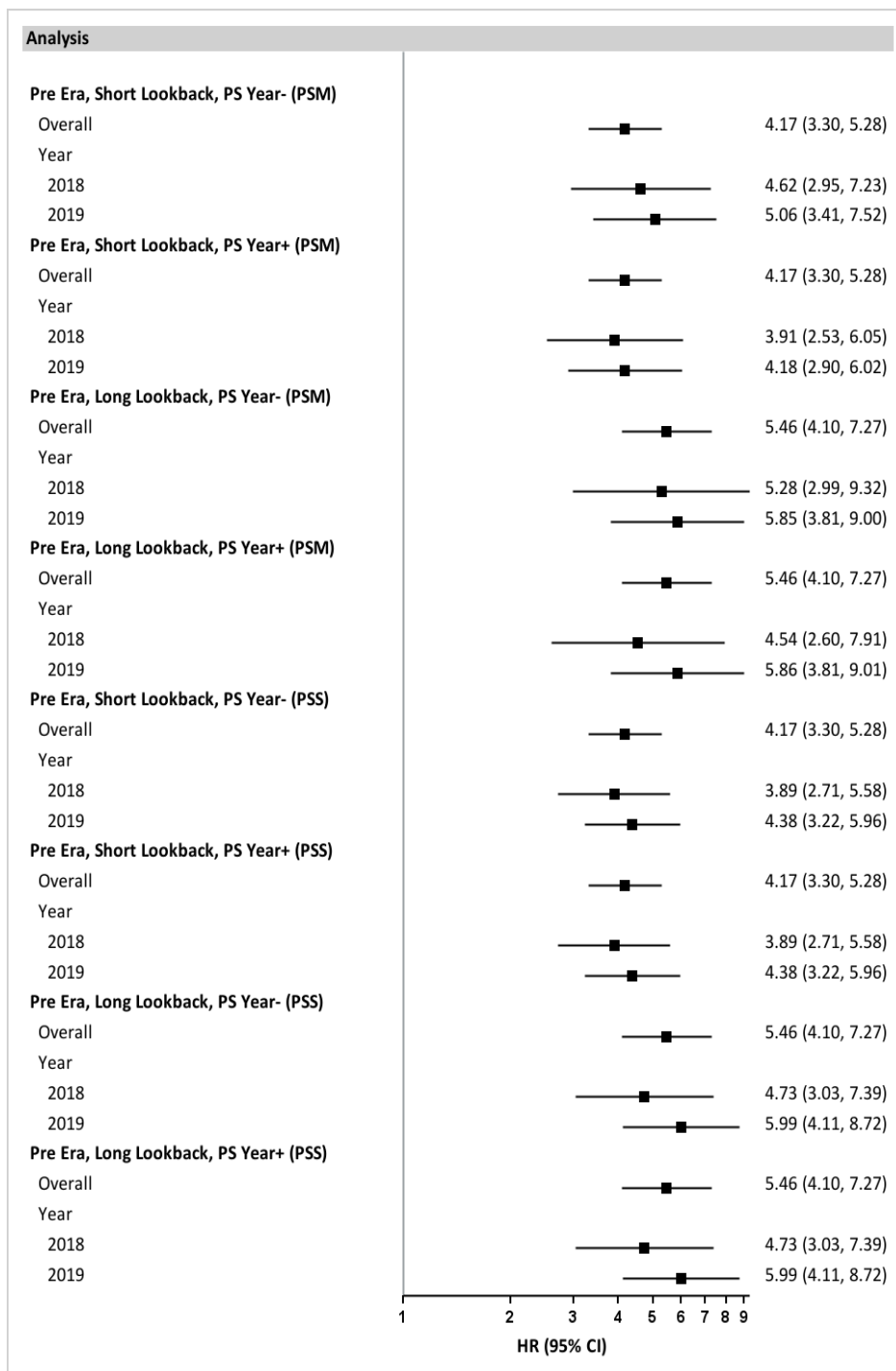


**Figure 8c. Histograms Depicting Propensity Score Distributions Before Adjustment for New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

Unadjusted Propensity Score Distribution



**Figure 9a. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Site-Adjusted Analyses in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Notes:**

Pre Era: Pre-Pandemic Era (May 22, 2018 to December 11, 2019)

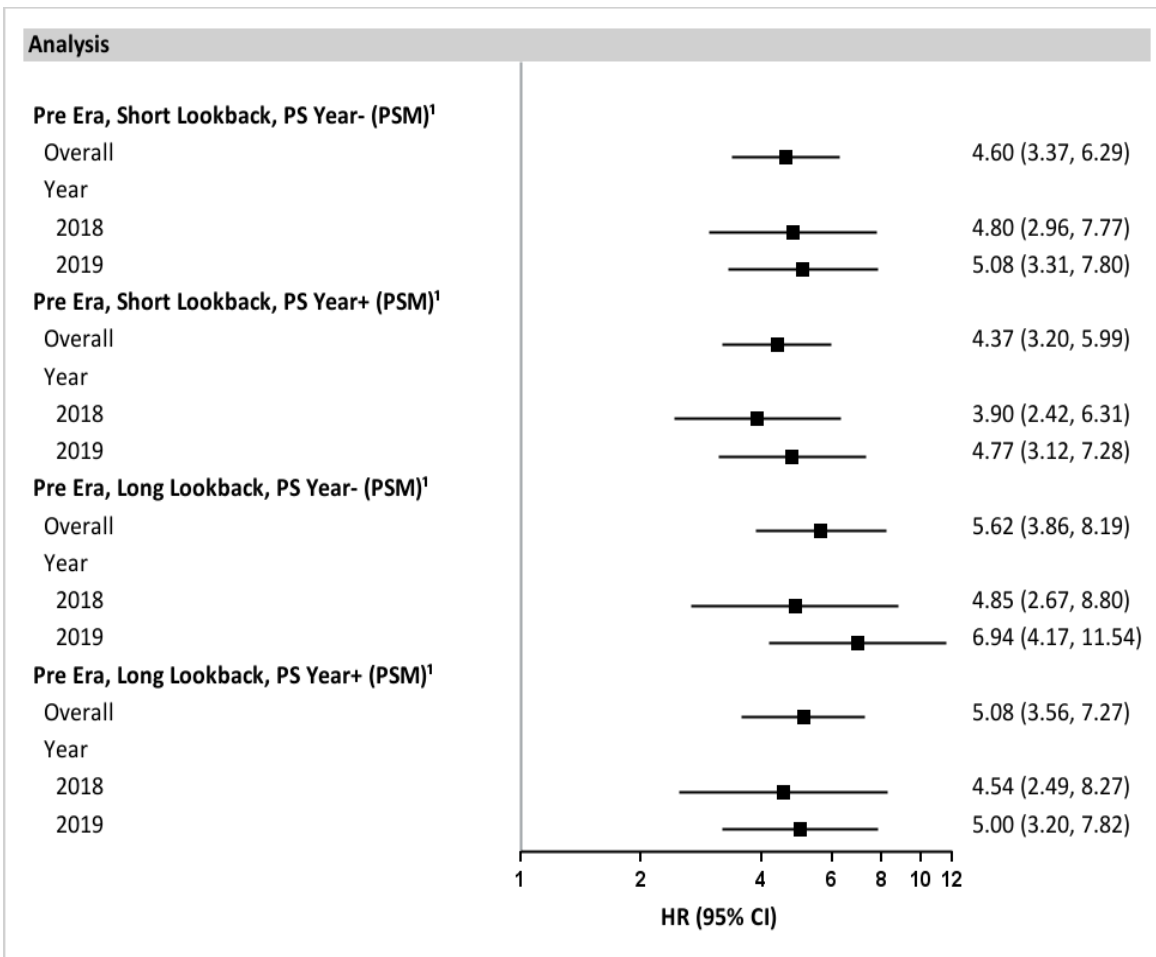
PS Year-: Propensity Score Model without Year

PS Year+: Propensity Score Model with Year

PSM: Propensity Score Matching

PSS: Propensity Score Stratification

**Figure 9b. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Propensity Score Matched Conditional Analyses in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



Notes:

<sup>1</sup>Fixed Ratio 1:1 Propensity Score Matched Conditional Analysis; Caliper=0.025

Pre Era: Pre-Pandemic Era (May 22, 2018 to December 11, 2019)

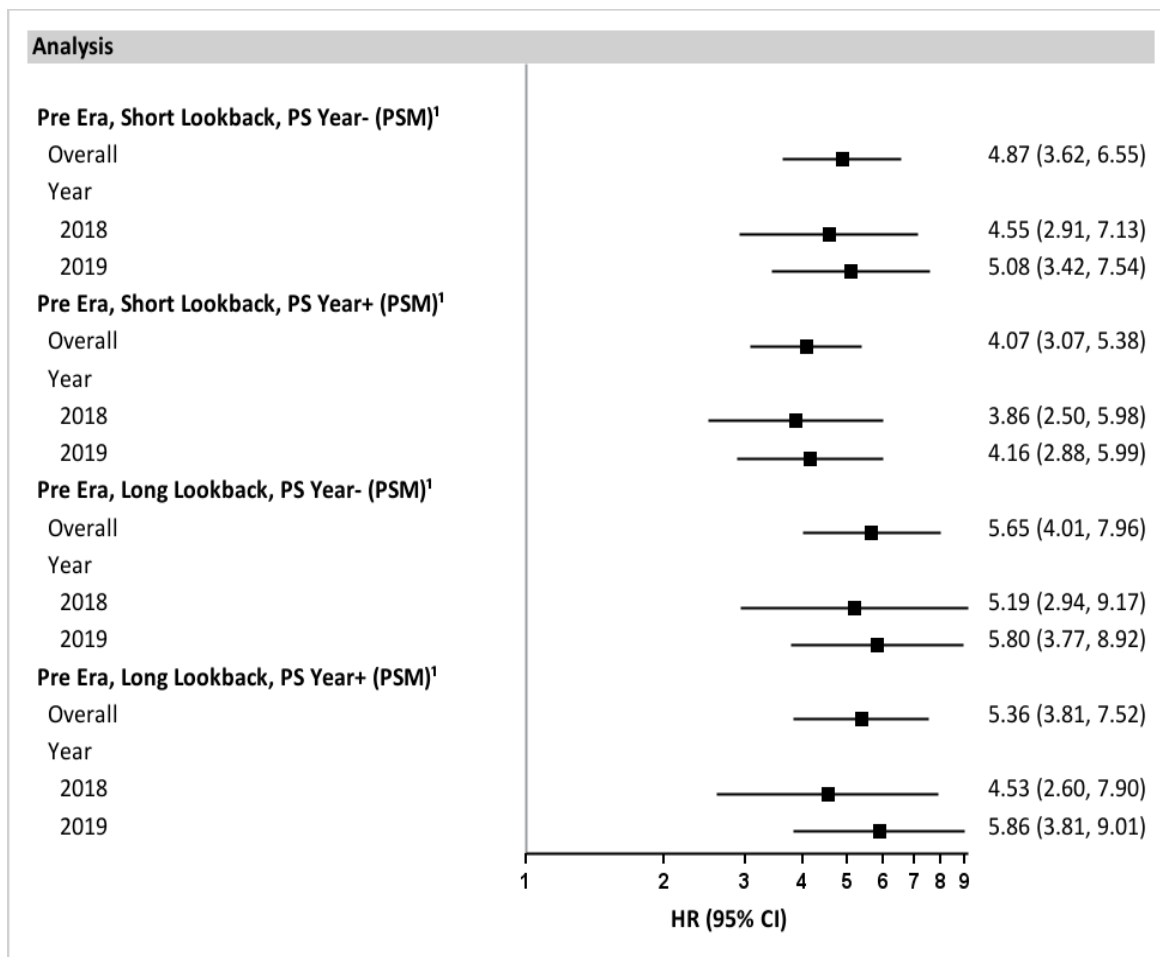
PS Year-: Propensity Score Model without Year

PS Year+: Propensity Score Model with Year

PSM: Propensity Score Matching

PSS: Propensity Score Stratification

**Figure 9c. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Propensity Score Matched Unconditional Analyses in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



Notes:

<sup>1</sup>Fixed Ratio 1:1 Propensity Score Matched Unconditional Analysis; Caliper=0.025

Pre Era: Pre-Pandemic Era (May 22, 2018 to December 11, 2019)

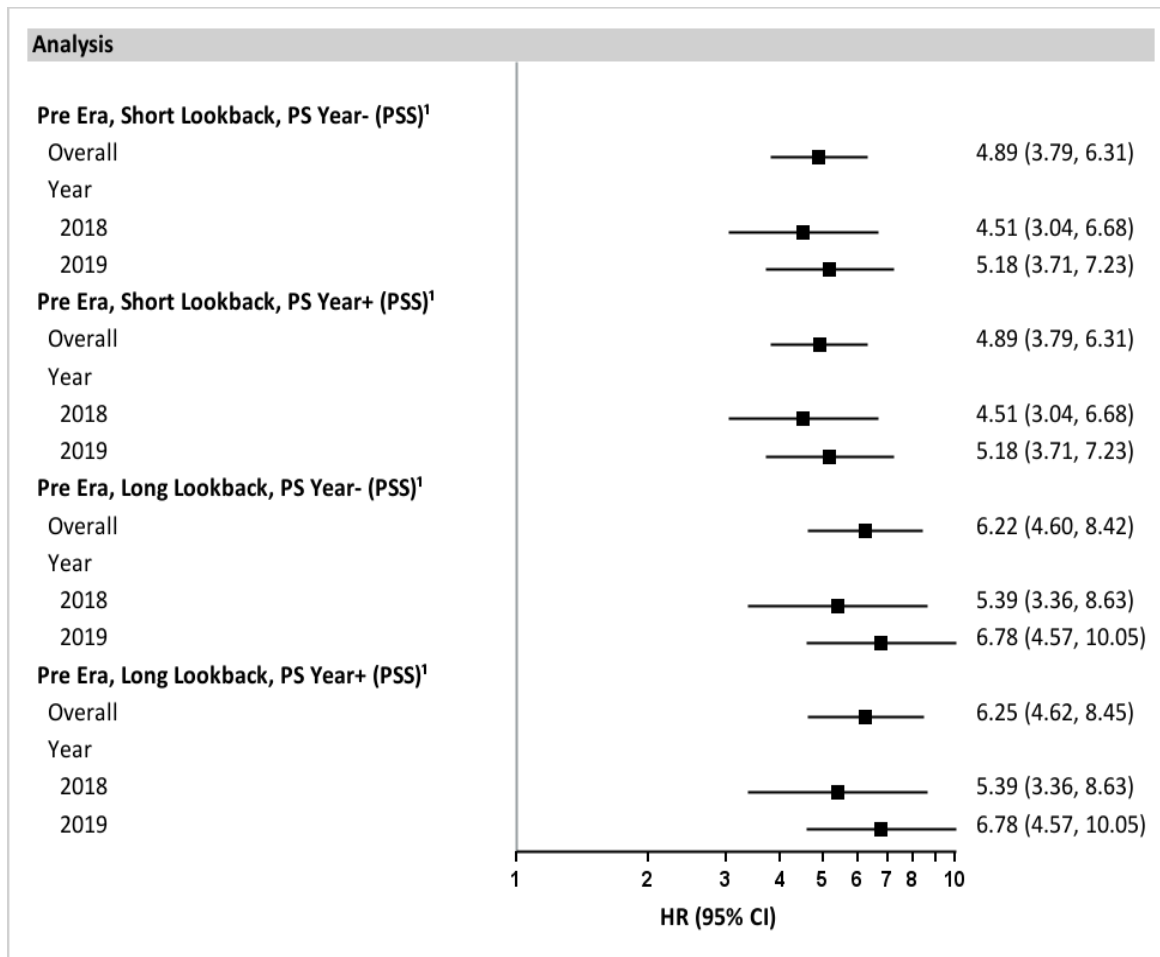
PS Year-: Propensity Score Model without Year

PS Year+: Propensity Score Model with Year

PSM: Propensity Score Matching

PSS: Propensity Score Stratification

**Figure 9d. Forest Plot of Hazard Ratios (HR) and 95% Confidence Intervals (CI) for Propensity Score Stratified Analyses in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



Notes:

<sup>1</sup>Percentiles: 5

Pre Era: Pre-Pandemic Era (May 22, 2018 to December 11, 2019)

PS Year-: Propensity Score Model without Year

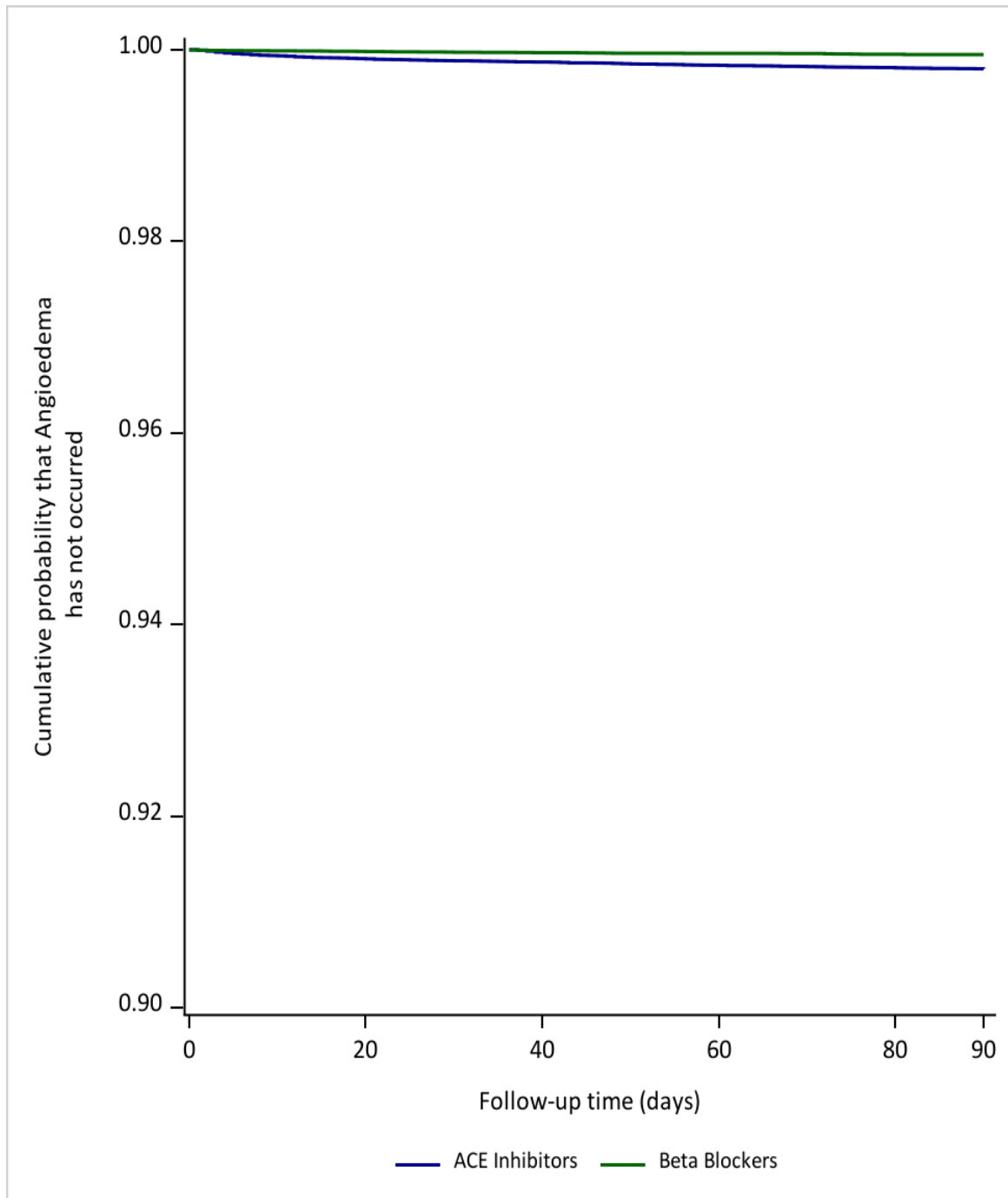
PS Year+: Propensity Score Model with Year

PSM: Propensity Score Matching

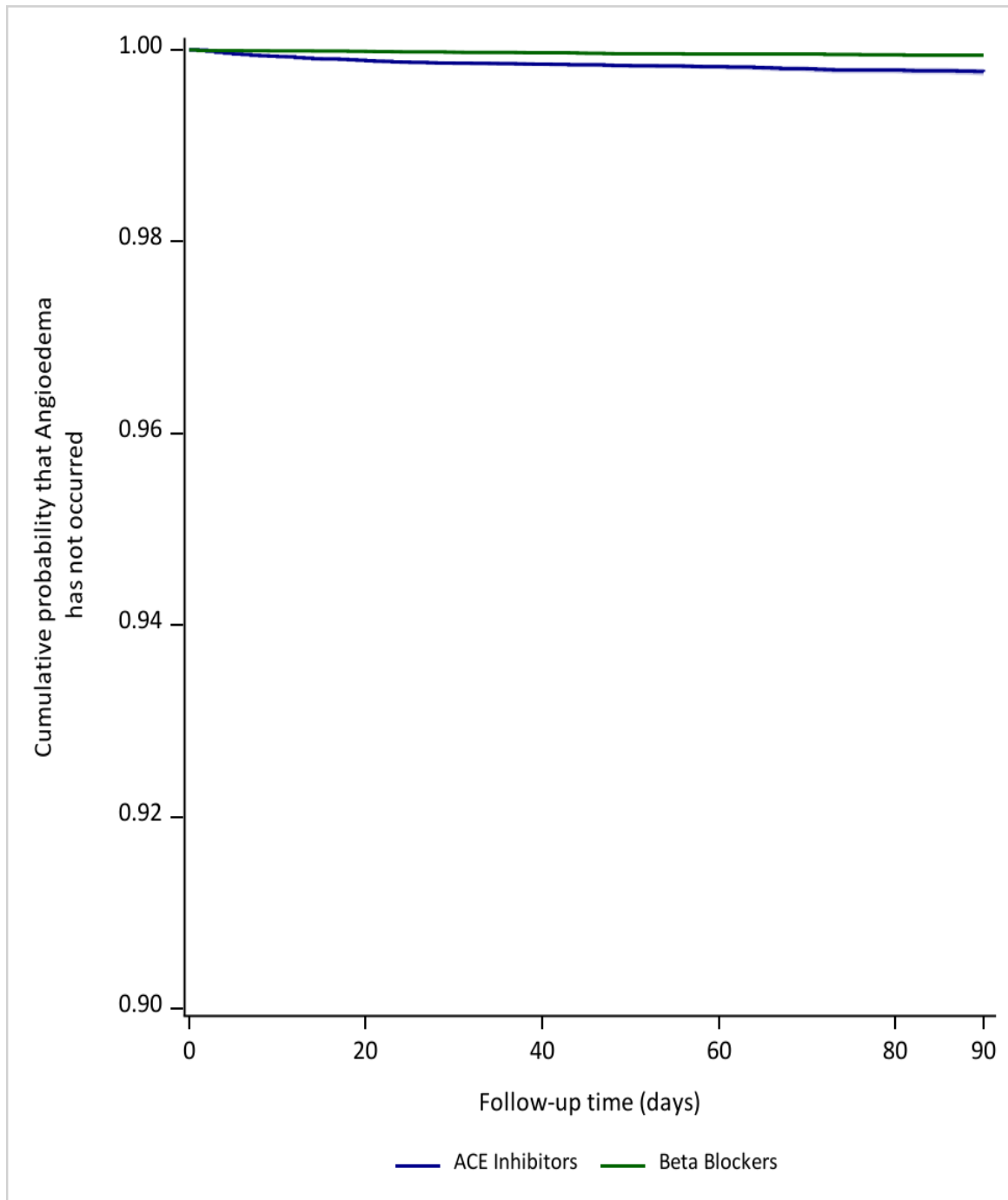
PSS: Propensity Score Stratification



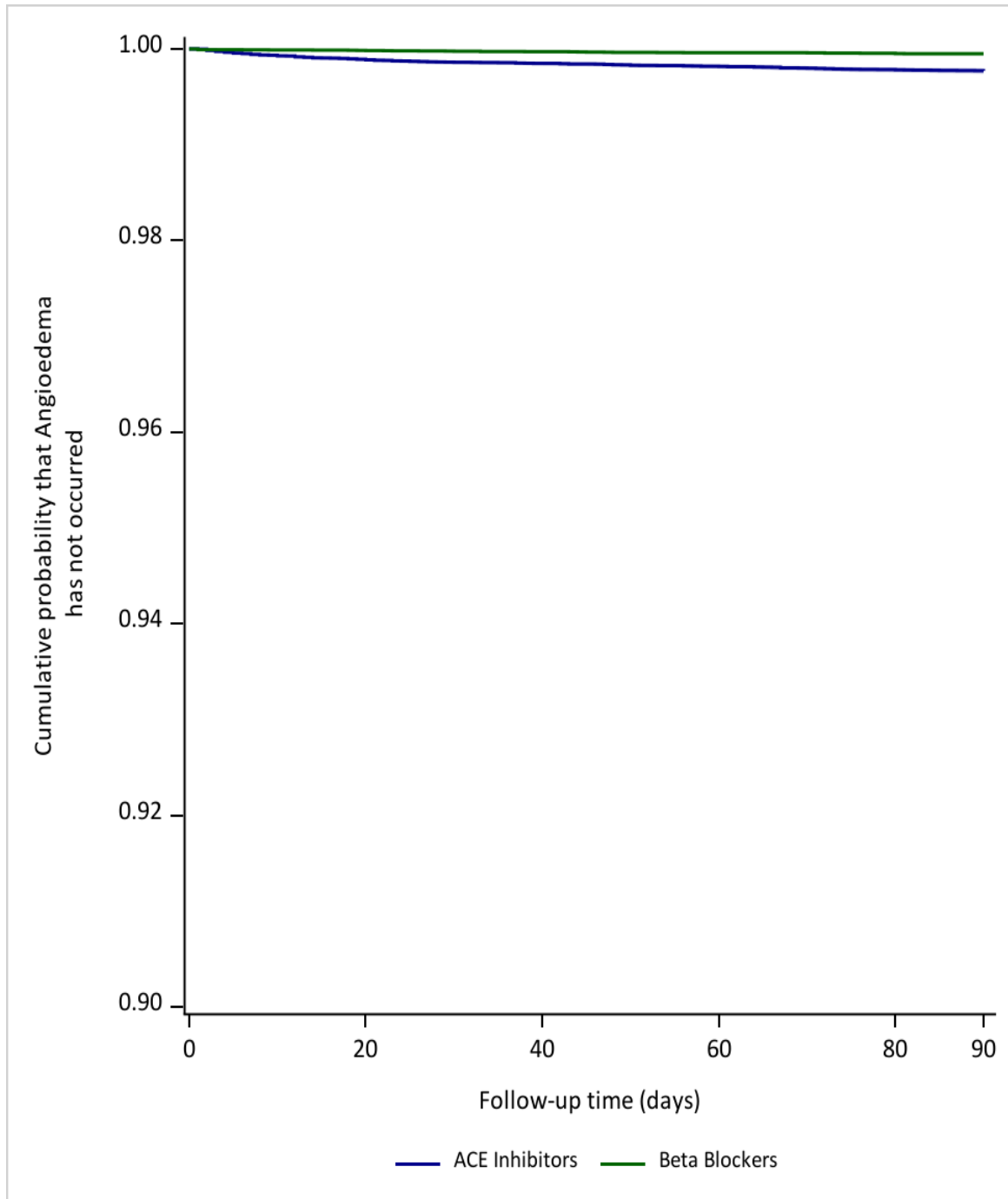
**Figure 10a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Figure 10b. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Figure 10c. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Figure 10d. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

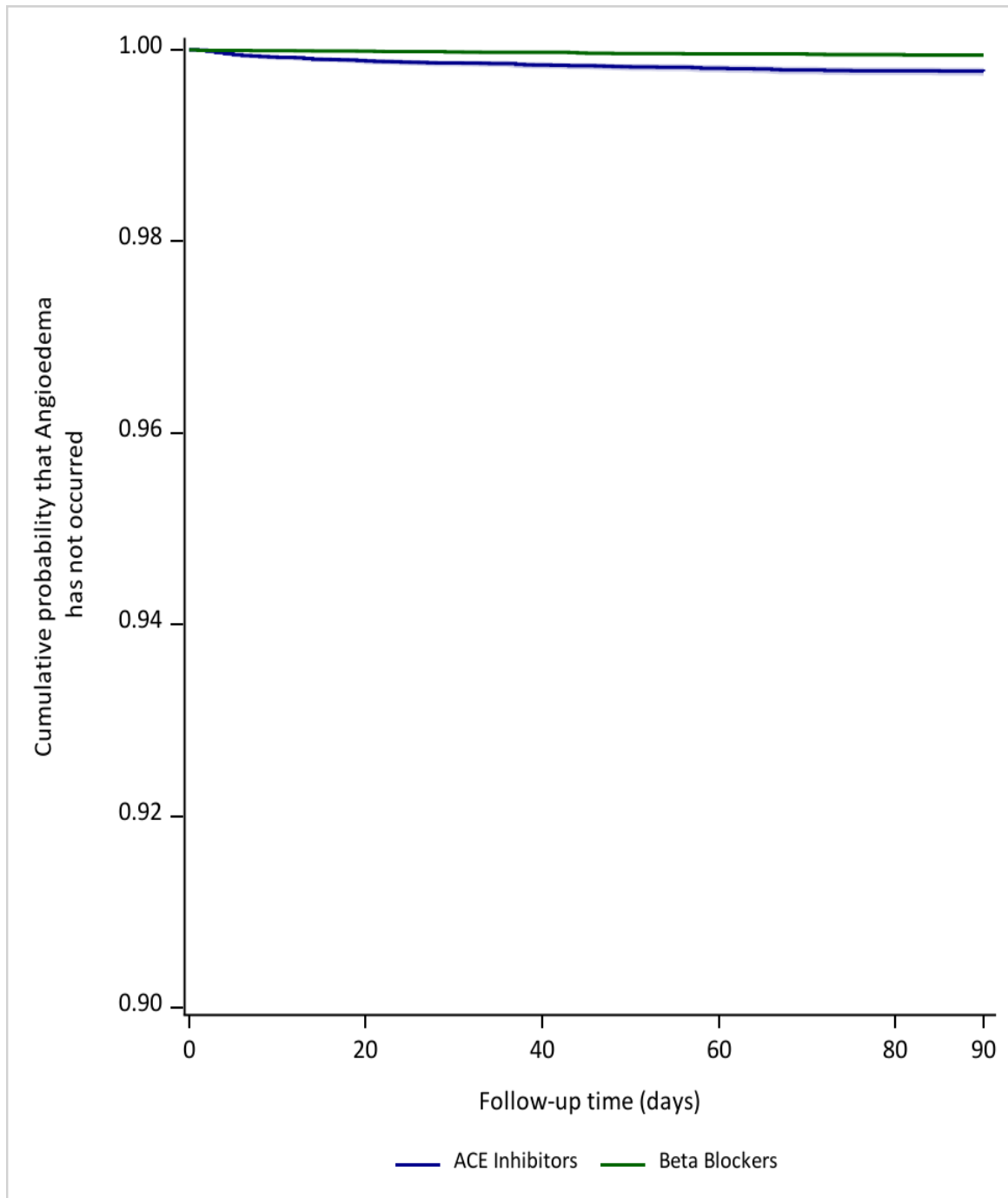
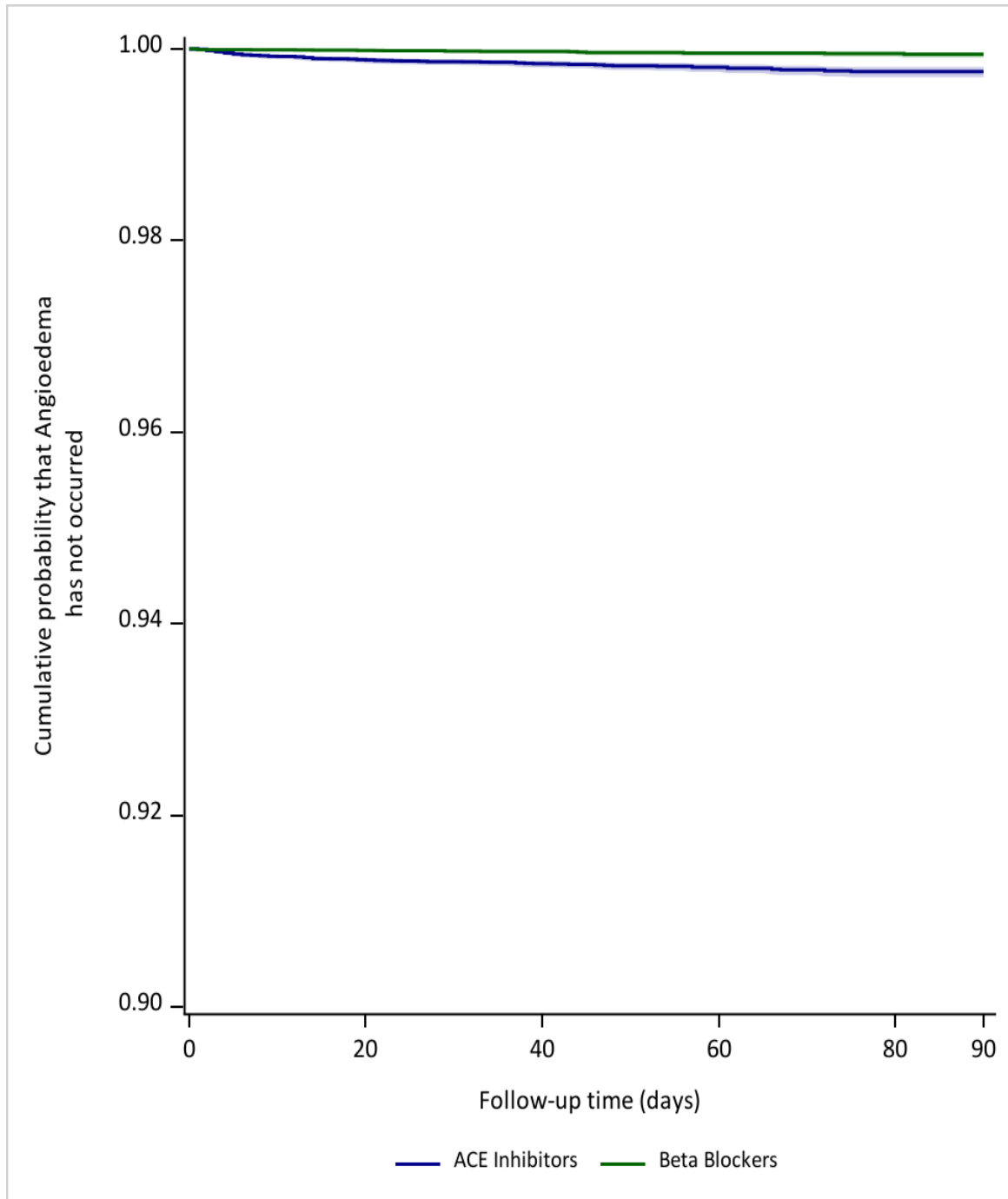
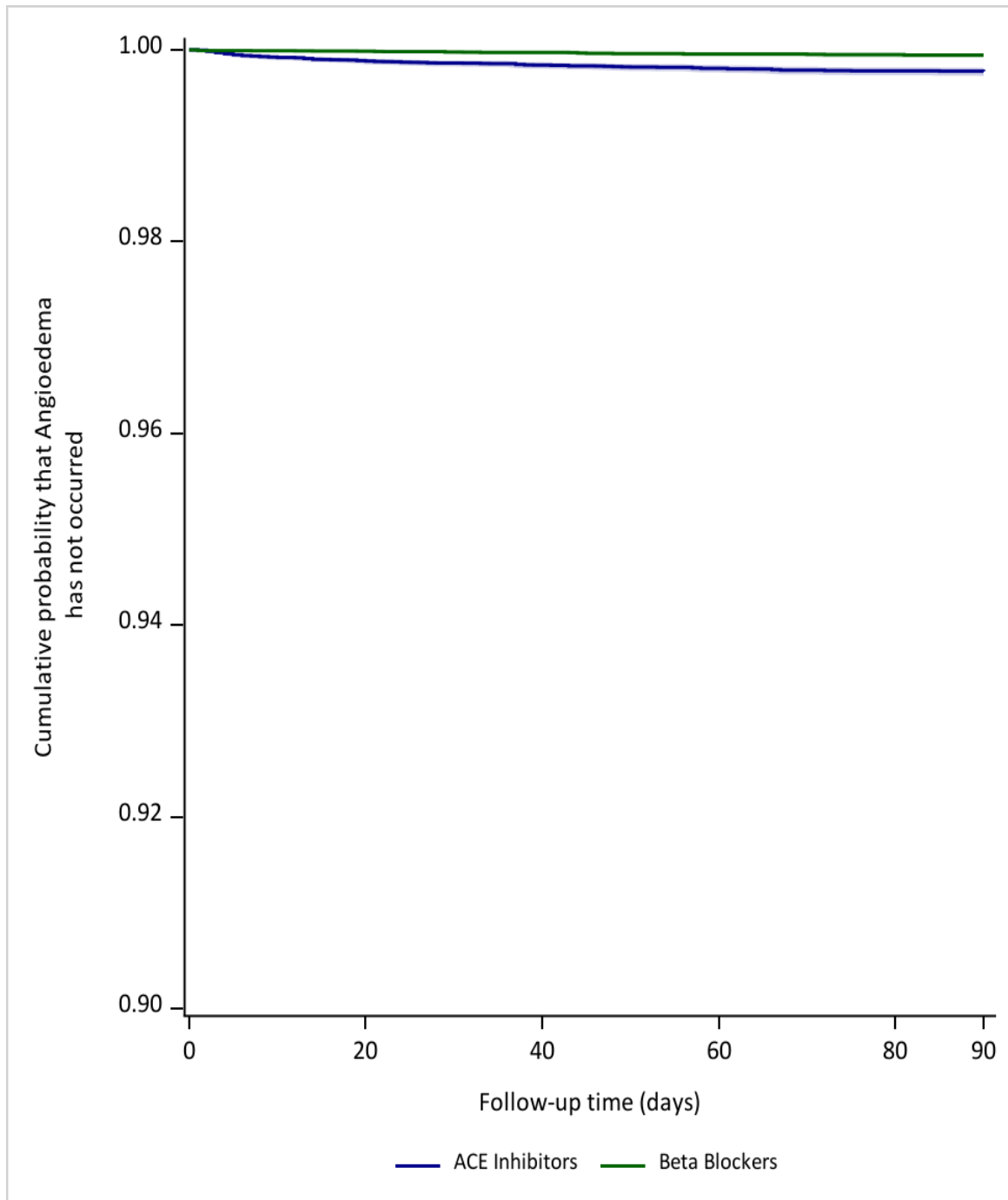


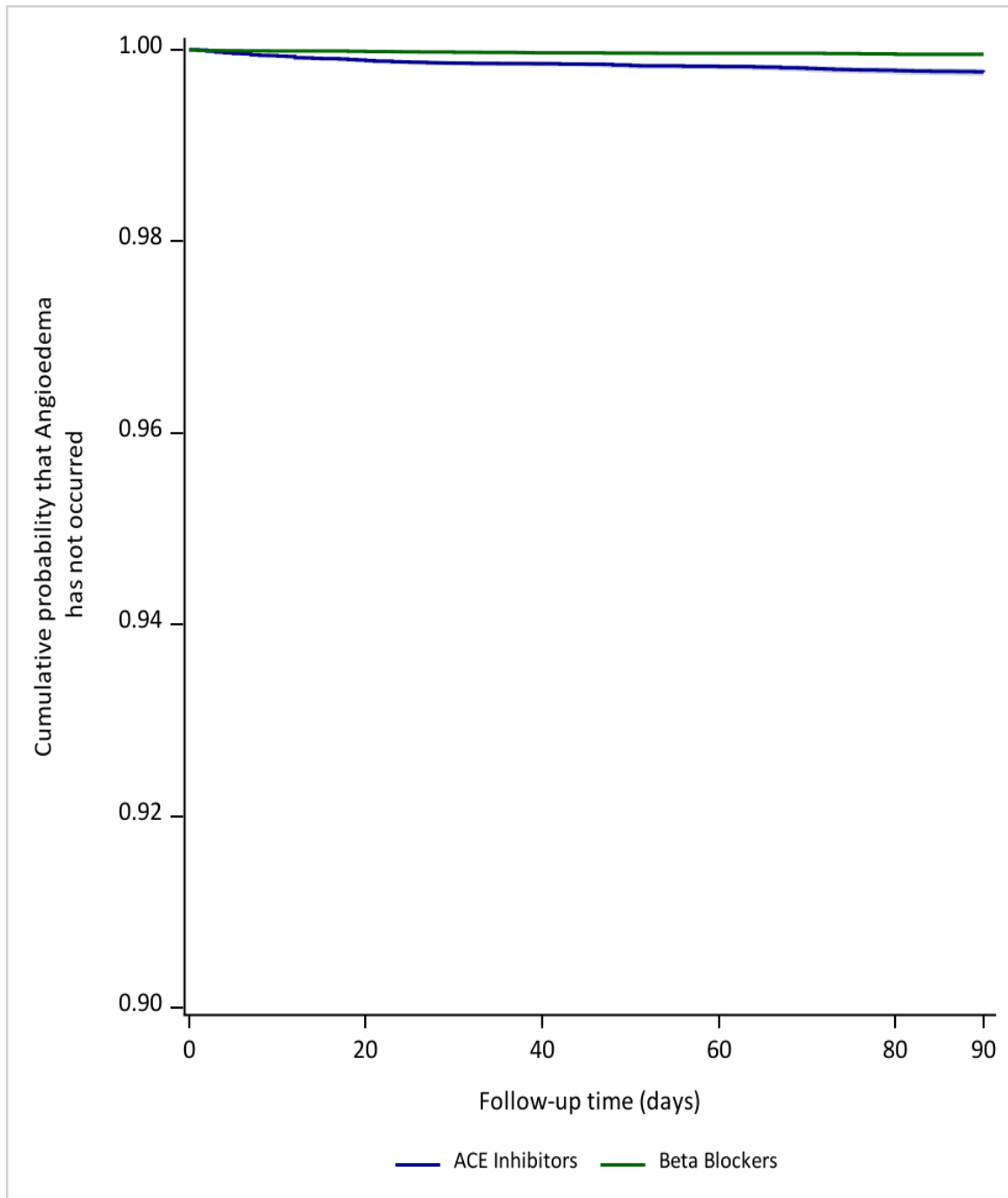
Figure 10e. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018



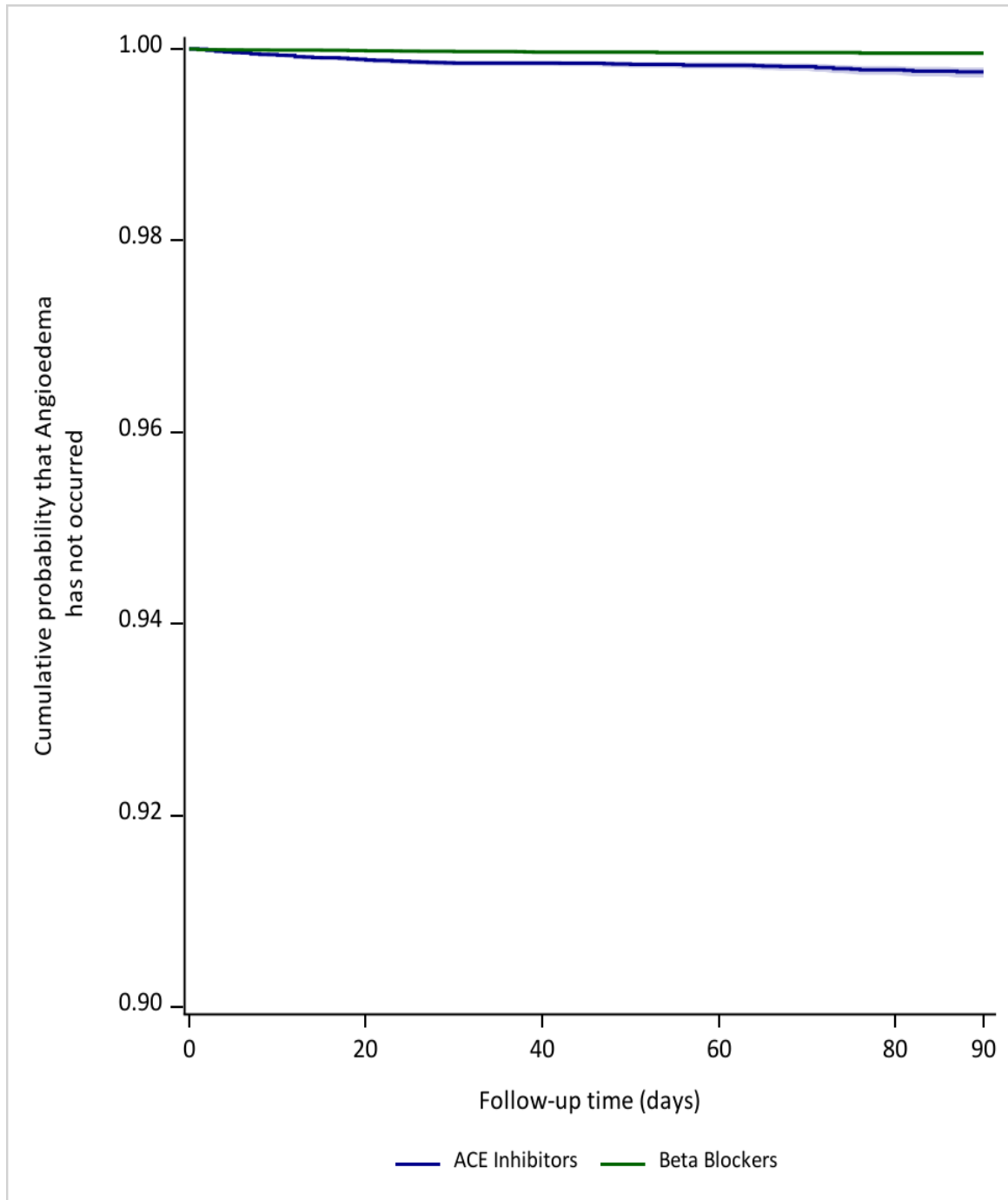
**Figure 10f. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



**Figure 10g. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

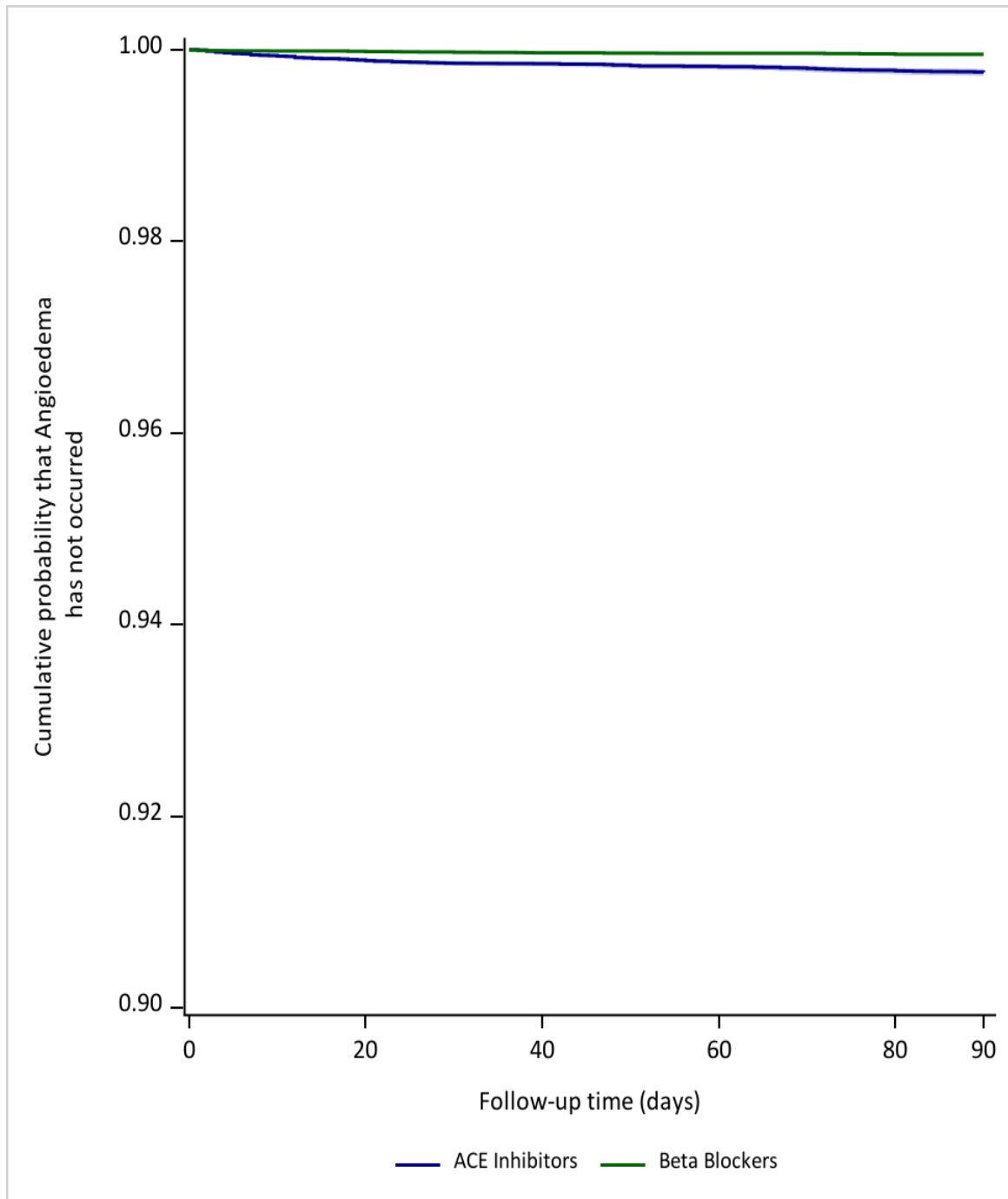


**Figure 10h. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

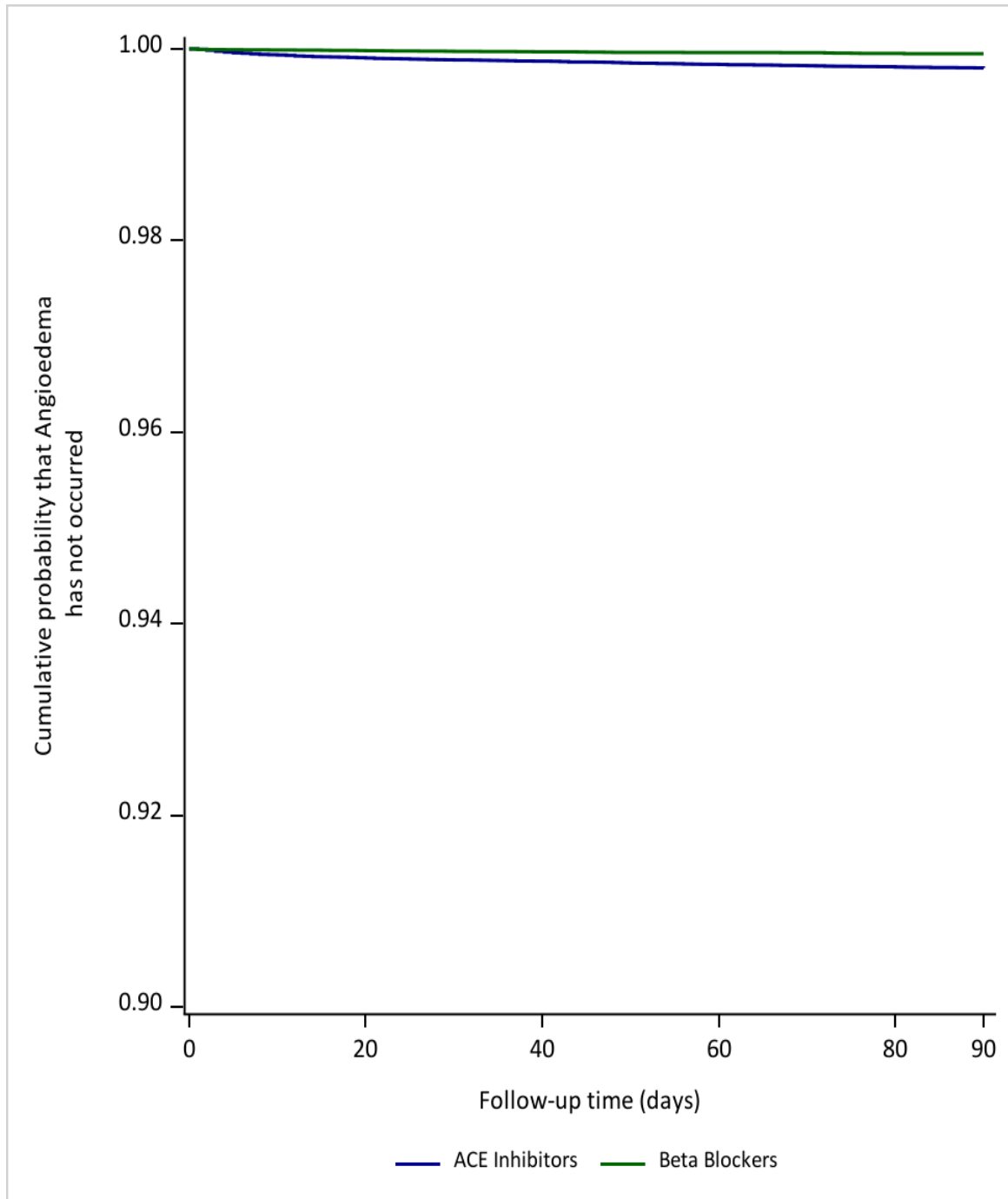




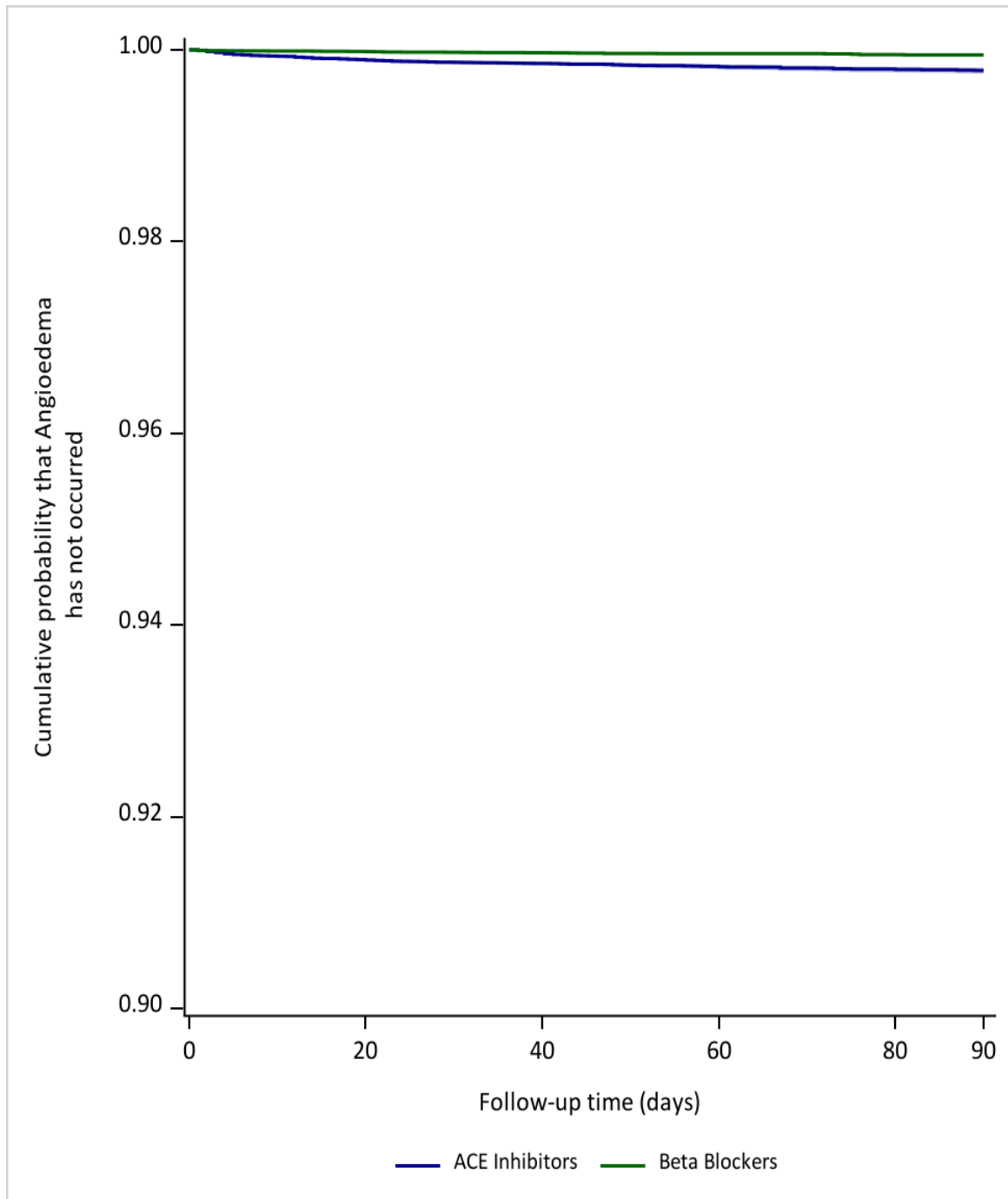
**Figure 10i. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



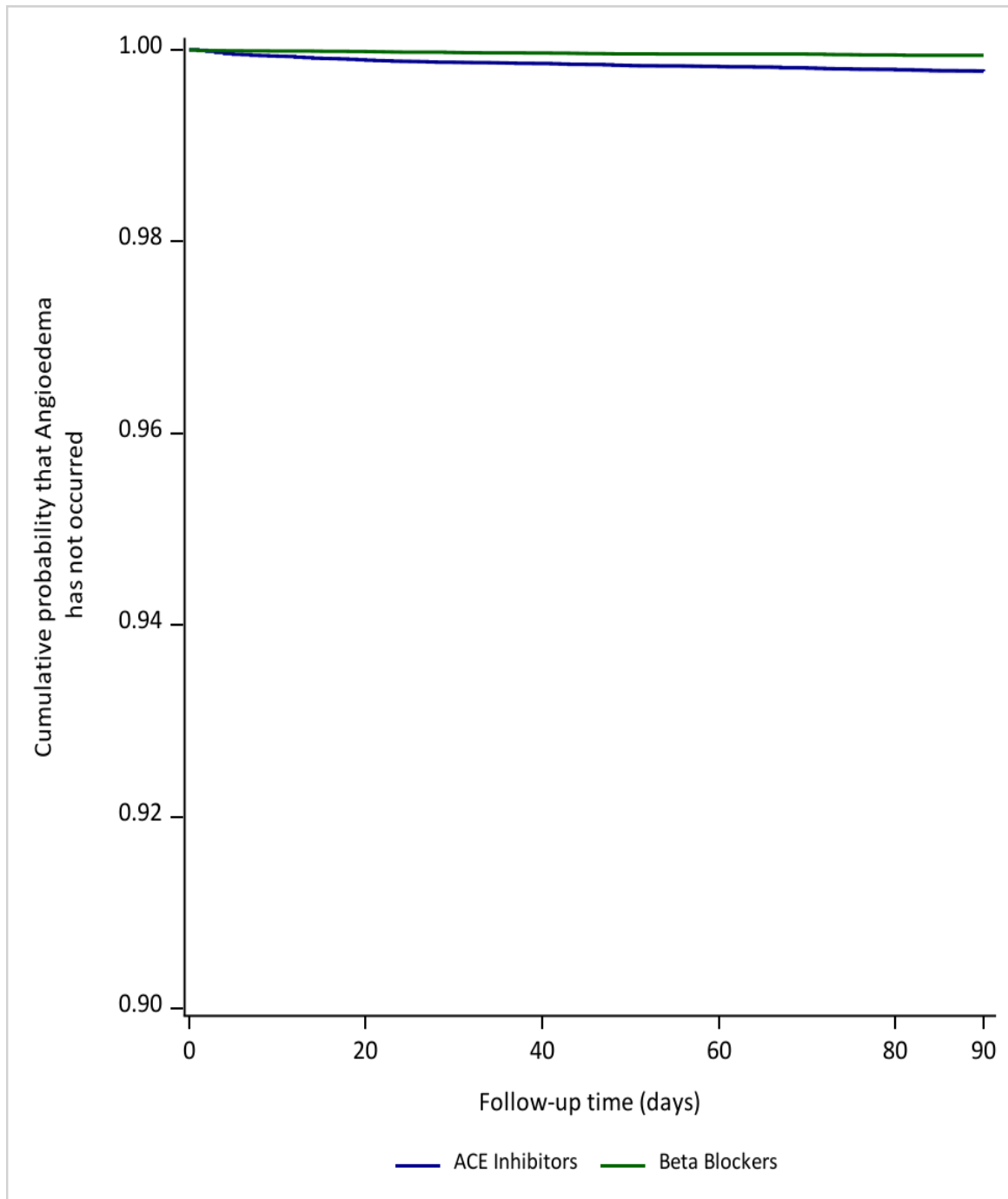
**Figure 11a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



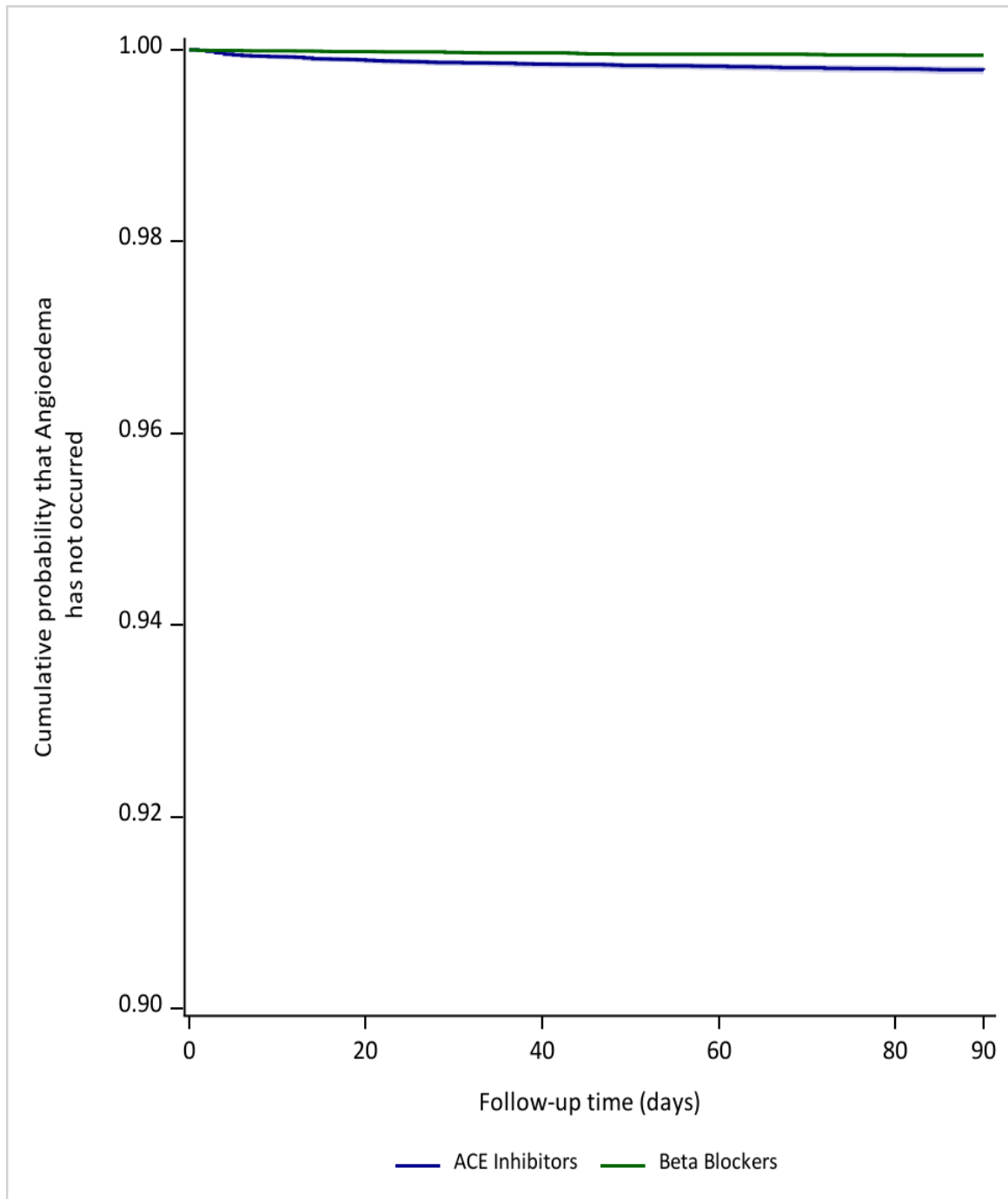
**Figure 11b. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



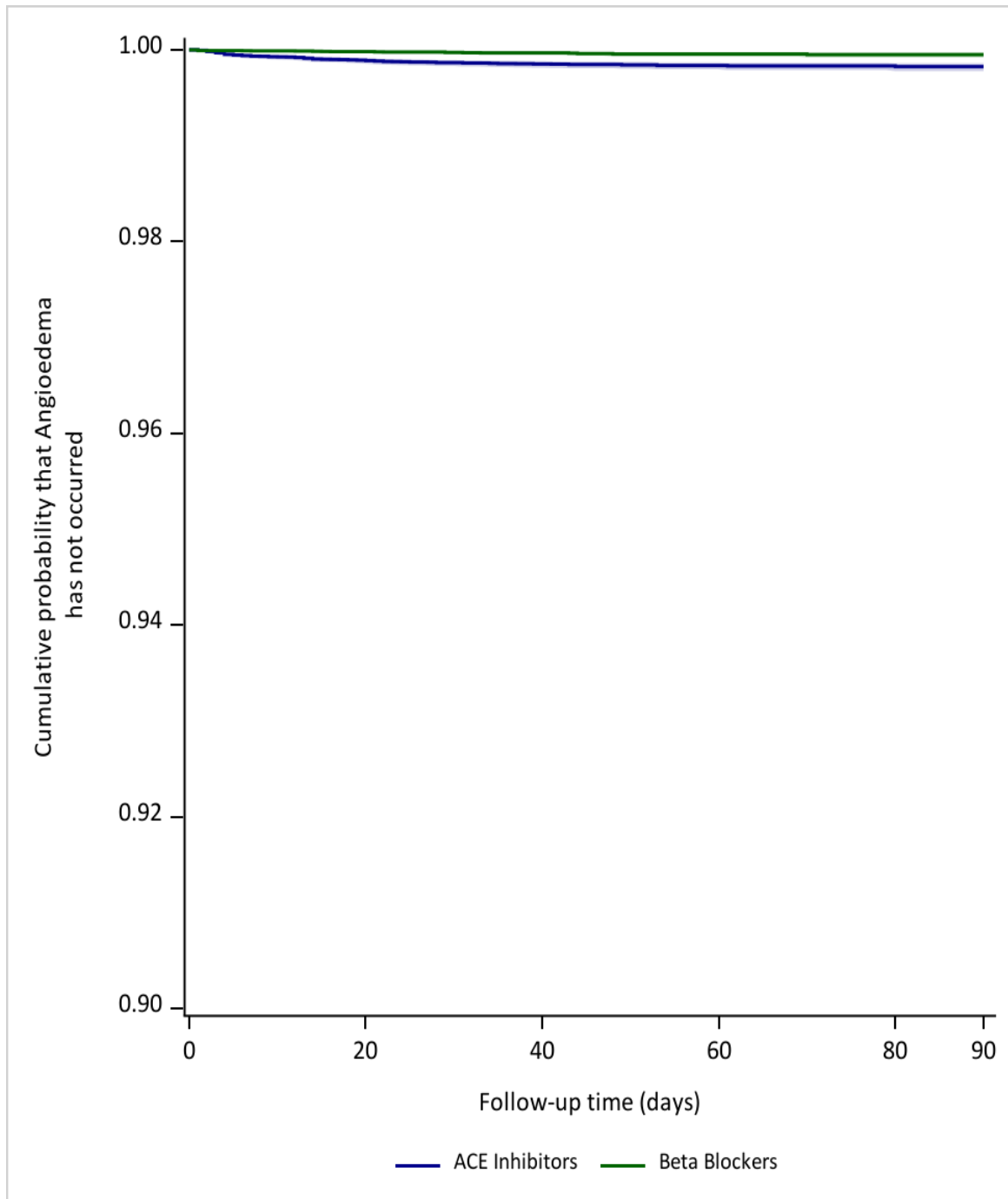
**Figure 11c. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



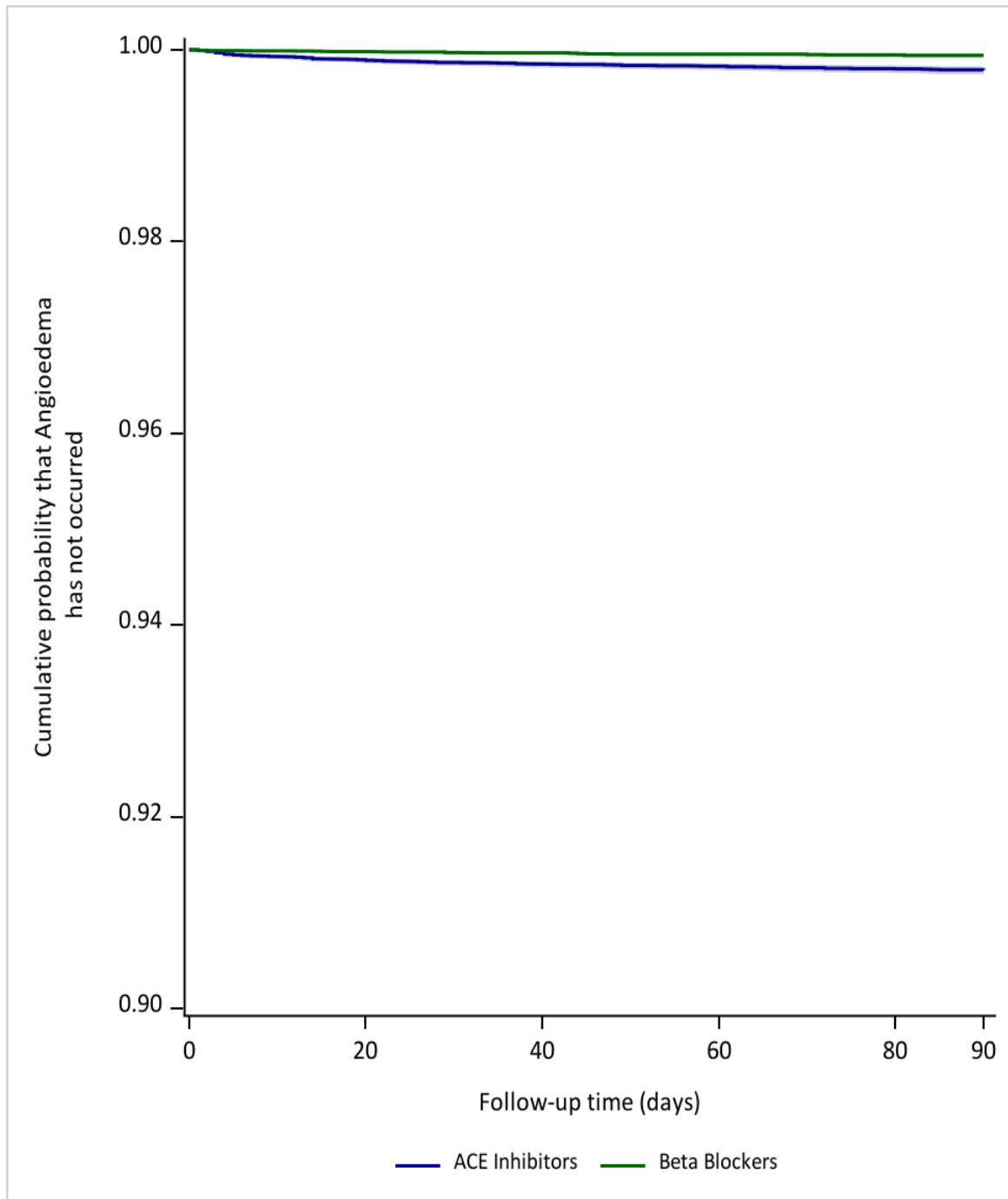
**Figure 11d. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



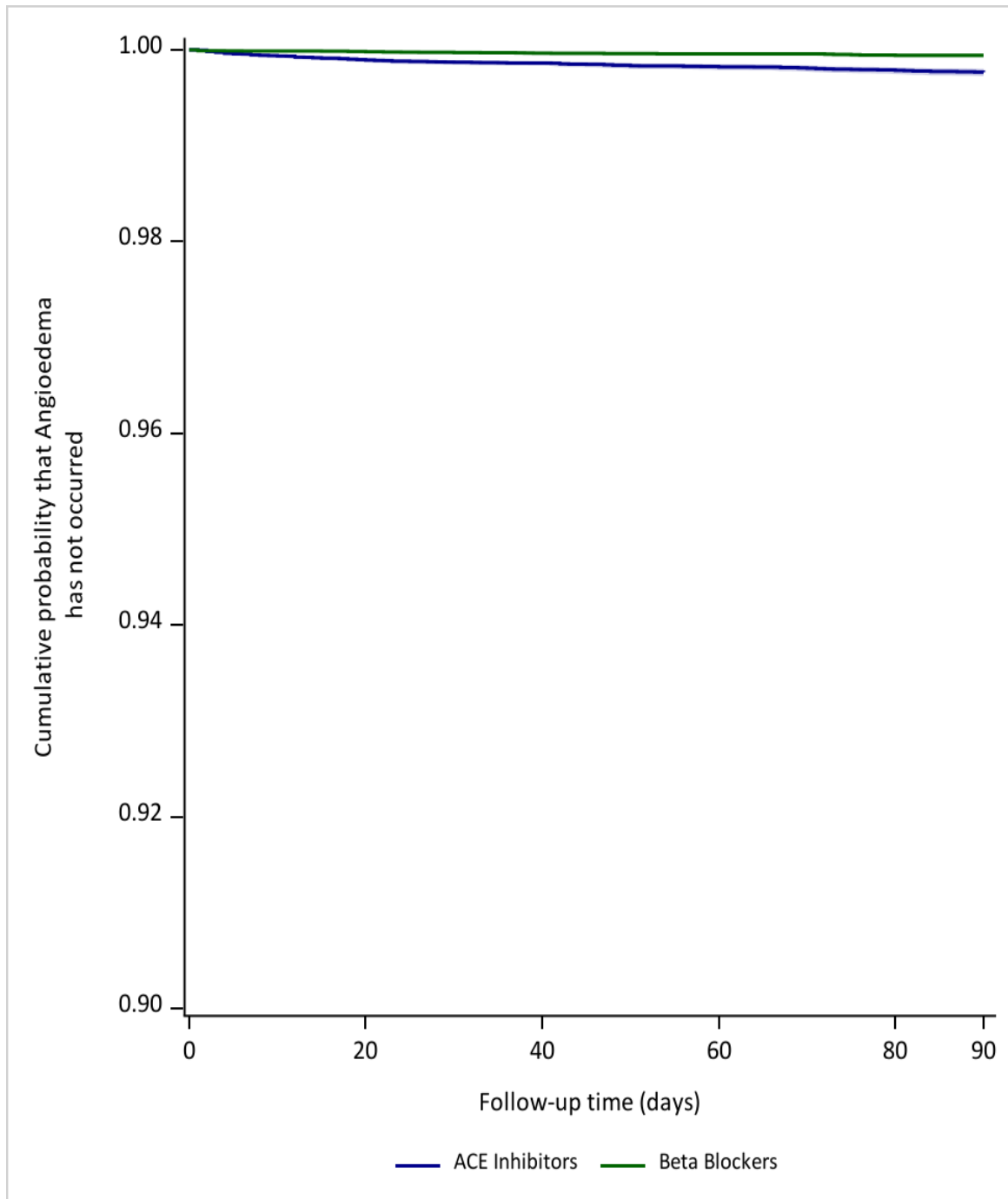
**Figure 11e. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



**Figure 11f. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

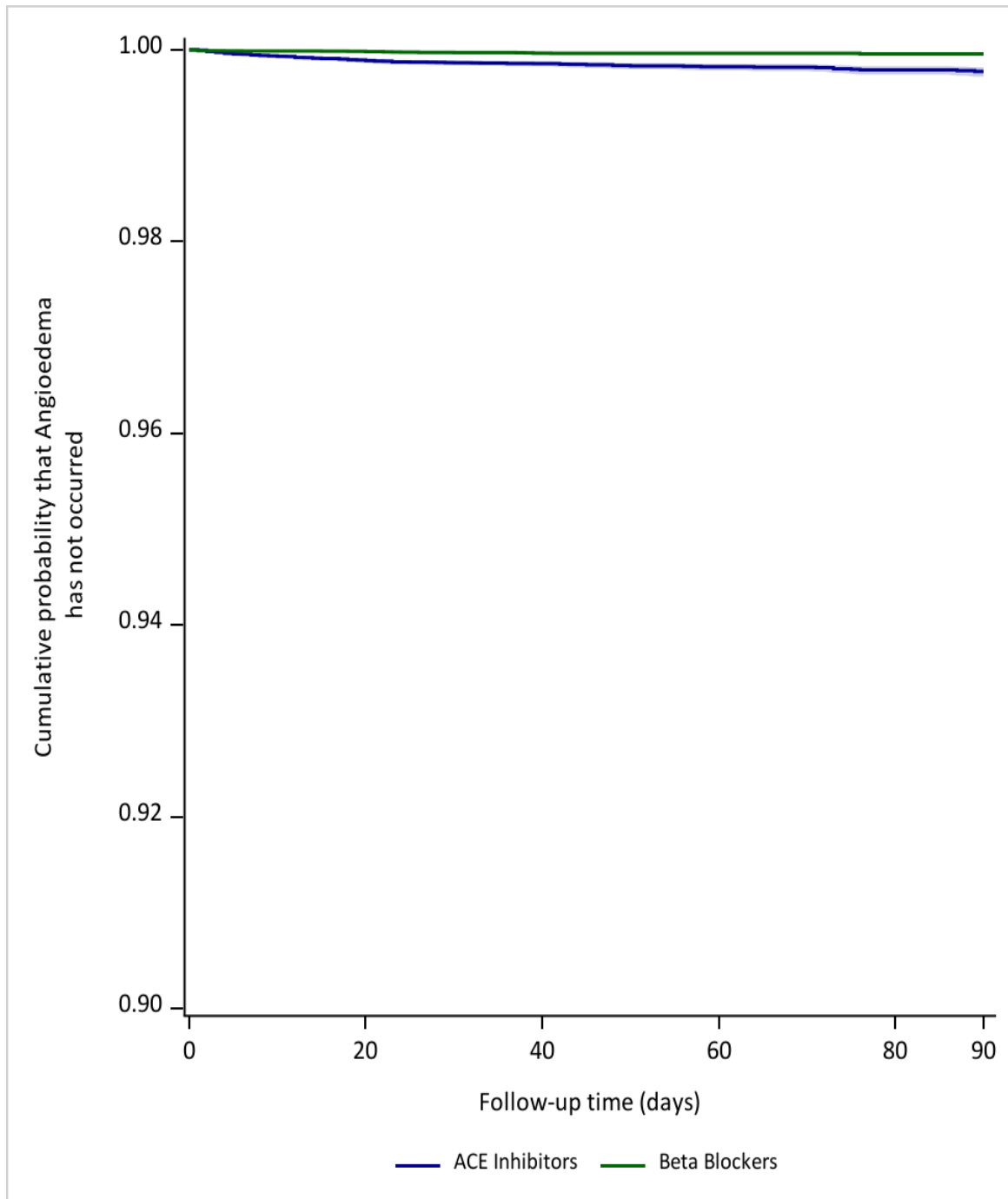


**Figure 11g. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

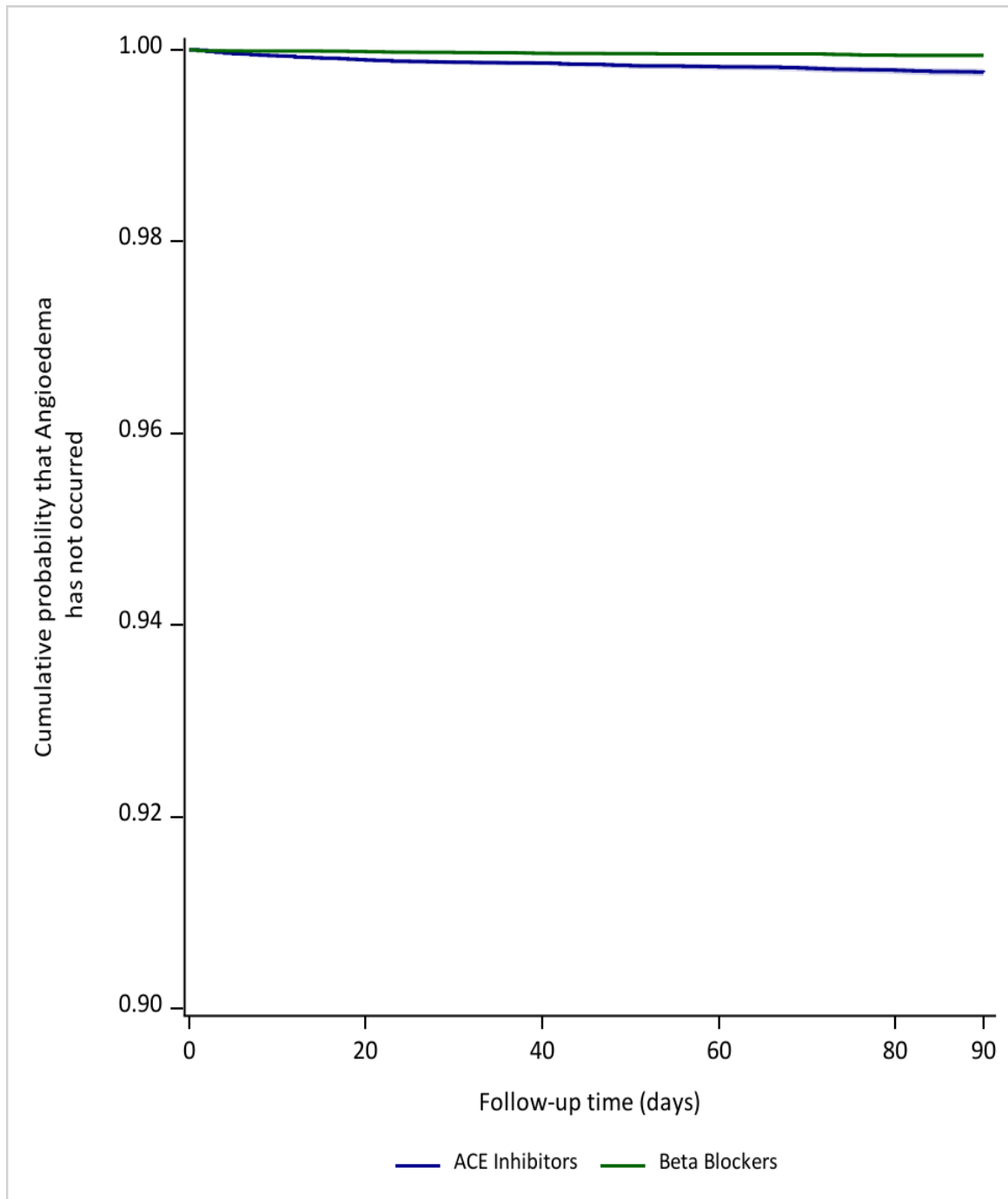




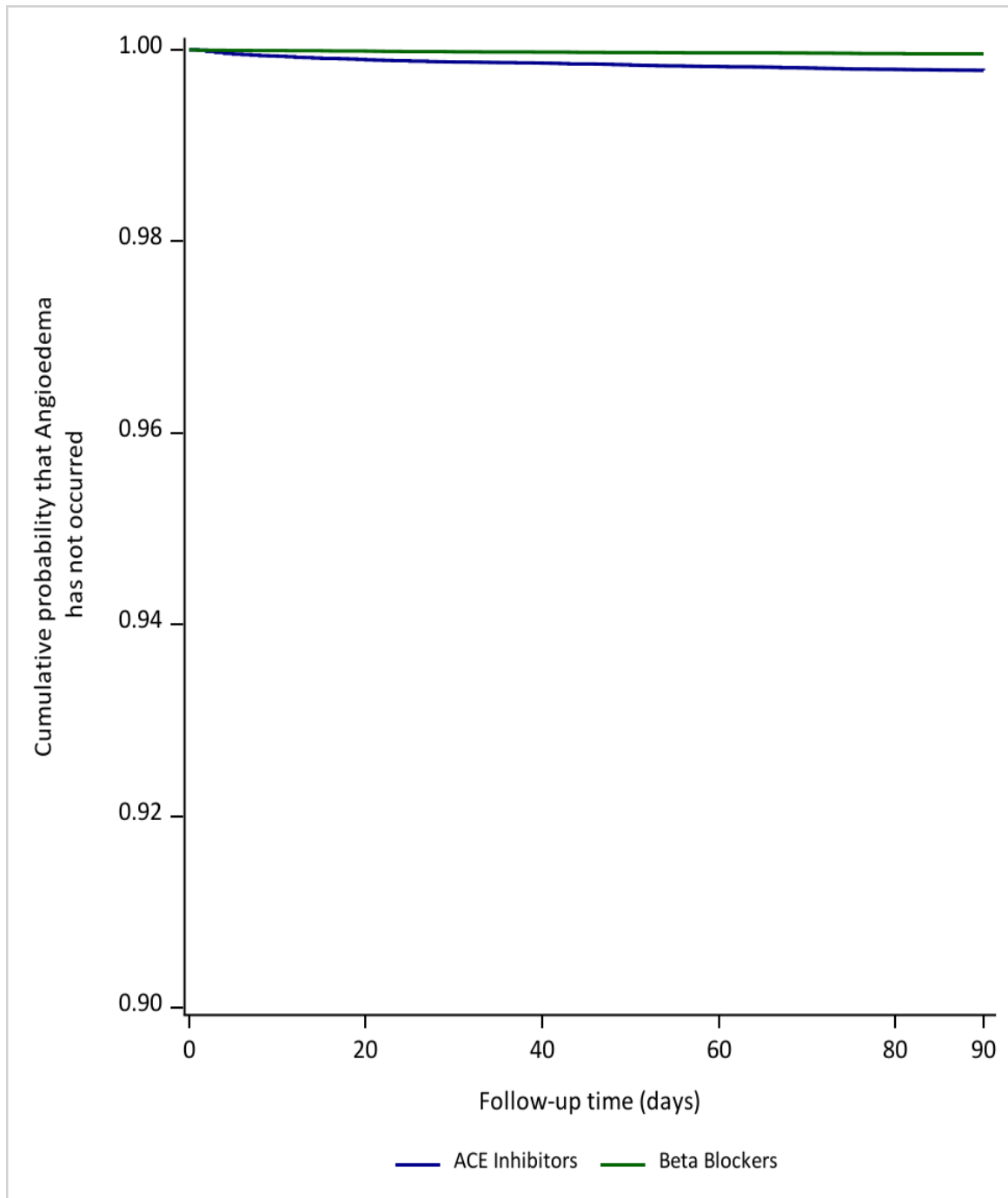
**Figure 11h. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



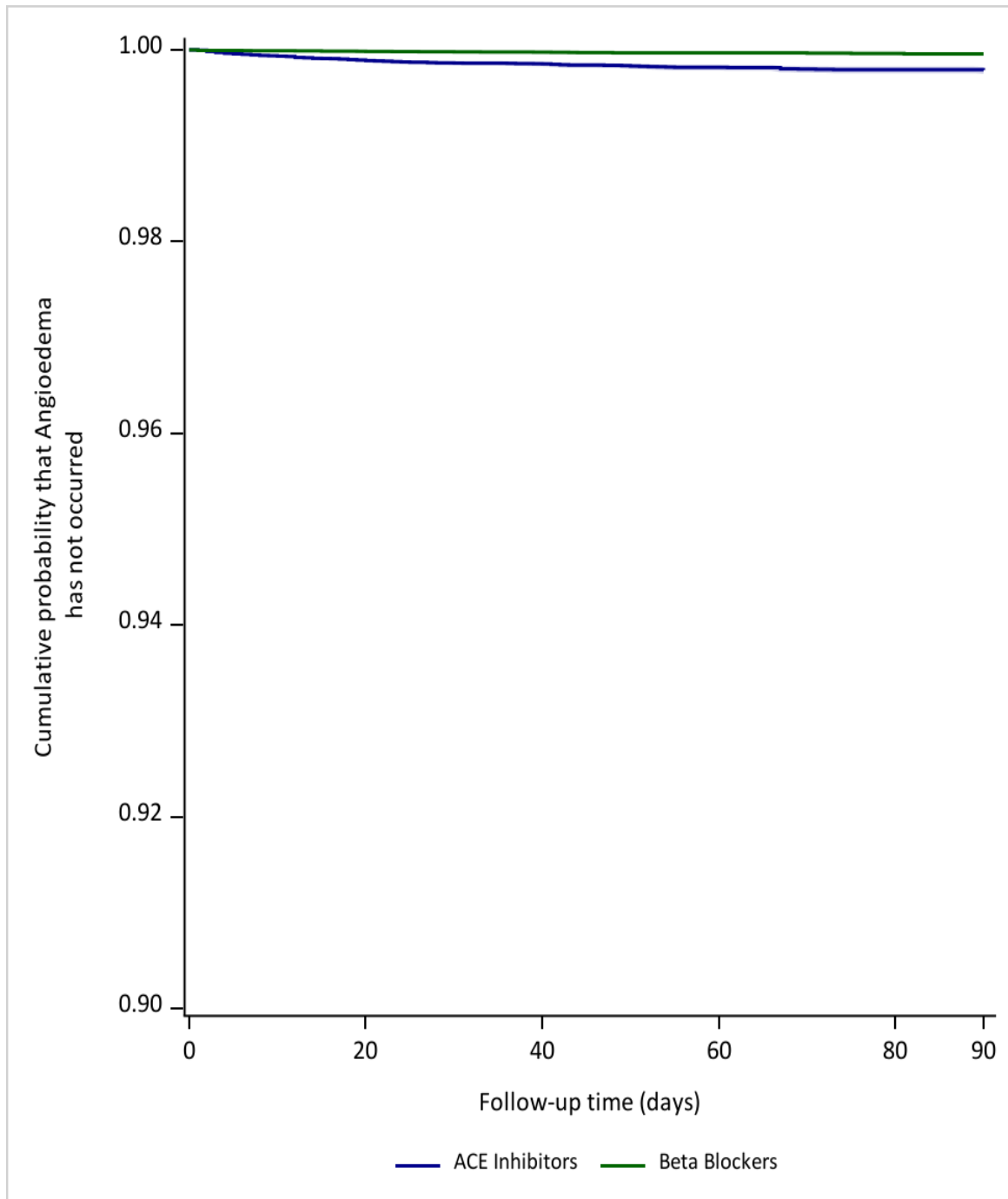
**Figure 11i. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



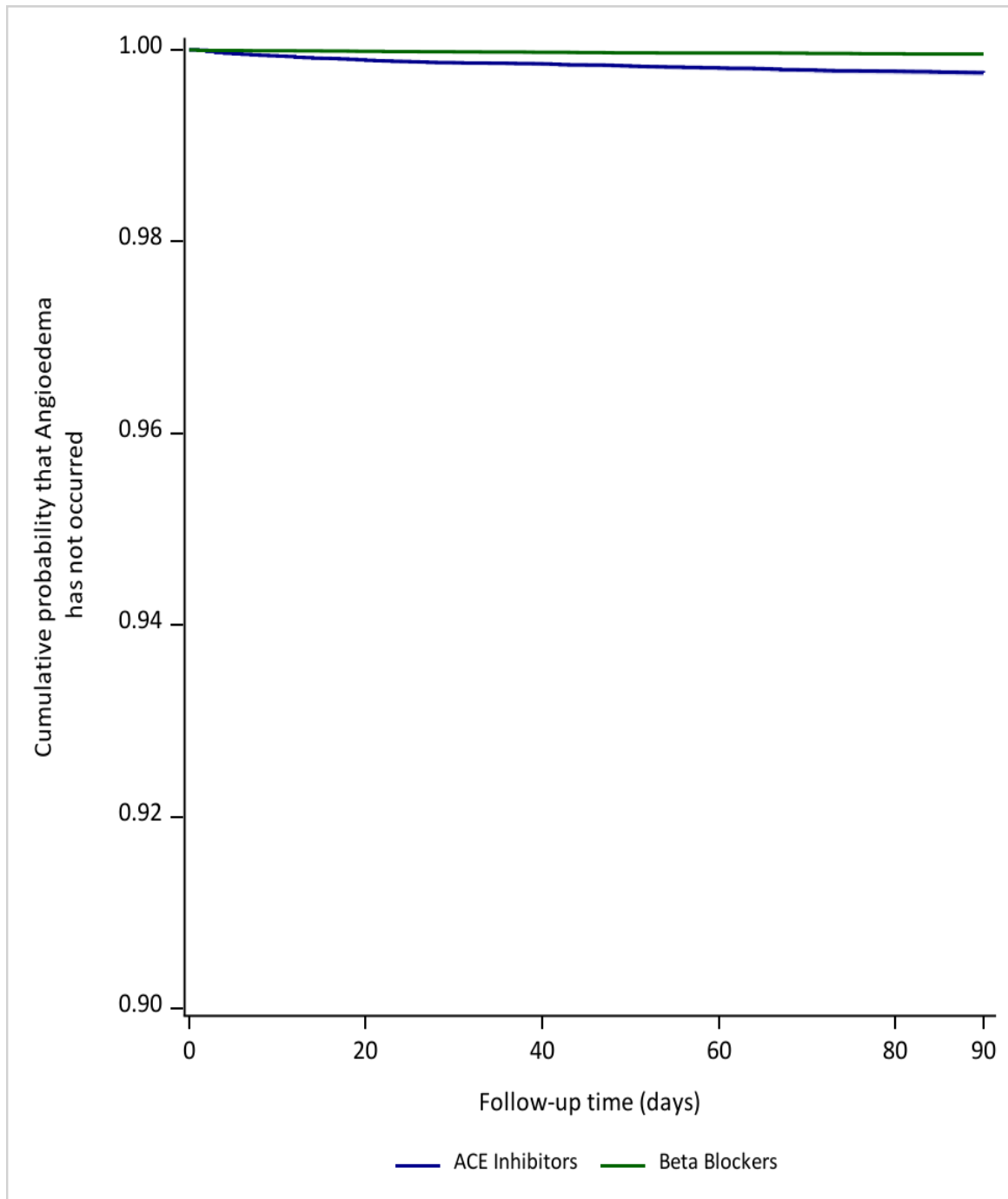
**Figure 12a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



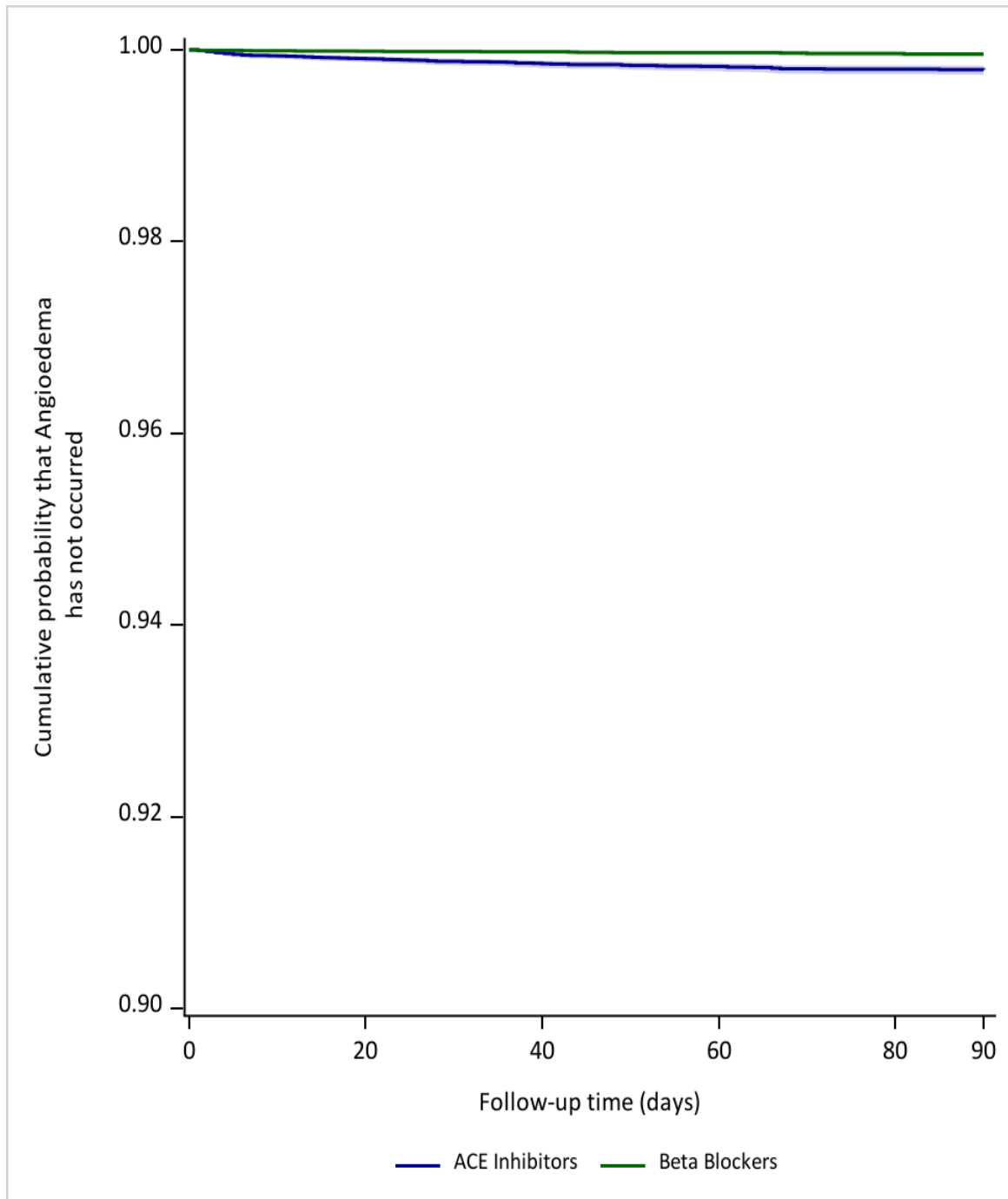
**Figure 12b. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



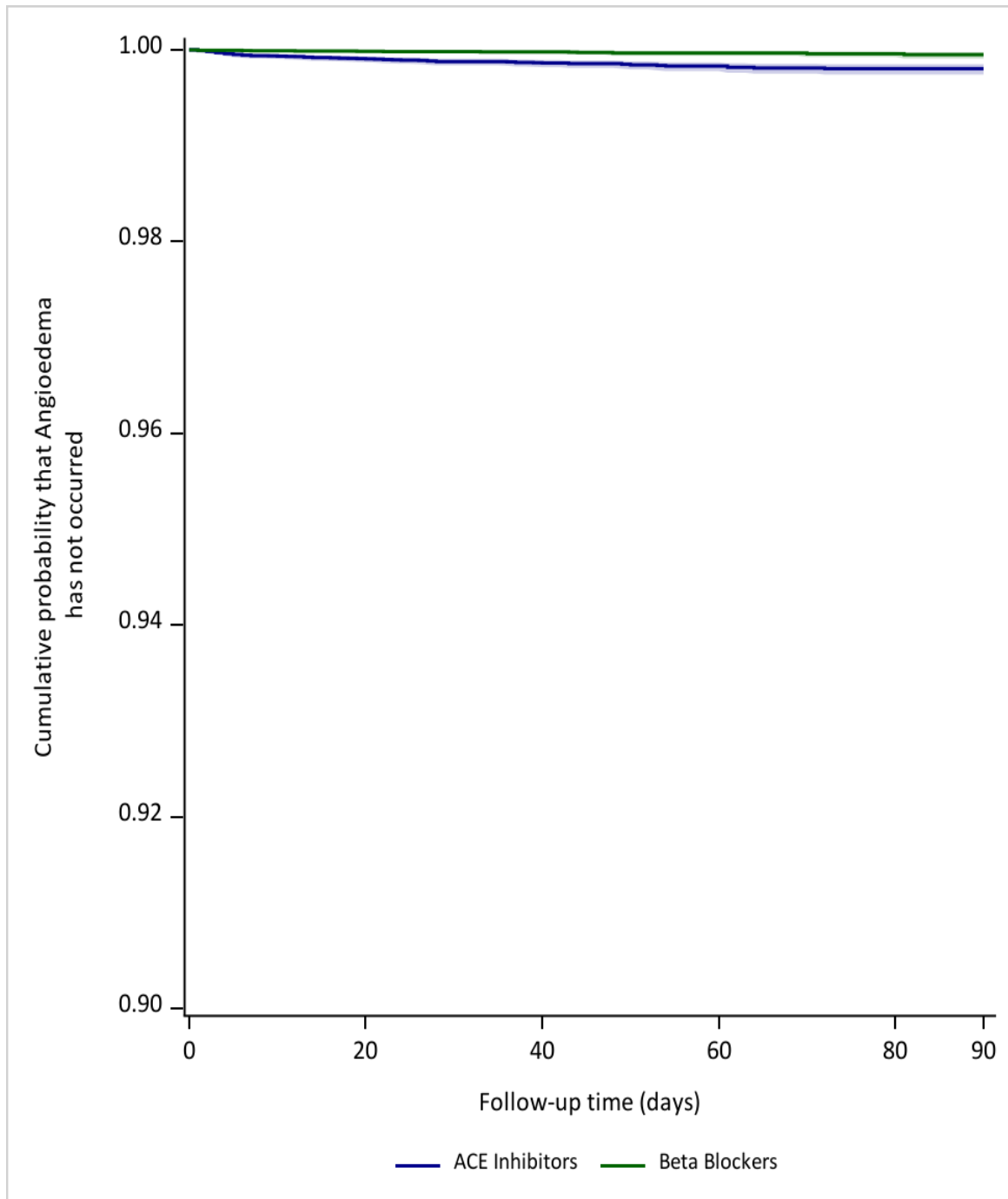
**Figure 12c. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



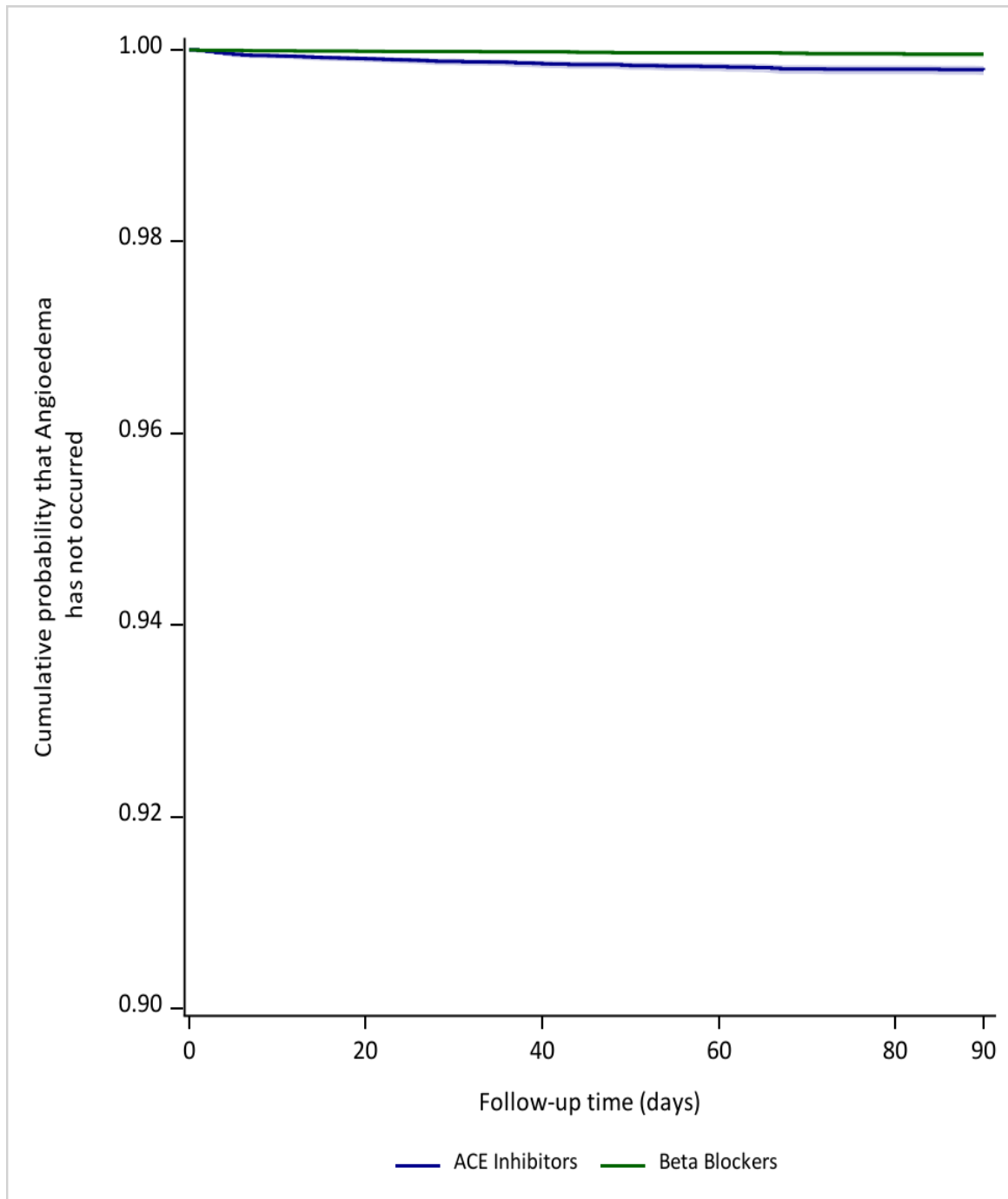
**Figure 12d. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



**Figure 12e. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

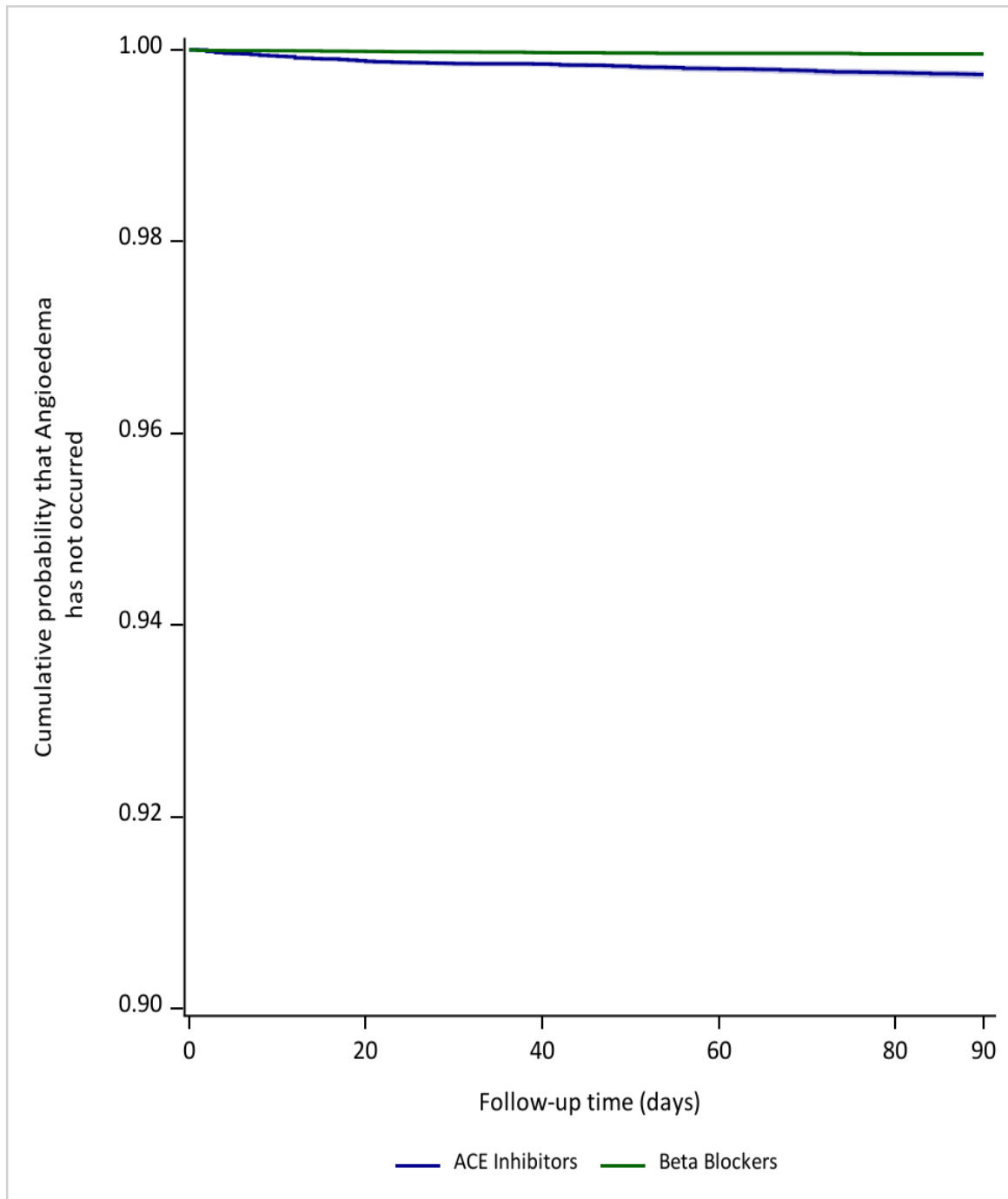


**Figure 12f. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

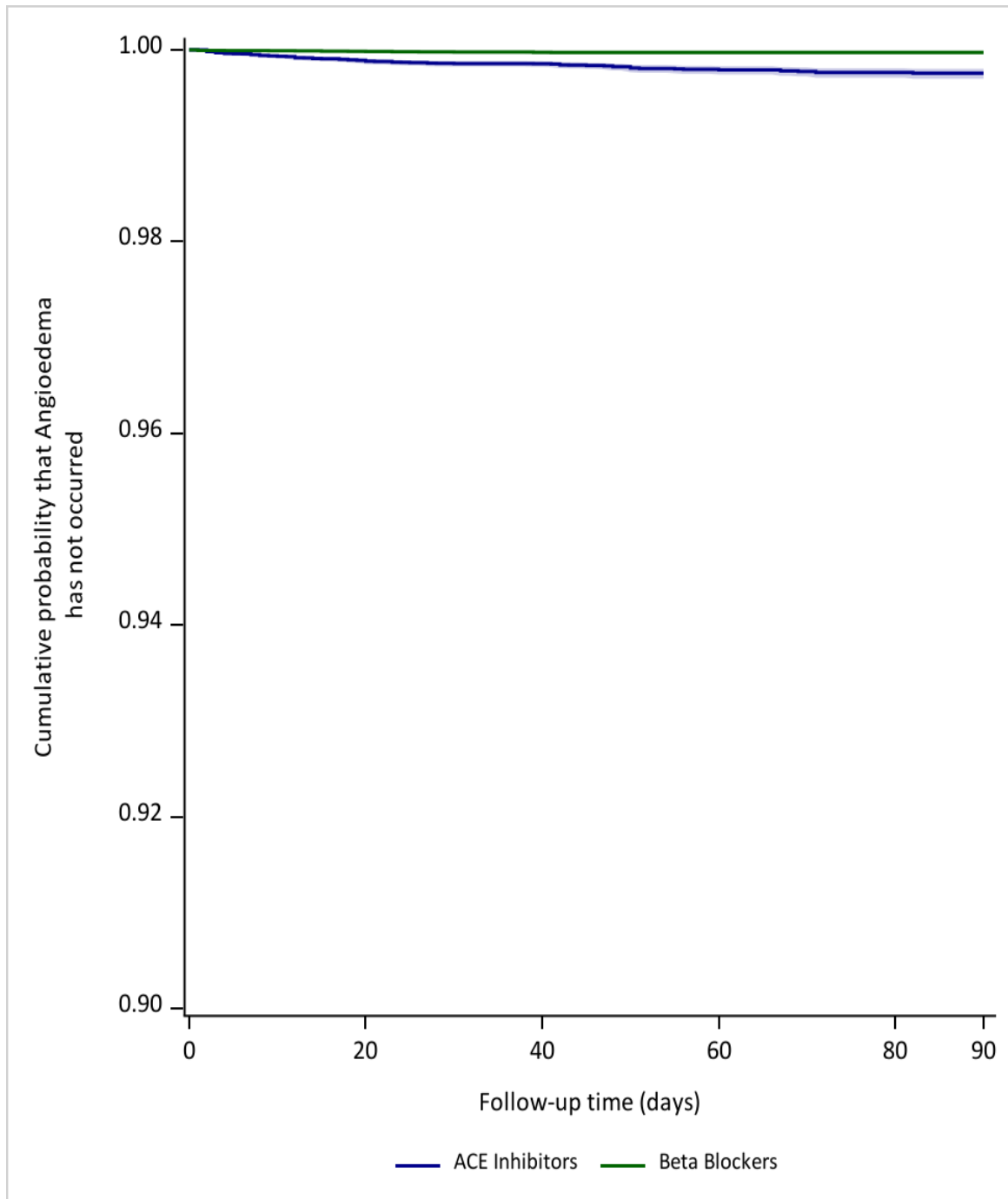




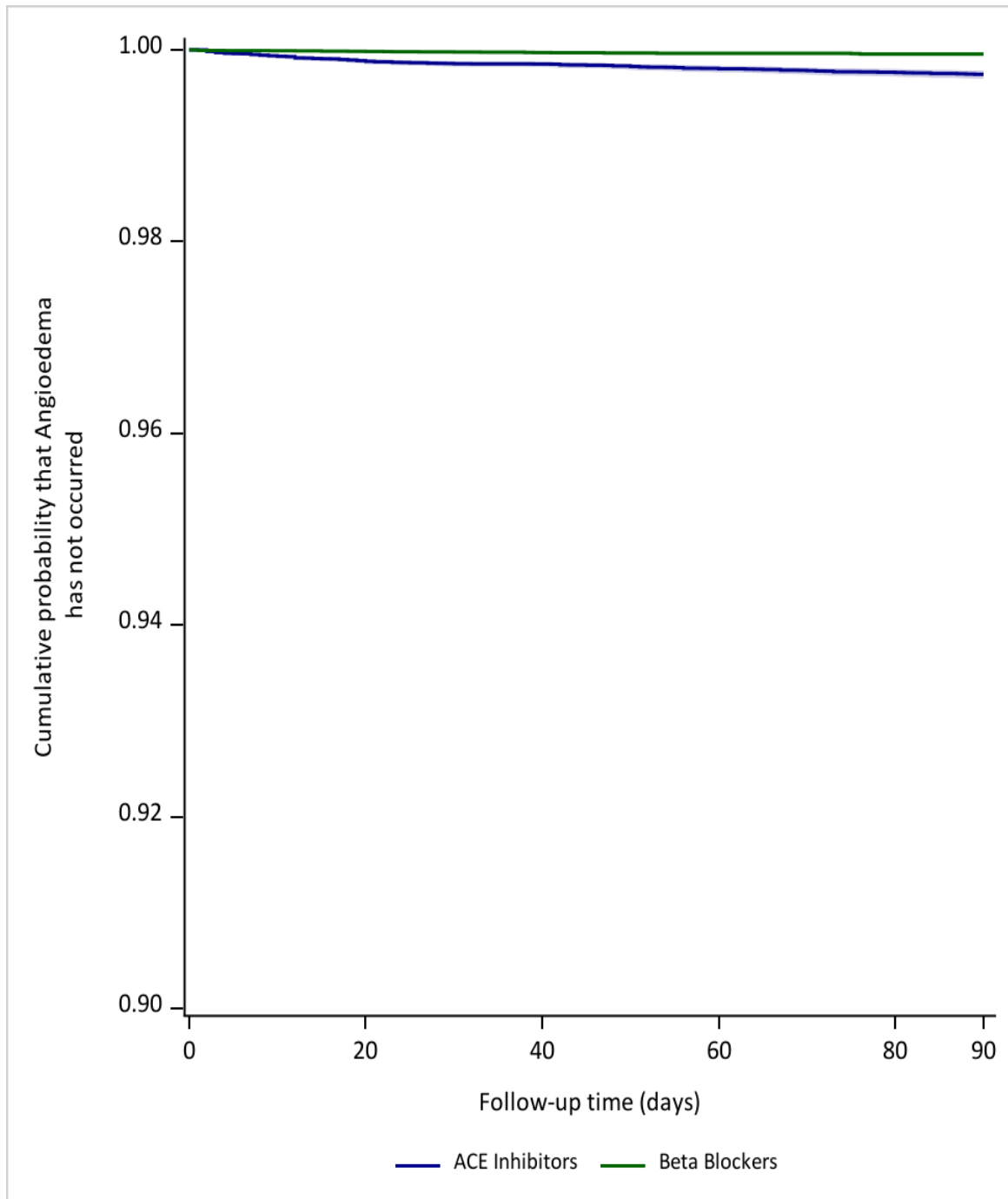
**Figure 12g. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



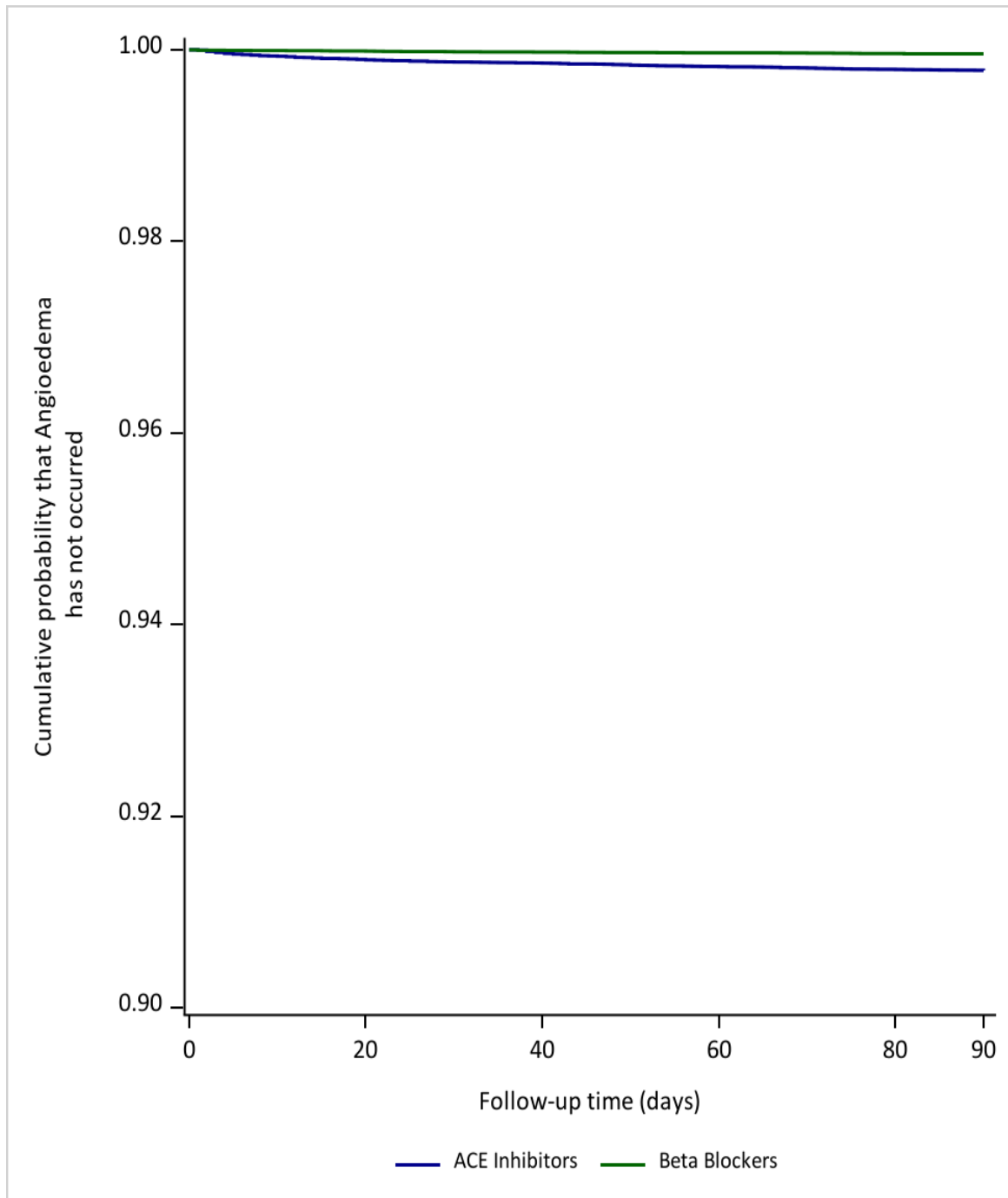
**Figure 12h. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



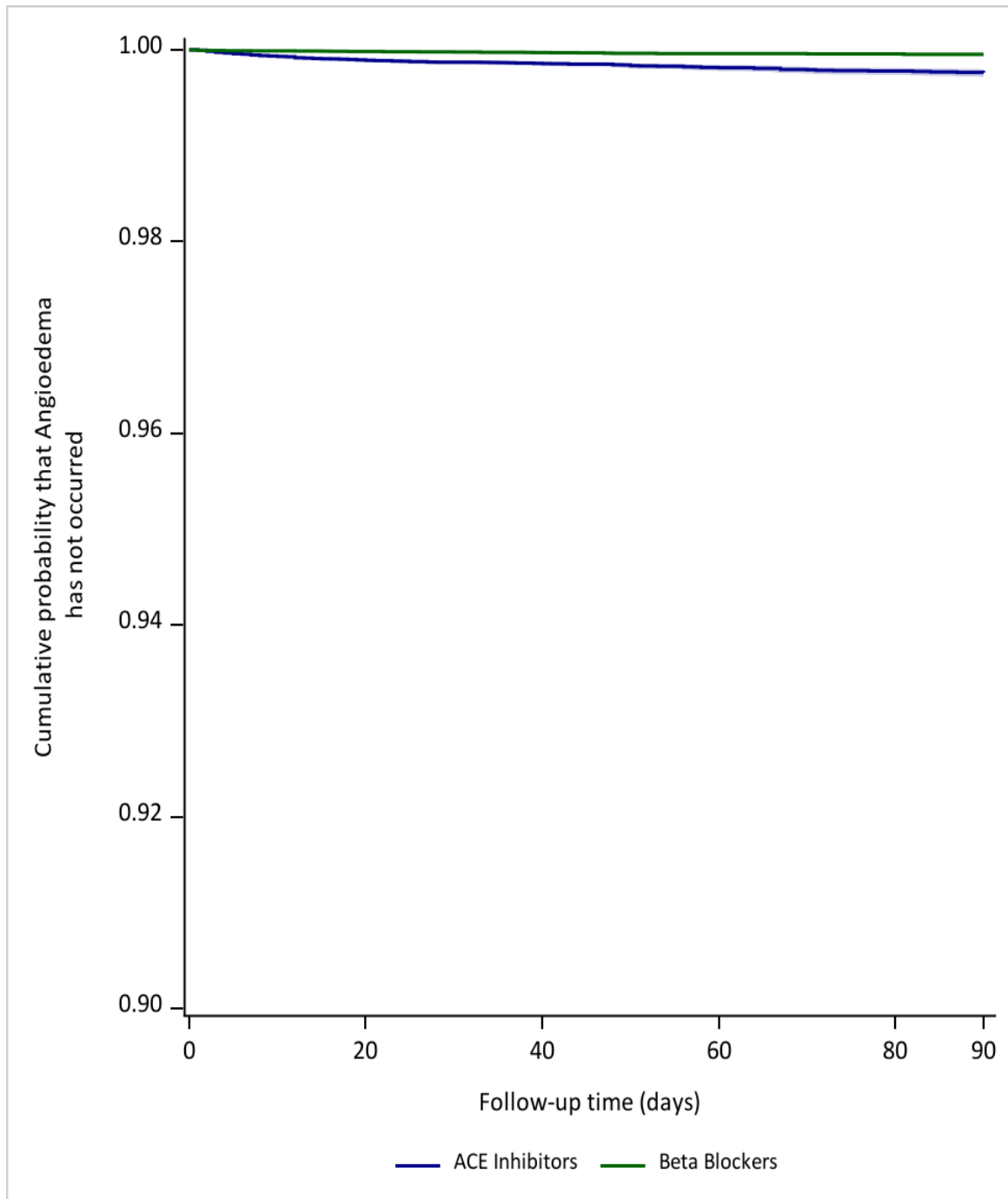
**Figure 12i. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



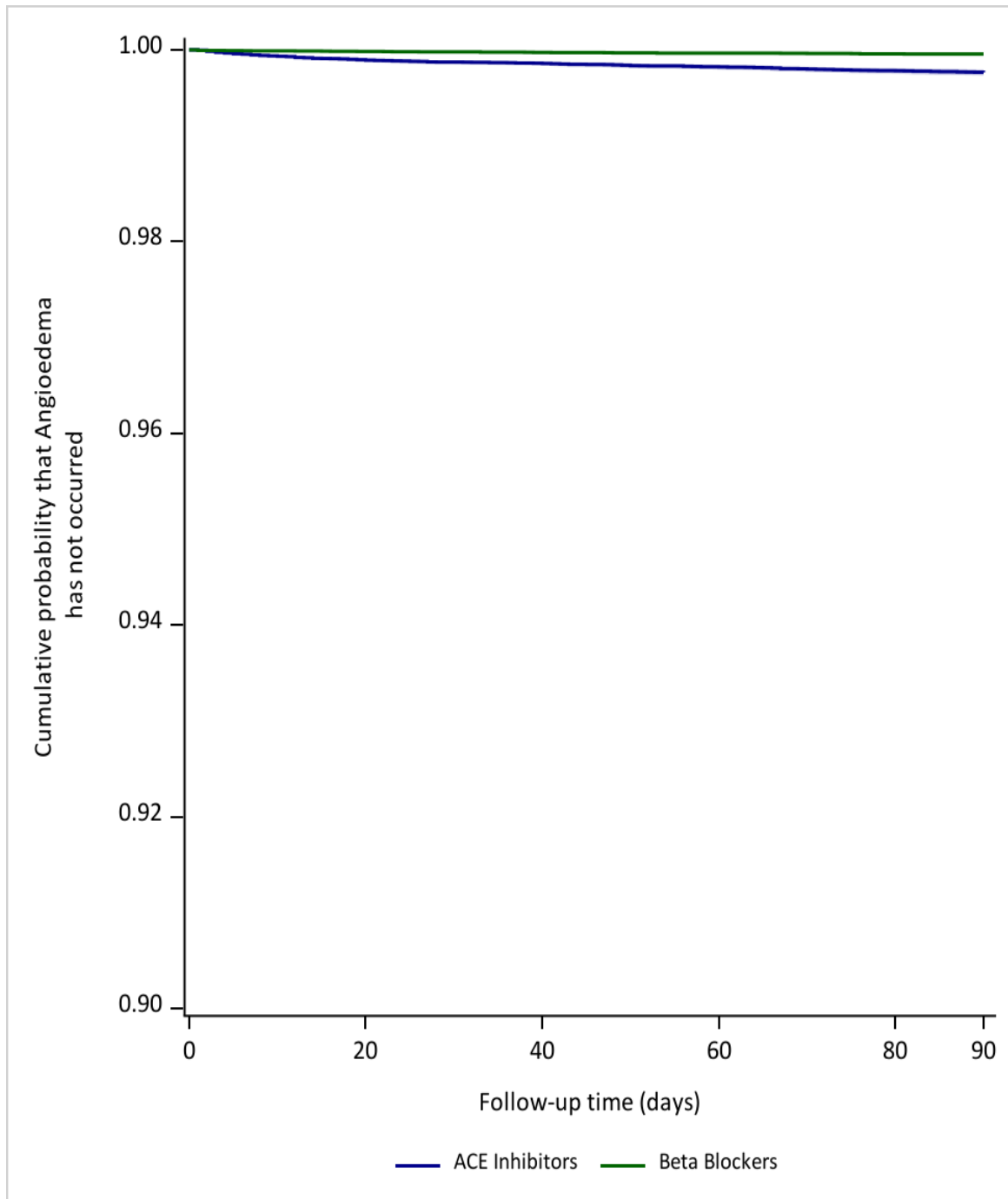
**Figure 13a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



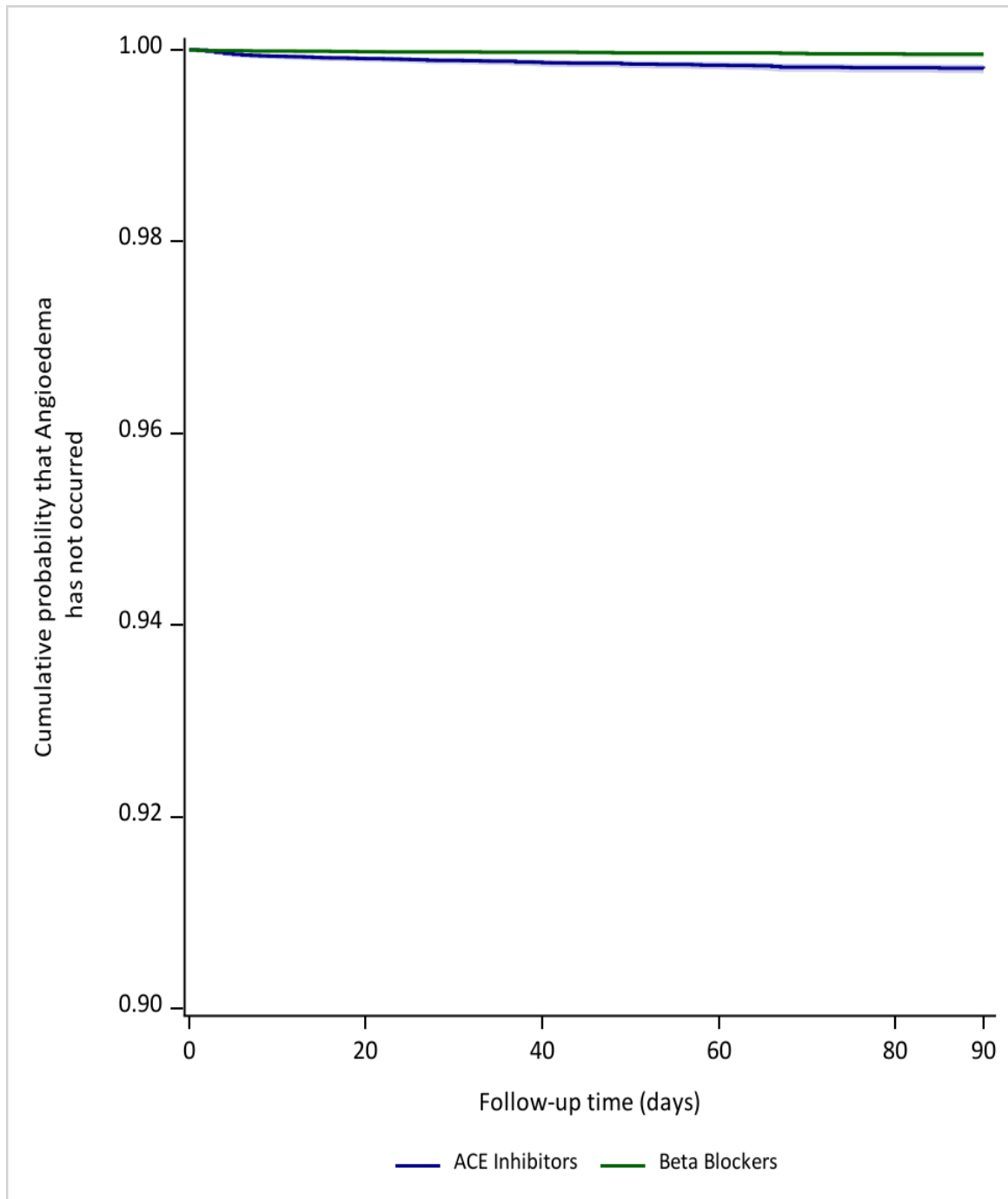
**Figure 13b. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



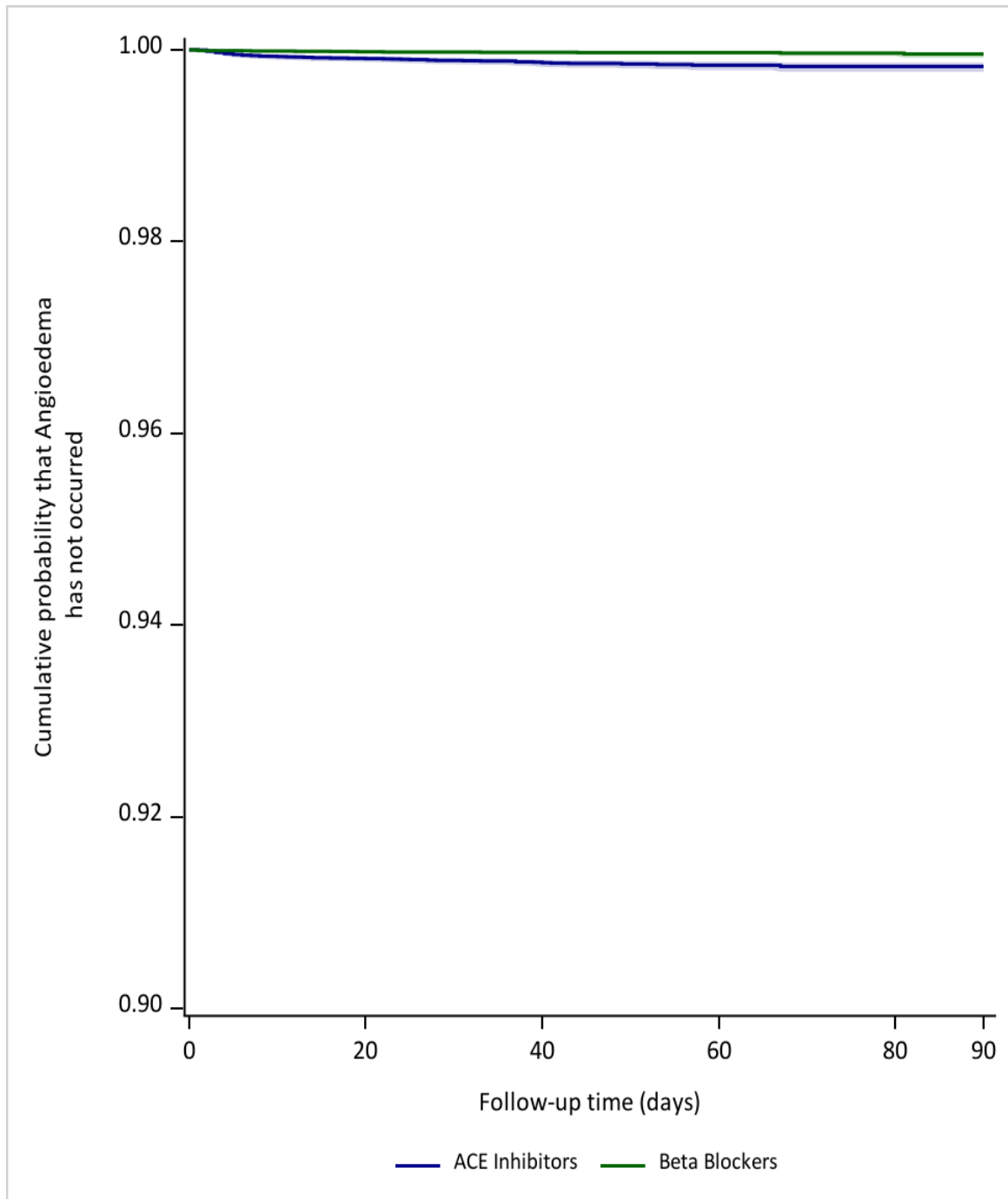
**Figure 13c. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Figure 13d. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

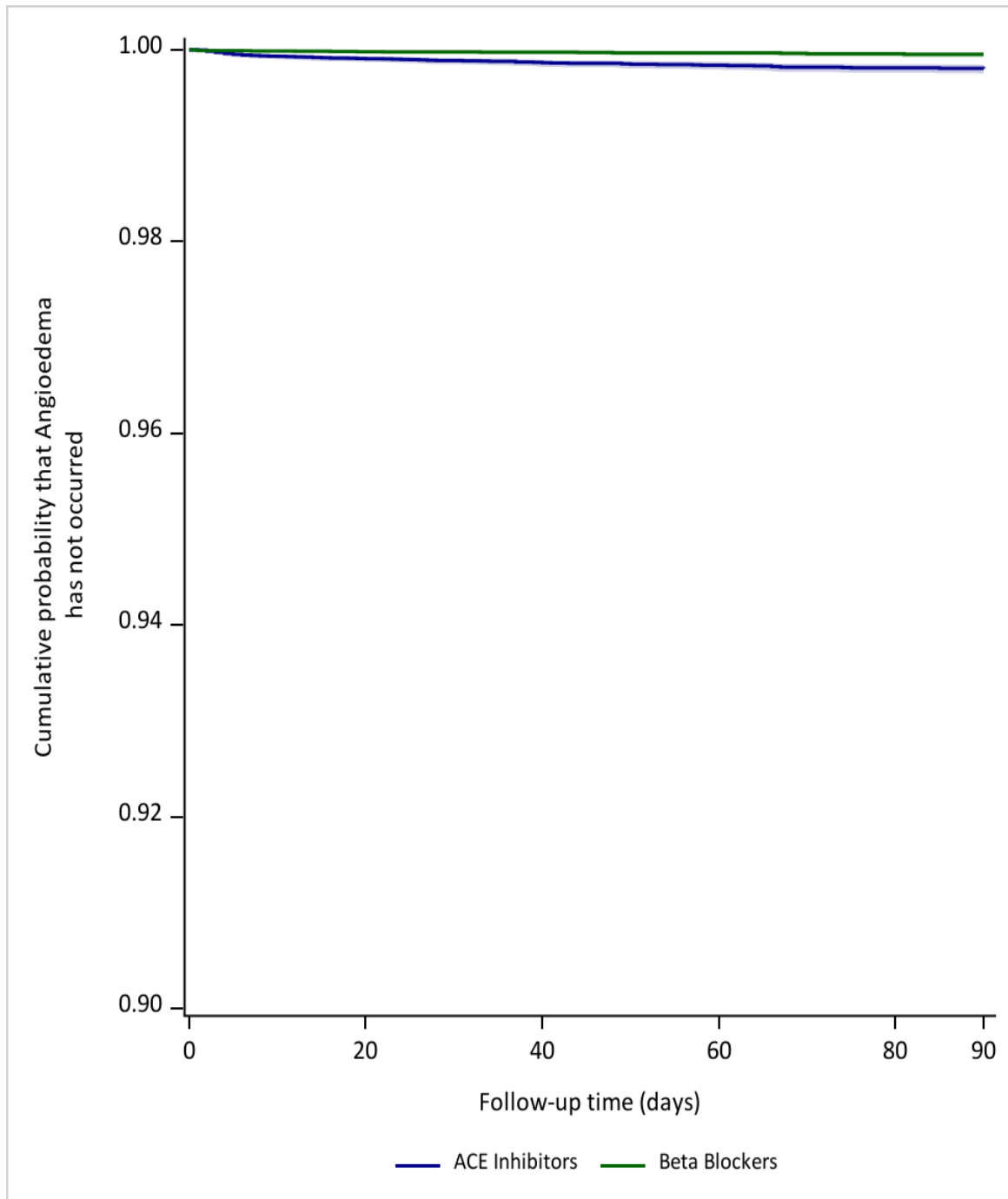


**Figure 13e. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**

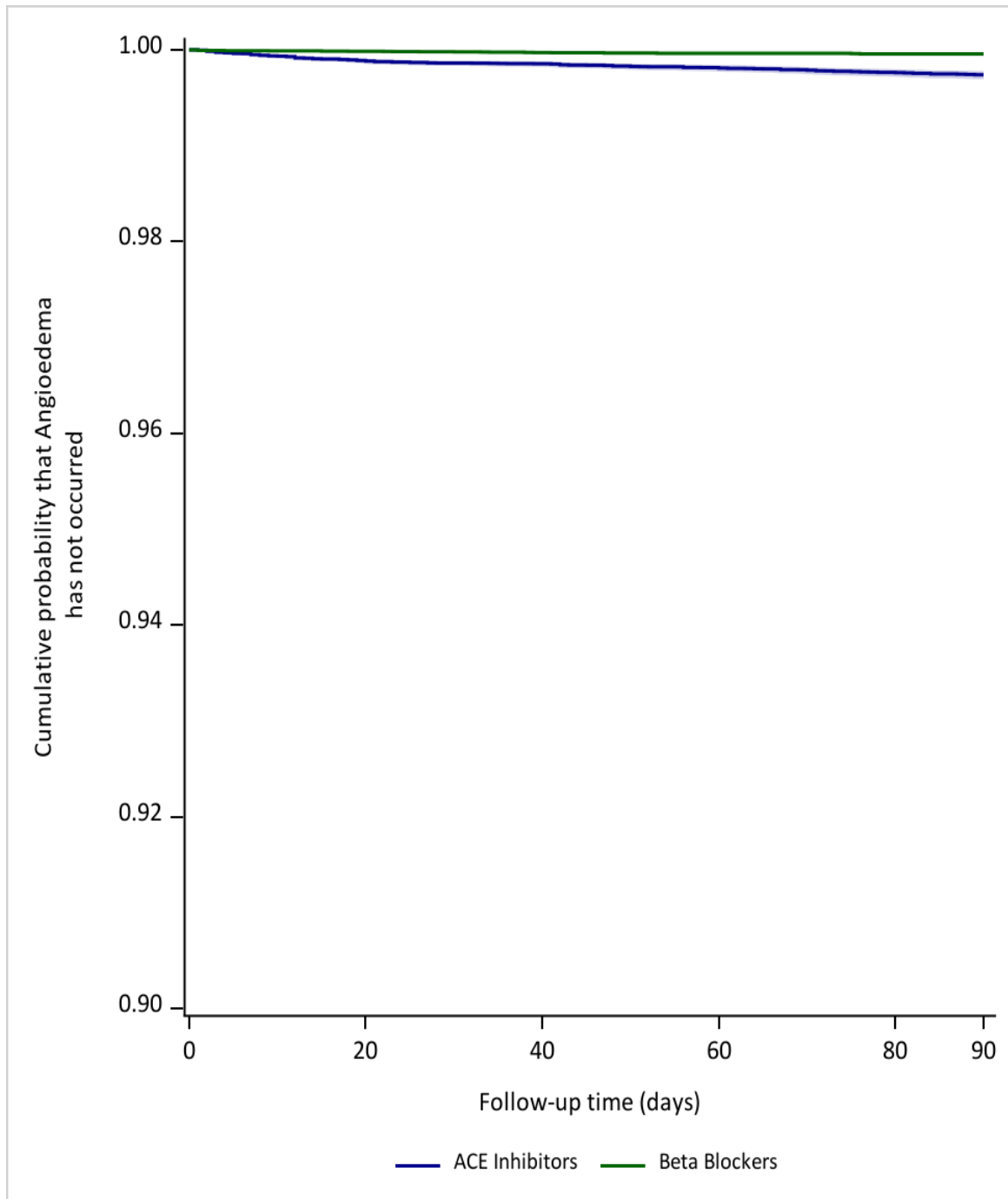




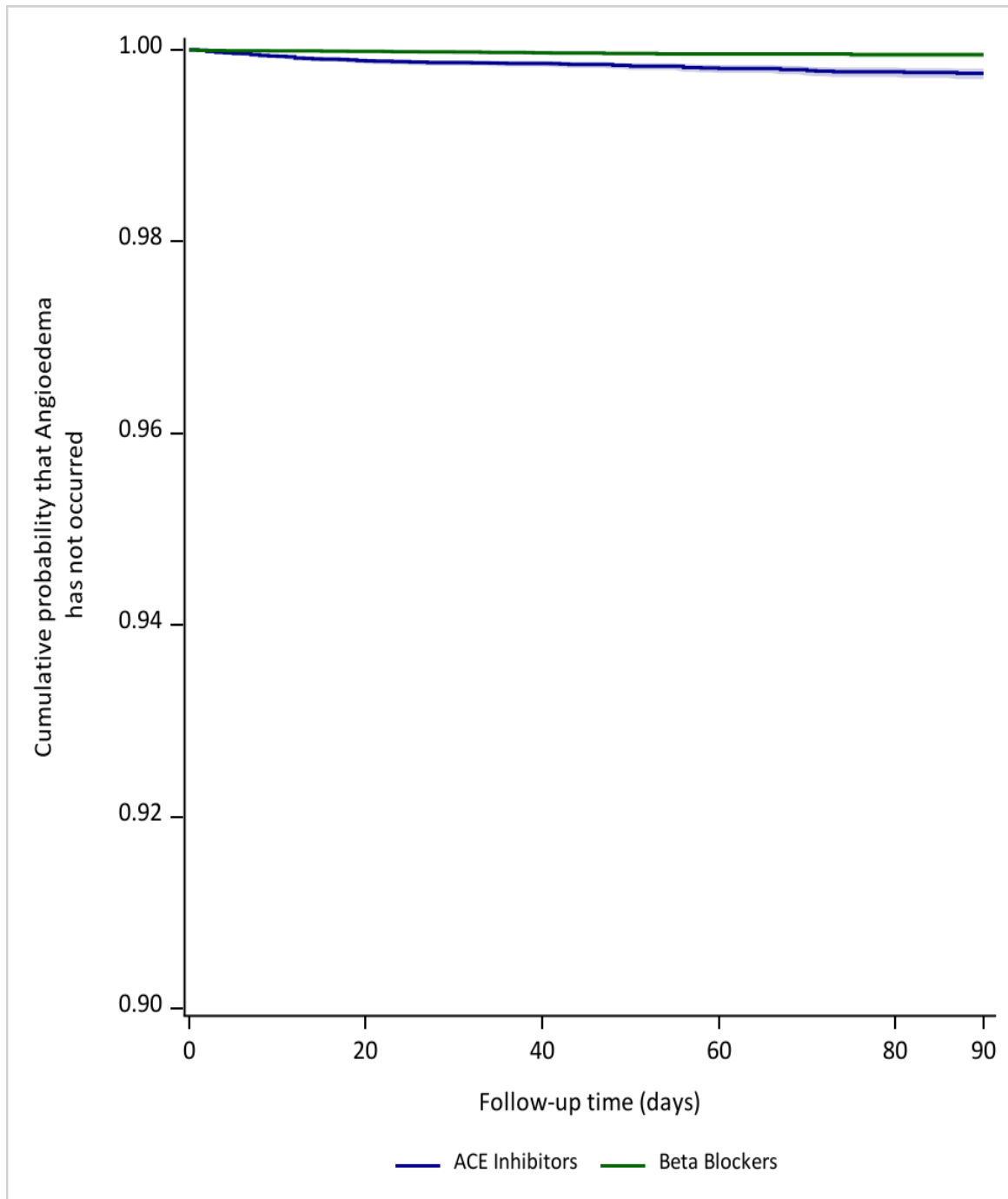
**Figure 13f. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



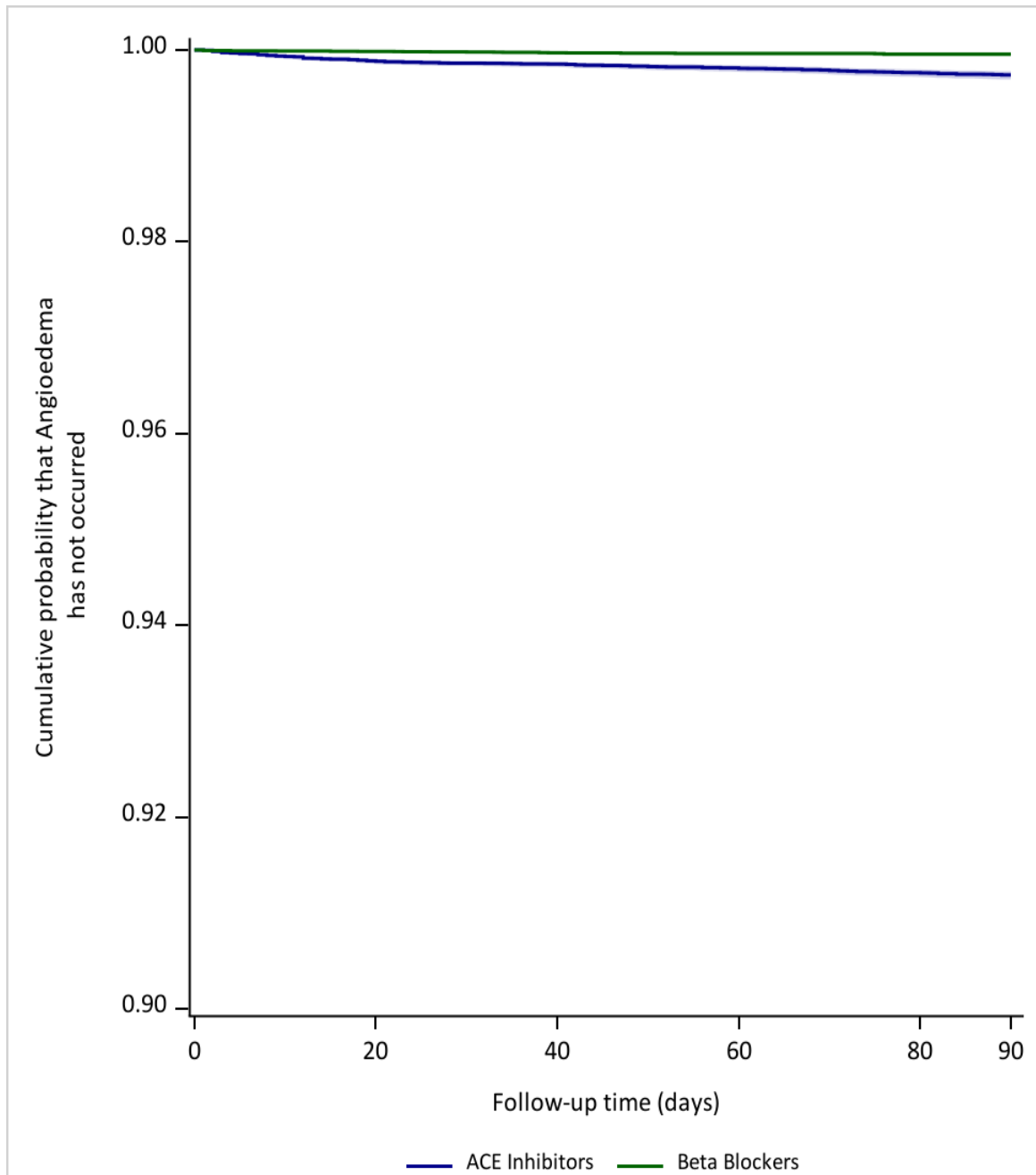
**Figure 13g. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



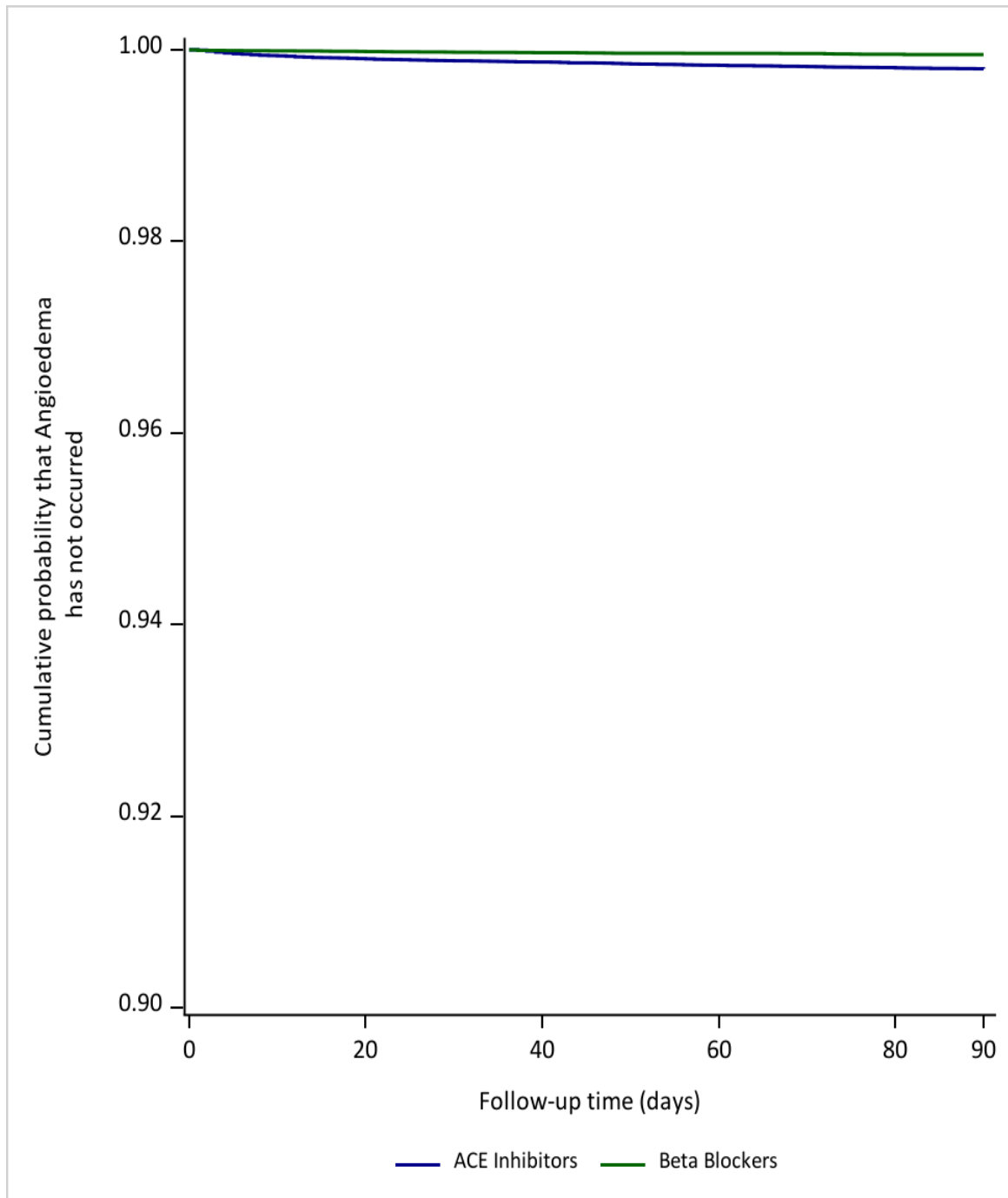
**Figure 13h. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Conditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



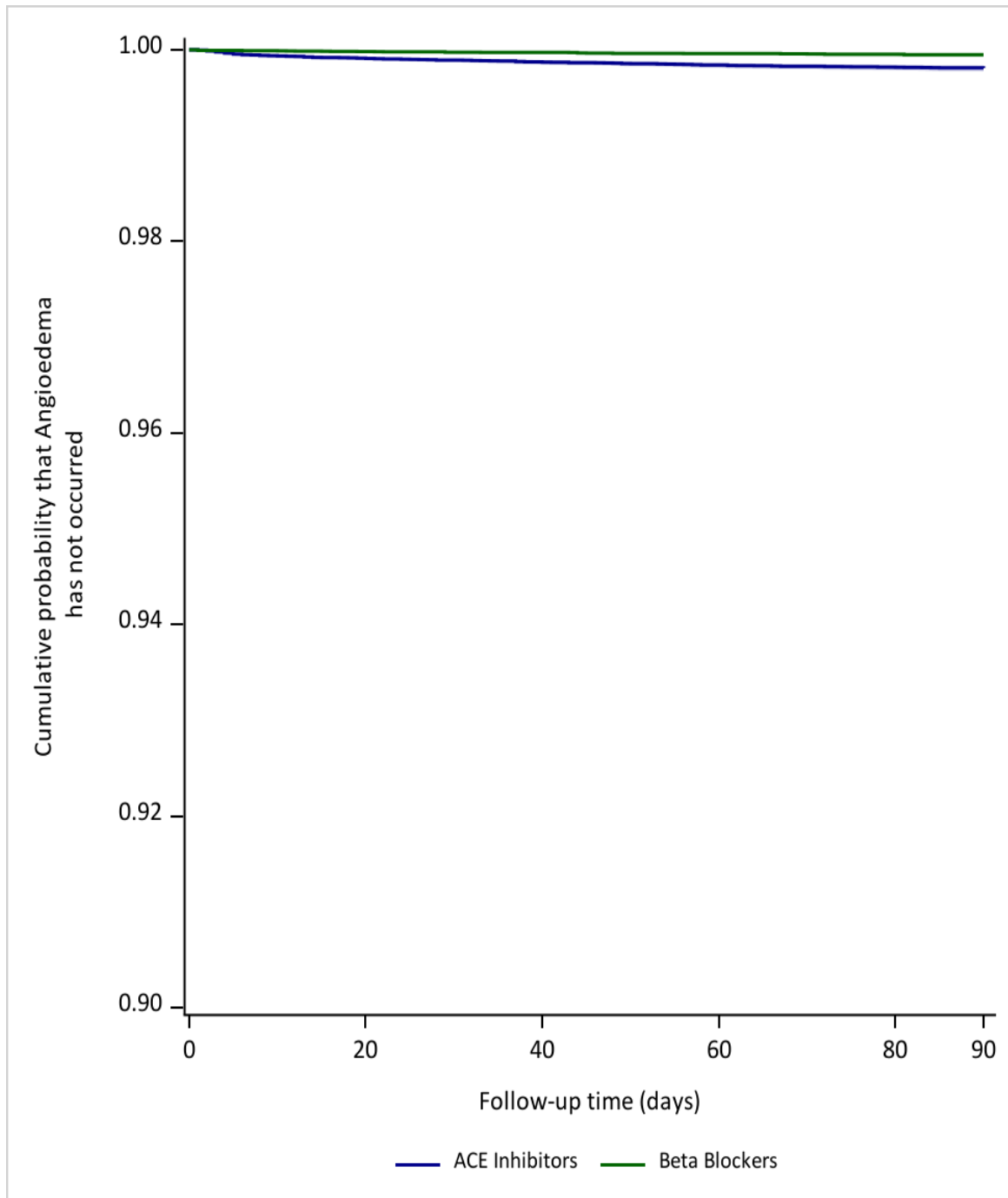
**Figure 13i. Adjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) from the Unconditional Matched Population after New Users of ACE Inhibitors vs Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSM) in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



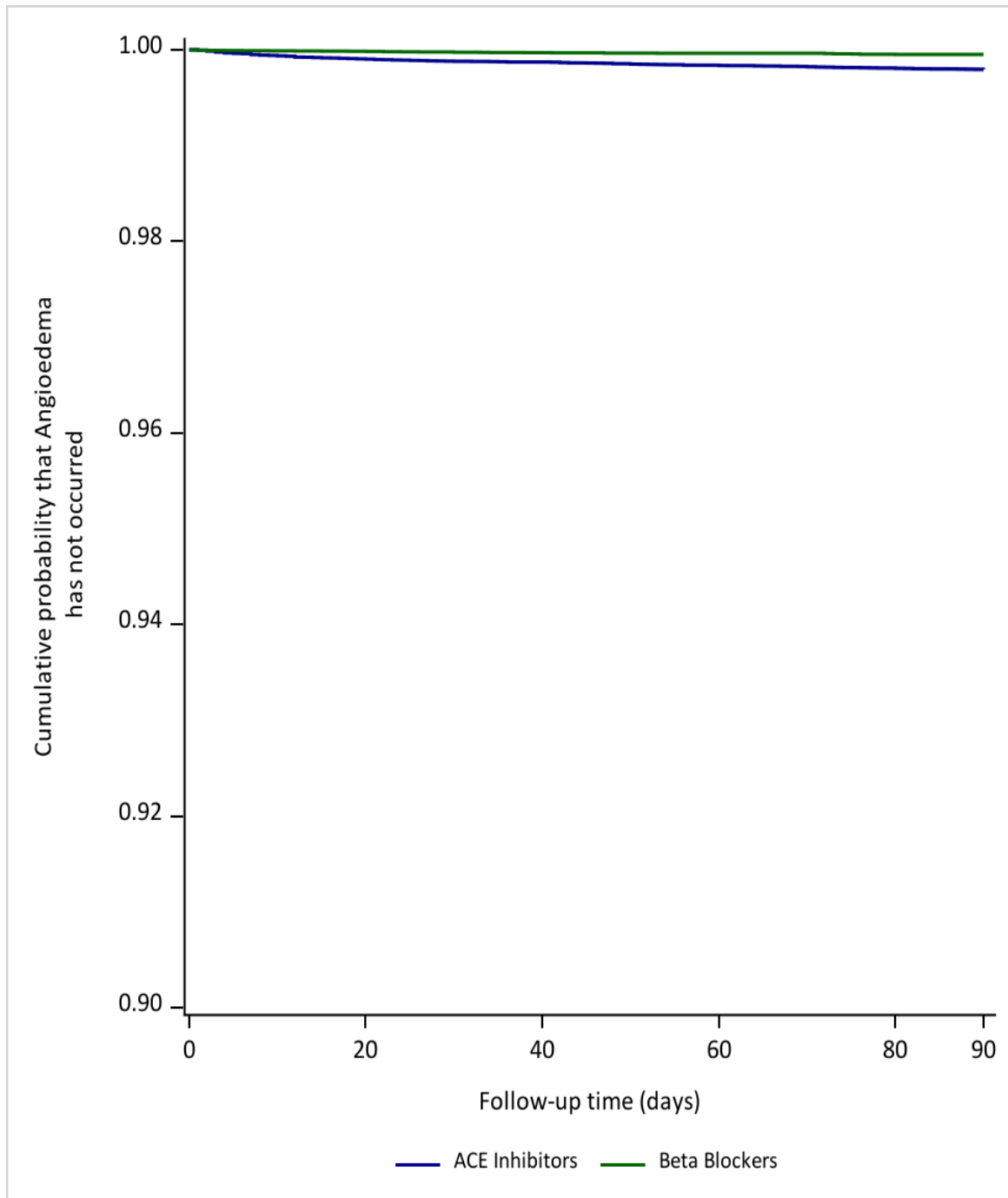
**Figure 14a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



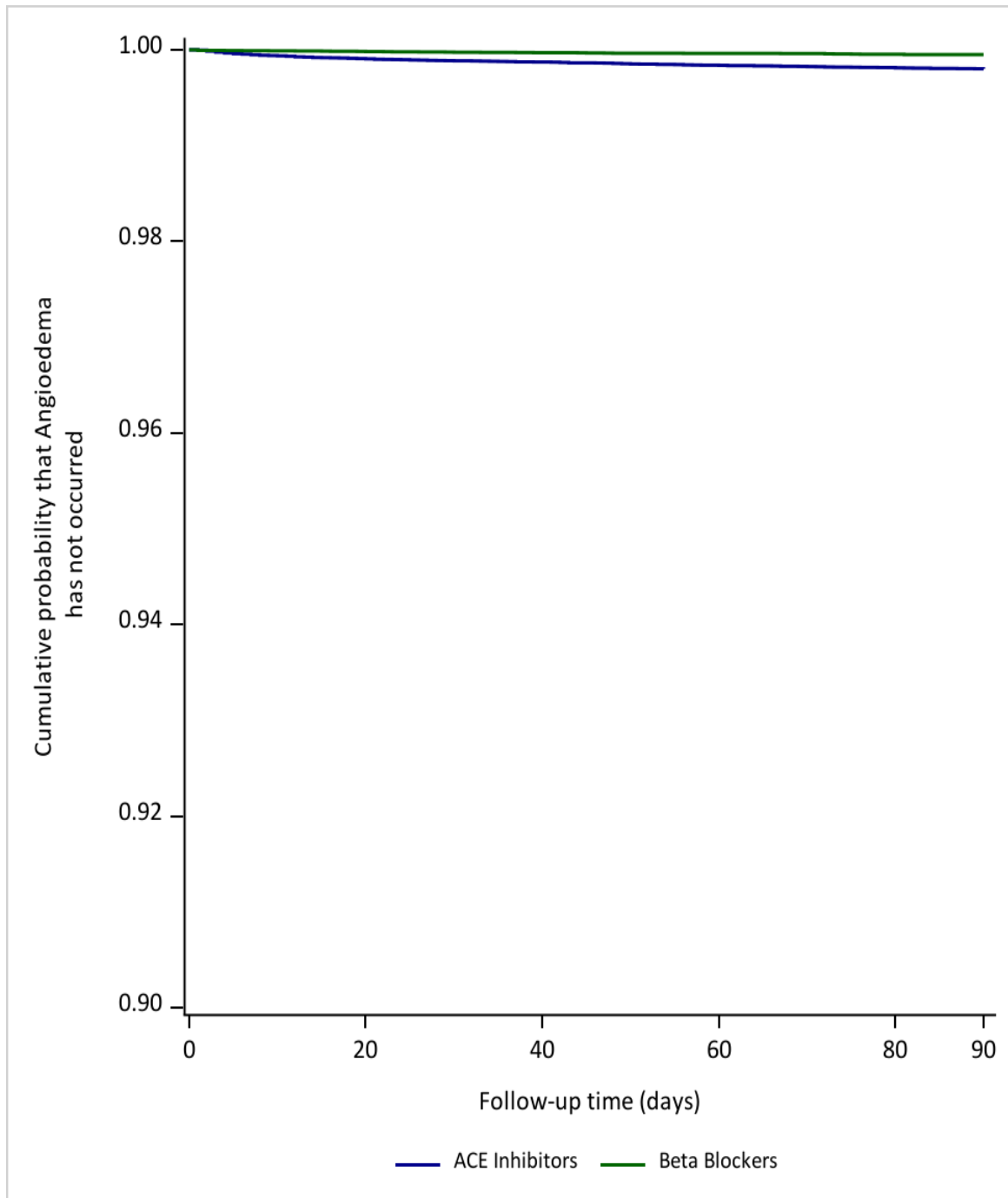
**Figure 14b. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



**Figure 14c. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**

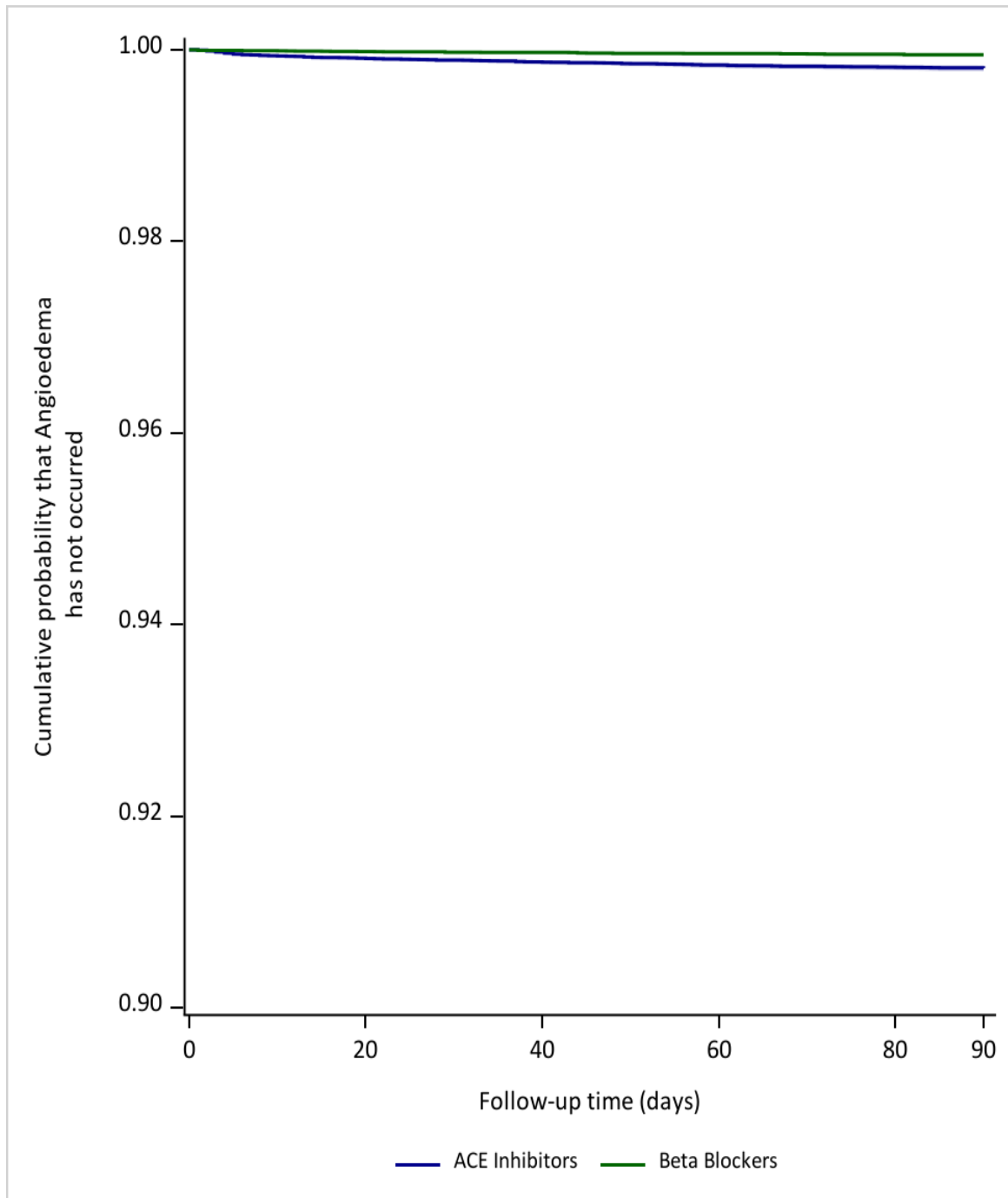


**Figure 15a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**

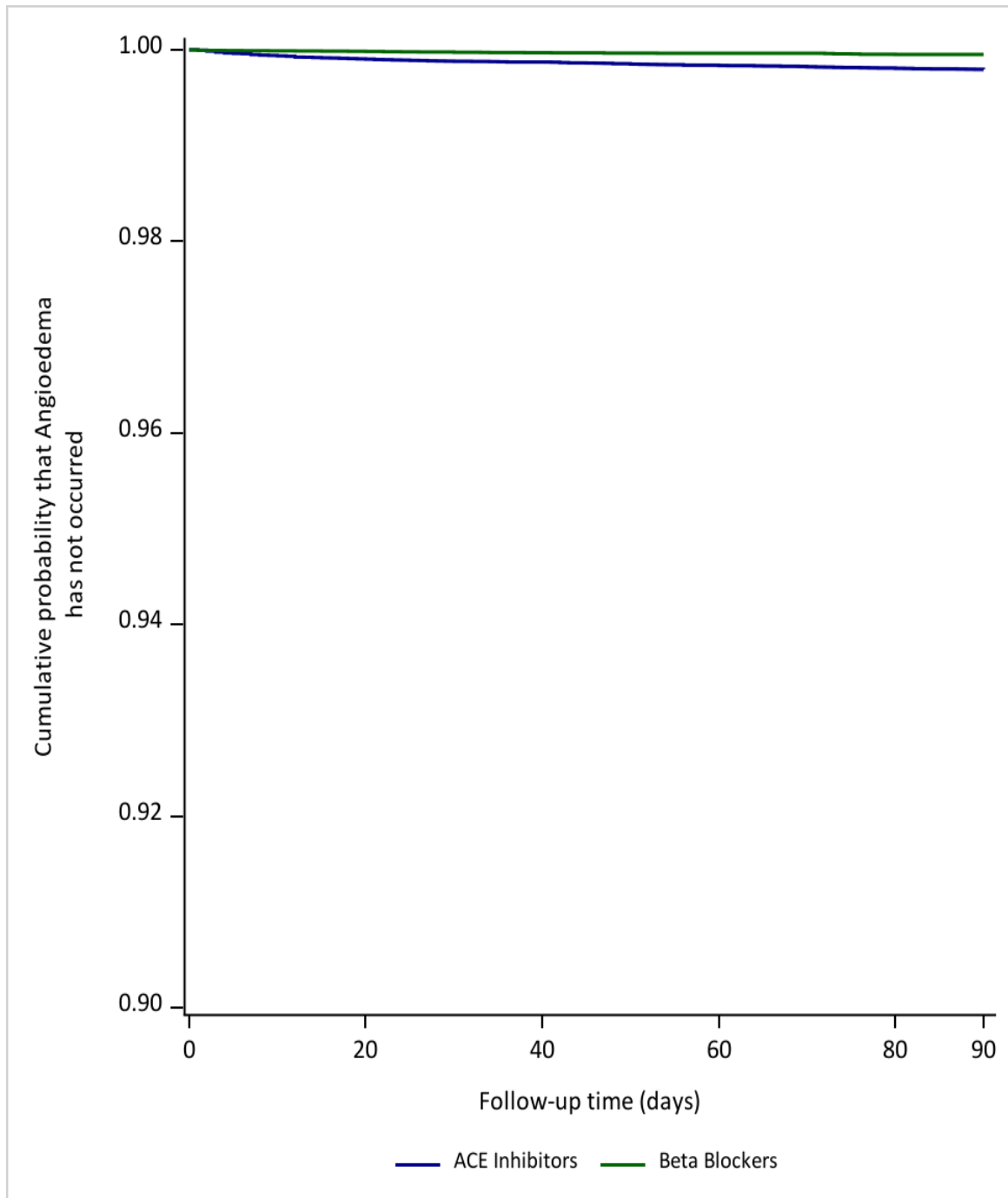




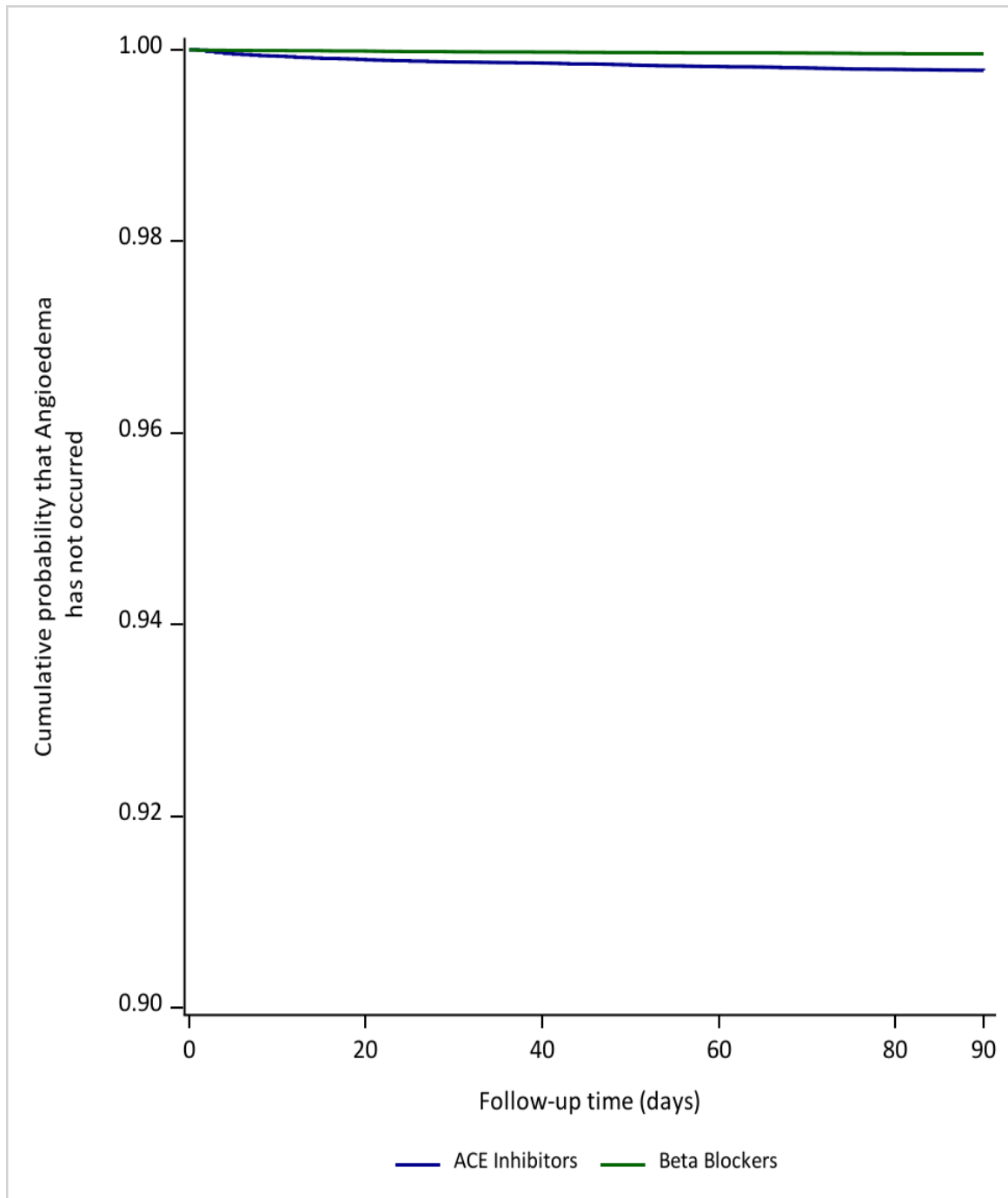
**Figure 15b. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



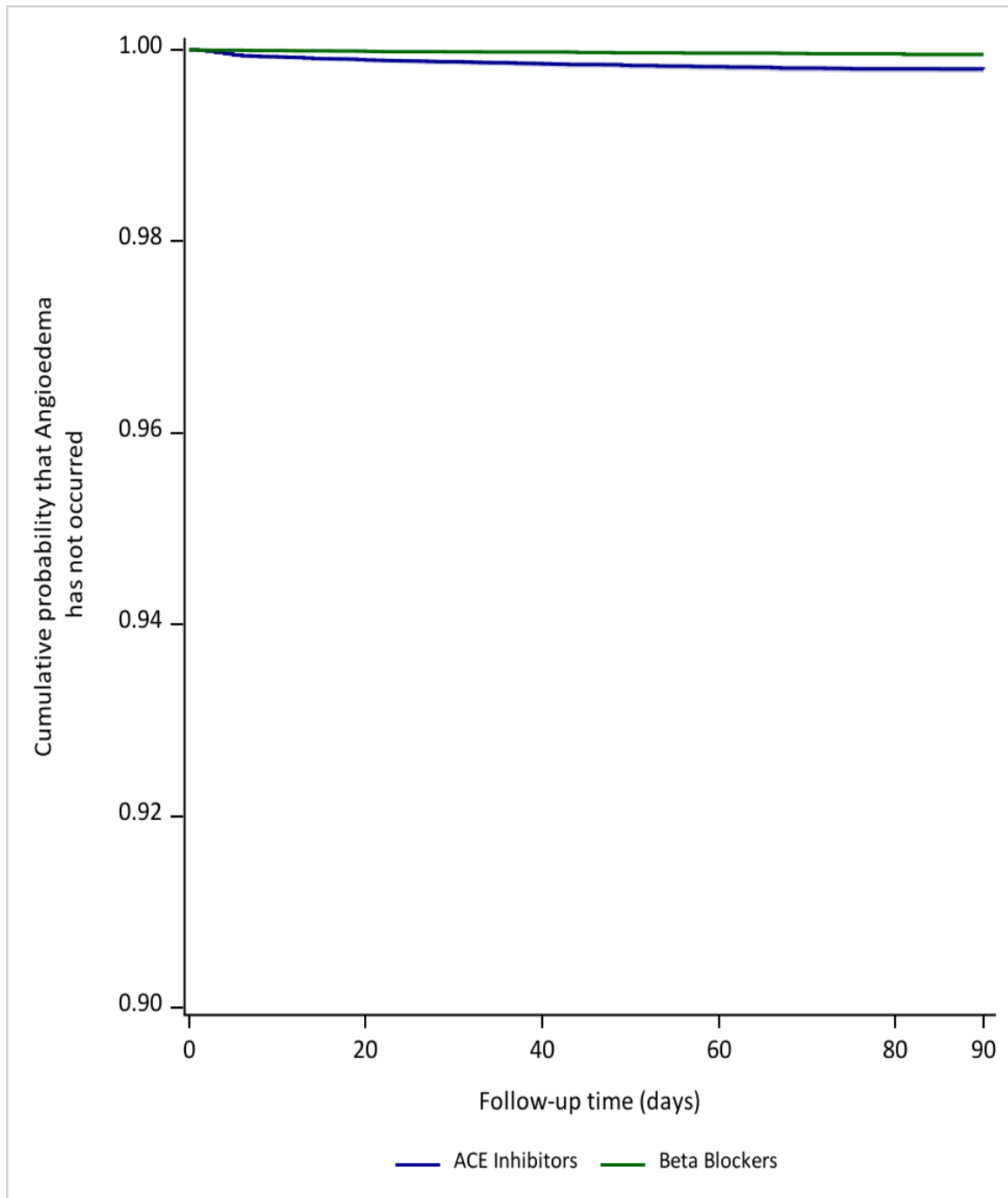
**Figure 15c. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Short Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



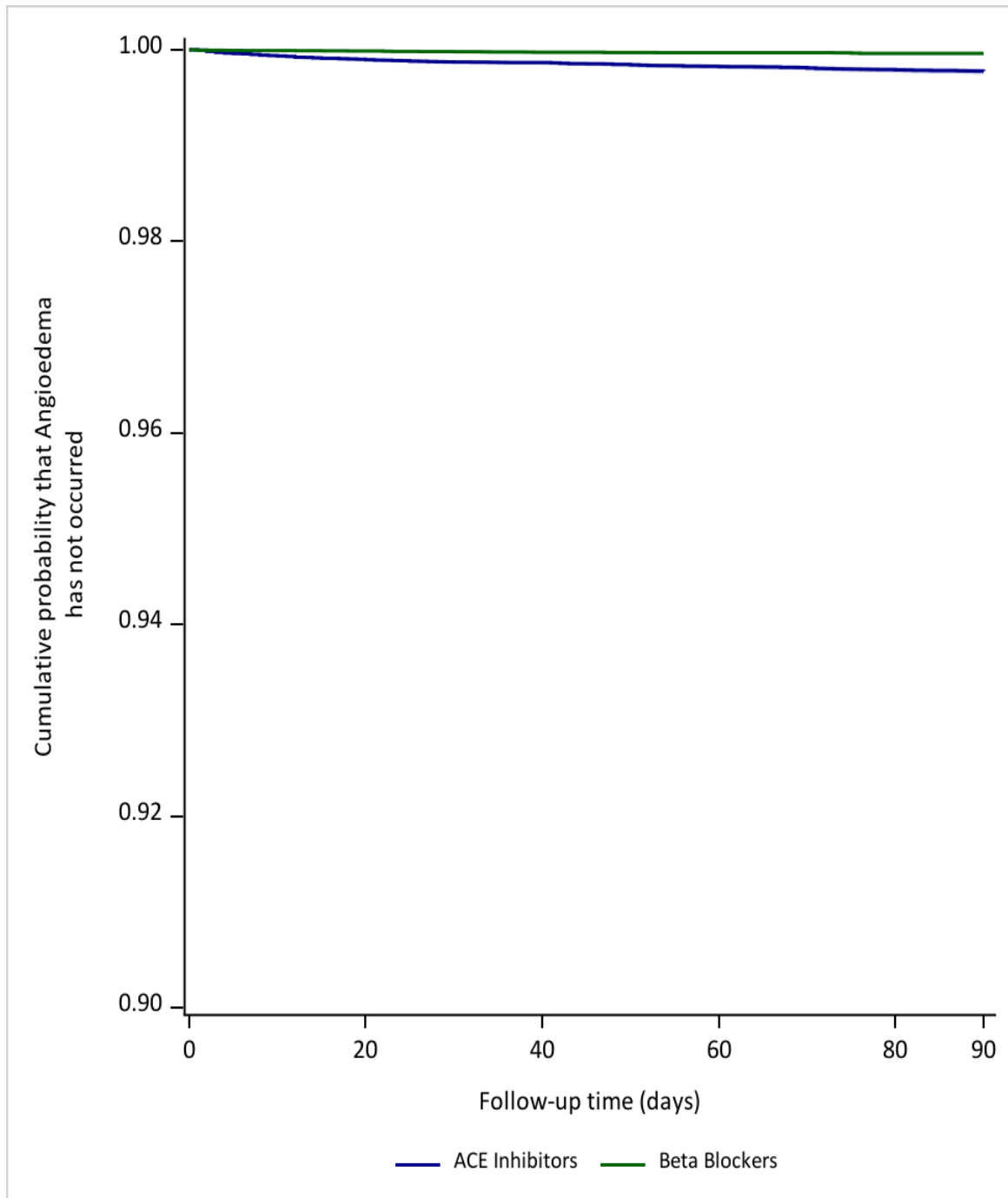
**Figure 16a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



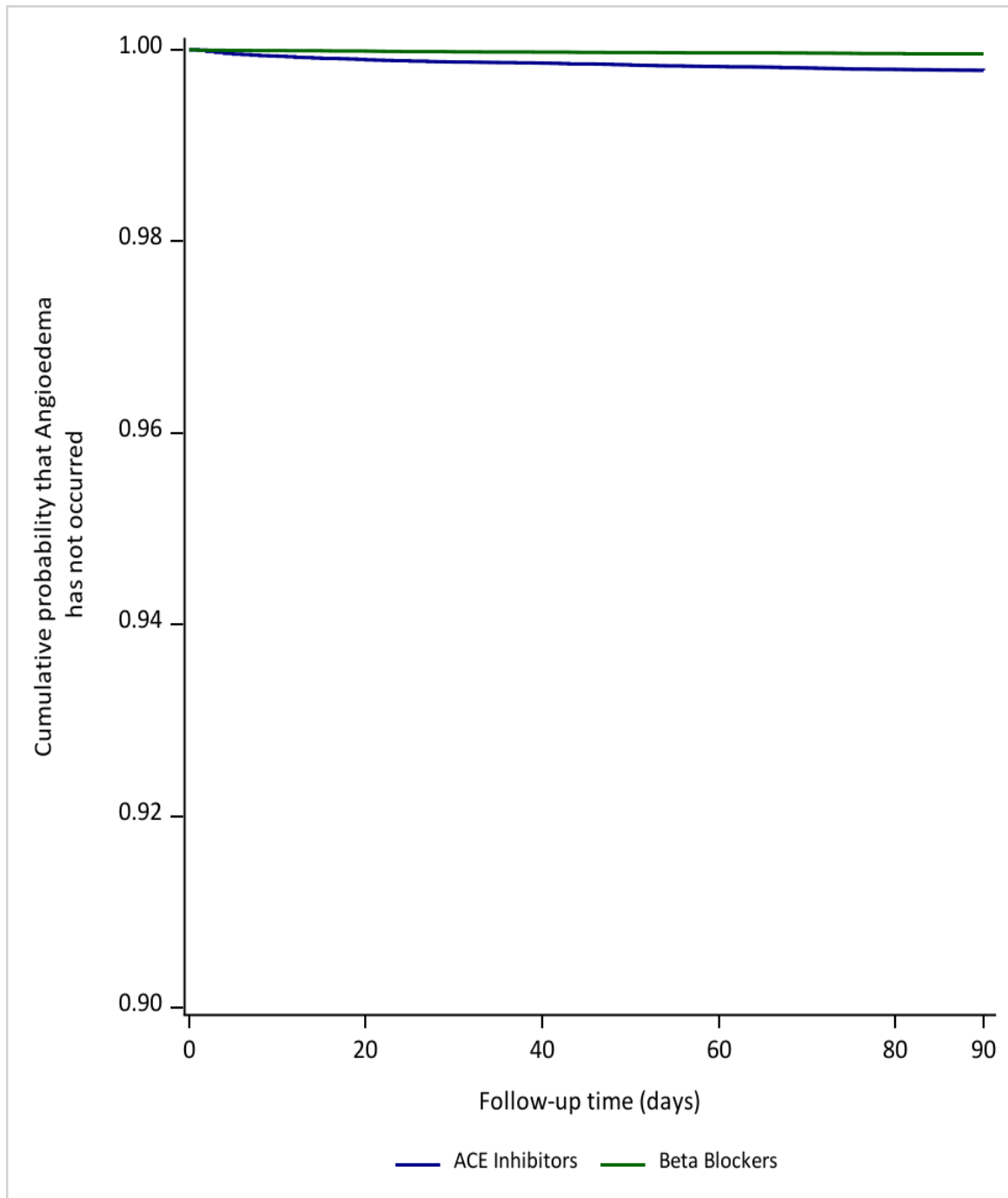
**Figure 16b. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



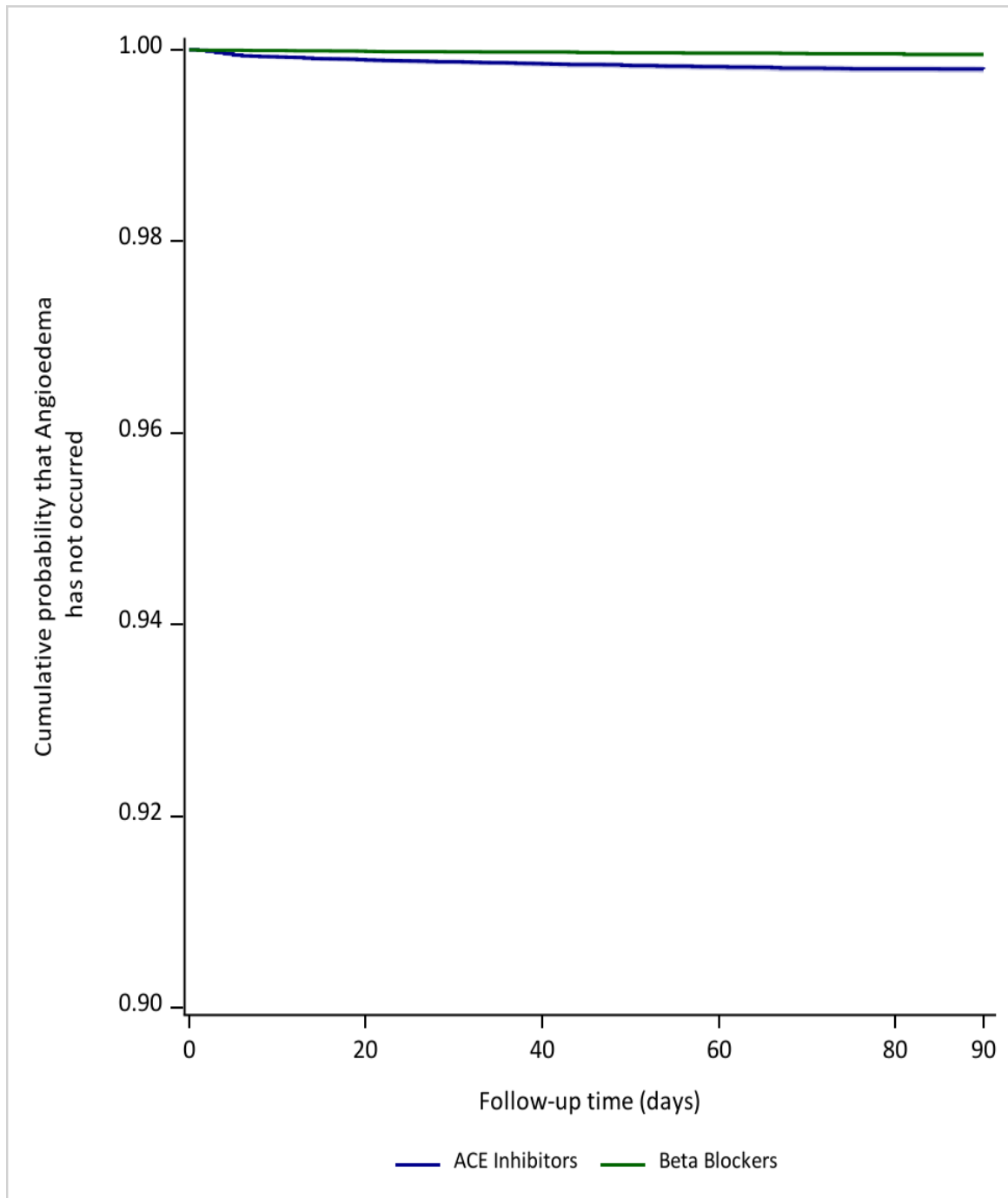
**Figure 16c. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model without Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**



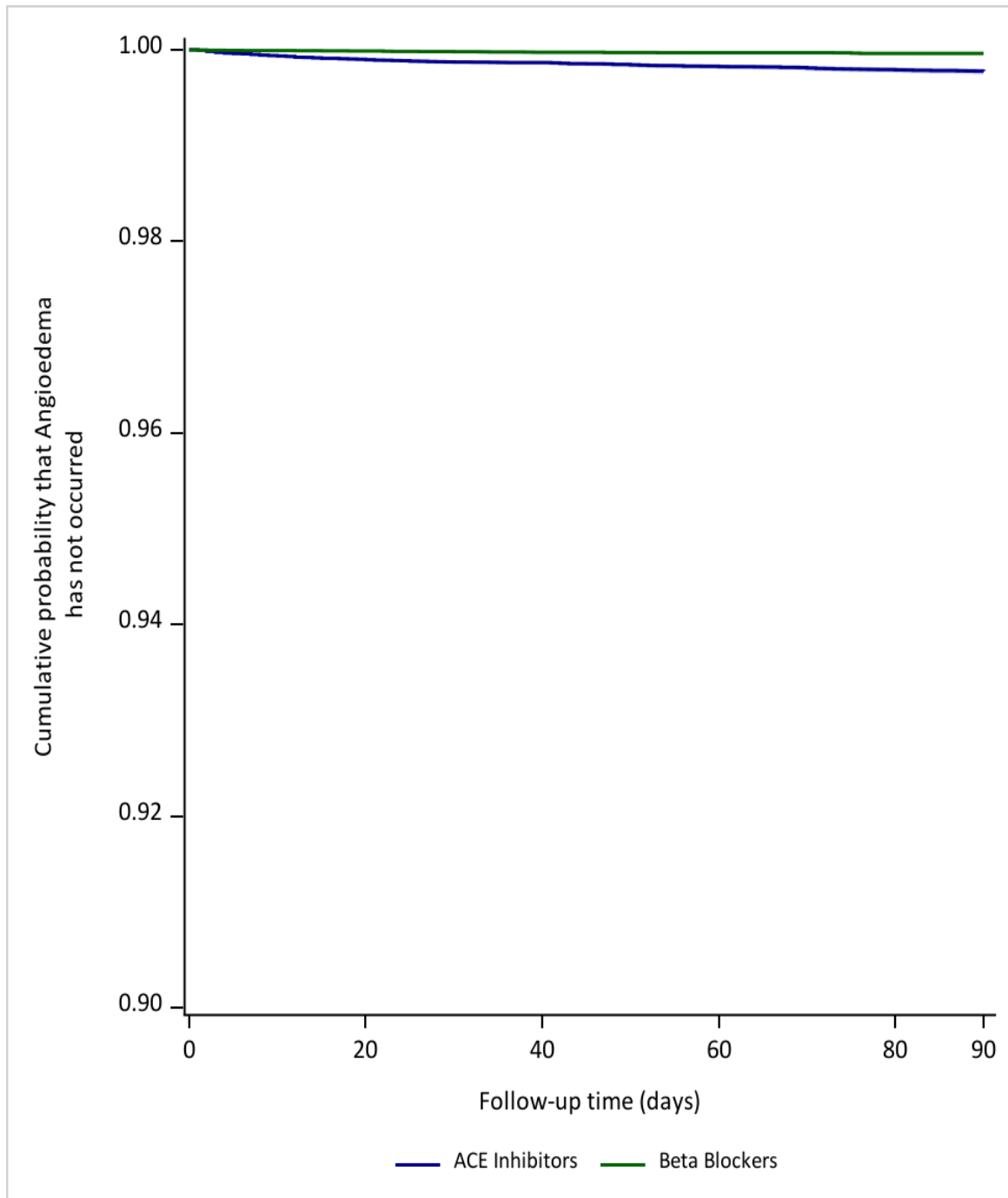
**Figure 17a. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019**



**Figure 17b. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2018**



**Figure 17c. Unadjusted Kaplan-Meier Estimate and 95% Confidence Interval of Angioedema Not Occurring Among New Users of ACE Inhibitors vs. Beta Blockers, Pre-Pandemic, Long Lookback, Propensity Score Model with Year (PSS) from the Whole Population in the Merative™ MarketScan® Research Databases from May 22, 2018 to December 11, 2019, Year: 2019**





**Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (September 13, 2023)**

Masked DP ID	DP Start Date	DP End Date <sup>1</sup>
DP01	01/01/2010	09/30/2022

<sup>1</sup>End Date represents the earliest of: (1) query end date, or (2) last day of the most recent month for which all of a Data Partner's data tables (enrollment, dispensing, etc.) have at least 80% of the record count relative to the prior month.

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

Generic Name	Brand Name
<b>ACE Inhibitors</b>	
amlodipine besylate/benazepril HCl	Lotrel
amlodipine besylate/benazepril HCl	amlodipine-benazepril
benazepril HCl	Lotensin
benazepril HCl	benazepril
benazepril HCl/hydrochlorothiazide	Lotensin HCT
benazepril HCl/hydrochlorothiazide	benazepril-hydrochlorothiazide
captopril	captopril
captopril/hydrochlorothiazide	captopril-hydrochlorothiazide
enalapril maleate	Epaned
enalapril maleate	Vasotec
enalapril maleate	enalapril maleate
enalapril maleate/hydrochlorothiazide	Vaseretic
enalapril maleate/hydrochlorothiazide	enalapril-hydrochlorothiazide
fosinopril sodium	fosinopril
fosinopril sodium/hydrochlorothiazide	fosinopril-hydrochlorothiazide
lisinopril	Prinivil
lisinopril	Qbrelis
lisinopril	Zestril
lisinopril	lisinopril
lisinopril/hydrochlorothiazide	Zestoretic
lisinopril/hydrochlorothiazide	lisinopril-hydrochlorothiazide
moexipril HCl	moexipril
moexipril HCl/hydrochlorothiazide	moexipril-hydrochlorothiazide
perindopril arginine/amlodipine besylate	Prestalia
perindopril erbumine	Aceon
perindopril erbumine	perindopril erbumine
quinapril HCl	Accupril
quinapril HCl	quinapril
quinapril HCl/hydrochlorothiazide	Accuretic
quinapril HCl/hydrochlorothiazide	quinapril-hydrochlorothiazide
ramipril	Altace
ramipril	ramipril
trandolapril	Mavik
trandolapril	trandolapril
trandolapril/verapamil HCl	Tarka
trandolapril/verapamil HCl	trandolapril-verapamil
<b>Beta Blockers</b>	

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

Generic Name	Brand Name
acebutolol HCl	Sectral
acebutolol HCl	acebutolol
atenolol	Tenormin
atenolol	atenolol
atenolol/chlorthalidone	Tenoretic 100
atenolol/chlorthalidone	Tenoretic 50
atenolol/chlorthalidone	atenolol-chlorthalidone
betaxolol HCl	betaxolol
bisoprolol fumarate	Zebeta
bisoprolol fumarate	bisoprolol fumarate
bisoprolol fumarate/hydrochlorothiazide	Ziac
bisoprolol fumarate/hydrochlorothiazide	bisoprolol-hydrochlorothiazide
carvedilol	Coreg
carvedilol	carvedilol
carvedilol phosphate	Coreg CR
carvedilol phosphate	carvedilol phosphate
labetalol HCl	labetalol
metoprolol succinate	Kaspargo Sprinkle
metoprolol succinate	Toprol XL
metoprolol succinate	metoprolol succinate
metoprolol succinate/hydrochlorothiazide	Dutoprol
metoprolol succinate/hydrochlorothiazide	metoprolol su-hydrochlorothiaz
metoprolol tartrate	Lopressor
metoprolol tartrate	metoprolol tartrate
metoprolol tartrate/hydrochlorothiazide	metoprolol ta-hydrochlorothiaz
nadolol	Corgard
nadolol	nadolol
nadolol/bendroflumethiazide	Corzide
nadolol/bendroflumethiazide	nadolol-bendroflumethiazide
nebivolol HCl	Bystolic
nebivolol HCl	nebivolol
pindolol	pindolol
propranolol HCl	Inderal LA
propranolol HCl	Inderal XL
propranolol HCl	InnoPran XL
propranolol HCl	propranolol
propranolol HCl/hydrochlorothiazide	propranolol-hydrochlorothiazid
sotalol HCl	Betapace

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

Generic Name	Brand Name
sotalol HCl	Betapace AF
sotalol HCl	Sorine
sotalol HCl	Sotalol AF
sotalol HCl	Sotylize
sotalol HCl	sotalol
timolol maleate	timolol maleate

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

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
<b>Angioedema (Outcome)</b>			
T78.3XXA	Angioneurotic edema, initial encounter	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Exposure Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
<b>Angioedema (Exclusion)</b>			
T78.3XXA	Angioneurotic edema, initial encounter	Diagnosis	ICD-10-CM
T78.3XXD	Angioneurotic edema, subsequent encounter	Diagnosis	ICD-10-CM
T78.3XXS	Angioneurotic edema, sequela	Diagnosis	ICD-10-CM

**Appendix E. List of Generic and Brand Names of Medical Products Used to Define Exposure Incidence Criteria in this Request**

Generic Name	Brand Name
<b>Angiotensin Receptor Blockers (ARBs)</b>	
amlodipine besylate/olmesartan medoxomil	Azor
amlodipine besylate/olmesartan medoxomil	amlodipine-olmesartan
amlodipine besylate/valsartan	Exforge
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	Exforge HCT
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
azilsartan medoxomil	Edarbi
azilsartan medoxomil/chlorthalidone	Edarbyclor
candesartan cilixetil	Atacand
candesartan cilixetil	candesartan
candesartan cilixetil/hydrochlorothiazide	Atacand HCT
candesartan cilixetil/hydrochlorothiazide	candesartan-hydrochlorothiazid
eprosartan mesylate	eprosartan
irbesartan	Avapro
irbesartan	irbesartan
irbesartan/hydrochlorothiazide	Avalide
irbesartan/hydrochlorothiazide	irbesartan-hydrochlorothiazide
losartan potassium	Cozaar
losartan potassium	losartan
losartan potassium/hydrochlorothiazide	Hyzaar
losartan potassium/hydrochlorothiazide	losartan-hydrochlorothiazide
nebivolol HCl/valsartan	Byvalson
olmesartan medoxomil	Benicar
olmesartan medoxomil	olmesartan
olmesartan medoxomil/amlodipine	
besylate/hydrochlorothiazide	Tribenzor
olmesartan medoxomil/amlodipine	
besylate/hydrochlorothiazide	olmesartan-amlodipin-hcthiazid
olmesartan medoxomil/hydrochlorothiazide	Benicar HCT
olmesartan medoxomil/hydrochlorothiazide	olmesartan-hydrochlorothiazide
sacubitril/valsartan	Entresto
telmisartan	Micardis
telmisartan	telmisartan
telmisartan/amlodipine besylate	Twynsta
telmisartan/amlodipine besylate	telmisartan-amlodipine
telmisartan/hydrochlorothiazide	Micardis HCT
telmisartan/hydrochlorothiazide	telmisartan-hydrochlorothiazid
valsartan	Diovan
valsartan	valsartan
valsartan/hydrochlorothiazide	Diovan HCT
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
<b>ACE Inhibitors</b>	
amlodipine besylate/benazepril HCl	Lotrel
amlodipine besylate/benazepril HCl	amlodipine-benazepril
benazepril HCl	Lotensin
benazepril HCl	benazepril

**Appendix E. List of Generic and Brand Names of Medical Products Used to Define Exposure Incidence Criteria in this Request**

Generic Name	Brand Name
benazepril HCl/hydrochlorothiazide	Lotensin HCT
benazepril HCl/hydrochlorothiazide	benazepril-hydrochlorothiazide
captopril	captopril
captopril/hydrochlorothiazide	captopril-hydrochlorothiazide
enalapril maleate	Epaned
enalapril maleate	Vasotec
enalapril maleate	enalapril maleate
enalapril maleate/hydrochlorothiazide	Vaseretic
enalapril maleate/hydrochlorothiazide	enalapril-hydrochlorothiazide
fosinopril sodium	fosinopril
fosinopril sodium/hydrochlorothiazide	fosinopril-hydrochlorothiazide
lisinopril	Prinivil
lisinopril	Qbrelis
lisinopril	Zestril
lisinopril	lisinopril
lisinopril/hydrochlorothiazide	Zestoretic
lisinopril/hydrochlorothiazide	lisinopril-hydrochlorothiazide
moexipril HCl	moexipril
moexipril HCl/hydrochlorothiazide	moexipril-hydrochlorothiazide
perindopril arginine/amlodipine besylate	Prestalia
perindopril erbumine	Aceon
perindopril erbumine	perindopril erbumine
quinapril HCl	Accupril
quinapril HCl	quinapril
quinapril HCl/hydrochlorothiazide	Accuretic
quinapril HCl/hydrochlorothiazide	quinapril-hydrochlorothiazide
ramipril	Altace
ramipril	ramipril
trandolapril	Mavik
trandolapril	trandolapril
trandolapril/verapamil HCl	Tarka
trandolapril/verapamil HCl	trandolapril-verapamil
<b>Beta Blockers</b>	
acebutolol HCl	Sectral
acebutolol HCl	acebutolol
atenolol	Tenormin
atenolol	atenolol
atenolol/chlorthalidone	Tenoretic 100
atenolol/chlorthalidone	Tenoretic 50
atenolol/chlorthalidone	atenolol-chlorthalidone
betaxolol HCl	betaxolol
bisoprolol fumarate	Zebeta
bisoprolol fumarate	bisoprolol fumarate
bisoprolol fumarate/hydrochlorothiazide	Ziac
bisoprolol fumarate/hydrochlorothiazide	bisoprolol-hydrochlorothiazide
carvedilol	Coreg
carvedilol	carvedilol



**Appendix E. List of Generic and Brand Names of Medical Products Used to Define Exposure Incidence Criteria in this Request**

Generic Name	Brand Name
carvedilol phosphate	Coreg CR
carvedilol phosphate	carvedilol phosphate
labetalol HCl	labetalol
metoprolol succinate	Kaspargo Sprinkle
metoprolol succinate	Toprol XL
metoprolol succinate	metoprolol succinate
metoprolol succinate/hydrochlorothiazide	Dutoprol
metoprolol succinate/hydrochlorothiazide	metoprolol su-hydrochlorothiaz
metoprolol tartrate	Lopressor
metoprolol tartrate	metoprolol tartrate
metoprolol tartrate/hydrochlorothiazide	metoprolol ta-hydrochlorothiaz
nadolol	Corgard
nadolol	nadolol
nadolol/bendroflumethiazide	Corzide
nadolol/bendroflumethiazide	nadolol-bendroflumethiazide
nebivolol HCl	Bystolic
nebivolol HCl	nebivolol
pindolol	pindolol
propranolol HCl	Inderal LA
propranolol HCl	Inderal XL
propranolol HCl	InnoPran XL
propranolol HCl	propranolol
propranolol HCl/hydrochlorothiazide	propranolol-hydrochlorothiazid
sotalol HCl	Betapace
sotalol HCl	Betapace AF
sotalol HCl	Sorine
sotalol HCl	Sotalol AF
sotalol HCl	Sotylize
sotalol HCl	sotalol
timolol maleate	timolol maleate
<b>Aliskiren</b>	
aliskiren hemifumarate	Tekturna
aliskiren hemifumarate	aliskiren
aliskiren hemifumarate/hydrochlorothiazide	Tekturna HCT

**Appendix F. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request**

Generic Name	Brand Name
<b>Non-Steroidal Anti-Inflammatory Drug (NSAID) Use</b>	
amlodipine besylate/celecoxib	Consensi
celecoxib	Celebrex
celecoxib	Elyxyb
celecoxib	celecoxib
diclofenac potassium	Cambia
diclofenac potassium	Cataflam
diclofenac potassium	Lofena
diclofenac potassium	Zipsor
diclofenac potassium	diclofenac potassium
diclofenac sodium	Voltaren-XR
diclofenac sodium	diclofenac sodium
diclofenac sodium/misoprostol	Arthrotec 50
diclofenac sodium/misoprostol	Arthrotec 75
diclofenac sodium/misoprostol	diclofenac-misoprostol
diclofenac submicronized	Zorvolex
diclofenac submicronized	diclofenac submicronized
etodolac	Lodine
etodolac	etodolac
fenoprofen calcium	Fenortho
fenoprofen calcium	Nalfon
fenoprofen calcium	ProFeno
fenoprofen calcium	fenoprofen
flurbiprofen	flurbiprofen
hydrocodone/ibuprofen	Ibudone
hydrocodone/ibuprofen	Reprexain
hydrocodone/ibuprofen	Vicoprofen
hydrocodone/ibuprofen	Xylon 10
hydrocodone/ibuprofen	hydrocodone-ibuprofen
ibuprofen	IBU
ibuprofen	ibuprofen
ibuprofen/famotidine	Duexis
ibuprofen/famotidine	ibuprofen-famotidine
ibuprofen/glycerin	Ibupak
ibuprofen/oxycodone HCl	ibuprofen-oxycodone
indomethacin	Indocin
indomethacin	indomethacin

**Appendix F. List of Generic and Brand Names of Medical Products Used to Define Covariates in this Request**

Generic Name	Brand Name
indomethacin, submicronized	Tivorbex
indomethacin, submicronized	indomethacin submicronized
ketoprofen	ketoprofen
ketorolac tromethamine	ketorolac
meclofenamate sodium	meclofenamate
mefenamic acid	Ponstel
mefenamic acid	mefenamic acid
meloxicam	Mobic
meloxicam	Qmiiz ODT
meloxicam	meloxicam
meloxicam, submicronized	Vivlodex
meloxicam, submicronized	meloxicam submicronized
nabumetone	Relafen
nabumetone	Relafen DS
nabumetone	nabumetone
naproxen	EC-Naprosyn
naproxen	EC-Naproxen
naproxen	Naprosyn
naproxen	naproxen
naproxen sodium	Anaprox
naproxen sodium	Anaprox DS
naproxen sodium	Naprelan CR
naproxen sodium	naproxen sodium
naproxen/esomeprazole magnesium	Vimovo
naproxen/esomeprazole magnesium	naproxen-esomeprazole
oxaprozin	Daypro
oxaprozin	oxaprozin
piroxicam	Feldene
piroxicam	piroxicam
sulindac	sulindac
sumatriptan succinate/naproxen sodium	Treximet
sumatriptan succinate/naproxen sodium	sumatriptan-naproxen
tolmetin sodium	tolmetin
tramadol HCl/celecoxib	Seglentis

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
<b>Allergic Reaction</b>			
B44.81	Allergic bronchopulmonary aspergillosis	Diagnosis	ICD-10-CM
J30.5	Allergic rhinitis due to food	Diagnosis	ICD-10-CM
K52.21	Food protein-induced enterocolitis syndrome	Diagnosis	ICD-10-CM
K52.22	Food protein-induced enteropathy	Diagnosis	ICD-10-CM
K52.29	Other allergic and dietetic gastroenteritis and colitis	Diagnosis	ICD-10-CM
L20.0	Besnier's prurigo	Diagnosis	ICD-10-CM
L20.81	Atopic neurodermatitis	Diagnosis	ICD-10-CM
L20.82	Flexural eczema	Diagnosis	ICD-10-CM
L20.84	Intrinsic (allergic) eczema	Diagnosis	ICD-10-CM
L20.89	Other atopic dermatitis	Diagnosis	ICD-10-CM
L20.9	Atopic dermatitis, unspecified	Diagnosis	ICD-10-CM
L23.0	Allergic contact dermatitis due to metals	Diagnosis	ICD-10-CM
L23.1	Allergic contact dermatitis due to adhesives	Diagnosis	ICD-10-CM
L23.2	Allergic contact dermatitis due to cosmetics	Diagnosis	ICD-10-CM
L23.3	Allergic contact dermatitis due to drugs in contact with skin	Diagnosis	ICD-10-CM
L23.4	Allergic contact dermatitis due to dyes	Diagnosis	ICD-10-CM
L23.5	Allergic contact dermatitis due to other chemical products	Diagnosis	ICD-10-CM
L23.6	Allergic contact dermatitis due to food in contact with the skin	Diagnosis	ICD-10-CM
L23.7	Allergic contact dermatitis due to plants, except food	Diagnosis	ICD-10-CM
L23.81	Allergic contact dermatitis due to animal (cat) (dog) dander	Diagnosis	ICD-10-CM
L23.89	Allergic contact dermatitis due to other agents	Diagnosis	ICD-10-CM
L23.9	Allergic contact dermatitis, unspecified cause	Diagnosis	ICD-10-CM
L24.0	Irritant contact dermatitis due to detergents	Diagnosis	ICD-10-CM
L24.1	Irritant contact dermatitis due to oils and greases	Diagnosis	ICD-10-CM
L24.2	Irritant contact dermatitis due to solvents	Diagnosis	ICD-10-CM
L24.3	Irritant contact dermatitis due to cosmetics	Diagnosis	ICD-10-CM
L24.4	Irritant contact dermatitis due to drugs in contact with skin	Diagnosis	ICD-10-CM
L24.5	Irritant contact dermatitis due to other chemical products	Diagnosis	ICD-10-CM
L24.6	Irritant contact dermatitis due to food in contact with skin	Diagnosis	ICD-10-CM
L24.7	Irritant contact dermatitis due to plants, except food	Diagnosis	ICD-10-CM
L24.81	Irritant contact dermatitis due to metals	Diagnosis	ICD-10-CM
L24.89	Irritant contact dermatitis due to other agents	Diagnosis	ICD-10-CM
L24.9	Irritant contact dermatitis, unspecified cause	Diagnosis	ICD-10-CM
L25.0	Unspecified contact dermatitis due to cosmetics	Diagnosis	ICD-10-CM
L25.1	Unspecified contact dermatitis due to drugs in contact with skin	Diagnosis	ICD-10-CM
L25.2	Unspecified contact dermatitis due to dyes	Diagnosis	ICD-10-CM
L25.3	Unspecified contact dermatitis due to other chemical products	Diagnosis	ICD-10-CM
L25.4	Unspecified contact dermatitis due to food in contact with skin	Diagnosis	ICD-10-CM
L25.5	Unspecified contact dermatitis due to plants, except food	Diagnosis	ICD-10-CM
L25.8	Unspecified contact dermatitis due to other agents	Diagnosis	ICD-10-CM
L25.9	Unspecified contact dermatitis, unspecified cause	Diagnosis	ICD-10-CM
L27.0	Generalized skin eruption due to drugs and medicaments taken internally	Diagnosis	ICD-10-CM
L27.1	Localized skin eruption due to drugs and medicaments taken internally	Diagnosis	ICD-10-CM
L27.2	Dermatitis due to ingested food	Diagnosis	ICD-10-CM
L27.8	Dermatitis due to other substances taken internally	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
L27.9	Dermatitis due to unspecified substance taken internally	Diagnosis	ICD-10-CM
L30.0	Nummular dermatitis	Diagnosis	ICD-10-CM
L30.2	Cutaneous autosensitization	Diagnosis	ICD-10-CM
L30.8	Other specified dermatitis	Diagnosis	ICD-10-CM
L30.9	Dermatitis, unspecified	Diagnosis	ICD-10-CM
L50.0	Allergic urticaria	Diagnosis	ICD-10-CM
L50.1	Idiopathic urticaria	Diagnosis	ICD-10-CM
L50.2	Urticaria due to cold and heat	Diagnosis	ICD-10-CM
L50.3	Dermatographic urticaria	Diagnosis	ICD-10-CM
L50.4	Vibratory urticaria	Diagnosis	ICD-10-CM
L50.5	Cholinergic urticaria	Diagnosis	ICD-10-CM
L50.6	Contact urticaria	Diagnosis	ICD-10-CM
L50.8	Other urticaria	Diagnosis	ICD-10-CM
L50.9	Urticaria, unspecified	Diagnosis	ICD-10-CM
L56.0	Drug phototoxic response	Diagnosis	ICD-10-CM
L56.1	Drug photoallergic response	Diagnosis	ICD-10-CM
L56.2	Photocontact dermatitis [berloque dermatitis]	Diagnosis	ICD-10-CM
L56.3	Solar urticaria	Diagnosis	ICD-10-CM
L56.4	Polymorphous light eruption	Diagnosis	ICD-10-CM
L56.8	Other specified acute skin changes due to ultraviolet radiation	Diagnosis	ICD-10-CM
L56.9	Acute skin change due to ultraviolet radiation, unspecified	Diagnosis	ICD-10-CM
L57.1	Actinic reticuloid	Diagnosis	ICD-10-CM
L57.5	Actinic granuloma	Diagnosis	ICD-10-CM
L57.8	Other skin changes due to chronic exposure to nonionizing radiation	Diagnosis	ICD-10-CM
L57.9	Skin changes due to chronic exposure to nonionizing radiation, unspecified	Diagnosis	ICD-10-CM
L58.0	Acute radiodermatitis	Diagnosis	ICD-10-CM
L58.1	Chronic radiodermatitis	Diagnosis	ICD-10-CM
L58.9	Radiodermatitis, unspecified	Diagnosis	ICD-10-CM
L59.0	Erythema ab igne [dermatitis ab igne]	Diagnosis	ICD-10-CM
L59.8	Other specified disorders of the skin and subcutaneous tissue related to radiation	Diagnosis	ICD-10-CM
L59.9	Disorder of the skin and subcutaneous tissue related to radiation, unspecified	Diagnosis	ICD-10-CM
T78.00XA	Anaphylactic reaction due to unspecified food, initial encounter	Diagnosis	ICD-10-CM
T78.01XA	Anaphylactic reaction due to peanuts, initial encounter	Diagnosis	ICD-10-CM
T78.02XA	Anaphylactic reaction due to shellfish (crustaceans), initial encounter	Diagnosis	ICD-10-CM
T78.03XA	Anaphylactic reaction due to other fish, initial encounter	Diagnosis	ICD-10-CM
T78.04XA	Anaphylactic reaction due to fruits and vegetables, initial encounter	Diagnosis	ICD-10-CM
T78.05XA	Anaphylactic reaction due to tree nuts and seeds, initial encounter	Diagnosis	ICD-10-CM
T78.06XA	Anaphylactic reaction due to food additives, initial encounter	Diagnosis	ICD-10-CM
T78.07XA	Anaphylactic reaction due to milk and dairy products, initial encounter	Diagnosis	ICD-10-CM
T78.08XA	Anaphylactic reaction due to eggs, initial encounter	Diagnosis	ICD-10-CM
T78.09XA	Anaphylactic reaction due to other food products, initial encounter	Diagnosis	ICD-10-CM
T78.1XXA	Other adverse food reactions, not elsewhere classified, initial encounter	Diagnosis	ICD-10-CM
T78.2XXA	Anaphylactic shock, unspecified, initial encounter	Diagnosis	ICD-10-CM
T78.40XA	Allergy, unspecified, initial encounter	Diagnosis	ICD-10-CM
T78.49XA	Other allergy, initial encounter	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
T88.6XXA	Anaphylactic reaction due to adverse effect of correct drug or medicament properly administered, initial encounter	Diagnosis	ICD-10-CM
Z01.82	Encounter for allergy testing	Diagnosis	ICD-10-CM
Z51.6	Encounter for desensitization to allergens	Diagnosis	ICD-10-CM
Z87.892	Personal history of anaphylaxis	Diagnosis	ICD-10-CM
Z88.0	Allergy status to penicillin	Diagnosis	ICD-10-CM
Z88.1	Allergy status to other antibiotic agents	Diagnosis	ICD-10-CM
Z88.2	Allergy status to sulfonamides	Diagnosis	ICD-10-CM
Z88.3	Allergy status to other anti-infective agents	Diagnosis	ICD-10-CM
Z88.4	Allergy status to anesthetic agent	Diagnosis	ICD-10-CM
Z88.5	Allergy status to narcotic agent	Diagnosis	ICD-10-CM
Z88.6	Allergy status to analgesic agent	Diagnosis	ICD-10-CM
Z88.7	Allergy status to serum and vaccine	Diagnosis	ICD-10-CM
Z88.8	Allergy status to other drugs, medicaments and biological substances	Diagnosis	ICD-10-CM
Z88.9	Allergy status to unspecified drugs, medicaments and biological substances	Diagnosis	ICD-10-CM
Z91.010	Allergy to peanuts	Diagnosis	ICD-10-CM
Z91.011	Allergy to milk products	Diagnosis	ICD-10-CM
Z91.012	Allergy to eggs	Diagnosis	ICD-10-CM
Z91.013	Allergy to seafood	Diagnosis	ICD-10-CM
Z91.018	Allergy to other foods	Diagnosis	ICD-10-CM
Z91.02	Food additives allergy status	Diagnosis	ICD-10-CM
Z91.030	Bee allergy status	Diagnosis	ICD-10-CM
Z91.038	Other insect allergy status	Diagnosis	ICD-10-CM
Z91.040	Latex allergy status	Diagnosis	ICD-10-CM
Z91.041	Radiographic dye allergy status	Diagnosis	ICD-10-CM
Z91.048	Other nonmedicinal substance allergy status	Diagnosis	ICD-10-CM
Z91.09	Other allergy status, other than to drugs and biological substances	Diagnosis	ICD-10-CM
<b>Acquired Hypothyroidism</b>			
E00.0	Congenital iodine-deficiency syndrome, neurological type	Diagnosis	ICD-10-CM
E00.1	Congenital iodine-deficiency syndrome, myxedematous type	Diagnosis	ICD-10-CM
E00.2	Congenital iodine-deficiency syndrome, mixed type	Diagnosis	ICD-10-CM
E00.9	Congenital iodine-deficiency syndrome, unspecified	Diagnosis	ICD-10-CM
E01.8	Other iodine-deficiency related thyroid disorders and allied conditions	Diagnosis	ICD-10-CM
E02	Subclinical iodine-deficiency hypothyroidism	Diagnosis	ICD-10-CM
E03.0	Congenital hypothyroidism with diffuse goiter	Diagnosis	ICD-10-CM
E03.1	Congenital hypothyroidism without goiter	Diagnosis	ICD-10-CM
E03.2	Hypothyroidism due to medicaments and other exogenous substances	Diagnosis	ICD-10-CM
E03.3	Postinfectious hypothyroidism	Diagnosis	ICD-10-CM
E03.4	Atrophy of thyroid (acquired)	Diagnosis	ICD-10-CM
E03.8	Other specified hypothyroidism	Diagnosis	ICD-10-CM
E03.9	Hypothyroidism, unspecified	Diagnosis	ICD-10-CM
E89.0	Postprocedural hypothyroidism	Diagnosis	ICD-10-CM
<b>Acute Myocardial Infarction</b>			
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	Diagnosis	ICD-10-CM
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I21.09	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall	Diagnosis	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	Diagnosis	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall	Diagnosis	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery	Diagnosis	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	Diagnosis	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I21.9	Acute myocardial infarction, unspecified	Diagnosis	ICD-10-CM
I21.A1	Myocardial infarction type 2	Diagnosis	ICD-10-CM
I21.A9	Other myocardial infarction type	Diagnosis	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	Diagnosis	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	Diagnosis	ICD-10-CM
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	Diagnosis	ICD-10-CM
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I23.0	Hemopericardium as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.1	Atrial septal defect as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.2	Ventricular septal defect as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.3	Rupture of cardiac wall without hemopericardium as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.4	Rupture of chordae tendineae as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.5	Rupture of papillary muscle as current complication following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.6	Thrombosis of atrium, auricular appendage, and ventricle as current complications following acute myocardial infarction	Diagnosis	ICD-10-CM
I23.7	Postinfarction angina	Diagnosis	ICD-10-CM
I23.8	Other current complications following acute myocardial infarction	Diagnosis	ICD-10-CM
<b>Alzheimers Disease &amp; Related Disorders or Senile Dementia</b>			
F01.50	Vascular dementia, unspecified severity, without behavioral disturbance, psychotic disturbance, mood disturbance, and anxiety	Diagnosis	ICD-10-CM
F01.51	Vascular dementia, unspecified severity, with behavioral disturbance	Diagnosis	ICD-10-CM
F02.80	Dementia in other diseases classified elsewhere, unspecified severity, without behavioral disturbance, psychotic disturbance, mood disturbance, and anxiety	Diagnosis	ICD-10-CM
F02.81	Dementia in other diseases classified elsewhere, unspecified severity, with behavioral disturbance	Diagnosis	ICD-10-CM
F03.90	Unspecified dementia, unspecified severity, without behavioral disturbance, psychotic disturbance, mood disturbance, and anxiety	Diagnosis	ICD-10-CM
F03.91	Unspecified dementia, unspecified severity, with behavioral disturbance	Diagnosis	ICD-10-CM
F04	Amnesic disorder due to known physiological condition	Diagnosis	ICD-10-CM
F05	Delirium due to known physiological condition	Diagnosis	ICD-10-CM
F06.1	Catatonic disorder due to known physiological condition	Diagnosis	ICD-10-CM
F06.8	Other specified mental disorders due to known physiological condition	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
G13.8	Systemic atrophy primarily affecting central nervous system in other diseases classified elsewhere	Diagnosis	ICD-10-CM
G30.0	Alzheimer's disease with early onset	Diagnosis	ICD-10-CM
G30.1	Alzheimer's disease with late onset	Diagnosis	ICD-10-CM
G30.8	Other Alzheimer's disease	Diagnosis	ICD-10-CM
G30.9	Alzheimer's disease, unspecified	Diagnosis	ICD-10-CM
G31.01	Pick's disease	Diagnosis	ICD-10-CM
G31.09	Other frontotemporal neurocognitive disorder	Diagnosis	ICD-10-CM
G31.1	Senile degeneration of brain, not elsewhere classified	Diagnosis	ICD-10-CM
G31.2	Degeneration of nervous system due to alcohol	Diagnosis	ICD-10-CM
G31.83	Neurocognitive disorder with Lewy bodies	Diagnosis	ICD-10-CM
G94	Other disorders of brain in diseases classified elsewhere	Diagnosis	ICD-10-CM
R41.81	Age-related cognitive decline	Diagnosis	ICD-10-CM
R54	Age-related physical debility	Diagnosis	ICD-10-CM
<b>Anemia</b>			
C94.6	Myelodysplastic disease, not elsewhere classified	Diagnosis	ICD-10-CM
D46.0	Refractory anemia without ring sideroblasts, so stated	Diagnosis	ICD-10-CM
D46.1	Refractory anemia with ring sideroblasts	Diagnosis	ICD-10-CM
D46.20	Refractory anemia with excess of blasts, unspecified	Diagnosis	ICD-10-CM
D46.21	Refractory anemia with excess of blasts 1	Diagnosis	ICD-10-CM
D46.22	Refractory anemia with excess of blasts 2	Diagnosis	ICD-10-CM
D46.4	Refractory anemia, unspecified	Diagnosis	ICD-10-CM
D46.9	Myelodysplastic syndrome, unspecified	Diagnosis	ICD-10-CM
D46.A	Refractory cytopenia with multilineage dysplasia	Diagnosis	ICD-10-CM
D46.B	Refractory cytopenia with multilineage dysplasia and ring sideroblasts	Diagnosis	ICD-10-CM
D46.C	Myelodysplastic syndrome with isolated del(5q) chromosomal abnormality	Diagnosis	ICD-10-CM
D46.Z	Other myelodysplastic syndromes	Diagnosis	ICD-10-CM
D47.4	Osteomyelofibrosis	Diagnosis	ICD-10-CM
D50.0	Iron deficiency anemia secondary to blood loss (chronic)	Diagnosis	ICD-10-CM
D50.1	Sideropenic dysphagia	Diagnosis	ICD-10-CM
D50.8	Other iron deficiency anemias	Diagnosis	ICD-10-CM
D50.9	Iron deficiency anemia, unspecified	Diagnosis	ICD-10-CM
D51.0	Vitamin B12 deficiency anemia due to intrinsic factor deficiency	Diagnosis	ICD-10-CM
D51.1	Vitamin B12 deficiency anemia due to selective vitamin B12 malabsorption with proteinuria	Diagnosis	ICD-10-CM
D51.2	Transcobalamin II deficiency	Diagnosis	ICD-10-CM
D51.3	Other dietary vitamin B12 deficiency anemia	Diagnosis	ICD-10-CM
D51.8	Other vitamin B12 deficiency anemias	Diagnosis	ICD-10-CM
D51.9	Vitamin B12 deficiency anemia, unspecified	Diagnosis	ICD-10-CM
D52.0	Dietary folate deficiency anemia	Diagnosis	ICD-10-CM
D52.1	Drug-induced folate deficiency anemia	Diagnosis	ICD-10-CM
D52.8	Other folate deficiency anemias	Diagnosis	ICD-10-CM
D52.9	Folate deficiency anemia, unspecified	Diagnosis	ICD-10-CM
D53.0	Protein deficiency anemia	Diagnosis	ICD-10-CM
D53.1	Other megaloblastic anemias, not elsewhere classified	Diagnosis	ICD-10-CM
D53.2	Scorbutic anemia	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
D53.8	Other specified nutritional anemias	Diagnosis	ICD-10-CM
D53.9	Nutritional anemia, unspecified	Diagnosis	ICD-10-CM
D55.0	Anemia due to glucose-6-phosphate dehydrogenase [G6PD] deficiency	Diagnosis	ICD-10-CM
D55.1	Anemia due to other disorders of glutathione metabolism	Diagnosis	ICD-10-CM
D55.2	Anemia due to disorders of glycolytic enzymes	Diagnosis	ICD-10-CM
D55.21	Anemia due to pyruvate kinase deficiency	Diagnosis	ICD-10-CM
D55.29	Anemia due to other disorders of glycolytic enzymes	Diagnosis	ICD-10-CM
D55.3	Anemia due to disorders of nucleotide metabolism	Diagnosis	ICD-10-CM
D55.8	Other anemias due to enzyme disorders	Diagnosis	ICD-10-CM
D55.9	Anemia due to enzyme disorder, unspecified	Diagnosis	ICD-10-CM
D56.0	Alpha thalassemia	Diagnosis	ICD-10-CM
D56.1	Beta thalassemia	Diagnosis	ICD-10-CM
D56.2	Delta-beta thalassemia	Diagnosis	ICD-10-CM
D56.3	Thalassemia minor	Diagnosis	ICD-10-CM
D56.4	Hereditary persistence of fetal hemoglobin [HPFH]	Diagnosis	ICD-10-CM
D56.5	Hemoglobin E-beta thalassemia	Diagnosis	ICD-10-CM
D56.8	Other thalassemias	Diagnosis	ICD-10-CM
D56.9	Thalassemia, unspecified	Diagnosis	ICD-10-CM
D57.00	Hb-SS disease with crisis, unspecified	Diagnosis	ICD-10-CM
D57.01	Hb-SS disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.02	Hb-SS disease with splenic sequestration	Diagnosis	ICD-10-CM
D57.03	Hb-SS disease with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.09	Hb-SS disease with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.1	Sickle-cell disease without crisis	Diagnosis	ICD-10-CM
D57.20	Sickle-cell/Hb-C disease without crisis	Diagnosis	ICD-10-CM
D57.211	Sickle-cell/Hb-C disease with acute chest syndrome	Diagnosis	ICD-10-CM
D57.212	Sickle-cell/Hb-C disease with splenic sequestration	Diagnosis	ICD-10-CM
D57.213	Sickle-cell/Hb-C disease with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.218	Sickle-cell/Hb-C disease with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.219	Sickle-cell/Hb-C disease with crisis, unspecified	Diagnosis	ICD-10-CM
D57.3	Sickle-cell trait	Diagnosis	ICD-10-CM
D57.40	Sickle-cell thalassemia without crisis	Diagnosis	ICD-10-CM
D57.411	Sickle-cell thalassemia with acute chest syndrome	Diagnosis	ICD-10-CM
D57.412	Sickle-cell thalassemia with splenic sequestration	Diagnosis	ICD-10-CM
D57.413	Sickle-cell thalassemia, unspecified, with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.418	Sickle-cell thalassemia, unspecified, with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.419	Sickle-cell thalassemia with crisis, unspecified	Diagnosis	ICD-10-CM
D57.42	Sickle-cell thalassemia beta zero without crisis	Diagnosis	ICD-10-CM
D57.431	Sickle-cell thalassemia beta zero with acute chest syndrome	Diagnosis	ICD-10-CM
D57.432	Sickle-cell thalassemia beta zero with splenic sequestration	Diagnosis	ICD-10-CM
D57.433	Sickle-cell thalassemia beta zero with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.438	Sickle-cell thalassemia beta zero with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.439	Sickle-cell thalassemia beta zero with crisis, unspecified	Diagnosis	ICD-10-CM
D57.44	Sickle-cell thalassemia beta plus without crisis	Diagnosis	ICD-10-CM
D57.451	Sickle-cell thalassemia beta plus with acute chest syndrome	Diagnosis	ICD-10-CM
D57.452	Sickle-cell thalassemia beta plus with splenic sequestration	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
D57.453	Sickle-cell thalassemia beta plus with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.458	Sickle-cell thalassemia beta plus with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.459	Sickle-cell thalassemia beta plus with crisis, unspecified	Diagnosis	ICD-10-CM
D57.80	Other sickle-cell disorders without crisis	Diagnosis	ICD-10-CM
D57.811	Other sickle-cell disorders with acute chest syndrome	Diagnosis	ICD-10-CM
D57.812	Other sickle-cell disorders with splenic sequestration	Diagnosis	ICD-10-CM
D57.813	Other sickle-cell disorders with cerebral vascular involvement	Diagnosis	ICD-10-CM
D57.818	Other sickle-cell disorders with crisis with other specified complication	Diagnosis	ICD-10-CM
D57.819	Other sickle-cell disorders with crisis, unspecified	Diagnosis	ICD-10-CM
D58.0	Hereditary spherocytosis	Diagnosis	ICD-10-CM
D58.1	Hereditary elliptocytosis	Diagnosis	ICD-10-CM
D58.2	Other hemoglobinopathies	Diagnosis	ICD-10-CM
D58.8	Other specified hereditary hemolytic anemias	Diagnosis	ICD-10-CM
D58.9	Hereditary hemolytic anemia, unspecified	Diagnosis	ICD-10-CM
D59.0	Drug-induced autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.1	Other autoimmune hemolytic anemias	Diagnosis	ICD-10-CM
D59.10	Autoimmune hemolytic anemia, unspecified	Diagnosis	ICD-10-CM
D59.11	Warm autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.12	Cold autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.13	Mixed type autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.19	Other autoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.2	Drug-induced nonautoimmune hemolytic anemia	Diagnosis	ICD-10-CM
D59.3	Hemolytic-uremic syndrome	Diagnosis	ICD-10-CM
D59.4	Other nonautoimmune hemolytic anemias	Diagnosis	ICD-10-CM
D59.5	Paroxysmal nocturnal hemoglobinuria [Marchiafava-Micheli]	Diagnosis	ICD-10-CM
D59.6	Hemoglobinuria due to hemolysis from other external causes	Diagnosis	ICD-10-CM
D59.8	Other acquired hemolytic anemias	Diagnosis	ICD-10-CM
D59.9	Acquired hemolytic anemia, unspecified	Diagnosis	ICD-10-CM
D60.0	Chronic acquired pure red cell aplasia	Diagnosis	ICD-10-CM
D60.1	Transient acquired pure red cell aplasia	Diagnosis	ICD-10-CM
D60.8	Other acquired pure red cell aplasias	Diagnosis	ICD-10-CM
D60.9	Acquired pure red cell aplasia, unspecified	Diagnosis	ICD-10-CM
D61.01	Constitutional (pure) red blood cell aplasia	Diagnosis	ICD-10-CM
D61.09	Other constitutional aplastic anemia	Diagnosis	ICD-10-CM
D61.1	Drug-induced aplastic anemia	Diagnosis	ICD-10-CM
D61.2	Aplastic anemia due to other external agents	Diagnosis	ICD-10-CM
D61.3	Idiopathic aplastic anemia	Diagnosis	ICD-10-CM
D61.810	Antineoplastic chemotherapy induced pancytopenia	Diagnosis	ICD-10-CM
D61.811	Other drug-induced pancytopenia	Diagnosis	ICD-10-CM
D61.818	Other pancytopenia	Diagnosis	ICD-10-CM
D61.82	Myelophthisis	Diagnosis	ICD-10-CM
D61.89	Other specified aplastic anemias and other bone marrow failure syndromes	Diagnosis	ICD-10-CM
D61.9	Aplastic anemia, unspecified	Diagnosis	ICD-10-CM
D62	Acute posthemorrhagic anemia	Diagnosis	ICD-10-CM
D63.0	Anemia in neoplastic disease	Diagnosis	ICD-10-CM
D63.1	Anemia in chronic kidney disease	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
D63.8	Anemia in other chronic diseases classified elsewhere	Diagnosis	ICD-10-CM
D64.0	Hereditary sideroblastic anemia	Diagnosis	ICD-10-CM
D64.1	Secondary sideroblastic anemia due to disease	Diagnosis	ICD-10-CM
D64.2	Secondary sideroblastic anemia due to drugs and toxins	Diagnosis	ICD-10-CM
D64.3	Other sideroblastic anemias	Diagnosis	ICD-10-CM
D64.4	Congenital dyserythropoietic anemia	Diagnosis	ICD-10-CM
D64.81	Anemia due to antineoplastic chemotherapy	Diagnosis	ICD-10-CM
D64.89	Other specified anemias	Diagnosis	ICD-10-CM
D64.9	Anemia, unspecified	Diagnosis	ICD-10-CM
D75.81	Myelofibrosis	Diagnosis	ICD-10-CM
<b>Asthma</b>			
J45.20	Mild intermittent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.21	Mild intermittent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.22	Mild intermittent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.30	Mild persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.31	Mild persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.32	Mild persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.40	Moderate persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.41	Moderate persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.42	Moderate persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.50	Severe persistent asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.51	Severe persistent asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.52	Severe persistent asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.901	Unspecified asthma with (acute) exacerbation	Diagnosis	ICD-10-CM
J45.902	Unspecified asthma with status asthmaticus	Diagnosis	ICD-10-CM
J45.909	Unspecified asthma, uncomplicated	Diagnosis	ICD-10-CM
J45.990	Exercise induced bronchospasm	Diagnosis	ICD-10-CM
J45.991	Cough variant asthma	Diagnosis	ICD-10-CM
J45.998	Other asthma	Diagnosis	ICD-10-CM
<b>Atrial Fibrillation</b>			
I48.0	Paroxysmal atrial fibrillation	Diagnosis	ICD-10-CM
I48.1	Persistent atrial fibrillation	Diagnosis	ICD-10-CM
I48.11	Chronic atrial fibrillation, unspecified	Diagnosis	ICD-10-CM
I48.19	Longstanding persistent atrial fibrillation	Diagnosis	ICD-10-CM
I48.2	Chronic atrial fibrillation	Diagnosis	ICD-10-CM
I48.20	Chronic atrial fibrillation	Diagnosis	ICD-10-CM
I48.21	Other persistent atrial fibrillation	Diagnosis	ICD-10-CM
I48.3	Paroxysmal atrial fibrillation	Diagnosis	ICD-10-CM
I48.4	Atypical atrial flutter	Diagnosis	ICD-10-CM
I48.91	Unspecified atrial fibrillation	Diagnosis	ICD-10-CM
<b>Benign Prostatic Hyperplasia</b>			
N40.0	Benign prostatic hyperplasia without lower urinary tract symptoms	Diagnosis	ICD-10-CM
N40.1	Benign prostatic hyperplasia with lower urinary tract symptoms	Diagnosis	ICD-10-CM
N40.2	Nodular prostate without lower urinary tract symptoms	Diagnosis	ICD-10-CM
N40.3	Nodular prostate with lower urinary tract symptoms	Diagnosis	ICD-10-CM
N42.83	Cyst of prostate	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
<b>Cataract</b>			
E08.36	Diabetes mellitus due to underlying condition with diabetic cataract	Diagnosis	ICD-10-CM
E09.36	Drug or chemical induced diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E10.36	Type 1 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E11.36	Type 2 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E13.36	Other specified diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
H25.011	Cortical age-related cataract, right eye	Diagnosis	ICD-10-CM
H25.012	Cortical age-related cataract, left eye	Diagnosis	ICD-10-CM
H25.013	Cortical age-related cataract, bilateral	Diagnosis	ICD-10-CM
H25.019	Cortical age-related cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.031	Anterior subcapsular polar age-related cataract, right eye	Diagnosis	ICD-10-CM
H25.032	Anterior subcapsular polar age-related cataract, left eye	Diagnosis	ICD-10-CM
H25.033	Anterior subcapsular polar age-related cataract, bilateral	Diagnosis	ICD-10-CM
H25.039	Anterior subcapsular polar age-related cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.041	Posterior subcapsular polar age-related cataract, right eye	Diagnosis	ICD-10-CM
H25.042	Posterior subcapsular polar age-related cataract, left eye	Diagnosis	ICD-10-CM
H25.043	Posterior subcapsular polar age-related cataract, bilateral	Diagnosis	ICD-10-CM
H25.049	Posterior subcapsular polar age-related cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.091	Other age-related incipient cataract, right eye	Diagnosis	ICD-10-CM
H25.092	Other age-related incipient cataract, left eye	Diagnosis	ICD-10-CM
H25.093	Other age-related incipient cataract, bilateral	Diagnosis	ICD-10-CM
H25.099	Other age-related incipient cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.10	Age-related nuclear cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.11	Age-related nuclear cataract, right eye	Diagnosis	ICD-10-CM
H25.12	Age-related nuclear cataract, left eye	Diagnosis	ICD-10-CM
H25.13	Age-related nuclear cataract, bilateral	Diagnosis	ICD-10-CM
H25.20	Age-related cataract, morgagnian type, unspecified eye	Diagnosis	ICD-10-CM
H25.21	Age-related cataract, morgagnian type, right eye	Diagnosis	ICD-10-CM
H25.22	Age-related cataract, morgagnian type, left eye	Diagnosis	ICD-10-CM
H25.23	Age-related cataract, morgagnian type, bilateral	Diagnosis	ICD-10-CM
H25.811	Combined forms of age-related cataract, right eye	Diagnosis	ICD-10-CM
H25.812	Combined forms of age-related cataract, left eye	Diagnosis	ICD-10-CM
H25.813	Combined forms of age-related cataract, bilateral	Diagnosis	ICD-10-CM
H25.819	Combined forms of age-related cataract, unspecified eye	Diagnosis	ICD-10-CM
H25.89	Other age-related cataract	Diagnosis	ICD-10-CM
H25.9	Unspecified age-related cataract	Diagnosis	ICD-10-CM
H26.001	Unspecified infantile and juvenile cataract, right eye	Diagnosis	ICD-10-CM
H26.002	Unspecified infantile and juvenile cataract, left eye	Diagnosis	ICD-10-CM
H26.003	Unspecified infantile and juvenile cataract, bilateral	Diagnosis	ICD-10-CM
H26.009	Unspecified infantile and juvenile cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.011	Infantile and juvenile cortical, lamellar, or zonular cataract, right eye	Diagnosis	ICD-10-CM
H26.012	Infantile and juvenile cortical, lamellar, or zonular cataract, left eye	Diagnosis	ICD-10-CM
H26.013	Infantile and juvenile cortical, lamellar, or zonular cataract, bilateral	Diagnosis	ICD-10-CM
H26.019	Infantile and juvenile cortical, lamellar, or zonular cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.031	Infantile and juvenile nuclear cataract, right eye	Diagnosis	ICD-10-CM
H26.032	Infantile and juvenile nuclear cataract, left eye	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
H26.033	Infantile and juvenile nuclear cataract, bilateral	Diagnosis	ICD-10-CM
H26.039	Infantile and juvenile nuclear cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.041	Anterior subcapsular polar infantile and juvenile cataract, right eye	Diagnosis	ICD-10-CM
H26.042	Anterior subcapsular polar infantile and juvenile cataract, left eye	Diagnosis	ICD-10-CM
H26.043	Anterior subcapsular polar infantile and juvenile cataract, bilateral	Diagnosis	ICD-10-CM
H26.049	Anterior subcapsular polar infantile and juvenile cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.051	Posterior subcapsular polar infantile and juvenile cataract, right eye	Diagnosis	ICD-10-CM
H26.052	Posterior subcapsular polar infantile and juvenile cataract, left eye	Diagnosis	ICD-10-CM
H26.053	Posterior subcapsular polar infantile and juvenile cataract, bilateral	Diagnosis	ICD-10-CM
H26.059	Posterior subcapsular polar infantile and juvenile cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.061	Combined forms of infantile and juvenile cataract, right eye	Diagnosis	ICD-10-CM
H26.062	Combined forms of infantile and juvenile cataract, left eye	Diagnosis	ICD-10-CM
H26.063	Combined forms of infantile and juvenile cataract, bilateral	Diagnosis	ICD-10-CM
H26.069	Combined forms of infantile and juvenile cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.09	Other infantile and juvenile cataract	Diagnosis	ICD-10-CM
H26.101	Unspecified traumatic cataract, right eye	Diagnosis	ICD-10-CM
H26.102	Unspecified traumatic cataract, left eye	Diagnosis	ICD-10-CM
H26.103	Unspecified traumatic cataract, bilateral	Diagnosis	ICD-10-CM
H26.109	Unspecified traumatic cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.111	Localized traumatic opacities, right eye	Diagnosis	ICD-10-CM
H26.112	Localized traumatic opacities, left eye	Diagnosis	ICD-10-CM
H26.113	Localized traumatic opacities, bilateral	Diagnosis	ICD-10-CM
H26.119	Localized traumatic opacities, unspecified eye	Diagnosis	ICD-10-CM
H26.121	Partially resolved traumatic cataract, right eye	Diagnosis	ICD-10-CM
H26.122	Partially resolved traumatic cataract, left eye	Diagnosis	ICD-10-CM
H26.123	Partially resolved traumatic cataract, bilateral	Diagnosis	ICD-10-CM
H26.129	Partially resolved traumatic cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.131	Total traumatic cataract, right eye	Diagnosis	ICD-10-CM
H26.132	Total traumatic cataract, left eye	Diagnosis	ICD-10-CM
H26.133	Total traumatic cataract, bilateral	Diagnosis	ICD-10-CM
H26.139	Total traumatic cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.20	Unspecified complicated cataract	Diagnosis	ICD-10-CM
H26.211	Cataract with neovascularization, right eye	Diagnosis	ICD-10-CM
H26.212	Cataract with neovascularization, left eye	Diagnosis	ICD-10-CM
H26.213	Cataract with neovascularization, bilateral	Diagnosis	ICD-10-CM
H26.219	Cataract with neovascularization, unspecified eye	Diagnosis	ICD-10-CM
H26.221	Cataract secondary to ocular disorders (degenerative) (inflammatory), right eye	Diagnosis	ICD-10-CM
H26.222	Cataract secondary to ocular disorders (degenerative) (inflammatory), left eye	Diagnosis	ICD-10-CM
H26.223	Cataract secondary to ocular disorders (degenerative) (inflammatory), bilateral	Diagnosis	ICD-10-CM
H26.229	Cataract secondary to ocular disorders (degenerative) (inflammatory), unspecified eye	Diagnosis	ICD-10-CM
H26.30	Drug-induced cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.31	Drug-induced cataract, right eye	Diagnosis	ICD-10-CM
H26.32	Drug-induced cataract, left eye	Diagnosis	ICD-10-CM
H26.33	Drug-induced cataract, bilateral	Diagnosis	ICD-10-CM
H26.40	Unspecified secondary cataract	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
H26.411	Soemmering's ring, right eye	Diagnosis	ICD-10-CM
H26.412	Soemmering's ring, left eye	Diagnosis	ICD-10-CM
H26.413	Soemmering's ring, bilateral	Diagnosis	ICD-10-CM
H26.419	Soemmering's ring, unspecified eye	Diagnosis	ICD-10-CM
H26.491	Other secondary cataract, right eye	Diagnosis	ICD-10-CM
H26.492	Other secondary cataract, left eye	Diagnosis	ICD-10-CM
H26.493	Other secondary cataract, bilateral	Diagnosis	ICD-10-CM
H26.499	Other secondary cataract, unspecified eye	Diagnosis	ICD-10-CM
H26.8	Other specified cataract	Diagnosis	ICD-10-CM
H26.9	Unspecified cataract	Diagnosis	ICD-10-CM
Q12.0	Congenital cataract	Diagnosis	ICD-10-CM
Z96.1	Presence of intraocular lens	Diagnosis	ICD-10-CM
<b>Chronic Kidney Disease</b>			
A18.11	Tuberculosis of kidney and ureter	Diagnosis	ICD-10-CM
A52.75	Syphilis of kidney and ureter	Diagnosis	ICD-10-CM
B52.0	Plasmodium malariae malaria with nephropathy	Diagnosis	ICD-10-CM
C64.1	Malignant neoplasm of right kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.2	Malignant neoplasm of left kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis	Diagnosis	ICD-10-CM
C68.9	Malignant neoplasm of urinary organ, unspecified	Diagnosis	ICD-10-CM
D30.00	Benign neoplasm of unspecified kidney	Diagnosis	ICD-10-CM
D30.01	Benign neoplasm of right kidney	Diagnosis	ICD-10-CM
D30.02	Benign neoplasm of left kidney	Diagnosis	ICD-10-CM
D41.00	Neoplasm of uncertain behavior of unspecified kidney	Diagnosis	ICD-10-CM
D41.01	Neoplasm of uncertain behavior of right kidney	Diagnosis	ICD-10-CM
D41.02	Neoplasm of uncertain behavior of left kidney	Diagnosis	ICD-10-CM
D41.10	Neoplasm of uncertain behavior of unspecified renal pelvis	Diagnosis	ICD-10-CM
D41.11	Neoplasm of uncertain behavior of right renal pelvis	Diagnosis	ICD-10-CM
D41.12	Neoplasm of uncertain behavior of left renal pelvis	Diagnosis	ICD-10-CM
D41.20	Neoplasm of uncertain behavior of unspecified ureter	Diagnosis	ICD-10-CM
D41.21	Neoplasm of uncertain behavior of right ureter	Diagnosis	ICD-10-CM
D41.22	Neoplasm of uncertain behavior of left ureter	Diagnosis	ICD-10-CM
D59.3	Hemolytic-uremic syndrome	Diagnosis	ICD-10-CM
E08.21	Diabetes mellitus due to underlying condition with diabetic nephropathy	Diagnosis	ICD-10-CM
E08.22	Diabetes mellitus due to underlying condition with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E08.29	Diabetes mellitus due to underlying condition with other diabetic kidney complication	Diagnosis	ICD-10-CM
E08.65	Diabetes mellitus due to underlying condition with hyperglycemia	Diagnosis	ICD-10-CM
E09.21	Drug or chemical induced diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E09.22	Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E09.29	Drug or chemical induced diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E13.21	Other specified diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E13.22	Other specified diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E13.29	Other specified diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E74.8	Other specified disorders of carbohydrate metabolism	Diagnosis	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	Diagnosis	ICD-10-CM
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.10	Hypertensive heart and chronic kidney disease without heart failure, with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.11	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I70.1	Atherosclerosis of renal artery	Diagnosis	ICD-10-CM
I72.2	Aneurysm of renal artery	Diagnosis	ICD-10-CM
K76.7	Hepatorenal syndrome	Diagnosis	ICD-10-CM
M10.30	Gout due to renal impairment, unspecified site	Diagnosis	ICD-10-CM
M10.311	Gout due to renal impairment, right shoulder	Diagnosis	ICD-10-CM
M10.312	Gout due to renal impairment, left shoulder	Diagnosis	ICD-10-CM
M10.319	Gout due to renal impairment, unspecified shoulder	Diagnosis	ICD-10-CM
M10.321	Gout due to renal impairment, right elbow	Diagnosis	ICD-10-CM
M10.322	Gout due to renal impairment, left elbow	Diagnosis	ICD-10-CM
M10.329	Gout due to renal impairment, unspecified elbow	Diagnosis	ICD-10-CM
M10.331	Gout due to renal impairment, right wrist	Diagnosis	ICD-10-CM
M10.332	Gout due to renal impairment, left wrist	Diagnosis	ICD-10-CM
M10.339	Gout due to renal impairment, unspecified wrist	Diagnosis	ICD-10-CM
M10.341	Gout due to renal impairment, right hand	Diagnosis	ICD-10-CM
M10.342	Gout due to renal impairment, left hand	Diagnosis	ICD-10-CM
M10.349	Gout due to renal impairment, unspecified hand	Diagnosis	ICD-10-CM
M10.351	Gout due to renal impairment, right hip	Diagnosis	ICD-10-CM
M10.352	Gout due to renal impairment, left hip	Diagnosis	ICD-10-CM
M10.359	Gout due to renal impairment, unspecified hip	Diagnosis	ICD-10-CM
M10.361	Gout due to renal impairment, right knee	Diagnosis	ICD-10-CM
M10.362	Gout due to renal impairment, left knee	Diagnosis	ICD-10-CM
M10.369	Gout due to renal impairment, unspecified knee	Diagnosis	ICD-10-CM
M10.371	Gout due to renal impairment, right ankle and foot	Diagnosis	ICD-10-CM
M10.372	Gout due to renal impairment, left ankle and foot	Diagnosis	ICD-10-CM
M10.379	Gout due to renal impairment, unspecified ankle and foot	Diagnosis	ICD-10-CM
M10.38	Gout due to renal impairment, vertebrae	Diagnosis	ICD-10-CM
M10.39	Gout due to renal impairment, multiple sites	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M32.14	Glomerular disease in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M32.15	Tubulo-interstitial nephropathy in systemic lupus erythematosus	Diagnosis	ICD-10-CM
M35.04	Sicca syndrome with tubulo-interstitial nephropathy	Diagnosis	ICD-10-CM
M35.0A	Sjogren syndrome with glomerular disease	Diagnosis	ICD-10-CM
N00.0	Acute nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N00.1	Acute nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N00.2	Acute nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N00.3	Acute nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N00.4	Acute nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N00.5	Acute nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N00.6	Acute nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N00.7	Acute nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N00.8	Acute nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N00.9	Acute nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N01.0	Rapidly progressive nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N01.1	Rapidly progressive nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N01.2	Rapidly progressive nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N01.3	Rapidly progressive nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N01.4	Rapidly progressive nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N01.5	Rapidly progressive nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N01.6	Rapidly progressive nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N01.7	Rapidly progressive nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N01.8	Rapidly progressive nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N01.9	Rapidly progressive nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N01.A	Rapidly progressive nephritic syndrome with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N02.0	Recurrent and persistent hematuria with minor glomerular abnormality	Diagnosis	ICD-10-CM
N02.1	Recurrent and persistent hematuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N02.2	Recurrent and persistent hematuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N02.3	Recurrent and persistent hematuria with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N02.4	Recurrent and persistent hematuria with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N02.5	Recurrent and persistent hematuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N02.6	Recurrent and persistent hematuria with dense deposit disease	Diagnosis	ICD-10-CM
N02.7	Recurrent and persistent hematuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N02.8	Recurrent and persistent hematuria with other morphologic changes	Diagnosis	ICD-10-CM
N02.9	Recurrent and persistent hematuria with unspecified morphologic changes	Diagnosis	ICD-10-CM
N02.A	Recurrent and persistent hematuria with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N03.0	Chronic nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
N03.1	Chronic nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N03.2	Chronic nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N03.3	Chronic nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N03.4	Chronic nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N03.5	Chronic nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N03.6	Chronic nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N03.7	Chronic nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N03.8	Chronic nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N03.9	Chronic nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N03.A	Chronic nephritic syndrome with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N04.0	Nephrotic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N04.1	Nephrotic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N04.2	Nephrotic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N04.3	Nephrotic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N04.4	Nephrotic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N04.5	Nephrotic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N04.6	Nephrotic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N04.7	Nephrotic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N04.8	Nephrotic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N04.9	Nephrotic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N04.A	Nephrotic syndrome with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N05.0	Unspecified nephritic syndrome with minor glomerular abnormality	Diagnosis	ICD-10-CM
N05.1	Unspecified nephritic syndrome with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N05.2	Unspecified nephritic syndrome with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N05.3	Unspecified nephritic syndrome with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N05.4	Unspecified nephritic syndrome with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N05.5	Unspecified nephritic syndrome with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N05.6	Unspecified nephritic syndrome with dense deposit disease	Diagnosis	ICD-10-CM
N05.7	Unspecified nephritic syndrome with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N05.8	Unspecified nephritic syndrome with other morphologic changes	Diagnosis	ICD-10-CM
N05.9	Unspecified nephritic syndrome with unspecified morphologic changes	Diagnosis	ICD-10-CM
N05.A	Unspecified nephritic syndrome with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N06.0	Isolated proteinuria with minor glomerular abnormality	Diagnosis	ICD-10-CM
N06.1	Isolated proteinuria with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N06.2	Isolated proteinuria with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N06.3	Isolated proteinuria with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N06.4	Isolated proteinuria with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N06.5	Isolated proteinuria with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N06.6	Isolated proteinuria with dense deposit disease	Diagnosis	ICD-10-CM
N06.7	Isolated proteinuria with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N06.8	Isolated proteinuria with other morphologic lesion	Diagnosis	ICD-10-CM
N06.9	Isolated proteinuria with unspecified morphologic lesion	Diagnosis	ICD-10-CM
N06.A	Isolated proteinuria with C3 glomerulonephritis	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
N07.0	Hereditary nephropathy, not elsewhere classified with minor glomerular abnormality	Diagnosis	ICD-10-CM
N07.1	Hereditary nephropathy, not elsewhere classified with focal and segmental glomerular lesions	Diagnosis	ICD-10-CM
N07.2	Hereditary nephropathy, not elsewhere classified with diffuse membranous glomerulonephritis	Diagnosis	ICD-10-CM
N07.3	Hereditary nephropathy, not elsewhere classified with diffuse mesangial proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N07.4	Hereditary nephropathy, not elsewhere classified with diffuse endocapillary proliferative glomerulonephritis	Diagnosis	ICD-10-CM
N07.5	Hereditary nephropathy, not elsewhere classified with diffuse mesangiocapillary glomerulonephritis	Diagnosis	ICD-10-CM
N07.6	Hereditary nephropathy, not elsewhere classified with dense deposit disease	Diagnosis	ICD-10-CM
N07.7	Hereditary nephropathy, not elsewhere classified with diffuse crescentic glomerulonephritis	Diagnosis	ICD-10-CM
N07.8	Hereditary nephropathy, not elsewhere classified with other morphologic lesions	Diagnosis	ICD-10-CM
N07.9	Hereditary nephropathy, not elsewhere classified with unspecified morphologic lesions	Diagnosis	ICD-10-CM
N07.A	Hereditary nephropathy, not elsewhere classified with C3 glomerulonephritis	Diagnosis	ICD-10-CM
N08	Glomerular disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N13.1	Hydronephrosis with ureteral stricture, not elsewhere classified	Diagnosis	ICD-10-CM
N13.2	Hydronephrosis with renal and ureteral calculous obstruction	Diagnosis	ICD-10-CM
N13.30	Unspecified hydronephrosis	Diagnosis	ICD-10-CM
N13.39	Other hydronephrosis	Diagnosis	ICD-10-CM
N14.0	Analgesic nephropathy	Diagnosis	ICD-10-CM
N14.1	Nephropathy induced by other drugs, medicaments and biological substances	Diagnosis	ICD-10-CM
N14.2	Nephropathy induced by unspecified drug, medicament or biological substance	Diagnosis	ICD-10-CM
N14.3	Nephropathy induced by heavy metals	Diagnosis	ICD-10-CM
N14.4	Toxic nephropathy, not elsewhere classified	Diagnosis	ICD-10-CM
N15.0	Balkan nephropathy	Diagnosis	ICD-10-CM
N15.8	Other specified renal tubulo-interstitial diseases	Diagnosis	ICD-10-CM
N15.9	Renal tubulo-interstitial disease, unspecified	Diagnosis	ICD-10-CM
N16	Renal tubulo-interstitial disorders in diseases classified elsewhere	Diagnosis	ICD-10-CM
N17.0	Acute kidney failure with tubular necrosis	Diagnosis	ICD-10-CM
N17.1	Acute kidney failure with acute cortical necrosis	Diagnosis	ICD-10-CM
N17.2	Acute kidney failure with medullary necrosis	Diagnosis	ICD-10-CM
N17.8	Other acute kidney failure	Diagnosis	ICD-10-CM
N17.9	Acute kidney failure, unspecified	Diagnosis	ICD-10-CM
N18.1	Chronic kidney disease, stage 1	Diagnosis	ICD-10-CM
N18.2	Chronic kidney disease, stage 2 (mild)	Diagnosis	ICD-10-CM
N18.3	Chronic kidney disease, stage 3 (moderate)	Diagnosis	ICD-10-CM
N18.30	Chronic kidney disease, stage 3 unspecified	Diagnosis	ICD-10-CM
N18.31	Chronic kidney disease, stage 3a	Diagnosis	ICD-10-CM
N18.32	Chronic kidney disease, stage 3b	Diagnosis	ICD-10-CM
N18.4	Chronic kidney disease, stage 4 (severe)	Diagnosis	ICD-10-CM
N18.5	Chronic kidney disease, stage 5	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
N18.6	End stage renal disease	Diagnosis	ICD-10-CM
N18.9	Chronic kidney disease, unspecified	Diagnosis	ICD-10-CM
N19	Unspecified kidney failure	Diagnosis	ICD-10-CM
N25.0	Renal osteodystrophy	Diagnosis	ICD-10-CM
N25.1	Nephrogenic diabetes insipidus	Diagnosis	ICD-10-CM
N25.81	Secondary hyperparathyroidism of renal origin	Diagnosis	ICD-10-CM
N25.89	Other disorders resulting from impaired renal tubular function	Diagnosis	ICD-10-CM
N25.9	Disorder resulting from impaired renal tubular function, unspecified	Diagnosis	ICD-10-CM
N26.1	Atrophy of kidney (terminal)	Diagnosis	ICD-10-CM
N26.9	Renal sclerosis, unspecified	Diagnosis	ICD-10-CM
N99.0	Postprocedural (acute) (chronic) kidney failure	Diagnosis	ICD-10-CM
Q61.02	Congenital multiple renal cysts	Diagnosis	ICD-10-CM
Q61.11	Cystic dilatation of collecting ducts	Diagnosis	ICD-10-CM
Q61.19	Other polycystic kidney, infantile type	Diagnosis	ICD-10-CM
Q61.2	Polycystic kidney, adult type	Diagnosis	ICD-10-CM
Q61.3	Polycystic kidney, unspecified	Diagnosis	ICD-10-CM
Q61.4	Renal dysplasia	Diagnosis	ICD-10-CM
Q61.5	Medullary cystic kidney	Diagnosis	ICD-10-CM
Q61.8	Other cystic kidney diseases	Diagnosis	ICD-10-CM
Q62.0	Congenital hydronephrosis	Diagnosis	ICD-10-CM
Q62.10	Congenital occlusion of ureter, unspecified	Diagnosis	ICD-10-CM
Q62.11	Congenital occlusion of ureteropelvic junction	Diagnosis	ICD-10-CM
Q62.12	Congenital occlusion of ureterovesical orifice	Diagnosis	ICD-10-CM
Q62.2	Congenital megaureter	Diagnosis	ICD-10-CM
Q62.31	Congenital ureterocele, orthotopic	Diagnosis	ICD-10-CM
Q62.32	Cecoureterocele	Diagnosis	ICD-10-CM
Q62.39	Other obstructive defects of renal pelvis and ureter	Diagnosis	ICD-10-CM
R94.4	Abnormal results of kidney function studies	Diagnosis	ICD-10-CM
<b>Chronic obstructive pulmonary disease &amp; bronchiectasis</b>			
J40	Bronchitis, not specified as acute or chronic	Diagnosis	ICD-10-CM
J41.0	Simple chronic bronchitis	Diagnosis	ICD-10-CM
J41.1	Mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J41.8	Mixed simple and mucopurulent chronic bronchitis	Diagnosis	ICD-10-CM
J42	Unspecified chronic bronchitis	Diagnosis	ICD-10-CM
J43.0	Unilateral pulmonary emphysema [MacLeod's syndrome]	Diagnosis	ICD-10-CM
J43.1	Panlobular emphysema	Diagnosis	ICD-10-CM
J43.2	Centrilobular emphysema	Diagnosis	ICD-10-CM
J43.8	Other emphysema	Diagnosis	ICD-10-CM
J43.9	Emphysema, unspecified	Diagnosis	ICD-10-CM
J44.0	Chronic obstructive pulmonary disease with acute lower respiratory infection	Diagnosis	ICD-10-CM
J44.1	Chronic obstructive pulmonary disease with (acute) exacerbation	Diagnosis	ICD-10-CM
J44.9	Chronic obstructive pulmonary disease, unspecified	Diagnosis	ICD-10-CM
J47.0	Bronchiectasis with acute lower respiratory infection	Diagnosis	ICD-10-CM
J47.1	Bronchiectasis with (acute) exacerbation	Diagnosis	ICD-10-CM
J47.9	Bronchiectasis, uncomplicated	Diagnosis	ICD-10-CM
J98.2	Interstitial emphysema	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
J98.3	Compensatory emphysema	Diagnosis	ICD-10-CM
<b>Depression</b>			
F06.31	Mood disorder due to known physiological condition with depressive features	Diagnosis	ICD-10-CM
F06.32	Mood disorder due to known physiological condition with major depressive-like episode	Diagnosis	ICD-10-CM
F31.0	Bipolar disorder, current episode hypomanic	Diagnosis	ICD-10-CM
F31.10	Bipolar disorder, current episode manic without psychotic features, unspecified	Diagnosis	ICD-10-CM
F31.11	Bipolar disorder, current episode manic without psychotic features, mild	Diagnosis	ICD-10-CM
F31.12	Bipolar disorder, current episode manic without psychotic features, moderate	Diagnosis	ICD-10-CM
F31.13	Bipolar disorder, current episode manic without psychotic features, severe	Diagnosis	ICD-10-CM
F31.2	Bipolar disorder, current episode manic severe with psychotic features	Diagnosis	ICD-10-CM
F31.30	Bipolar disorder, current episode depressed, mild or moderate severity, unspecified	Diagnosis	ICD-10-CM
F31.31	Bipolar disorder, current episode depressed, mild	Diagnosis	ICD-10-CM
F31.32	Bipolar disorder, current episode depressed, moderate	Diagnosis	ICD-10-CM
F31.4	Bipolar disorder, current episode depressed, severe, without psychotic features	Diagnosis	ICD-10-CM
F31.5	Bipolar disorder, current episode depressed, severe, with psychotic features	Diagnosis	ICD-10-CM
F31.60	Bipolar disorder, current episode mixed, unspecified	Diagnosis	ICD-10-CM
F31.61	Bipolar disorder, current episode mixed, mild	Diagnosis	ICD-10-CM
F31.62	Bipolar disorder, current episode mixed, moderate	Diagnosis	ICD-10-CM
F31.63	Bipolar disorder, current episode mixed, severe, without psychotic features	Diagnosis	ICD-10-CM
F31.64	Bipolar disorder, current episode mixed, severe, with psychotic features	Diagnosis	ICD-10-CM
F31.71	Bipolar disorder, in partial remission, most recent episode hypomanic	Diagnosis	ICD-10-CM
F31.73	Bipolar disorder, in partial remission, most recent episode manic	Diagnosis	ICD-10-CM
F31.75	Bipolar disorder, in partial remission, most recent episode depressed	Diagnosis	ICD-10-CM
F31.76	Bipolar disorder, in full remission, most recent episode depressed	Diagnosis	ICD-10-CM
F31.77	Bipolar disorder, in partial remission, most recent episode mixed	Diagnosis	ICD-10-CM
F31.78	Bipolar disorder, in full remission, most recent episode mixed	Diagnosis	ICD-10-CM
F31.81	Bipolar II disorder	Diagnosis	ICD-10-CM
F31.89	Other bipolar disorder	Diagnosis	ICD-10-CM
F31.9	Bipolar disorder, unspecified	Diagnosis	ICD-10-CM
F32.0	Major depressive disorder, single episode, mild	Diagnosis	ICD-10-CM
F32.1	Major depressive disorder, single episode, moderate	Diagnosis	ICD-10-CM
F32.2	Major depressive disorder, single episode, severe without psychotic features	Diagnosis	ICD-10-CM
F32.3	Major depressive disorder, single episode, severe with psychotic features	Diagnosis	ICD-10-CM
F32.4	Major depressive disorder, single episode, in partial remission	Diagnosis	ICD-10-CM
F32.5	Major depressive disorder, single episode, in full remission	Diagnosis	ICD-10-CM
F32.8	Other depressive episodes	Diagnosis	ICD-10-CM
F32.89	Other specified depressive episodes	Diagnosis	ICD-10-CM
F32.9	Major depressive disorder, single episode, unspecified	Diagnosis	ICD-10-CM
F32.A	Depression, unspecified	Diagnosis	ICD-10-CM
F33.0	Major depressive disorder, recurrent, mild	Diagnosis	ICD-10-CM
F33.1	Major depressive disorder, recurrent, moderate	Diagnosis	ICD-10-CM
F33.2	Major depressive disorder, recurrent severe without psychotic features	Diagnosis	ICD-10-CM
F33.3	Major depressive disorder, recurrent, severe with psychotic symptoms	Diagnosis	ICD-10-CM
F33.40	Major depressive disorder, recurrent, in remission, unspecified	Diagnosis	ICD-10-CM
F33.41	Major depressive disorder, recurrent, in partial remission	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
F33.42	Major depressive disorder, recurrent, in full remission	Diagnosis	ICD-10-CM
F33.8	Other recurrent depressive disorders	Diagnosis	ICD-10-CM
F33.9	Major depressive disorder, recurrent, unspecified	Diagnosis	ICD-10-CM
F34.0	Cyclothymic disorder	Diagnosis	ICD-10-CM
F34.1	Dysthymic disorder	Diagnosis	ICD-10-CM
F43.21	Adjustment disorder with depressed mood	Diagnosis	ICD-10-CM
F43.23	Adjustment disorder with mixed anxiety and depressed mood	Diagnosis	ICD-10-CM
<b>Diabetes</b>			
E10.10	Type 1 diabetes mellitus with ketoacidosis without coma	Diagnosis	ICD-10-CM
E10.11	Type 1 diabetes mellitus with ketoacidosis with coma	Diagnosis	ICD-10-CM
E10.21	Type 1 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E10.22	Type 1 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E10.29	Type 1 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E10.311	Type 1 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E10.319	Type 1 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E10.3211	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3212	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3213	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3219	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3291	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3292	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3293	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3299	Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3311	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3312	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3313	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3319	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3391	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3392	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3393	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E10.3399	Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3411	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3412	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3413	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3419	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3491	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3492	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3493	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3499	Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3511	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E10.3512	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E10.3513	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3519	Type 1 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.3521	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3522	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3523	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3529	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E10.3531	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E10.3532	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E10.3533	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E10.3539	Type 1 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E10.3541	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E10.3542	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E10.3543	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM
E10.3549	Type 1 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E10.3551	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E10.3552	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E10.3553	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E10.3559	Type 1 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E10.3591	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E10.3592	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E10.3593	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E10.3599	Type 1 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E10.36	Type 1 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E10.37X1	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E10.37X2	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E10.37X3	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E10.37X9	Type 1 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E10.39	Type 1 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E10.40	Type 1 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E10.41	Type 1 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E10.42	Type 1 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E10.43	Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E10.44	Type 1 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E10.49	Type 1 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E10.51	Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E10.52	Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E10.59	Type 1 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E10.610	Type 1 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E10.618	Type 1 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E10.620	Type 1 diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E10.621	Type 1 diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E10.622	Type 1 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E10.628	Type 1 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E10.630	Type 1 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E10.638	Type 1 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E10.641	Type 1 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E10.649	Type 1 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E10.65	Type 1 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM
E10.69	Type 1 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E10.8	Type 1 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E10.9	Type 1 diabetes mellitus without complications	Diagnosis	ICD-10-CM
E11.00	Type 2 diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic-hyperosmolar coma (NKHHC)	Diagnosis	ICD-10-CM
E11.01	Type 2 diabetes mellitus with hyperosmolarity with coma	Diagnosis	ICD-10-CM
E11.21	Type 2 diabetes mellitus with diabetic nephropathy	Diagnosis	ICD-10-CM
E11.22	Type 2 diabetes mellitus with diabetic chronic kidney disease	Diagnosis	ICD-10-CM
E11.29	Type 2 diabetes mellitus with other diabetic kidney complication	Diagnosis	ICD-10-CM
E11.311	Type 2 diabetes mellitus with unspecified diabetic retinopathy with macular edema	Diagnosis	ICD-10-CM
E11.319	Type 2 diabetes mellitus with unspecified diabetic retinopathy without macular edema	Diagnosis	ICD-10-CM
E11.3211	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3212	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3213	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3219	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3291	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3292	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3293	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3299	Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3311	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3312	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3313	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3319	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3391	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3392	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3393	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3399	Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E11.3411	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3412	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3413	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3419	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3491	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3492	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3493	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3499	Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3511	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, right eye	Diagnosis	ICD-10-CM
E11.3512	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, left eye	Diagnosis	ICD-10-CM
E11.3513	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3519	Type 2 diabetes mellitus with proliferative diabetic retinopathy with macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.3521	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, right eye	Diagnosis	ICD-10-CM
E11.3522	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, left eye	Diagnosis	ICD-10-CM
E11.3523	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, bilateral	Diagnosis	ICD-10-CM
E11.3529	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E11.3531	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, right eye	Diagnosis	ICD-10-CM
E11.3532	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, left eye	Diagnosis	ICD-10-CM
E11.3533	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, bilateral	Diagnosis	ICD-10-CM
E11.3539	Type 2 diabetes mellitus with proliferative diabetic retinopathy with traction retinal detachment not involving the macula, unspecified eye	Diagnosis	ICD-10-CM
E11.3541	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, right eye	Diagnosis	ICD-10-CM
E11.3542	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, left eye	Diagnosis	ICD-10-CM
E11.3543	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, bilateral	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
E11.3549	Type 2 diabetes mellitus with proliferative diabetic retinopathy with combined traction retinal detachment and rhegmatogenous retinal detachment, unspecified eye	Diagnosis	ICD-10-CM
E11.3551	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, right eye	Diagnosis	ICD-10-CM
E11.3552	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, left eye	Diagnosis	ICD-10-CM
E11.3553	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, bilateral	Diagnosis	ICD-10-CM
E11.3559	Type 2 diabetes mellitus with stable proliferative diabetic retinopathy, unspecified eye	Diagnosis	ICD-10-CM
E11.3591	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, right eye	Diagnosis	ICD-10-CM
E11.3592	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, left eye	Diagnosis	ICD-10-CM
E11.3593	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, bilateral	Diagnosis	ICD-10-CM
E11.3599	Type 2 diabetes mellitus with proliferative diabetic retinopathy without macular edema, unspecified eye	Diagnosis	ICD-10-CM
E11.36	Type 2 diabetes mellitus with diabetic cataract	Diagnosis	ICD-10-CM
E11.37X1	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, right eye	Diagnosis	ICD-10-CM
E11.37X2	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, left eye	Diagnosis	ICD-10-CM
E11.37X3	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, bilateral	Diagnosis	ICD-10-CM
E11.37X9	Type 2 diabetes mellitus with diabetic macular edema, resolved following treatment, unspecified eye	Diagnosis	ICD-10-CM
E11.39	Type 2 diabetes mellitus with other diabetic ophthalmic complication	Diagnosis	ICD-10-CM
E11.40	Type 2 diabetes mellitus with diabetic neuropathy, unspecified	Diagnosis	ICD-10-CM
E11.41	Type 2 diabetes mellitus with diabetic mononeuropathy	Diagnosis	ICD-10-CM
E11.42	Type 2 diabetes mellitus with diabetic polyneuropathy	Diagnosis	ICD-10-CM
E11.43	Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy	Diagnosis	ICD-10-CM
E11.44	Type 2 diabetes mellitus with diabetic amyotrophy	Diagnosis	ICD-10-CM
E11.49	Type 2 diabetes mellitus with other diabetic neurological complication	Diagnosis	ICD-10-CM
E11.51	Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene	Diagnosis	ICD-10-CM
E11.52	Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene	Diagnosis	ICD-10-CM
E11.59	Type 2 diabetes mellitus with other circulatory complications	Diagnosis	ICD-10-CM
E11.610	Type 2 diabetes mellitus with diabetic neuropathic arthropathy	Diagnosis	ICD-10-CM
E11.618	Type 2 diabetes mellitus with other diabetic arthropathy	Diagnosis	ICD-10-CM
E11.620	Type 2 diabetes mellitus with diabetic dermatitis	Diagnosis	ICD-10-CM
E11.621	Type 2 diabetes mellitus with foot ulcer	Diagnosis	ICD-10-CM
E11.622	Type 2 diabetes mellitus with other skin ulcer	Diagnosis	ICD-10-CM
E11.628	Type 2 diabetes mellitus with other skin complications	Diagnosis	ICD-10-CM
E11.630	Type 2 diabetes mellitus with periodontal disease	Diagnosis	ICD-10-CM
E11.638	Type 2 diabetes mellitus with other oral complications	Diagnosis	ICD-10-CM
E11.641	Type 2 diabetes mellitus with hypoglycemia with coma	Diagnosis	ICD-10-CM
E11.649	Type 2 diabetes mellitus with hypoglycemia without coma	Diagnosis	ICD-10-CM
E11.65	Type 2 diabetes mellitus with hyperglycemia	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
E11.69	Type 2 diabetes mellitus with other specified complication	Diagnosis	ICD-10-CM
E11.8	Type 2 diabetes mellitus with unspecified complications	Diagnosis	ICD-10-CM
E11.9	Type 2 diabetes mellitus without complications	Diagnosis	ICD-10-CM
<b>Glaucoma</b>			
H40.001	Preglaucoma, unspecified, right eye	Diagnosis	ICD-10-CM
H40.002	Preglaucoma, unspecified, left eye	Diagnosis	ICD-10-CM
H40.003	Preglaucoma, unspecified, bilateral	Diagnosis	ICD-10-CM
H40.009	Preglaucoma, unspecified, unspecified eye	Diagnosis	ICD-10-CM
H40.011	Open angle with borderline findings, low risk, right eye	Diagnosis	ICD-10-CM
H40.012	Open angle with borderline findings, low risk, left eye	Diagnosis	ICD-10-CM
H40.013	Open angle with borderline findings, low risk, bilateral	Diagnosis	ICD-10-CM
H40.019	Open angle with borderline findings, low risk, unspecified eye	Diagnosis	ICD-10-CM
H40.021	Open angle with borderline findings, high risk, right eye	Diagnosis	ICD-10-CM
H40.022	Open angle with borderline findings, high risk, left eye	Diagnosis	ICD-10-CM
H40.023	Open angle with borderline findings, high risk, bilateral	Diagnosis	ICD-10-CM
H40.029	Open angle with borderline findings, high risk, unspecified eye	Diagnosis	ICD-10-CM
H40.031	Anatomical narrow angle, right eye	Diagnosis	ICD-10-CM
H40.032	Anatomical narrow angle, left eye	Diagnosis	ICD-10-CM
H40.033	Anatomical narrow angle, bilateral	Diagnosis	ICD-10-CM
H40.039	Anatomical narrow angle, unspecified eye	Diagnosis	ICD-10-CM
H40.041	Steroid responder, right eye	Diagnosis	ICD-10-CM
H40.042	Steroid responder, left eye	Diagnosis	ICD-10-CM
H40.043	Steroid responder, bilateral	Diagnosis	ICD-10-CM
H40.049	Steroid responder, unspecified eye	Diagnosis	ICD-10-CM
H40.051	Ocular hypertension, right eye	Diagnosis	ICD-10-CM
H40.052	Ocular hypertension, left eye	Diagnosis	ICD-10-CM
H40.053	Ocular hypertension, bilateral	Diagnosis	ICD-10-CM
H40.059	Ocular hypertension, unspecified eye	Diagnosis	ICD-10-CM
H40.10X0	Unspecified open-angle glaucoma, stage unspecified	Diagnosis	ICD-10-CM
H40.10X1	Unspecified open-angle glaucoma, mild stage	Diagnosis	ICD-10-CM
H40.10X2	Unspecified open-angle glaucoma, moderate stage	Diagnosis	ICD-10-CM
H40.10X3	Unspecified open-angle glaucoma, severe stage	Diagnosis	ICD-10-CM
H40.10X4	Unspecified open-angle glaucoma, indeterminate stage	Diagnosis	ICD-10-CM
H40.1110	Primary open-angle glaucoma, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1111	Primary open-angle glaucoma, right eye, mild stage	Diagnosis	ICD-10-CM
H40.1112	Primary open-angle glaucoma, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.1113	Primary open-angle glaucoma, right eye, severe stage	Diagnosis	ICD-10-CM
H40.1114	Primary open-angle glaucoma, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1120	Primary open-angle glaucoma, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1121	Primary open-angle glaucoma, left eye, mild stage	Diagnosis	ICD-10-CM
H40.1122	Primary open-angle glaucoma, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.1123	Primary open-angle glaucoma, left eye, severe stage	Diagnosis	ICD-10-CM
H40.1124	Primary open-angle glaucoma, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1130	Primary open-angle glaucoma, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.1131	Primary open-angle glaucoma, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.1132	Primary open-angle glaucoma, bilateral, moderate stage	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
H40.1133	Primary open-angle glaucoma, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.1134	Primary open-angle glaucoma, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.1190	Primary open-angle glaucoma, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1191	Primary open-angle glaucoma, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.1192	Primary open-angle glaucoma, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.1193	Primary open-angle glaucoma, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.1194	Primary open-angle glaucoma, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.11X0	Primary open-angle glaucoma, stage unspecified	Diagnosis	ICD-10-CM
H40.11X1	Primary open-angle glaucoma, mild stage	Diagnosis	ICD-10-CM
H40.11X2	Primary open-angle glaucoma, moderate stage	Diagnosis	ICD-10-CM
H40.11X3	Primary open-angle glaucoma, severe stage	Diagnosis	ICD-10-CM
H40.11X4	Primary open-angle glaucoma, indeterminate stage	Diagnosis	ICD-10-CM
H40.1210	Low-tension glaucoma, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1211	Low-tension glaucoma, right eye, mild stage	Diagnosis	ICD-10-CM
H40.1212	Low-tension glaucoma, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.1213	Low-tension glaucoma, right eye, severe stage	Diagnosis	ICD-10-CM
H40.1214	Low-tension glaucoma, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1220	Low-tension glaucoma, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1221	Low-tension glaucoma, left eye, mild stage	Diagnosis	ICD-10-CM
H40.1222	Low-tension glaucoma, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.1223	Low-tension glaucoma, left eye, severe stage	Diagnosis	ICD-10-CM
H40.1224	Low-tension glaucoma, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1230	Low-tension glaucoma, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.1231	Low-tension glaucoma, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.1232	Low-tension glaucoma, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.1233	Low-tension glaucoma, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.1234	Low-tension glaucoma, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.1290	Low-tension glaucoma, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1291	Low-tension glaucoma, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.1292	Low-tension glaucoma, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.1293	Low-tension glaucoma, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.1294	Low-tension glaucoma, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1310	Pigmentary glaucoma, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1311	Pigmentary glaucoma, right eye, mild stage	Diagnosis	ICD-10-CM
H40.1312	Pigmentary glaucoma, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.1313	Pigmentary glaucoma, right eye, severe stage	Diagnosis	ICD-10-CM
H40.1314	Pigmentary glaucoma, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1320	Pigmentary glaucoma, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1321	Pigmentary glaucoma, left eye, mild stage	Diagnosis	ICD-10-CM
H40.1322	Pigmentary glaucoma, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.1323	Pigmentary glaucoma, left eye, severe stage	Diagnosis	ICD-10-CM
H40.1324	Pigmentary glaucoma, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1330	Pigmentary glaucoma, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.1331	Pigmentary glaucoma, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.1332	Pigmentary glaucoma, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.1333	Pigmentary glaucoma, bilateral, severe stage	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
H40.1334	Pigmentary glaucoma, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.1390	Pigmentary glaucoma, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1391	Pigmentary glaucoma, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.1392	Pigmentary glaucoma, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.1393	Pigmentary glaucoma, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.1394	Pigmentary glaucoma, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1410	Capsular glaucoma with pseudoexfoliation of lens, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1411	Capsular glaucoma with pseudoexfoliation of lens, right eye, mild stage	Diagnosis	ICD-10-CM
H40.1412	Capsular glaucoma with pseudoexfoliation of lens, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.1413	Capsular glaucoma with pseudoexfoliation of lens, right eye, severe stage	Diagnosis	ICD-10-CM
H40.1414	Capsular glaucoma with pseudoexfoliation of lens, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1420	Capsular glaucoma with pseudoexfoliation of lens, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1421	Capsular glaucoma with pseudoexfoliation of lens, left eye, mild stage	Diagnosis	ICD-10-CM
H40.1422	Capsular glaucoma with pseudoexfoliation of lens, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.1423	Capsular glaucoma with pseudoexfoliation of lens, left eye, severe stage	Diagnosis	ICD-10-CM
H40.1424	Capsular glaucoma with pseudoexfoliation of lens, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.1430	Capsular glaucoma with pseudoexfoliation of lens, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.1431	Capsular glaucoma with pseudoexfoliation of lens, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.1432	Capsular glaucoma with pseudoexfoliation of lens, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.1433	Capsular glaucoma with pseudoexfoliation of lens, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.1434	Capsular glaucoma with pseudoexfoliation of lens, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.1490	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.1491	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.1492	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.1493	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.1494	Capsular glaucoma with pseudoexfoliation of lens, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.151	Residual stage of open-angle glaucoma, right eye	Diagnosis	ICD-10-CM
H40.152	Residual stage of open-angle glaucoma, left eye	Diagnosis	ICD-10-CM
H40.153	Residual stage of open-angle glaucoma, bilateral	Diagnosis	ICD-10-CM
H40.159	Residual stage of open-angle glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H40.20X0	Unspecified primary angle-closure glaucoma, stage unspecified	Diagnosis	ICD-10-CM
H40.20X1	Unspecified primary angle-closure glaucoma, mild stage	Diagnosis	ICD-10-CM
H40.20X2	Unspecified primary angle-closure glaucoma, moderate stage	Diagnosis	ICD-10-CM
H40.20X3	Unspecified primary angle-closure glaucoma, severe stage	Diagnosis	ICD-10-CM
H40.20X4	Unspecified primary angle-closure glaucoma, indeterminate stage	Diagnosis	ICD-10-CM
H40.211	Acute angle-closure glaucoma, right eye	Diagnosis	ICD-10-CM
H40.212	Acute angle-closure glaucoma, left eye	Diagnosis	ICD-10-CM
H40.213	Acute angle-closure glaucoma, bilateral	Diagnosis	ICD-10-CM
H40.219	Acute angle-closure glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H40.2210	Chronic angle-closure glaucoma, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.2211	Chronic angle-closure glaucoma, right eye, mild stage	Diagnosis	ICD-10-CM
H40.2212	Chronic angle-closure glaucoma, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.2213	Chronic angle-closure glaucoma, right eye, severe stage	Diagnosis	ICD-10-CM
H40.2214	Chronic angle-closure glaucoma, right eye, indeterminate stage	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
H40.2220	Chronic angle-closure glaucoma, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.2221	Chronic angle-closure glaucoma, left eye, mild stage	Diagnosis	ICD-10-CM
H40.2222	Chronic angle-closure glaucoma, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.2223	Chronic angle-closure glaucoma, left eye, severe stage	Diagnosis	ICD-10-CM
H40.2224	Chronic angle-closure glaucoma, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.2230	Chronic angle-closure glaucoma, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.2231	Chronic angle-closure glaucoma, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.2232	Chronic angle-closure glaucoma, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.2233	Chronic angle-closure glaucoma, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.2234	Chronic angle-closure glaucoma, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.2290	Chronic angle-closure glaucoma, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.2291	Chronic angle-closure glaucoma, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.2292	Chronic angle-closure glaucoma, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.2293	Chronic angle-closure glaucoma, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.2294	Chronic angle-closure glaucoma, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.231	Intermittent angle-closure glaucoma, right eye	Diagnosis	ICD-10-CM
H40.232	Intermittent angle-closure glaucoma, left eye	Diagnosis	ICD-10-CM
H40.233	Intermittent angle-closure glaucoma, bilateral	Diagnosis	ICD-10-CM
H40.239	Intermittent angle-closure glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H40.241	Residual stage of angle-closure glaucoma, right eye	Diagnosis	ICD-10-CM
H40.242	Residual stage of angle-closure glaucoma, left eye	Diagnosis	ICD-10-CM
H40.243	Residual stage of angle-closure glaucoma, bilateral	Diagnosis	ICD-10-CM
H40.249	Residual stage of angle-closure glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H40.30X0	Glaucoma secondary to eye trauma, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.30X1	Glaucoma secondary to eye trauma, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.30X2	Glaucoma secondary to eye trauma, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.30X3	Glaucoma secondary to eye trauma, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.30X4	Glaucoma secondary to eye trauma, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.31X0	Glaucoma secondary to eye trauma, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.31X1	Glaucoma secondary to eye trauma, right eye, mild stage	Diagnosis	ICD-10-CM
H40.31X2	Glaucoma secondary to eye trauma, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.31X3	Glaucoma secondary to eye trauma, right eye, severe stage	Diagnosis	ICD-10-CM
H40.31X4	Glaucoma secondary to eye trauma, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.32X0	Glaucoma secondary to eye trauma, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.32X1	Glaucoma secondary to eye trauma, left eye, mild stage	Diagnosis	ICD-10-CM
H40.32X2	Glaucoma secondary to eye trauma, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.32X3	Glaucoma secondary to eye trauma, left eye, severe stage	Diagnosis	ICD-10-CM
H40.32X4	Glaucoma secondary to eye trauma, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.33X0	Glaucoma secondary to eye trauma, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.33X1	Glaucoma secondary to eye trauma, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.33X2	Glaucoma secondary to eye trauma, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.33X3	Glaucoma secondary to eye trauma, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.33X4	Glaucoma secondary to eye trauma, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.40X0	Glaucoma secondary to eye inflammation, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.40X1	Glaucoma secondary to eye inflammation, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.40X2	Glaucoma secondary to eye inflammation, unspecified eye, moderate stage	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
H40.40X3	Glaucoma secondary to eye inflammation, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.40X4	Glaucoma secondary to eye inflammation, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.41X0	Glaucoma secondary to eye inflammation, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.41X1	Glaucoma secondary to eye inflammation, right eye, mild stage	Diagnosis	ICD-10-CM
H40.41X2	Glaucoma secondary to eye inflammation, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.41X3	Glaucoma secondary to eye inflammation, right eye, severe stage	Diagnosis	ICD-10-CM
H40.41X4	Glaucoma secondary to eye inflammation, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.42X0	Glaucoma secondary to eye inflammation, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.42X1	Glaucoma secondary to eye inflammation, left eye, mild stage	Diagnosis	ICD-10-CM
H40.42X2	Glaucoma secondary to eye inflammation, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.42X3	Glaucoma secondary to eye inflammation, left eye, severe stage	Diagnosis	ICD-10-CM
H40.42X4	Glaucoma secondary to eye inflammation, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.43X0	Glaucoma secondary to eye inflammation, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.43X1	Glaucoma secondary to eye inflammation, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.43X2	Glaucoma secondary to eye inflammation, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.43X3	Glaucoma secondary to eye inflammation, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.43X4	Glaucoma secondary to eye inflammation, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.50X0	Glaucoma secondary to other eye disorders, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.50X1	Glaucoma secondary to other eye disorders, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.50X2	Glaucoma secondary to other eye disorders, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.50X3	Glaucoma secondary to other eye disorders, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.50X4	Glaucoma secondary to other eye disorders, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.51X0	Glaucoma secondary to other eye disorders, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.51X1	Glaucoma secondary to other eye disorders, right eye, mild stage	Diagnosis	ICD-10-CM
H40.51X2	Glaucoma secondary to other eye disorders, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.51X3	Glaucoma secondary to other eye disorders, right eye, severe stage	Diagnosis	ICD-10-CM
H40.51X4	Glaucoma secondary to other eye disorders, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.52X0	Glaucoma secondary to other eye disorders, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.52X1	Glaucoma secondary to other eye disorders, left eye, mild stage	Diagnosis	ICD-10-CM
H40.52X2	Glaucoma secondary to other eye disorders, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.52X3	Glaucoma secondary to other eye disorders, left eye, severe stage	Diagnosis	ICD-10-CM
H40.52X4	Glaucoma secondary to other eye disorders, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.53X0	Glaucoma secondary to other eye disorders, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.53X1	Glaucoma secondary to other eye disorders, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.53X2	Glaucoma secondary to other eye disorders, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.53X3	Glaucoma secondary to other eye disorders, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.53X4	Glaucoma secondary to other eye disorders, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.60X0	Glaucoma secondary to drugs, unspecified eye, stage unspecified	Diagnosis	ICD-10-CM
H40.60X1	Glaucoma secondary to drugs, unspecified eye, mild stage	Diagnosis	ICD-10-CM
H40.60X2	Glaucoma secondary to drugs, unspecified eye, moderate stage	Diagnosis	ICD-10-CM
H40.60X3	Glaucoma secondary to drugs, unspecified eye, severe stage	Diagnosis	ICD-10-CM
H40.60X4	Glaucoma secondary to drugs, unspecified eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.61X0	Glaucoma secondary to drugs, right eye, stage unspecified	Diagnosis	ICD-10-CM
H40.61X1	Glaucoma secondary to drugs, right eye, mild stage	Diagnosis	ICD-10-CM
H40.61X2	Glaucoma secondary to drugs, right eye, moderate stage	Diagnosis	ICD-10-CM
H40.61X3	Glaucoma secondary to drugs, right eye, severe stage	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
H40.61X4	Glaucoma secondary to drugs, right eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.62X0	Glaucoma secondary to drugs, left eye, stage unspecified	Diagnosis	ICD-10-CM
H40.62X1	Glaucoma secondary to drugs, left eye, mild stage	Diagnosis	ICD-10-CM
H40.62X2	Glaucoma secondary to drugs, left eye, moderate stage	Diagnosis	ICD-10-CM
H40.62X3	Glaucoma secondary to drugs, left eye, severe stage	Diagnosis	ICD-10-CM
H40.62X4	Glaucoma secondary to drugs, left eye, indeterminate stage	Diagnosis	ICD-10-CM
H40.63X0	Glaucoma secondary to drugs, bilateral, stage unspecified	Diagnosis	ICD-10-CM
H40.63X1	Glaucoma secondary to drugs, bilateral, mild stage	Diagnosis	ICD-10-CM
H40.63X2	Glaucoma secondary to drugs, bilateral, moderate stage	Diagnosis	ICD-10-CM
H40.63X3	Glaucoma secondary to drugs, bilateral, severe stage	Diagnosis	ICD-10-CM
H40.63X4	Glaucoma secondary to drugs, bilateral, indeterminate stage	Diagnosis	ICD-10-CM
H40.811	Glaucoma with increased episcleral venous pressure, right eye	Diagnosis	ICD-10-CM
H40.812	Glaucoma with increased episcleral venous pressure, left eye	Diagnosis	ICD-10-CM
H40.813	Glaucoma with increased episcleral venous pressure, bilateral	Diagnosis	ICD-10-CM
H40.819	Glaucoma with increased episcleral venous pressure, unspecified eye	Diagnosis	ICD-10-CM
H40.821	Hypersecretion glaucoma, right eye	Diagnosis	ICD-10-CM
H40.822	Hypersecretion glaucoma, left eye	Diagnosis	ICD-10-CM
H40.823	Hypersecretion glaucoma, bilateral	Diagnosis	ICD-10-CM
H40.829	Hypersecretion glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H40.831	Aqueous misdirection, right eye	Diagnosis	ICD-10-CM
H40.832	Aqueous misdirection, left eye	Diagnosis	ICD-10-CM
H40.833	Aqueous misdirection, bilateral	Diagnosis	ICD-10-CM
H40.839	Aqueous misdirection, unspecified eye	Diagnosis	ICD-10-CM
H40.89	Other specified glaucoma	Diagnosis	ICD-10-CM
H40.9	Unspecified glaucoma	Diagnosis	ICD-10-CM
H42	Glaucoma in diseases classified elsewhere	Diagnosis	ICD-10-CM
H44.511	Absolute glaucoma, right eye	Diagnosis	ICD-10-CM
H44.512	Absolute glaucoma, left eye	Diagnosis	ICD-10-CM
H44.513	Absolute glaucoma, bilateral	Diagnosis	ICD-10-CM
H44.519	Absolute glaucoma, unspecified eye	Diagnosis	ICD-10-CM
H47.231	Glaucomatous optic atrophy, right eye	Diagnosis	ICD-10-CM
H47.232	Glaucomatous optic atrophy, left eye	Diagnosis	ICD-10-CM
H47.233	Glaucomatous optic atrophy, bilateral	Diagnosis	ICD-10-CM
H47.239	Glaucomatous optic atrophy, unspecified eye	Diagnosis	ICD-10-CM
Q15.0	Congenital glaucoma	Diagnosis	ICD-10-CM
Heart Failure			
I09.81	Rheumatic heart failure	Diagnosis	ICD-10-CM
I11.0	Hypertensive heart disease with heart failure	Diagnosis	ICD-10-CM
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I42.0	Dilated cardiomyopathy	Diagnosis	ICD-10-CM
I42.5	Other restrictive cardiomyopathy	Diagnosis	ICD-10-CM
I42.6	Alcoholic cardiomyopathy	Diagnosis	ICD-10-CM
I42.7	Cardiomyopathy due to drug and external agent	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I42.8	Other cardiomyopathies	Diagnosis	ICD-10-CM
I43	Cardiomyopathy in diseases classified elsewhere	Diagnosis	ICD-10-CM
I50.1	Left ventricular failure, unspecified	Diagnosis	ICD-10-CM
I50.20	Unspecified systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.21	Acute systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.22	Chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.23	Acute on chronic systolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.30	Unspecified diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.31	Acute diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.32	Chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.33	Acute on chronic diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure	Diagnosis	ICD-10-CM
I50.810	Right heart failure, unspecified	Diagnosis	ICD-10-CM
I50.811	Acute right heart failure	Diagnosis	ICD-10-CM
I50.812	Chronic right heart failure	Diagnosis	ICD-10-CM
I50.813	Acute on chronic right heart failure	Diagnosis	ICD-10-CM
I50.814	Right heart failure due to left heart failure	Diagnosis	ICD-10-CM
I50.82	Biventricular heart failure	Diagnosis	ICD-10-CM
I50.83	High output heart failure	Diagnosis	ICD-10-CM
I50.84	End stage heart failure	Diagnosis	ICD-10-CM
I50.89	Other heart failure	Diagnosis	ICD-10-CM
I50.9	Heart failure, unspecified	Diagnosis	ICD-10-CM
P29.0	Neonatal cardiac failure	Diagnosis	ICD-10-CM
<b>Hip/Pelvic Fracture</b>			
M80.051A	Age-related osteoporosis with current pathological fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.052A	Age-related osteoporosis with current pathological fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.059A	Age-related osteoporosis with current pathological fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.851A	Other osteoporosis with current pathological fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.852A	Other osteoporosis with current pathological fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.859A	Other osteoporosis with current pathological fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.350A	Stress fracture, pelvis, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.351A	Stress fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.352A	Stress fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.353A	Stress fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.359A	Stress fracture, hip, unspecified, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.451A	Pathological fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M84.452A	Pathological fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.453A	Pathological fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.459A	Pathological fracture, hip, unspecified, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.550A	Pathological fracture in neoplastic disease, pelvis, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.551A	Pathological fracture in neoplastic disease, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.552A	Pathological fracture in neoplastic disease, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.553A	Pathological fracture in neoplastic disease, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.559A	Pathological fracture in neoplastic disease, hip, unspecified, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.650A	Pathological fracture in other disease, pelvis, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.651A	Pathological fracture in other disease, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.652A	Pathological fracture in other disease, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.653A	Pathological fracture in other disease, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M84.659A	Pathological fracture in other disease, hip, unspecified, initial encounter for fracture	Diagnosis	ICD-10-CM
M97.01XA	Periprosthetic fracture around internal prosthetic right hip joint, initial encounter	Diagnosis	ICD-10-CM
M97.02XA	Periprosthetic fracture around internal prosthetic left hip joint, initial encounter	Diagnosis	ICD-10-CM
S32.301A	Unspecified fracture of right ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.301B	Unspecified fracture of right ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.302A	Unspecified fracture of left ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.302B	Unspecified fracture of left ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.309A	Unspecified fracture of unspecified ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.309B	Unspecified fracture of unspecified ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.311A	Displaced avulsion fracture of right ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.311B	Displaced avulsion fracture of right ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.312A	Displaced avulsion fracture of left ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.312B	Displaced avulsion fracture of left ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.313A	Displaced avulsion fracture of unspecified ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.313B	Displaced avulsion fracture of unspecified ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.314A	Nondisplaced avulsion fracture of right ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.314B	Nondisplaced avulsion fracture of right ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.315A	Nondisplaced avulsion fracture of left ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.315B	Nondisplaced avulsion fracture of left ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.316A	Nondisplaced avulsion fracture of unspecified ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.316B	Nondisplaced avulsion fracture of unspecified ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.391A	Other fracture of right ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.391B	Other fracture of right ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.392A	Other fracture of left ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.392B	Other fracture of left ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.399A	Other fracture of unspecified ilium, initial encounter for closed fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.399B	Other fracture of unspecified ilium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.401A	Unspecified fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.401B	Unspecified fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.402A	Unspecified fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.402B	Unspecified fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.409A	Unspecified fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.409B	Unspecified fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.411A	Displaced fracture of anterior wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.411B	Displaced fracture of anterior wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.412A	Displaced fracture of anterior wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.412B	Displaced fracture of anterior wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.413A	Displaced fracture of anterior wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.413B	Displaced fracture of anterior wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.414A	Nondisplaced fracture of anterior wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.414B	Nondisplaced fracture of anterior wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.415A	Nondisplaced fracture of anterior wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.415B	Nondisplaced fracture of anterior wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.416A	Nondisplaced fracture of anterior wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.416B	Nondisplaced fracture of anterior wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.421A	Displaced fracture of posterior wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.421B	Displaced fracture of posterior wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.422A	Displaced fracture of posterior wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.422B	Displaced fracture of posterior wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.423A	Displaced fracture of posterior wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.423B	Displaced fracture of posterior wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.424A	Nondisplaced fracture of posterior wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.424B	Nondisplaced fracture of posterior wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.425A	Nondisplaced fracture of posterior wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.425B	Nondisplaced fracture of posterior wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.426A	Nondisplaced fracture of posterior wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.426B	Nondisplaced fracture of posterior wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.431A	Displaced fracture of anterior column [iliopubic] of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.431B	Displaced fracture of anterior column [iliopubic] of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.432A	Displaced fracture of anterior column [iliopubic] of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.432B	Displaced fracture of anterior column [iliopubic] of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.433A	Displaced fracture of anterior column [iliopubic] of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.433B	Displaced fracture of anterior column [iliopubic] of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.434A	Nondisplaced fracture of anterior column [iliopubic] of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.434B	Nondisplaced fracture of anterior column [iliopubic] of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.435A	Nondisplaced fracture of anterior column [iliopubic] of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.435B	Nondisplaced fracture of anterior column [iliopubic] of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.436A	Nondisplaced fracture of anterior column [iliopubic] of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.436B	Nondisplaced fracture of anterior column [iliopubic] of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.441A	Displaced fracture of posterior column [ilioischial] of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.441B	Displaced fracture of posterior column [ilioischial] of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.442A	Displaced fracture of posterior column [ilioischial] of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.442B	Displaced fracture of posterior column [ilioischial] of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.443A	Displaced fracture of posterior column [ilioischial] of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.443B	Displaced fracture of posterior column [ilioischial] of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.444A	Nondisplaced fracture of posterior column [ilioischial] of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.444B	Nondisplaced fracture of posterior column [ilioischial] of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.445A	Nondisplaced fracture of posterior column [ilioischial] of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.445B	Nondisplaced fracture of posterior column [ilioischial] of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.446A	Nondisplaced fracture of posterior column [ilioischial] of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.446B	Nondisplaced fracture of posterior column [ilioischial] of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.451A	Displaced transverse fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.451B	Displaced transverse fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.452A	Displaced transverse fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.452B	Displaced transverse fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.453A	Displaced transverse fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.453B	Displaced transverse fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.454A	Nondisplaced transverse fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.454B	Nondisplaced transverse fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.455A	Nondisplaced transverse fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.455B	Nondisplaced transverse fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.456A	Nondisplaced transverse fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.456B	Nondisplaced transverse fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.461A	Displaced associated transverse-posterior fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.461B	Displaced associated transverse-posterior fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.462A	Displaced associated transverse-posterior fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.462B	Displaced associated transverse-posterior fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.463A	Displaced associated transverse-posterior fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.463B	Displaced associated transverse-posterior fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.464A	Nondisplaced associated transverse-posterior fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.464B	Nondisplaced associated transverse-posterior fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.465A	Nondisplaced associated transverse-posterior fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.465B	Nondisplaced associated transverse-posterior fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.466A	Nondisplaced associated transverse-posterior fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.466B	Nondisplaced associated transverse-posterior fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.471A	Displaced fracture of medial wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.471B	Displaced fracture of medial wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.472A	Displaced fracture of medial wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.472B	Displaced fracture of medial wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.473A	Displaced fracture of medial wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.473B	Displaced fracture of medial wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.474A	Nondisplaced fracture of medial wall of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.474B	Nondisplaced fracture of medial wall of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.475A	Nondisplaced fracture of medial wall of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.475B	Nondisplaced fracture of medial wall of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.476A	Nondisplaced fracture of medial wall of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.476B	Nondisplaced fracture of medial wall of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.481A	Displaced dome fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.481B	Displaced dome fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.482A	Displaced dome fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.482B	Displaced dome fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.483A	Displaced dome fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.483B	Displaced dome fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.484A	Nondisplaced dome fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.484B	Nondisplaced dome fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.485A	Nondisplaced dome fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.485B	Nondisplaced dome fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.486A	Nondisplaced dome fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.486B	Nondisplaced dome fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.491A	Other specified fracture of right acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.491B	Other specified fracture of right acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.492A	Other specified fracture of left acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.492B	Other specified fracture of left acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.499A	Other specified fracture of unspecified acetabulum, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.499B	Other specified fracture of unspecified acetabulum, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.501A	Unspecified fracture of right pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.501B	Unspecified fracture of right pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.502A	Unspecified fracture of left pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.502B	Unspecified fracture of left pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.509A	Unspecified fracture of unspecified pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.509B	Unspecified fracture of unspecified pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.511A	Fracture of superior rim of right pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.511B	Fracture of superior rim of right pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.512A	Fracture of superior rim of left pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.512B	Fracture of superior rim of left pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.519A	Fracture of superior rim of unspecified pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.519B	Fracture of superior rim of unspecified pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.591A	Other specified fracture of right pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.591B	Other specified fracture of right pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.592A	Other specified fracture of left pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.592B	Other specified fracture of left pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.599A	Other specified fracture of unspecified pubis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.599B	Other specified fracture of unspecified pubis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.601A	Unspecified fracture of right ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.601B	Unspecified fracture of right ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.602A	Unspecified fracture of left ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.602B	Unspecified fracture of left ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.609A	Unspecified fracture of unspecified ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.609B	Unspecified fracture of unspecified ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.611A	Displaced avulsion fracture of right ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.611B	Displaced avulsion fracture of right ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.612A	Displaced avulsion fracture of left ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.612B	Displaced avulsion fracture of left ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S32.613A	Displaced avulsion fracture of unspecified ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.613B	Displaced avulsion fracture of unspecified ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.614A	Nondisplaced avulsion fracture of right ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.614B	Nondisplaced avulsion fracture of right ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.615A	Nondisplaced avulsion fracture of left ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.615B	Nondisplaced avulsion fracture of left ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.616A	Nondisplaced avulsion fracture of unspecified ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.616B	Nondisplaced avulsion fracture of unspecified ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.691A	Other specified fracture of right ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.691B	Other specified fracture of right ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.692A	Other specified fracture of left ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.692B	Other specified fracture of left ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.699A	Other specified fracture of unspecified ischium, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.699B	Other specified fracture of unspecified ischium, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.810A	Multiple fractures of pelvis with stable disruption of pelvic ring, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.810B	Multiple fractures of pelvis with stable disruption of pelvic ring, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.811A	Multiple fractures of pelvis with unstable disruption of pelvic ring, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.811B	Multiple fractures of pelvis with unstable disruption of pelvic ring, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.82XA	Multiple fractures of pelvis without disruption of pelvic ring, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.82XB	Multiple fractures of pelvis without disruption of pelvic ring, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.89XA	Fracture of other parts of pelvis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.89XB	Fracture of other parts of pelvis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S32.9XXA	Fracture of unspecified parts of lumbosacral spine and pelvis, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S32.9XXB	Fracture of unspecified parts of lumbosacral spine and pelvis, initial encounter for open fracture	Diagnosis	ICD-10-CM
S72.001A	Fracture of unspecified part of neck of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.001B	Fracture of unspecified part of neck of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.001C	Fracture of unspecified part of neck of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.002A	Fracture of unspecified part of neck of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.002B	Fracture of unspecified part of neck of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.002C	Fracture of unspecified part of neck of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.009A	Fracture of unspecified part of neck of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.009B	Fracture of unspecified part of neck of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.009C	Fracture of unspecified part of neck of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.011A	Unspecified intracapsular fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.011B	Unspecified intracapsular fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.011C	Unspecified intracapsular fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.012A	Unspecified intracapsular fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.012B	Unspecified intracapsular fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.012C	Unspecified intracapsular fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.019A	Unspecified intracapsular fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.019B	Unspecified intracapsular fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.019C	Unspecified intracapsular fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.021A	Displaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.021B	Displaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.021C	Displaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.022A	Displaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.022B	Displaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.022C	Displaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.023A	Displaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.023B	Displaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.023C	Displaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.024A	Nondisplaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.024B	Nondisplaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.024C	Nondisplaced fracture of epiphysis (separation) (upper) of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.025A	Nondisplaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.025B	Nondisplaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.025C	Nondisplaced fracture of epiphysis (separation) (upper) of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.026A	Nondisplaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.026B	Nondisplaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.026C	Nondisplaced fracture of epiphysis (separation) (upper) of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.031A	Displaced midcervical fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.031B	Displaced midcervical fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.031C	Displaced midcervical fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.032A	Displaced midcervical fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.032B	Displaced midcervical fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.032C	Displaced midcervical fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.033A	Displaced midcervical fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.033B	Displaced midcervical fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.033C	Displaced midcervical fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.034A	Nondisplaced midcervical fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.034B	Nondisplaced midcervical fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.034C	Nondisplaced midcervical fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.035A	Nondisplaced midcervical fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.035B	Nondisplaced midcervical fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.035C	Nondisplaced midcervical fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.036A	Nondisplaced midcervical fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.036B	Nondisplaced midcervical fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.036C	Nondisplaced midcervical fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.041A	Displaced fracture of base of neck of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.041B	Displaced fracture of base of neck of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.041C	Displaced fracture of base of neck of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.042A	Displaced fracture of base of neck of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.042B	Displaced fracture of base of neck of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.042C	Displaced fracture of base of neck of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.043A	Displaced fracture of base of neck of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.043B	Displaced fracture of base of neck of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.043C	Displaced fracture of base of neck of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.044A	Nondisplaced fracture of base of neck of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.044B	Nondisplaced fracture of base of neck of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.044C	Nondisplaced fracture of base of neck of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.045A	Nondisplaced fracture of base of neck of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.045B	Nondisplaced fracture of base of neck of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.045C	Nondisplaced fracture of base of neck of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.046A	Nondisplaced fracture of base of neck of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.046B	Nondisplaced fracture of base of neck of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.046C	Nondisplaced fracture of base of neck of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.051A	Unspecified fracture of head of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.051B	Unspecified fracture of head of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.051C	Unspecified fracture of head of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
S72.052A	Unspecified fracture of head of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.052B	Unspecified fracture of head of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.052C	Unspecified fracture of head of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.059A	Unspecified fracture of head of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.059B	Unspecified fracture of head of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.059C	Unspecified fracture of head of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.061A	Displaced articular fracture of head of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.061B	Displaced articular fracture of head of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.061C	Displaced articular fracture of head of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.062A	Displaced articular fracture of head of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.062B	Displaced articular fracture of head of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.062C	Displaced articular fracture of head of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.063A	Displaced articular fracture of head of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.063B	Displaced articular fracture of head of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.063C	Displaced articular fracture of head of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.064A	Nondisplaced articular fracture of head of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.064B	Nondisplaced articular fracture of head of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.064C	Nondisplaced articular fracture of head of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.065A	Nondisplaced articular fracture of head of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.065B	Nondisplaced articular fracture of head of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.065C	Nondisplaced articular fracture of head of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.066A	Nondisplaced articular fracture of head of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.066B	Nondisplaced articular fracture of head of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.066C	Nondisplaced articular fracture of head of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.091A	Other fracture of head and neck of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.091B	Other fracture of head and neck of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.091C	Other fracture of head and neck of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.092A	Other fracture of head and neck of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.092B	Other fracture of head and neck of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.092C	Other fracture of head and neck of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.099A	Other fracture of head and neck of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.099B	Other fracture of head and neck of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.099C	Other fracture of head and neck of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.101A	Unspecified trochanteric fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.101B	Unspecified trochanteric fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.101C	Unspecified trochanteric fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.102A	Unspecified trochanteric fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.102B	Unspecified trochanteric fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.102C	Unspecified trochanteric fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.109A	Unspecified trochanteric fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.109B	Unspecified trochanteric fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.109C	Unspecified trochanteric fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.111A	Displaced fracture of greater trochanter of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.111B	Displaced fracture of greater trochanter of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.111C	Displaced fracture of greater trochanter of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.112A	Displaced fracture of greater trochanter of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.112B	Displaced fracture of greater trochanter of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.112C	Displaced fracture of greater trochanter of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.113A	Displaced fracture of greater trochanter of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.113B	Displaced fracture of greater trochanter of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.113C	Displaced fracture of greater trochanter of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.114A	Nondisplaced fracture of greater trochanter of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.114B	Nondisplaced fracture of greater trochanter of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.114C	Nondisplaced fracture of greater trochanter of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.115A	Nondisplaced fracture of greater trochanter of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.115B	Nondisplaced fracture of greater trochanter of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.115C	Nondisplaced fracture of greater trochanter of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.116A	Nondisplaced fracture of greater trochanter of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.116B	Nondisplaced fracture of greater trochanter of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.116C	Nondisplaced fracture of greater trochanter of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.121A	Displaced fracture of lesser trochanter of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.121B	Displaced fracture of lesser trochanter of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.121C	Displaced fracture of lesser trochanter of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.122A	Displaced fracture of lesser trochanter of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.122B	Displaced fracture of lesser trochanter of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.122C	Displaced fracture of lesser trochanter of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.123A	Displaced fracture of lesser trochanter of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.123B	Displaced fracture of lesser trochanter of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.123C	Displaced fracture of lesser trochanter of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.124A	Nondisplaced fracture of lesser trochanter of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.124B	Nondisplaced fracture of lesser trochanter of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.124C	Nondisplaced fracture of lesser trochanter of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.125A	Nondisplaced fracture of lesser trochanter of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.125B	Nondisplaced fracture of lesser trochanter of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.125C	Nondisplaced fracture of lesser trochanter of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.126A	Nondisplaced fracture of lesser trochanter of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.126B	Nondisplaced fracture of lesser trochanter of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.126C	Nondisplaced fracture of lesser trochanter of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.131A	Displaced apophyseal fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.131B	Displaced apophyseal fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.131C	Displaced apophyseal fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.132A	Displaced apophyseal fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.132B	Displaced apophyseal fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.132C	Displaced apophyseal fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.133A	Displaced apophyseal fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.133B	Displaced apophyseal fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.133C	Displaced apophyseal fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.134A	Nondisplaced apophyseal fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.134B	Nondisplaced apophyseal fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.134C	Nondisplaced apophyseal fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.135A	Nondisplaced apophyseal fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.135B	Nondisplaced apophyseal fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.135C	Nondisplaced apophyseal fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.136A	Nondisplaced apophyseal fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.136B	Nondisplaced apophyseal fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.136C	Nondisplaced apophyseal fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.141A	Displaced intertrochanteric fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.141B	Displaced intertrochanteric fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.141C	Displaced intertrochanteric fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.142A	Displaced intertrochanteric fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.142B	Displaced intertrochanteric fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.142C	Displaced intertrochanteric fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.143A	Displaced intertrochanteric fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.143B	Displaced intertrochanteric fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.143C	Displaced intertrochanteric fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.144A	Nondisplaced intertrochanteric fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.144B	Nondisplaced intertrochanteric fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.144C	Nondisplaced intertrochanteric fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.145A	Nondisplaced intertrochanteric fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.145B	Nondisplaced intertrochanteric fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.145C	Nondisplaced intertrochanteric fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.146A	Nondisplaced intertrochanteric fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.146B	Nondisplaced intertrochanteric fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.146C	Nondisplaced intertrochanteric fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.21XA	Displaced subtrochanteric fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.21XB	Displaced subtrochanteric fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.21XC	Displaced subtrochanteric fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.22XA	Displaced subtrochanteric fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
S72.22XB	Displaced subtrochanteric fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.22XC	Displaced subtrochanteric fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.23XA	Displaced subtrochanteric fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.23XB	Displaced subtrochanteric fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.23XC	Displaced subtrochanteric fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.24XA	Nondisplaced subtrochanteric fracture of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.24XB	Nondisplaced subtrochanteric fracture of right femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.24XC	Nondisplaced subtrochanteric fracture of right femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.25XA	Nondisplaced subtrochanteric fracture of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.25XB	Nondisplaced subtrochanteric fracture of left femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.25XC	Nondisplaced subtrochanteric fracture of left femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S72.26XA	Nondisplaced subtrochanteric fracture of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S72.26XB	Nondisplaced subtrochanteric fracture of unspecified femur, initial encounter for open fracture type I or II	Diagnosis	ICD-10-CM
S72.26XC	Nondisplaced subtrochanteric fracture of unspecified femur, initial encounter for open fracture type IIIA, IIIB, or IIIC	Diagnosis	ICD-10-CM
S79.001A	Unspecified physeal fracture of upper end of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.002A	Unspecified physeal fracture of upper end of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.009A	Unspecified physeal fracture of upper end of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.011A	Salter-Harris Type I physeal fracture of upper end of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.012A	Salter-Harris Type I physeal fracture of upper end of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.019A	Salter-Harris Type I physeal fracture of upper end of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.091A	Other physeal fracture of upper end of right femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.092A	Other physeal fracture of upper end of left femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM
S79.099A	Other physeal fracture of upper end of unspecified femur, initial encounter for closed fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
<b>Hyperlipidemia</b>			
E78.0	Pure hypercholesterolemia	Diagnosis	ICD-10-CM
E78.00	Pure hypercholesterolemia, unspecified	Diagnosis	ICD-10-CM
E78.01	Familial hypercholesterolemia	Diagnosis	ICD-10-CM
E78.1	Pure hyperglyceridemia	Diagnosis	ICD-10-CM
E78.2	Mixed hyperlipidemia	Diagnosis	ICD-10-CM
E78.3	Hyperchylomicronemia	Diagnosis	ICD-10-CM
E78.4	Other hyperlipidemia	Diagnosis	ICD-10-CM
E78.41	Elevated Lipoprotein(a)	Diagnosis	ICD-10-CM
E78.49	Other hyperlipidemia	Diagnosis	ICD-10-CM
E78.5	Hyperlipidemia, unspecified	Diagnosis	ICD-10-CM
<b>Hypertension</b>			
H35.031	Hypertensive retinopathy, right eye	Diagnosis	ICD-10-CM
H35.032	Hypertensive retinopathy, left eye	Diagnosis	ICD-10-CM
H35.033	Hypertensive retinopathy, bilateral	Diagnosis	ICD-10-CM
H35.039	Hypertensive retinopathy, unspecified eye	Diagnosis	ICD-10-CM
I10	Essential (primary) hypertension	Diagnosis	ICD-10-CM
I11.0	Hypertensive heart disease with heart failure	Diagnosis	ICD-10-CM
I11.9	Hypertensive heart disease without heart failure	Diagnosis	ICD-10-CM
I12.0	Hypertensive chronic kidney disease with stage 5 chronic kidney disease or end stage renal disease	Diagnosis	ICD-10-CM
I12.9	Hypertensive chronic kidney disease with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.10	Hypertensive heart and chronic kidney disease without heart failure, with stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease	Diagnosis	ICD-10-CM
I13.11	Hypertensive heart and chronic kidney disease without heart failure, with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease	Diagnosis	ICD-10-CM
I15.0	Renovascular hypertension	Diagnosis	ICD-10-CM
I15.1	Hypertension secondary to other renal disorders	Diagnosis	ICD-10-CM
I15.2	Hypertension secondary to endocrine disorders	Diagnosis	ICD-10-CM
I15.8	Other secondary hypertension	Diagnosis	ICD-10-CM
I15.9	Secondary hypertension, unspecified	Diagnosis	ICD-10-CM
I67.4	Hypertensive encephalopathy	Diagnosis	ICD-10-CM
N26.2	Page kidney	Diagnosis	ICD-10-CM
<b>Ischemic Heart Disease</b>			
I20.0	Unstable angina	Diagnosis	ICD-10-CM
I20.1	Angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I20.8	Other forms of angina pectoris	Diagnosis	ICD-10-CM
I20.9	Angina pectoris, unspecified	Diagnosis	ICD-10-CM
I21.01	ST elevation (STEMI) myocardial infarction involving left main coronary artery	Diagnosis	ICD-10-CM
I21.02	ST elevation (STEMI) myocardial infarction involving left anterior descending coronary artery	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I21.09	ST elevation (STEMI) myocardial infarction involving other coronary artery of anterior wall	Diagnosis	ICD-10-CM
I21.11	ST elevation (STEMI) myocardial infarction involving right coronary artery	Diagnosis	ICD-10-CM
I21.19	ST elevation (STEMI) myocardial infarction involving other coronary artery of inferior wall	Diagnosis	ICD-10-CM
I21.21	ST elevation (STEMI) myocardial infarction involving left circumflex coronary artery	Diagnosis	ICD-10-CM
I21.29	ST elevation (STEMI) myocardial infarction involving other sites	Diagnosis	ICD-10-CM
I21.3	ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I21.4	Non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I22.0	Subsequent ST elevation (STEMI) myocardial infarction of anterior wall	Diagnosis	ICD-10-CM
I22.1	Subsequent ST elevation (STEMI) myocardial infarction of inferior wall	Diagnosis	ICD-10-CM
I22.2	Subsequent non-ST elevation (NSTEMI) myocardial infarction	Diagnosis	ICD-10-CM
I22.8	Subsequent ST elevation (STEMI) myocardial infarction of other sites	Diagnosis	ICD-10-CM
I22.9	Subsequent ST elevation (STEMI) myocardial infarction of unspecified site	Diagnosis	ICD-10-CM
I24.0	Acute coronary thrombosis not resulting in myocardial infarction	Diagnosis	ICD-10-CM
I24.1	Dressler's syndrome	Diagnosis	ICD-10-CM
I24.8	Other forms of acute ischemic heart disease	Diagnosis	ICD-10-CM
I24.9	Acute ischemic heart disease, unspecified	Diagnosis	ICD-10-CM
I25.10	Atherosclerotic heart disease of native coronary artery without angina pectoris	Diagnosis	ICD-10-CM
I25.110	Atherosclerotic heart disease of native coronary artery with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.111	Atherosclerotic heart disease of native coronary artery with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.118	Atherosclerotic heart disease of native coronary artery with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.119	Atherosclerotic heart disease of native coronary artery with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.2	Old myocardial infarction	Diagnosis	ICD-10-CM
I25.3	Aneurysm of heart	Diagnosis	ICD-10-CM
I25.41	Coronary artery aneurysm	Diagnosis	ICD-10-CM
I25.42	Coronary artery dissection	Diagnosis	ICD-10-CM
I25.5	Ischemic cardiomyopathy	Diagnosis	ICD-10-CM
I25.6	Silent myocardial ischemia	Diagnosis	ICD-10-CM
I25.700	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.701	Atherosclerosis of coronary artery bypass graft(s), unspecified, with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.708	Atherosclerosis of coronary artery bypass graft(s), unspecified, with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.709	Atherosclerosis of coronary artery bypass graft(s), unspecified, with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.710	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.711	Atherosclerosis of autologous vein coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I25.718	Atherosclerosis of autologous vein coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.719	Atherosclerosis of autologous vein coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.720	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.721	Atherosclerosis of autologous artery coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.728	Atherosclerosis of autologous artery coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.729	Atherosclerosis of autologous artery coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.730	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.731	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.738	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.739	Atherosclerosis of nonautologous biological coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.790	Atherosclerosis of other coronary artery bypass graft(s) with unstable angina pectoris	Diagnosis	ICD-10-CM
I25.791	Atherosclerosis of other coronary artery bypass graft(s) with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.798	Atherosclerosis of other coronary artery bypass graft(s) with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.799	Atherosclerosis of other coronary artery bypass graft(s) with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.810	Atherosclerosis of coronary artery bypass graft(s) without angina pectoris	Diagnosis	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
I25.82	Chronic total occlusion of coronary artery	Diagnosis	ICD-10-CM
I25.83	Coronary atherosclerosis due to lipid rich plaque	Diagnosis	ICD-10-CM
I25.84	Coronary atherosclerosis due to calcified coronary lesion	Diagnosis	ICD-10-CM
I25.89	Other forms of chronic ischemic heart disease	Diagnosis	ICD-10-CM
I25.9	Chronic ischemic heart disease, unspecified	Diagnosis	ICD-10-CM
<b>Osteoporosis</b>			
M80.00XA	Age-related osteoporosis with current pathological fracture, unspecified site, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.011A	Age-related osteoporosis with current pathological fracture, right shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.012A	Age-related osteoporosis with current pathological fracture, left shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.019A	Age-related osteoporosis with current pathological fracture, unspecified shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.021A	Age-related osteoporosis with current pathological fracture, right humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.022A	Age-related osteoporosis with current pathological fracture, left humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.029A	Age-related osteoporosis with current pathological fracture, unspecified humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.031A	Age-related osteoporosis with current pathological fracture, right forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.032A	Age-related osteoporosis with current pathological fracture, left forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.039A	Age-related osteoporosis with current pathological fracture, unspecified forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.041A	Age-related osteoporosis with current pathological fracture, right hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.042A	Age-related osteoporosis with current pathological fracture, left hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.049A	Age-related osteoporosis with current pathological fracture, unspecified hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.051A	Age-related osteoporosis with current pathological fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.052A	Age-related osteoporosis with current pathological fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.059A	Age-related osteoporosis with current pathological fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.061A	Age-related osteoporosis with current pathological fracture, right lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.062A	Age-related osteoporosis with current pathological fracture, left lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.069A	Age-related osteoporosis with current pathological fracture, unspecified lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M80.071A	Age-related osteoporosis with current pathological fracture, right ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.072A	Age-related osteoporosis with current pathological fracture, left ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.079A	Age-related osteoporosis with current pathological fracture, unspecified ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.08XA	Age-related osteoporosis with current pathological fracture, vertebra(e), initial encounter for fracture	Diagnosis	ICD-10-CM
M80.0AXA	Age-related osteoporosis with current pathological fracture, other site, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.80XA	Other osteoporosis with current pathological fracture, unspecified site, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.811A	Other osteoporosis with current pathological fracture, right shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.812A	Other osteoporosis with current pathological fracture, left shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.819A	Other osteoporosis with current pathological fracture, unspecified shoulder, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.821A	Other osteoporosis with current pathological fracture, right humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.822A	Other osteoporosis with current pathological fracture, left humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.829A	Other osteoporosis with current pathological fracture, unspecified humerus, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.831A	Other osteoporosis with current pathological fracture, right forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.832A	Other osteoporosis with current pathological fracture, left forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.839A	Other osteoporosis with current pathological fracture, unspecified forearm, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.841A	Other osteoporosis with current pathological fracture, right hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.842A	Other osteoporosis with current pathological fracture, left hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.849A	Other osteoporosis with current pathological fracture, unspecified hand, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.851A	Other osteoporosis with current pathological fracture, right femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.852A	Other osteoporosis with current pathological fracture, left femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.859A	Other osteoporosis with current pathological fracture, unspecified femur, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.861A	Other osteoporosis with current pathological fracture, right lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.862A	Other osteoporosis with current pathological fracture, left lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M80.869A	Other osteoporosis with current pathological fracture, unspecified lower leg, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.871A	Other osteoporosis with current pathological fracture, right ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.872A	Other osteoporosis with current pathological fracture, left ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.879A	Other osteoporosis with current pathological fracture, unspecified ankle and foot, initial encounter for fracture	Diagnosis	ICD-10-CM
M80.88XA	Other osteoporosis with current pathological fracture, vertebra(e), initial encounter for fracture	Diagnosis	ICD-10-CM
M80.8AXA	Other osteoporosis with current pathological fracture, other site, initial encounter for fracture	Diagnosis	ICD-10-CM
M81.0	Age-related osteoporosis without current pathological fracture	Diagnosis	ICD-10-CM
M81.6	Localized osteoporosis [Lequesne]	Diagnosis	ICD-10-CM
M81.8	Other osteoporosis without current pathological fracture	Diagnosis	ICD-10-CM
<b>Rheumatoid Arthritis/Osteoarthritis</b>			
L40.50	Arthropathic psoriasis, unspecified	Diagnosis	ICD-10-CM
L40.51	Distal interphalangeal psoriatic arthropathy	Diagnosis	ICD-10-CM
L40.54	Psoriatic juvenile arthropathy	Diagnosis	ICD-10-CM
L40.59	Other psoriatic arthropathy	Diagnosis	ICD-10-CM
M05.00	Felty's syndrome, unspecified site	Diagnosis	ICD-10-CM
M05.011	Felty's syndrome, right shoulder	Diagnosis	ICD-10-CM
M05.012	Felty's syndrome, left shoulder	Diagnosis	ICD-10-CM
M05.019	Felty's syndrome, unspecified shoulder	Diagnosis	ICD-10-CM
M05.021	Felty's syndrome, right elbow	Diagnosis	ICD-10-CM
M05.022	Felty's syndrome, left elbow	Diagnosis	ICD-10-CM
M05.029	Felty's syndrome, unspecified elbow	Diagnosis	ICD-10-CM
M05.031	Felty's syndrome, right wrist	Diagnosis	ICD-10-CM
M05.032	Felty's syndrome, left wrist	Diagnosis	ICD-10-CM
M05.039	Felty's syndrome, unspecified wrist	Diagnosis	ICD-10-CM
M05.041	Felty's syndrome, right hand	Diagnosis	ICD-10-CM
M05.042	Felty's syndrome, left hand	Diagnosis	ICD-10-CM
M05.049	Felty's syndrome, unspecified hand	Diagnosis	ICD-10-CM
M05.051	Felty's syndrome, right hip	Diagnosis	ICD-10-CM
M05.052	Felty's syndrome, left hip	Diagnosis	ICD-10-CM
M05.059	Felty's syndrome, unspecified hip	Diagnosis	ICD-10-CM
M05.061	Felty's syndrome, right knee	Diagnosis	ICD-10-CM
M05.062	Felty's syndrome, left knee	Diagnosis	ICD-10-CM
M05.069	Felty's syndrome, unspecified knee	Diagnosis	ICD-10-CM
M05.071	Felty's syndrome, right ankle and foot	Diagnosis	ICD-10-CM
M05.072	Felty's syndrome, left ankle and foot	Diagnosis	ICD-10-CM
M05.079	Felty's syndrome, unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.09	Felty's syndrome, multiple sites	Diagnosis	ICD-10-CM
M05.10	Rheumatoid lung disease with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.111	Rheumatoid lung disease with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.112	Rheumatoid lung disease with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M05.119	Rheumatoid lung disease with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.121	Rheumatoid lung disease with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.122	Rheumatoid lung disease with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.129	Rheumatoid lung disease with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.131	Rheumatoid lung disease with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.132	Rheumatoid lung disease with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.139	Rheumatoid lung disease with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.141	Rheumatoid lung disease with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.142	Rheumatoid lung disease with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.149	Rheumatoid lung disease with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.151	Rheumatoid lung disease with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.152	Rheumatoid lung disease with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.159	Rheumatoid lung disease with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.161	Rheumatoid lung disease with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.162	Rheumatoid lung disease with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.169	Rheumatoid lung disease with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.171	Rheumatoid lung disease with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.172	Rheumatoid lung disease with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.179	Rheumatoid lung disease with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.19	Rheumatoid lung disease with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.20	Rheumatoid vasculitis with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.211	Rheumatoid vasculitis with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.212	Rheumatoid vasculitis with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.219	Rheumatoid vasculitis with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.221	Rheumatoid vasculitis with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.222	Rheumatoid vasculitis with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.229	Rheumatoid vasculitis with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.231	Rheumatoid vasculitis with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.232	Rheumatoid vasculitis with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.239	Rheumatoid vasculitis with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.241	Rheumatoid vasculitis with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.242	Rheumatoid vasculitis with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.249	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.251	Rheumatoid vasculitis with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.252	Rheumatoid vasculitis with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.259	Rheumatoid vasculitis with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.261	Rheumatoid vasculitis with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.262	Rheumatoid vasculitis with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.269	Rheumatoid vasculitis with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.271	Rheumatoid vasculitis with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.272	Rheumatoid vasculitis with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.279	Rheumatoid vasculitis with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.29	Rheumatoid vasculitis with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.30	Rheumatoid heart disease with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.311	Rheumatoid heart disease with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.312	Rheumatoid heart disease with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M05.319	Rheumatoid heart disease with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.321	Rheumatoid heart disease with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.322	Rheumatoid heart disease with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.329	Rheumatoid heart disease with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.331	Rheumatoid heart disease with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.332	Rheumatoid heart disease with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.339	Rheumatoid heart disease with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.341	Rheumatoid heart disease with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.342	Rheumatoid heart disease with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.349	Rheumatoid heart disease with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.351	Rheumatoid heart disease with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.352	Rheumatoid heart disease with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.359	Rheumatoid heart disease with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.361	Rheumatoid heart disease with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.362	Rheumatoid heart disease with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.369	Rheumatoid heart disease with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.371	Rheumatoid heart disease with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.372	Rheumatoid heart disease with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.379	Rheumatoid heart disease with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.39	Rheumatoid heart disease with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.40	Rheumatoid myopathy with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.411	Rheumatoid myopathy with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.412	Rheumatoid myopathy with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM
M05.419	Rheumatoid myopathy with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.421	Rheumatoid myopathy with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.422	Rheumatoid myopathy with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.429	Rheumatoid myopathy with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.431	Rheumatoid myopathy with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.432	Rheumatoid myopathy with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.439	Rheumatoid myopathy with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.441	Rheumatoid myopathy with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.442	Rheumatoid myopathy with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.449	Rheumatoid myopathy with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.451	Rheumatoid myopathy with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.452	Rheumatoid myopathy with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.459	Rheumatoid myopathy with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.461	Rheumatoid myopathy with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.462	Rheumatoid myopathy with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.469	Rheumatoid myopathy with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.471	Rheumatoid myopathy with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.472	Rheumatoid myopathy with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.479	Rheumatoid myopathy with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.49	Rheumatoid myopathy with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.50	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M05.511	Rheumatoid polyneuropathy with rheumatoid arthritis of right shoulder	Diagnosis	ICD-10-CM
M05.512	Rheumatoid polyneuropathy with rheumatoid arthritis of left shoulder	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M05.519	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified shoulder	Diagnosis	ICD-10-CM
M05.521	Rheumatoid polyneuropathy with rheumatoid arthritis of right elbow	Diagnosis	ICD-10-CM
M05.522	Rheumatoid polyneuropathy with rheumatoid arthritis of left elbow	Diagnosis	ICD-10-CM
M05.529	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified elbow	Diagnosis	ICD-10-CM
M05.531	Rheumatoid polyneuropathy with rheumatoid arthritis of right wrist	Diagnosis	ICD-10-CM
M05.532	Rheumatoid polyneuropathy with rheumatoid arthritis of left wrist	Diagnosis	ICD-10-CM
M05.539	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified wrist	Diagnosis	ICD-10-CM
M05.541	Rheumatoid polyneuropathy with rheumatoid arthritis of right hand	Diagnosis	ICD-10-CM
M05.542	Rheumatoid polyneuropathy with rheumatoid arthritis of left hand	Diagnosis	ICD-10-CM
M05.549	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hand	Diagnosis	ICD-10-CM
M05.551	Rheumatoid polyneuropathy with rheumatoid arthritis of right hip	Diagnosis	ICD-10-CM
M05.552	Rheumatoid polyneuropathy with rheumatoid arthritis of left hip	Diagnosis	ICD-10-CM
M05.559	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hip	Diagnosis	ICD-10-CM
M05.561	Rheumatoid polyneuropathy with rheumatoid arthritis of right knee	Diagnosis	ICD-10-CM
M05.562	Rheumatoid polyneuropathy with rheumatoid arthritis of left knee	Diagnosis	ICD-10-CM
M05.569	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified knee	Diagnosis	ICD-10-CM
M05.571	Rheumatoid polyneuropathy with rheumatoid arthritis of right ankle and foot	Diagnosis	ICD-10-CM
M05.572	Rheumatoid polyneuropathy with rheumatoid arthritis of left ankle and foot	Diagnosis	ICD-10-CM
M05.579	Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.59	Rheumatoid polyneuropathy with rheumatoid arthritis of multiple sites	Diagnosis	ICD-10-CM
M05.60	Rheumatoid arthritis of unspecified site with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.611	Rheumatoid arthritis of right shoulder with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.612	Rheumatoid arthritis of left shoulder with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.619	Rheumatoid arthritis of unspecified shoulder with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.621	Rheumatoid arthritis of right elbow with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.622	Rheumatoid arthritis of left elbow with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.629	Rheumatoid arthritis of unspecified elbow with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.631	Rheumatoid arthritis of right wrist with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.632	Rheumatoid arthritis of left wrist with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.639	Rheumatoid arthritis of unspecified wrist with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.641	Rheumatoid arthritis of right hand with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.642	Rheumatoid arthritis of left hand with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.649	Rheumatoid arthritis of unspecified hand with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.651	Rheumatoid arthritis of right hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.652	Rheumatoid arthritis of left hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.659	Rheumatoid arthritis of unspecified hip with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.661	Rheumatoid arthritis of right knee with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.662	Rheumatoid arthritis of left knee with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.669	Rheumatoid arthritis of unspecified knee with involvement of other organs and systems	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M05.671	Rheumatoid arthritis of right ankle and foot with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.672	Rheumatoid arthritis of left ankle and foot with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.679	Rheumatoid arthritis of unspecified ankle and foot with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.69	Rheumatoid arthritis of multiple sites with involvement of other organs and systems	Diagnosis	ICD-10-CM
M05.70	Rheumatoid arthritis with rheumatoid factor of unspecified site without organ or systems involvement	Diagnosis	ICD-10-CM
M05.711	Rheumatoid arthritis with rheumatoid factor of right shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.712	Rheumatoid arthritis with rheumatoid factor of left shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.719	Rheumatoid arthritis with rheumatoid factor of unspecified shoulder without organ or systems involvement	Diagnosis	ICD-10-CM
M05.721	Rheumatoid arthritis with rheumatoid factor of right elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.722	Rheumatoid arthritis with rheumatoid factor of left elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.729	Rheumatoid arthritis with rheumatoid factor of unspecified elbow without organ or systems involvement	Diagnosis	ICD-10-CM
M05.731	Rheumatoid arthritis with rheumatoid factor of right wrist without organ or systems involvement	Diagnosis	ICD-10-CM
M05.732	Rheumatoid arthritis with rheumatoid factor of left wrist without organ or systems involvement	Diagnosis	ICD-10-CM
M05.739	Rheumatoid arthritis with rheumatoid factor of unspecified wrist without organ or systems involvement	Diagnosis	ICD-10-CM
M05.741	Rheumatoid arthritis with rheumatoid factor of right hand without organ or systems involvement	Diagnosis	ICD-10-CM
M05.742	Rheumatoid arthritis with rheumatoid factor of left hand without organ or systems involvement	Diagnosis	ICD-10-CM
M05.749	Rheumatoid arthritis with rheumatoid factor of unspecified hand without organ or systems involvement	Diagnosis	ICD-10-CM
M05.751	Rheumatoid arthritis with rheumatoid factor of right hip without organ or systems involvement	Diagnosis	ICD-10-CM
M05.752	Rheumatoid arthritis with rheumatoid factor of left hip without organ or systems involvement	Diagnosis	ICD-10-CM
M05.759	Rheumatoid arthritis with rheumatoid factor of unspecified hip without organ or systems involvement	Diagnosis	ICD-10-CM
M05.761	Rheumatoid arthritis with rheumatoid factor of right knee without organ or systems involvement	Diagnosis	ICD-10-CM
M05.762	Rheumatoid arthritis with rheumatoid factor of left knee without organ or systems involvement	Diagnosis	ICD-10-CM
M05.769	Rheumatoid arthritis with rheumatoid factor of unspecified knee without organ or systems involvement	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M05.771	Rheumatoid arthritis with rheumatoid factor of right ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.772	Rheumatoid arthritis with rheumatoid factor of left ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.779	Rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot without organ or systems involvement	Diagnosis	ICD-10-CM
M05.79	Rheumatoid arthritis with rheumatoid factor of multiple sites without organ or systems involvement	Diagnosis	ICD-10-CM
M05.7A	Rheumatoid arthritis with rheumatoid factor of other specified site without organ or systems involvement	Diagnosis	ICD-10-CM
M05.80	Other rheumatoid arthritis with rheumatoid factor of unspecified site	Diagnosis	ICD-10-CM
M05.811	Other rheumatoid arthritis with rheumatoid factor of right shoulder	Diagnosis	ICD-10-CM
M05.812	Other rheumatoid arthritis with rheumatoid factor of left shoulder	Diagnosis	ICD-10-CM
M05.819	Other rheumatoid arthritis with rheumatoid factor of unspecified shoulder	Diagnosis	ICD-10-CM
M05.821	Other rheumatoid arthritis with rheumatoid factor of right elbow	Diagnosis	ICD-10-CM
M05.822	Other rheumatoid arthritis with rheumatoid factor of left elbow	Diagnosis	ICD-10-CM
M05.829	Other rheumatoid arthritis with rheumatoid factor of unspecified elbow	Diagnosis	ICD-10-CM
M05.831	Other rheumatoid arthritis with rheumatoid factor of right wrist	Diagnosis	ICD-10-CM
M05.832	Other rheumatoid arthritis with rheumatoid factor of left wrist	Diagnosis	ICD-10-CM
M05.839	Other rheumatoid arthritis with rheumatoid factor of unspecified wrist	Diagnosis	ICD-10-CM
M05.841	Other rheumatoid arthritis with rheumatoid factor of right hand	Diagnosis	ICD-10-CM
M05.842	Other rheumatoid arthritis with rheumatoid factor of left hand	Diagnosis	ICD-10-CM
M05.849	Other rheumatoid arthritis with rheumatoid factor of unspecified hand	Diagnosis	ICD-10-CM
M05.851	Other rheumatoid arthritis with rheumatoid factor of right hip	Diagnosis	ICD-10-CM
M05.852	Other rheumatoid arthritis with rheumatoid factor of left hip	Diagnosis	ICD-10-CM
M05.859	Other rheumatoid arthritis with rheumatoid factor of unspecified hip	Diagnosis	ICD-10-CM
M05.861	Other rheumatoid arthritis with rheumatoid factor of right knee	Diagnosis	ICD-10-CM
M05.862	Other rheumatoid arthritis with rheumatoid factor of left knee	Diagnosis	ICD-10-CM
M05.869	Other rheumatoid arthritis with rheumatoid factor of unspecified knee	Diagnosis	ICD-10-CM
M05.871	Other rheumatoid arthritis with rheumatoid factor of right ankle and foot	Diagnosis	ICD-10-CM
M05.872	Other rheumatoid arthritis with rheumatoid factor of left ankle and foot	Diagnosis	ICD-10-CM
M05.879	Other rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot	Diagnosis	ICD-10-CM
M05.89	Other rheumatoid arthritis with rheumatoid factor of multiple sites	Diagnosis	ICD-10-CM
M05.8A	Other rheumatoid arthritis with rheumatoid factor of other specified site	Diagnosis	ICD-10-CM
M05.9	Rheumatoid arthritis with rheumatoid factor, unspecified	Diagnosis	ICD-10-CM
M06.00	Rheumatoid arthritis without rheumatoid factor, unspecified site	Diagnosis	ICD-10-CM
M06.011	Rheumatoid arthritis without rheumatoid factor, right shoulder	Diagnosis	ICD-10-CM
M06.012	Rheumatoid arthritis without rheumatoid factor, left shoulder	Diagnosis	ICD-10-CM
M06.019	Rheumatoid arthritis without rheumatoid factor, unspecified shoulder	Diagnosis	ICD-10-CM
M06.021	Rheumatoid arthritis without rheumatoid factor, right elbow	Diagnosis	ICD-10-CM
M06.022	Rheumatoid arthritis without rheumatoid factor, left elbow	Diagnosis	ICD-10-CM
M06.029	Rheumatoid arthritis without rheumatoid factor, unspecified elbow	Diagnosis	ICD-10-CM
M06.031	Rheumatoid arthritis without rheumatoid factor, right wrist	Diagnosis	ICD-10-CM
M06.032	Rheumatoid arthritis without rheumatoid factor, left wrist	Diagnosis	ICD-10-CM
M06.039	Rheumatoid arthritis without rheumatoid factor, unspecified wrist	Diagnosis	ICD-10-CM
M06.041	Rheumatoid arthritis without rheumatoid factor, right hand	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M06.042	Rheumatoid arthritis without rheumatoid factor, left hand	Diagnosis	ICD-10-CM
M06.049	Rheumatoid arthritis without rheumatoid factor, unspecified hand	Diagnosis	ICD-10-CM
M06.051	Rheumatoid arthritis without rheumatoid factor, right hip	Diagnosis	ICD-10-CM
M06.052	Rheumatoid arthritis without rheumatoid factor, left hip	Diagnosis	ICD-10-CM
M06.059	Rheumatoid arthritis without rheumatoid factor, unspecified hip	Diagnosis	ICD-10-CM
M06.061	Rheumatoid arthritis without rheumatoid factor, right knee	Diagnosis	ICD-10-CM
M06.062	Rheumatoid arthritis without rheumatoid factor, left knee	Diagnosis	ICD-10-CM
M06.069	Rheumatoid arthritis without rheumatoid factor, unspecified knee	Diagnosis	ICD-10-CM
M06.071	Rheumatoid arthritis without rheumatoid factor, right ankle and foot	Diagnosis	ICD-10-CM
M06.072	Rheumatoid arthritis without rheumatoid factor, left ankle and foot	Diagnosis	ICD-10-CM
M06.079	Rheumatoid arthritis without rheumatoid factor, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.08	Rheumatoid arthritis without rheumatoid factor, vertebrae	Diagnosis	ICD-10-CM
M06.09	Rheumatoid arthritis without rheumatoid factor, multiple sites	Diagnosis	ICD-10-CM
M06.0A	Rheumatoid arthritis without rheumatoid factor, other specified site	Diagnosis	ICD-10-CM
M06.1	Adult-onset Still's disease	Diagnosis	ICD-10-CM
M06.20	Rheumatoid bursitis, unspecified site	Diagnosis	ICD-10-CM
M06.211	Rheumatoid bursitis, right shoulder	Diagnosis	ICD-10-CM
M06.212	Rheumatoid bursitis, left shoulder	Diagnosis	ICD-10-CM
M06.219	Rheumatoid bursitis, unspecified shoulder	Diagnosis	ICD-10-CM
M06.221	Rheumatoid bursitis, right elbow	Diagnosis	ICD-10-CM
M06.222	Rheumatoid bursitis, left elbow	Diagnosis	ICD-10-CM
M06.229	Rheumatoid bursitis, unspecified elbow	Diagnosis	ICD-10-CM
M06.231	Rheumatoid bursitis, right wrist	Diagnosis	ICD-10-CM
M06.232	Rheumatoid bursitis, left wrist	Diagnosis	ICD-10-CM
M06.239	Rheumatoid bursitis, unspecified wrist	Diagnosis	ICD-10-CM
M06.241	Rheumatoid bursitis, right hand	Diagnosis	ICD-10-CM
M06.242	Rheumatoid bursitis, left hand	Diagnosis	ICD-10-CM
M06.249	Rheumatoid bursitis, unspecified hand	Diagnosis	ICD-10-CM
M06.251	Rheumatoid bursitis, right hip	Diagnosis	ICD-10-CM
M06.252	Rheumatoid bursitis, left hip	Diagnosis	ICD-10-CM
M06.259	Rheumatoid bursitis, unspecified hip	Diagnosis	ICD-10-CM
M06.261	Rheumatoid bursitis, right knee	Diagnosis	ICD-10-CM
M06.262	Rheumatoid bursitis, left knee	Diagnosis	ICD-10-CM
M06.269	Rheumatoid bursitis, unspecified knee	Diagnosis	ICD-10-CM
M06.271	Rheumatoid bursitis, right ankle and foot	Diagnosis	ICD-10-CM
M06.272	Rheumatoid bursitis, left ankle and foot	Diagnosis	ICD-10-CM
M06.279	Rheumatoid bursitis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.28	Rheumatoid bursitis, vertebrae	Diagnosis	ICD-10-CM
M06.29	Rheumatoid bursitis, multiple sites	Diagnosis	ICD-10-CM
M06.30	Rheumatoid nodule, unspecified site	Diagnosis	ICD-10-CM
M06.311	Rheumatoid nodule, right shoulder	Diagnosis	ICD-10-CM
M06.312	Rheumatoid nodule, left shoulder	Diagnosis	ICD-10-CM
M06.319	Rheumatoid nodule, unspecified shoulder	Diagnosis	ICD-10-CM
M06.321	Rheumatoid nodule, right elbow	Diagnosis	ICD-10-CM
M06.322	Rheumatoid nodule, left elbow	Diagnosis	ICD-10-CM
M06.329	Rheumatoid nodule, unspecified elbow	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M06.331	Rheumatoid nodule, right wrist	Diagnosis	ICD-10-CM
M06.332	Rheumatoid nodule, left wrist	Diagnosis	ICD-10-CM
M06.339	Rheumatoid nodule, unspecified wrist	Diagnosis	ICD-10-CM
M06.341	Rheumatoid nodule, right hand	Diagnosis	ICD-10-CM
M06.342	Rheumatoid nodule, left hand	Diagnosis	ICD-10-CM
M06.349	Rheumatoid nodule, unspecified hand	Diagnosis	ICD-10-CM
M06.351	Rheumatoid nodule, right hip	Diagnosis	ICD-10-CM
M06.352	Rheumatoid nodule, left hip	Diagnosis	ICD-10-CM
M06.359	Rheumatoid nodule, unspecified hip	Diagnosis	ICD-10-CM
M06.361	Rheumatoid nodule, right knee	Diagnosis	ICD-10-CM
M06.362	Rheumatoid nodule, left knee	Diagnosis	ICD-10-CM
M06.369	Rheumatoid nodule, unspecified knee	Diagnosis	ICD-10-CM
M06.371	Rheumatoid nodule, right ankle and foot	Diagnosis	ICD-10-CM
M06.372	Rheumatoid nodule, left ankle and foot	Diagnosis	ICD-10-CM
M06.379	Rheumatoid nodule, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.38	Rheumatoid nodule, vertebrae	Diagnosis	ICD-10-CM
M06.39	Rheumatoid nodule, multiple sites	Diagnosis	ICD-10-CM
M06.80	Other specified rheumatoid arthritis, unspecified site	Diagnosis	ICD-10-CM
M06.811	Other specified rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M06.812	Other specified rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM
M06.819	Other specified rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M06.821	Other specified rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M06.822	Other specified rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M06.829	Other specified rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M06.831	Other specified rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M06.832	Other specified rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M06.839	Other specified rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M06.841	Other specified rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M06.842	Other specified rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M06.849	Other specified rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM
M06.851	Other specified rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M06.852	Other specified rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M06.859	Other specified rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M06.861	Other specified rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M06.862	Other specified rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M06.869	Other specified rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M06.871	Other specified rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M06.872	Other specified rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M06.879	Other specified rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M06.88	Other specified rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M06.89	Other specified rheumatoid arthritis, multiple sites	Diagnosis	ICD-10-CM
M06.8A	Other specified rheumatoid arthritis, other specified site	Diagnosis	ICD-10-CM
M06.9	Rheumatoid arthritis, unspecified	Diagnosis	ICD-10-CM
M08.00	Unspecified juvenile rheumatoid arthritis of unspecified site	Diagnosis	ICD-10-CM
M08.011	Unspecified juvenile rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.012	Unspecified juvenile rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M08.019	Unspecified juvenile rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.021	Unspecified juvenile rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M08.022	Unspecified juvenile rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M08.029	Unspecified juvenile rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.031	Unspecified juvenile rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M08.032	Unspecified juvenile rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M08.039	Unspecified juvenile rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.041	Unspecified juvenile rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M08.042	Unspecified juvenile rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M08.049	Unspecified juvenile rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM
M08.051	Unspecified juvenile rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M08.052	Unspecified juvenile rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M08.059	Unspecified juvenile rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.061	Unspecified juvenile rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M08.062	Unspecified juvenile rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M08.069	Unspecified juvenile rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M08.071	Unspecified juvenile rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.072	Unspecified juvenile rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.079	Unspecified juvenile rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.08	Unspecified juvenile rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M08.09	Unspecified juvenile rheumatoid arthritis, multiple sites	Diagnosis	ICD-10-CM
M08.0A	Unspecified juvenile rheumatoid arthritis, other specified site	Diagnosis	ICD-10-CM
M08.1	Juvenile ankylosing spondylitis	Diagnosis	ICD-10-CM
M08.20	Juvenile rheumatoid arthritis with systemic onset, unspecified site	Diagnosis	ICD-10-CM
M08.211	Juvenile rheumatoid arthritis with systemic onset, right shoulder	Diagnosis	ICD-10-CM
M08.212	Juvenile rheumatoid arthritis with systemic onset, left shoulder	Diagnosis	ICD-10-CM
M08.219	Juvenile rheumatoid arthritis with systemic onset, unspecified shoulder	Diagnosis	ICD-10-CM
M08.221	Juvenile rheumatoid arthritis with systemic onset, right elbow	Diagnosis	ICD-10-CM
M08.222	Juvenile rheumatoid arthritis with systemic onset, left elbow	Diagnosis	ICD-10-CM
M08.229	Juvenile rheumatoid arthritis with systemic onset, unspecified elbow	Diagnosis	ICD-10-CM
M08.231	Juvenile rheumatoid arthritis with systemic onset, right wrist	Diagnosis	ICD-10-CM
M08.232	Juvenile rheumatoid arthritis with systemic onset, left wrist	Diagnosis	ICD-10-CM
M08.239	Juvenile rheumatoid arthritis with systemic onset, unspecified wrist	Diagnosis	ICD-10-CM
M08.241	Juvenile rheumatoid arthritis with systemic onset, right hand	Diagnosis	ICD-10-CM
M08.242	Juvenile rheumatoid arthritis with systemic onset, left hand	Diagnosis	ICD-10-CM
M08.249	Juvenile rheumatoid arthritis with systemic onset, unspecified hand	Diagnosis	ICD-10-CM
M08.251	Juvenile rheumatoid arthritis with systemic onset, right hip	Diagnosis	ICD-10-CM
M08.252	Juvenile rheumatoid arthritis with systemic onset, left hip	Diagnosis	ICD-10-CM
M08.259	Juvenile rheumatoid arthritis with systemic onset, unspecified hip	Diagnosis	ICD-10-CM
M08.261	Juvenile rheumatoid arthritis with systemic onset, right knee	Diagnosis	ICD-10-CM
M08.262	Juvenile rheumatoid arthritis with systemic onset, left knee	Diagnosis	ICD-10-CM
M08.269	Juvenile rheumatoid arthritis with systemic onset, unspecified knee	Diagnosis	ICD-10-CM
M08.271	Juvenile rheumatoid arthritis with systemic onset, right ankle and foot	Diagnosis	ICD-10-CM
M08.272	Juvenile rheumatoid arthritis with systemic onset, left ankle and foot	Diagnosis	ICD-10-CM
M08.279	Juvenile rheumatoid arthritis with systemic onset, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.28	Juvenile rheumatoid arthritis with systemic onset, vertebrae	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M08.29	Juvenile rheumatoid arthritis with systemic onset, multiple sites	Diagnosis	ICD-10-CM
M08.2A	Juvenile rheumatoid arthritis with systemic onset, other specified site	Diagnosis	ICD-10-CM
M08.3	Juvenile rheumatoid polyarthritis (seronegative)	Diagnosis	ICD-10-CM
M08.40	Pauciarticular juvenile rheumatoid arthritis, unspecified site	Diagnosis	ICD-10-CM
M08.411	Pauciarticular juvenile rheumatoid arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.412	Pauciarticular juvenile rheumatoid arthritis, left shoulder	Diagnosis	ICD-10-CM
M08.419	Pauciarticular juvenile rheumatoid arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.421	Pauciarticular juvenile rheumatoid arthritis, right elbow	Diagnosis	ICD-10-CM
M08.422	Pauciarticular juvenile rheumatoid arthritis, left elbow	Diagnosis	ICD-10-CM
M08.429	Pauciarticular juvenile rheumatoid arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.431	Pauciarticular juvenile rheumatoid arthritis, right wrist	Diagnosis	ICD-10-CM
M08.432	Pauciarticular juvenile rheumatoid arthritis, left wrist	Diagnosis	ICD-10-CM
M08.439	Pauciarticular juvenile rheumatoid arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.441	Pauciarticular juvenile rheumatoid arthritis, right hand	Diagnosis	ICD-10-CM
M08.442	Pauciarticular juvenile rheumatoid arthritis, left hand	Diagnosis	ICD-10-CM
M08.449	Pauciarticular juvenile rheumatoid arthritis, unspecified hand	Diagnosis	ICD-10-CM
M08.451	Pauciarticular juvenile rheumatoid arthritis, right hip	Diagnosis	ICD-10-CM
M08.452	Pauciarticular juvenile rheumatoid arthritis, left hip	Diagnosis	ICD-10-CM
M08.459	Pauciarticular juvenile rheumatoid arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.461	Pauciarticular juvenile rheumatoid arthritis, right knee	Diagnosis	ICD-10-CM
M08.462	Pauciarticular juvenile rheumatoid arthritis, left knee	Diagnosis	ICD-10-CM
M08.469	Pauciarticular juvenile rheumatoid arthritis, unspecified knee	Diagnosis	ICD-10-CM
M08.471	Pauciarticular juvenile rheumatoid arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.472	Pauciarticular juvenile rheumatoid arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.479	Pauciarticular juvenile rheumatoid arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.48	Pauciarticular juvenile rheumatoid arthritis, vertebrae	Diagnosis	ICD-10-CM
M08.4A	Pauciarticular juvenile rheumatoid arthritis, other specified site	Diagnosis	ICD-10-CM
M08.80	Other juvenile arthritis, unspecified site	Diagnosis	ICD-10-CM
M08.811	Other juvenile arthritis, right shoulder	Diagnosis	ICD-10-CM
M08.812	Other juvenile arthritis, left shoulder	Diagnosis	ICD-10-CM
M08.819	Other juvenile arthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M08.821	Other juvenile arthritis, right elbow	Diagnosis	ICD-10-CM
M08.822	Other juvenile arthritis, left elbow	Diagnosis	ICD-10-CM
M08.829	Other juvenile arthritis, unspecified elbow	Diagnosis	ICD-10-CM
M08.831	Other juvenile arthritis, right wrist	Diagnosis	ICD-10-CM
M08.832	Other juvenile arthritis, left wrist	Diagnosis	ICD-10-CM
M08.839	Other juvenile arthritis, unspecified wrist	Diagnosis	ICD-10-CM
M08.841	Other juvenile arthritis, right hand	Diagnosis	ICD-10-CM
M08.842	Other juvenile arthritis, left hand	Diagnosis	ICD-10-CM
M08.849	Other juvenile arthritis, unspecified hand	Diagnosis	ICD-10-CM
M08.851	Other juvenile arthritis, right hip	Diagnosis	ICD-10-CM
M08.852	Other juvenile arthritis, left hip	Diagnosis	ICD-10-CM
M08.859	Other juvenile arthritis, unspecified hip	Diagnosis	ICD-10-CM
M08.861	Other juvenile arthritis, right knee	Diagnosis	ICD-10-CM
M08.862	Other juvenile arthritis, left knee	Diagnosis	ICD-10-CM
M08.869	Other juvenile arthritis, unspecified knee	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M08.871	Other juvenile arthritis, right ankle and foot	Diagnosis	ICD-10-CM
M08.872	Other juvenile arthritis, left ankle and foot	Diagnosis	ICD-10-CM
M08.879	Other juvenile arthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.88	Other juvenile arthritis, other specified site	Diagnosis	ICD-10-CM
M08.89	Other juvenile arthritis, multiple sites	Diagnosis	ICD-10-CM
M08.90	Juvenile arthritis, unspecified, unspecified site	Diagnosis	ICD-10-CM
M08.911	Juvenile arthritis, unspecified, right shoulder	Diagnosis	ICD-10-CM
M08.912	Juvenile arthritis, unspecified, left shoulder	Diagnosis	ICD-10-CM
M08.919	Juvenile arthritis, unspecified, unspecified shoulder	Diagnosis	ICD-10-CM
M08.921	Juvenile arthritis, unspecified, right elbow	Diagnosis	ICD-10-CM
M08.922	Juvenile arthritis, unspecified, left elbow	Diagnosis	ICD-10-CM
M08.929	Juvenile arthritis, unspecified, unspecified elbow	Diagnosis	ICD-10-CM
M08.931	Juvenile arthritis, unspecified, right wrist	Diagnosis	ICD-10-CM
M08.932	Juvenile arthritis, unspecified, left wrist	Diagnosis	ICD-10-CM
M08.939	Juvenile arthritis, unspecified, unspecified wrist	Diagnosis	ICD-10-CM
M08.941	Juvenile arthritis, unspecified, right hand	Diagnosis	ICD-10-CM
M08.942	Juvenile arthritis, unspecified, left hand	Diagnosis	ICD-10-CM
M08.949	Juvenile arthritis, unspecified, unspecified hand	Diagnosis	ICD-10-CM
M08.951	Juvenile arthritis, unspecified, right hip	Diagnosis	ICD-10-CM
M08.952	Juvenile arthritis, unspecified, left hip	Diagnosis	ICD-10-CM
M08.959	Juvenile arthritis, unspecified, unspecified hip	Diagnosis	ICD-10-CM
M08.961	Juvenile arthritis, unspecified, right knee	Diagnosis	ICD-10-CM
M08.962	Juvenile arthritis, unspecified, left knee	Diagnosis	ICD-10-CM
M08.969	Juvenile arthritis, unspecified, unspecified knee	Diagnosis	ICD-10-CM
M08.971	Juvenile arthritis, unspecified, right ankle and foot	Diagnosis	ICD-10-CM
M08.972	Juvenile arthritis, unspecified, left ankle and foot	Diagnosis	ICD-10-CM
M08.979	Juvenile arthritis, unspecified, unspecified ankle and foot	Diagnosis	ICD-10-CM
M08.98	Juvenile arthritis, unspecified, vertebrae	Diagnosis	ICD-10-CM
M08.99	Juvenile arthritis, unspecified, multiple sites	Diagnosis	ICD-10-CM
M08.9A	Juvenile arthritis, unspecified, other specified site	Diagnosis	ICD-10-CM
M15.0	Primary generalized (osteo)arthritis	Diagnosis	ICD-10-CM
M15.1	Heberden's nodes (with arthropathy)	Diagnosis	ICD-10-CM
M15.2	Bouchard's nodes (with arthropathy)	Diagnosis	ICD-10-CM
M15.3	Secondary multiple arthritis	Diagnosis	ICD-10-CM
M15.4	Erosive (osteo)arthritis	Diagnosis	ICD-10-CM
M15.8	Other polyosteoarthritis	Diagnosis	ICD-10-CM
M15.9	Polyosteoarthritis, unspecified	Diagnosis	ICD-10-CM
M16.0	Bilateral primary osteoarthritis of hip	Diagnosis	ICD-10-CM
M16.10	Unilateral primary osteoarthritis, unspecified hip	Diagnosis	ICD-10-CM
M16.11	Unilateral primary osteoarthritis, right hip	Diagnosis	ICD-10-CM
M16.12	Unilateral primary osteoarthritis, left hip	Diagnosis	ICD-10-CM
M16.2	Bilateral osteoarthritis resulting from hip dysplasia	Diagnosis	ICD-10-CM
M16.30	Unilateral osteoarthritis resulting from hip dysplasia, unspecified hip	Diagnosis	ICD-10-CM
M16.31	Unilateral osteoarthritis resulting from hip dysplasia, right hip	Diagnosis	ICD-10-CM
M16.32	Unilateral osteoarthritis resulting from hip dysplasia, left hip	Diagnosis	ICD-10-CM
M16.4	Bilateral post-traumatic osteoarthritis of hip	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M16.50	Unilateral post-traumatic osteoarthritis, unspecified hip	Diagnosis	ICD-10-CM
M16.51	Unilateral post-traumatic osteoarthritis, right hip	Diagnosis	ICD-10-CM
M16.52	Unilateral post-traumatic osteoarthritis, left hip	Diagnosis	ICD-10-CM
M16.6	Other bilateral secondary osteoarthritis of hip	Diagnosis	ICD-10-CM
M16.7	Other unilateral secondary osteoarthritis of hip	Diagnosis	ICD-10-CM
M16.9	Osteoarthritis of hip, unspecified	Diagnosis	ICD-10-CM
M17.0	Bilateral primary osteoarthritis of knee	Diagnosis	ICD-10-CM
M17.10	Unilateral primary osteoarthritis, unspecified knee	Diagnosis	ICD-10-CM
M17.11	Unilateral primary osteoarthritis, right knee	Diagnosis	ICD-10-CM
M17.12	Unilateral primary osteoarthritis, left knee	Diagnosis	ICD-10-CM
M17.2	Bilateral post-traumatic osteoarthritis of knee	Diagnosis	ICD-10-CM
M17.30	Unilateral post-traumatic osteoarthritis, unspecified knee	Diagnosis	ICD-10-CM
M17.31	Unilateral post-traumatic osteoarthritis, right knee	Diagnosis	ICD-10-CM
M17.32	Unilateral post-traumatic osteoarthritis, left knee	Diagnosis	ICD-10-CM
M17.4	Other bilateral secondary osteoarthritis of knee	Diagnosis	ICD-10-CM
M17.5	Other unilateral secondary osteoarthritis of knee	Diagnosis	ICD-10-CM
M17.9	Osteoarthritis of knee, unspecified	Diagnosis	ICD-10-CM
M18.0	Bilateral primary osteoarthritis of first carpometacarpal joints	Diagnosis	ICD-10-CM
M18.10	Unilateral primary osteoarthritis of first carpometacarpal joint, unspecified hand	Diagnosis	ICD-10-CM
M18.11	Unilateral primary osteoarthritis of first carpometacarpal joint, right hand	Diagnosis	ICD-10-CM
M18.12	Unilateral primary osteoarthritis of first carpometacarpal joint, left hand	Diagnosis	ICD-10-CM
M18.2	Bilateral post-traumatic osteoarthritis of first carpometacarpal joints	Diagnosis	ICD-10-CM
M18.30	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, unspecified hand	Diagnosis	ICD-10-CM
M18.31	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, right hand	Diagnosis	ICD-10-CM
M18.32	Unilateral post-traumatic osteoarthritis of first carpometacarpal joint, left hand	Diagnosis	ICD-10-CM
M18.4	Other bilateral secondary osteoarthritis of first carpometacarpal joints	Diagnosis	ICD-10-CM
M18.50	Other unilateral secondary osteoarthritis of first carpometacarpal joint, unspecified hand	Diagnosis	ICD-10-CM
M18.51	Other unilateral secondary osteoarthritis of first carpometacarpal joint, right hand	Diagnosis	ICD-10-CM
M18.52	Other unilateral secondary osteoarthritis of first carpometacarpal joint, left hand	Diagnosis	ICD-10-CM
M18.9	Osteoarthritis of first carpometacarpal joint, unspecified	Diagnosis	ICD-10-CM
M19.011	Primary osteoarthritis, right shoulder	Diagnosis	ICD-10-CM
M19.012	Primary osteoarthritis, left shoulder	Diagnosis	ICD-10-CM
M19.019	Primary osteoarthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M19.021	Primary osteoarthritis, right elbow	Diagnosis	ICD-10-CM
M19.022	Primary osteoarthritis, left elbow	Diagnosis	ICD-10-CM
M19.029	Primary osteoarthritis, unspecified elbow	Diagnosis	ICD-10-CM
M19.031	Primary osteoarthritis, right wrist	Diagnosis	ICD-10-CM
M19.032	Primary osteoarthritis, left wrist	Diagnosis	ICD-10-CM
M19.039	Primary osteoarthritis, unspecified wrist	Diagnosis	ICD-10-CM
M19.041	Primary osteoarthritis, right hand	Diagnosis	ICD-10-CM
M19.042	Primary osteoarthritis, left hand	Diagnosis	ICD-10-CM
M19.049	Primary osteoarthritis, unspecified hand	Diagnosis	ICD-10-CM
M19.071	Primary osteoarthritis, right ankle and foot	Diagnosis	ICD-10-CM
M19.072	Primary osteoarthritis, left ankle and foot	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
M19.079	Primary osteoarthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M19.09	Primary osteoarthritis, other specified site	Diagnosis	ICD-10-CM
M19.111	Post-traumatic osteoarthritis, right shoulder	Diagnosis	ICD-10-CM
M19.112	Post-traumatic osteoarthritis, left shoulder	Diagnosis	ICD-10-CM
M19.119	Post-traumatic osteoarthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M19.121	Post-traumatic osteoarthritis, right elbow	Diagnosis	ICD-10-CM
M19.122	Post-traumatic osteoarthritis, left elbow	Diagnosis	ICD-10-CM
M19.129	Post-traumatic osteoarthritis, unspecified elbow	Diagnosis	ICD-10-CM
M19.131	Post-traumatic osteoarthritis, right wrist	Diagnosis	ICD-10-CM
M19.132	Post-traumatic osteoarthritis, left wrist	Diagnosis	ICD-10-CM
M19.139	Post-traumatic osteoarthritis, unspecified wrist	Diagnosis	ICD-10-CM
M19.141	Post-traumatic osteoarthritis, right hand	Diagnosis	ICD-10-CM
M19.142	Post-traumatic osteoarthritis, left hand	Diagnosis	ICD-10-CM
M19.149	Post-traumatic osteoarthritis, unspecified hand	Diagnosis	ICD-10-CM
M19.171	Post-traumatic osteoarthritis, right ankle and foot	Diagnosis	ICD-10-CM
M19.172	Post-traumatic osteoarthritis, left ankle and foot	Diagnosis	ICD-10-CM
M19.179	Post-traumatic osteoarthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M19.19	Post-traumatic osteoarthritis, other specified site	Diagnosis	ICD-10-CM
M19.211	Secondary osteoarthritis, right shoulder	Diagnosis	ICD-10-CM
M19.212	Secondary osteoarthritis, left shoulder	Diagnosis	ICD-10-CM
M19.219	Secondary osteoarthritis, unspecified shoulder	Diagnosis	ICD-10-CM
M19.221	Secondary osteoarthritis, right elbow	Diagnosis	ICD-10-CM
M19.222	Secondary osteoarthritis, left elbow	Diagnosis	ICD-10-CM
M19.229	Secondary osteoarthritis, unspecified elbow	Diagnosis	ICD-10-CM
M19.231	Secondary osteoarthritis, right wrist	Diagnosis	ICD-10-CM
M19.232	Secondary osteoarthritis, left wrist	Diagnosis	ICD-10-CM
M19.239	Secondary osteoarthritis, unspecified wrist	Diagnosis	ICD-10-CM
M19.241	Secondary osteoarthritis, right hand	Diagnosis	ICD-10-CM
M19.242	Secondary osteoarthritis, left hand	Diagnosis	ICD-10-CM
M19.249	Secondary osteoarthritis, unspecified hand	Diagnosis	ICD-10-CM
M19.271	Secondary osteoarthritis, right ankle and foot	Diagnosis	ICD-10-CM
M19.272	Secondary osteoarthritis, left ankle and foot	Diagnosis	ICD-10-CM
M19.279	Secondary osteoarthritis, unspecified ankle and foot	Diagnosis	ICD-10-CM
M19.29	Secondary osteoarthritis, other specified site	Diagnosis	ICD-10-CM
M19.90	Unspecified osteoarthritis, unspecified site	Diagnosis	ICD-10-CM
M19.91	Primary osteoarthritis, unspecified site	Diagnosis	ICD-10-CM
M19.92	Post-traumatic osteoarthritis, unspecified site	Diagnosis	ICD-10-CM
M19.93	Secondary osteoarthritis, unspecified site	Diagnosis	ICD-10-CM
M45.0	Ankylosing spondylitis of multiple sites in spine	Diagnosis	ICD-10-CM
M45.1	Ankylosing spondylitis of occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M45.2	Ankylosing spondylitis of cervical region	Diagnosis	ICD-10-CM
M45.3	Ankylosing spondylitis of cervicothoracic region	Diagnosis	ICD-10-CM
M45.4	Ankylosing spondylitis of thoracic region	Diagnosis	ICD-10-CM
M45.5	Ankylosing spondylitis of thoracolumbar region	Diagnosis	ICD-10-CM
M45.6	Ankylosing spondylitis lumbar region	Diagnosis	ICD-10-CM
M45.7	Ankylosing spondylitis of lumbosacral region	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M45.8	Ankylosing spondylitis sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M45.9	Ankylosing spondylitis of unspecified sites in spine	Diagnosis	ICD-10-CM
M45.A0	Non-radiographic axial spondyloarthritis of unspecified sites in spine	Diagnosis	ICD-10-CM
M45.A1	Non-radiographic axial spondyloarthritis of occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M45.A2	Non-radiographic axial spondyloarthritis of cervical region	Diagnosis	ICD-10-CM
M45.A3	Non-radiographic axial spondyloarthritis of cervicothoracic region	Diagnosis	ICD-10-CM
M45.A4	Non-radiographic axial spondyloarthritis of thoracic region	Diagnosis	ICD-10-CM
M45.A5	Non-radiographic axial spondyloarthritis of thoracolumbar region	Diagnosis	ICD-10-CM
M45.A6	Non-radiographic axial spondyloarthritis of lumbar region	Diagnosis	ICD-10-CM
M45.A7	Non-radiographic axial spondyloarthritis of lumbosacral region	Diagnosis	ICD-10-CM
M45.A8	Non-radiographic axial spondyloarthritis of sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M45.AB	Non-radiographic axial spondyloarthritis of multiple sites in spine	Diagnosis	ICD-10-CM
M46.80	Other specified inflammatory spondylopathies, site unspecified	Diagnosis	ICD-10-CM
M46.81	Other specified inflammatory spondylopathies, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M46.82	Other specified inflammatory spondylopathies, cervical region	Diagnosis	ICD-10-CM
M46.83	Other specified inflammatory spondylopathies, cervicothoracic region	Diagnosis	ICD-10-CM
M46.84	Other specified inflammatory spondylopathies, thoracic region	Diagnosis	ICD-10-CM
M46.85	Other specified inflammatory spondylopathies, thoracolumbar region	Diagnosis	ICD-10-CM
M46.86	Other specified inflammatory spondylopathies, lumbar region	Diagnosis	ICD-10-CM
M46.87	Other specified inflammatory spondylopathies, lumbosacral region	Diagnosis	ICD-10-CM
M46.88	Other specified inflammatory spondylopathies, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M46.89	Other specified inflammatory spondylopathies, multiple sites in spine	Diagnosis	ICD-10-CM
M46.90	Unspecified inflammatory spondylopathy, site unspecified	Diagnosis	ICD-10-CM
M46.91	Unspecified inflammatory spondylopathy, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M46.92	Unspecified inflammatory spondylopathy, cervical region	Diagnosis	ICD-10-CM
M46.93	Unspecified inflammatory spondylopathy, cervicothoracic region	Diagnosis	ICD-10-CM
M46.94	Unspecified inflammatory spondylopathy, thoracic region	Diagnosis	ICD-10-CM
M46.95	Unspecified inflammatory spondylopathy, thoracolumbar region	Diagnosis	ICD-10-CM
M46.96	Unspecified inflammatory spondylopathy, lumbar region	Diagnosis	ICD-10-CM
M46.97	Unspecified inflammatory spondylopathy, lumbosacral region	Diagnosis	ICD-10-CM
M46.98	Unspecified inflammatory spondylopathy, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M46.99	Unspecified inflammatory spondylopathy, multiple sites in spine	Diagnosis	ICD-10-CM
M47.011	Anterior spinal artery compression syndromes, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.012	Anterior spinal artery compression syndromes, cervical region	Diagnosis	ICD-10-CM
M47.013	Anterior spinal artery compression syndromes, cervicothoracic region	Diagnosis	ICD-10-CM
M47.014	Anterior spinal artery compression syndromes, thoracic region	Diagnosis	ICD-10-CM
M47.015	Anterior spinal artery compression syndromes, thoracolumbar region	Diagnosis	ICD-10-CM
M47.016	Anterior spinal artery compression syndromes, lumbar region	Diagnosis	ICD-10-CM
M47.019	Anterior spinal artery compression syndromes, site unspecified	Diagnosis	ICD-10-CM
M47.021	Vertebral artery compression syndromes, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.022	Vertebral artery compression syndromes, cervical region	Diagnosis	ICD-10-CM
M47.029	Vertebral artery compression syndromes, site unspecified	Diagnosis	ICD-10-CM
M47.10	Other spondylosis with myelopathy, site unspecified	Diagnosis	ICD-10-CM
M47.11	Other spondylosis with myelopathy, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.12	Other spondylosis with myelopathy, cervical region	Diagnosis	ICD-10-CM
M47.13	Other spondylosis with myelopathy, cervicothoracic region	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
M47.14	Other spondylosis with myelopathy, thoracic region	Diagnosis	ICD-10-CM
M47.15	Other spondylosis with myelopathy, thoracolumbar region	Diagnosis	ICD-10-CM
M47.16	Other spondylosis with myelopathy, lumbar region	Diagnosis	ICD-10-CM
M47.20	Other spondylosis with radiculopathy, site unspecified	Diagnosis	ICD-10-CM
M47.21	Other spondylosis with radiculopathy, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.22	Other spondylosis with radiculopathy, cervical region	Diagnosis	ICD-10-CM
M47.23	Other spondylosis with radiculopathy, cervicothoracic region	Diagnosis	ICD-10-CM
M47.24	Other spondylosis with radiculopathy, thoracic region	Diagnosis	ICD-10-CM
M47.25	Other spondylosis with radiculopathy, thoracolumbar region	Diagnosis	ICD-10-CM
M47.26	Other spondylosis with radiculopathy, lumbar region	Diagnosis	ICD-10-CM
M47.27	Other spondylosis with radiculopathy, lumbosacral region	Diagnosis	ICD-10-CM
M47.28	Other spondylosis with radiculopathy, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M47.811	Spondylosis without myelopathy or radiculopathy, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.812	Spondylosis without myelopathy or radiculopathy, cervical region	Diagnosis	ICD-10-CM
M47.813	Spondylosis without myelopathy or radiculopathy, cervicothoracic region	Diagnosis	ICD-10-CM
M47.814	Spondylosis without myelopathy or radiculopathy, thoracic region	Diagnosis	ICD-10-CM
M47.815	Spondylosis without myelopathy or radiculopathy, thoracolumbar region	Diagnosis	ICD-10-CM
M47.816	Spondylosis without myelopathy or radiculopathy, lumbar region	Diagnosis	ICD-10-CM
M47.817	Spondylosis without myelopathy or radiculopathy, lumbosacral region	Diagnosis	ICD-10-CM
M47.818	Spondylosis without myelopathy or radiculopathy, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M47.819	Spondylosis without myelopathy or radiculopathy, site unspecified	Diagnosis	ICD-10-CM
M47.891	Other spondylosis, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M47.892	Other spondylosis, cervical region	Diagnosis	ICD-10-CM
M47.893	Other spondylosis, cervicothoracic region	Diagnosis	ICD-10-CM
M47.894	Other spondylosis, thoracic region	Diagnosis	ICD-10-CM
M47.895	Other spondylosis, thoracolumbar region	Diagnosis	ICD-10-CM
M47.896	Other spondylosis, lumbar region	Diagnosis	ICD-10-CM
M47.897	Other spondylosis, lumbosacral region	Diagnosis	ICD-10-CM
M47.898	Other spondylosis, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M47.899	Other spondylosis, site unspecified	Diagnosis	ICD-10-CM
M47.9	Spondylosis, unspecified	Diagnosis	ICD-10-CM
M48.8X1	Other specified spondylopathies, occipito-atlanto-axial region	Diagnosis	ICD-10-CM
M48.8X2	Other specified spondylopathies, cervical region	Diagnosis	ICD-10-CM
M48.8X3	Other specified spondylopathies, cervicothoracic region	Diagnosis	ICD-10-CM
M48.8X4	Other specified spondylopathies, thoracic region	Diagnosis	ICD-10-CM
M48.8X5	Other specified spondylopathies, thoracolumbar region	Diagnosis	ICD-10-CM
M48.8X6	Other specified spondylopathies, lumbar region	Diagnosis	ICD-10-CM
M48.8X7	Other specified spondylopathies, lumbosacral region	Diagnosis	ICD-10-CM
M48.8X8	Other specified spondylopathies, sacral and sacrococcygeal region	Diagnosis	ICD-10-CM
M48.8X9	Other specified spondylopathies, site unspecified	Diagnosis	ICD-10-CM
<b>Stroke or Transient Ischemic Attack</b>			
G45.0	Vertebro-basilar artery syndrome	Diagnosis	ICD-10-CM
G45.1	Carotid artery syndrome (hemispheric)	Diagnosis	ICD-10-CM
G45.2	Multiple and bilateral precerebral artery syndromes	Diagnosis	ICD-10-CM
G45.3	Amaurosis fugax	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
G45.8	Other transient cerebral ischemic attacks and related syndromes	Diagnosis	ICD-10-CM
G45.9	Transient cerebral ischemic attack, unspecified	Diagnosis	ICD-10-CM
G46.0	Middle cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.1	Anterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.2	Posterior cerebral artery syndrome	Diagnosis	ICD-10-CM
G46.3	Brain stem stroke syndrome	Diagnosis	ICD-10-CM
G46.4	Cerebellar stroke syndrome	Diagnosis	ICD-10-CM
G46.5	Pure motor lacunar syndrome	Diagnosis	ICD-10-CM
G46.6	Pure sensory lacunar syndrome	Diagnosis	ICD-10-CM
G46.7	Other lacunar syndromes	Diagnosis	ICD-10-CM
G46.8	Other vascular syndromes of brain in cerebrovascular diseases	Diagnosis	ICD-10-CM
G97.31	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating a nervous system procedure	Diagnosis	ICD-10-CM
G97.32	Intraoperative hemorrhage and hematoma of a nervous system organ or structure complicating other procedure	Diagnosis	ICD-10-CM
I60.00	Nontraumatic subarachnoid hemorrhage from unspecified carotid siphon and bifurcation	Diagnosis	ICD-10-CM
I60.01	Nontraumatic subarachnoid hemorrhage from right carotid siphon and bifurcation	Diagnosis	ICD-10-CM
I60.02	Nontraumatic subarachnoid hemorrhage from left carotid siphon and bifurcation	Diagnosis	ICD-10-CM
I60.10	Nontraumatic subarachnoid hemorrhage from unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I60.11	Nontraumatic subarachnoid hemorrhage from right middle cerebral artery	Diagnosis	ICD-10-CM
I60.12	Nontraumatic subarachnoid hemorrhage from left middle cerebral artery	Diagnosis	ICD-10-CM
I60.2	Nontraumatic subarachnoid hemorrhage from anterior communicating artery	Diagnosis	ICD-10-CM
I60.20	Nontraumatic subarachnoid hemorrhage from unspecified anterior communicating artery	Diagnosis	ICD-10-CM
I60.21	Nontraumatic subarachnoid hemorrhage from right anterior communicating artery	Diagnosis	ICD-10-CM
I60.22	Nontraumatic subarachnoid hemorrhage from left anterior communicating artery	Diagnosis	ICD-10-CM
I60.30	Nontraumatic subarachnoid hemorrhage from unspecified posterior communicating artery	Diagnosis	ICD-10-CM
I60.31	Nontraumatic subarachnoid hemorrhage from right posterior communicating artery	Diagnosis	ICD-10-CM
I60.32	Nontraumatic subarachnoid hemorrhage from left posterior communicating artery	Diagnosis	ICD-10-CM
I60.4	Nontraumatic subarachnoid hemorrhage from basilar artery	Diagnosis	ICD-10-CM
I60.50	Nontraumatic subarachnoid hemorrhage from unspecified vertebral artery	Diagnosis	ICD-10-CM
I60.51	Nontraumatic subarachnoid hemorrhage from right vertebral artery	Diagnosis	ICD-10-CM
I60.52	Nontraumatic subarachnoid hemorrhage from left vertebral artery	Diagnosis	ICD-10-CM
I60.6	Nontraumatic subarachnoid hemorrhage from other intracranial arteries	Diagnosis	ICD-10-CM
I60.7	Nontraumatic subarachnoid hemorrhage from unspecified intracranial artery	Diagnosis	ICD-10-CM
I60.8	Other nontraumatic subarachnoid hemorrhage	Diagnosis	ICD-10-CM
I60.9	Nontraumatic subarachnoid hemorrhage, unspecified	Diagnosis	ICD-10-CM
I61.0	Nontraumatic intracerebral hemorrhage in hemisphere, subcortical	Diagnosis	ICD-10-CM
I61.1	Nontraumatic intracerebral hemorrhage in hemisphere, cortical	Diagnosis	ICD-10-CM
I61.2	Nontraumatic intracerebral hemorrhage in hemisphere, unspecified	Diagnosis	ICD-10-CM
I61.3	Nontraumatic intracerebral hemorrhage in brain stem	Diagnosis	ICD-10-CM
I61.4	Nontraumatic intracerebral hemorrhage in cerebellum	Diagnosis	ICD-10-CM
I61.5	Nontraumatic intracerebral hemorrhage, intraventricular	Diagnosis	ICD-10-CM
I61.6	Nontraumatic intracerebral hemorrhage, multiple localized	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I61.8	Other nontraumatic intracerebral hemorrhage	Diagnosis	ICD-10-CM
I61.9	Nontraumatic intracerebral hemorrhage, unspecified	Diagnosis	ICD-10-CM
I62.00	Nontraumatic subdural hemorrhage, unspecified	Diagnosis	ICD-10-CM
I62.01	Nontraumatic acute subdural hemorrhage	Diagnosis	ICD-10-CM
I62.02	Nontraumatic subacute subdural hemorrhage	Diagnosis	ICD-10-CM
I62.9	Nontraumatic intracranial hemorrhage, unspecified	Diagnosis	ICD-10-CM
I63.00	Cerebral infarction due to thrombosis of unspecified precerebral artery	Diagnosis	ICD-10-CM
I63.011	Cerebral infarction due to thrombosis of right vertebral artery	Diagnosis	ICD-10-CM
I63.012	Cerebral infarction due to thrombosis of left vertebral artery	Diagnosis	ICD-10-CM
I63.013	Cerebral infarction due to thrombosis of bilateral vertebral arteries	Diagnosis	ICD-10-CM
I63.019	Cerebral infarction due to thrombosis of unspecified vertebral artery	Diagnosis	ICD-10-CM
I63.02	Cerebral infarction due to thrombosis of basilar artery	Diagnosis	ICD-10-CM
I63.031	Cerebral infarction due to thrombosis of right carotid artery	Diagnosis	ICD-10-CM
I63.032	Cerebral infarction due to thrombosis of left carotid artery	Diagnosis	ICD-10-CM
I63.033	Cerebral infarction due to thrombosis of bilateral carotid arteries	Diagnosis	ICD-10-CM
I63.039	Cerebral infarction due to thrombosis of unspecified carotid artery	Diagnosis	ICD-10-CM
I63.09	Cerebral infarction due to thrombosis of other precerebral artery	Diagnosis	ICD-10-CM
I63.10	Cerebral infarction due to embolism of unspecified precerebral artery	Diagnosis	ICD-10-CM
I63.111	Cerebral infarction due to embolism of right vertebral artery	Diagnosis	ICD-10-CM
I63.112	Cerebral infarction due to embolism of left vertebral artery	Diagnosis	ICD-10-CM
I63.113	Cerebral infarction due to embolism of bilateral vertebral arteries	Diagnosis	ICD-10-CM
I63.119	Cerebral infarction due to embolism of unspecified vertebral artery	Diagnosis	ICD-10-CM
I63.12	Cerebral infarction due to embolism of basilar artery	Diagnosis	ICD-10-CM
I63.131	Cerebral infarction due to embolism of right carotid artery	Diagnosis	ICD-10-CM
I63.132	Cerebral infarction due to embolism of left carotid artery	Diagnosis	ICD-10-CM
I63.133	Cerebral infarction due to embolism of bilateral carotid arteries	Diagnosis	ICD-10-CM
I63.139	Cerebral infarction due to embolism of unspecified carotid artery	Diagnosis	ICD-10-CM
I63.19	Cerebral infarction due to embolism of other precerebral artery	Diagnosis	ICD-10-CM
I63.20	Cerebral infarction due to unspecified occlusion or stenosis of unspecified precerebral arteries	Diagnosis	ICD-10-CM
I63.211	Cerebral infarction due to unspecified occlusion or stenosis of right vertebral artery	Diagnosis	ICD-10-CM
I63.212	Cerebral infarction due to unspecified occlusion or stenosis of left vertebral artery	Diagnosis	ICD-10-CM
I63.213	Cerebral infarction due to unspecified occlusion or stenosis of bilateral vertebral arteries	Diagnosis	ICD-10-CM
I63.219	Cerebral infarction due to unspecified occlusion or stenosis of unspecified vertebral artery	Diagnosis	ICD-10-CM
I63.22	Cerebral infarction due to unspecified occlusion or stenosis of basilar artery	Diagnosis	ICD-10-CM
I63.231	Cerebral infarction due to unspecified occlusion or stenosis of right carotid arteries	Diagnosis	ICD-10-CM
I63.232	Cerebral infarction due to unspecified occlusion or stenosis of left carotid arteries	Diagnosis	ICD-10-CM
I63.233	Cerebral infarction due to unspecified occlusion or stenosis of bilateral carotid arteries	Diagnosis	ICD-10-CM
I63.239	Cerebral infarction due to unspecified occlusion or stenosis of unspecified carotid artery	Diagnosis	ICD-10-CM
I63.29	Cerebral infarction due to unspecified occlusion or stenosis of other precerebral arteries	Diagnosis	ICD-10-CM
I63.30	Cerebral infarction due to thrombosis of unspecified cerebral artery	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I63.311	Cerebral infarction due to thrombosis of right middle cerebral artery	Diagnosis	ICD-10-CM
I63.312	Cerebral infarction due to thrombosis of left middle cerebral artery	Diagnosis	ICD-10-CM
I63.313	Cerebral infarction due to thrombosis of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I63.319	Cerebral infarction due to thrombosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I63.321	Cerebral infarction due to thrombosis of right anterior cerebral artery	Diagnosis	ICD-10-CM
I63.322	Cerebral infarction due to thrombosis of left anterior cerebral artery	Diagnosis	ICD-10-CM
I63.323	Cerebral infarction due to thrombosis of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I63.329	Cerebral infarction due to thrombosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.331	Cerebral infarction due to thrombosis of right posterior cerebral artery	Diagnosis	ICD-10-CM
I63.332	Cerebral infarction due to thrombosis of left posterior cerebral artery	Diagnosis	ICD-10-CM
I63.333	Cerebral infarction due to thrombosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I63.339	Cerebral infarction due to thrombosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.341	Cerebral infarction due to thrombosis of right cerebellar artery	Diagnosis	ICD-10-CM
I63.342	Cerebral infarction due to thrombosis of left cerebellar artery	Diagnosis	ICD-10-CM
I63.343	Cerebral infarction due to thrombosis of bilateral cerebellar arteries	Diagnosis	ICD-10-CM
I63.349	Cerebral infarction due to thrombosis of unspecified cerebellar artery	Diagnosis	ICD-10-CM
I63.39	Cerebral infarction due to thrombosis of other cerebral artery	Diagnosis	ICD-10-CM
I63.40	Cerebral infarction due to embolism of unspecified cerebral artery	Diagnosis	ICD-10-CM
I63.411	Cerebral infarction due to embolism of right middle cerebral artery	Diagnosis	ICD-10-CM
I63.412	Cerebral infarction due to embolism of left middle cerebral artery	Diagnosis	ICD-10-CM
I63.413	Cerebral infarction due to embolism of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I63.419	Cerebral infarction due to embolism of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I63.421	Cerebral infarction due to embolism of right anterior cerebral artery	Diagnosis	ICD-10-CM
I63.422	Cerebral infarction due to embolism of left anterior cerebral artery	Diagnosis	ICD-10-CM
I63.423	Cerebral infarction due to embolism of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I63.429	Cerebral infarction due to embolism of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.431	Cerebral infarction due to embolism of right posterior cerebral artery	Diagnosis	ICD-10-CM
I63.432	Cerebral infarction due to embolism of left posterior cerebral artery	Diagnosis	ICD-10-CM
I63.433	Cerebral infarction due to embolism of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I63.439	Cerebral infarction due to embolism of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.441	Cerebral infarction due to embolism of right cerebellar artery	Diagnosis	ICD-10-CM
I63.442	Cerebral infarction due to embolism of left cerebellar artery	Diagnosis	ICD-10-CM
I63.443	Cerebral infarction due to embolism of bilateral cerebellar arteries	Diagnosis	ICD-10-CM
I63.449	Cerebral infarction due to embolism of unspecified cerebellar artery	Diagnosis	ICD-10-CM
I63.49	Cerebral infarction due to embolism of other cerebral artery	Diagnosis	ICD-10-CM
I63.50	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebral artery	Diagnosis	ICD-10-CM
I63.511	Cerebral infarction due to unspecified occlusion or stenosis of right middle cerebral artery	Diagnosis	ICD-10-CM
I63.512	Cerebral infarction due to unspecified occlusion or stenosis of left middle cerebral artery	Diagnosis	ICD-10-CM
I63.513	Cerebral infarction due to unspecified occlusion or stenosis of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I63.519	Cerebral infarction due to unspecified occlusion or stenosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM



**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
I63.521	Cerebral infarction due to unspecified occlusion or stenosis of right anterior cerebral artery	Diagnosis	ICD-10-CM
I63.522	Cerebral infarction due to unspecified occlusion or stenosis of left anterior cerebral artery	Diagnosis	ICD-10-CM
I63.523	Cerebral infarction due to unspecified occlusion or stenosis of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I63.529	Cerebral infarction due to unspecified occlusion or stenosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I63.531	Cerebral infarction due to unspecified occlusion or stenosis of right posterior cerebral artery	Diagnosis	ICD-10-CM
I63.532	Cerebral infarction due to unspecified occlusion or stenosis of left posterior cerebral artery	Diagnosis	ICD-10-CM
I63.533	Cerebral infarction due to unspecified occlusion or stenosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I63.539	Cerebral infarction due to unspecified occlusion or stenosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I63.541	Cerebral infarction due to unspecified occlusion or stenosis of right cerebellar artery	Diagnosis	ICD-10-CM
I63.542	Cerebral infarction due to unspecified occlusion or stenosis of left cerebellar artery	Diagnosis	ICD-10-CM
I63.543	Cerebral infarction due to unspecified occlusion or stenosis of bilateral cerebellar arteries	Diagnosis	ICD-10-CM
I63.549	Cerebral infarction due to unspecified occlusion or stenosis of unspecified cerebellar artery	Diagnosis	ICD-10-CM
I63.59	Cerebral infarction due to unspecified occlusion or stenosis of other cerebral artery	Diagnosis	ICD-10-CM
I63.6	Cerebral infarction due to cerebral venous thrombosis, nonpyogenic	Diagnosis	ICD-10-CM
I63.8	Other cerebral infarction	Diagnosis	ICD-10-CM
I63.81	Other cerebral infarction due to occlusion or stenosis of small artery	Diagnosis	ICD-10-CM
I63.89	Other cerebral infarction	Diagnosis	ICD-10-CM
I63.9	Cerebral infarction, unspecified	Diagnosis	ICD-10-CM
I66.01	Occlusion and stenosis of right middle cerebral artery	Diagnosis	ICD-10-CM
I66.02	Occlusion and stenosis of left middle cerebral artery	Diagnosis	ICD-10-CM
I66.03	Occlusion and stenosis of bilateral middle cerebral arteries	Diagnosis	ICD-10-CM
I66.09	Occlusion and stenosis of unspecified middle cerebral artery	Diagnosis	ICD-10-CM
I66.11	Occlusion and stenosis of right anterior cerebral artery	Diagnosis	ICD-10-CM
I66.12	Occlusion and stenosis of left anterior cerebral artery	Diagnosis	ICD-10-CM
I66.13	Occlusion and stenosis of bilateral anterior cerebral arteries	Diagnosis	ICD-10-CM
I66.19	Occlusion and stenosis of unspecified anterior cerebral artery	Diagnosis	ICD-10-CM
I66.21	Occlusion and stenosis of right posterior cerebral artery	Diagnosis	ICD-10-CM
I66.22	Occlusion and stenosis of left posterior cerebral artery	Diagnosis	ICD-10-CM
I66.23	Occlusion and stenosis of bilateral posterior cerebral arteries	Diagnosis	ICD-10-CM
I66.29	Occlusion and stenosis of unspecified posterior cerebral artery	Diagnosis	ICD-10-CM
I66.3	Occlusion and stenosis of cerebellar arteries	Diagnosis	ICD-10-CM
I66.8	Occlusion and stenosis of other cerebral arteries	Diagnosis	ICD-10-CM
I66.9	Occlusion and stenosis of unspecified cerebral artery	Diagnosis	ICD-10-CM
I67.841	Reversible cerebrovascular vasoconstriction syndrome	Diagnosis	ICD-10-CM
I67.848	Other cerebrovascular vasospasm and vasoconstriction	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I67.89	Other cerebrovascular disease	Diagnosis	ICD-10-CM
I97.810	Intraoperative cerebrovascular infarction during cardiac surgery	Diagnosis	ICD-10-CM
I97.811	Intraoperative cerebrovascular infarction during other surgery	Diagnosis	ICD-10-CM
I97.820	Postprocedural cerebrovascular infarction following cardiac surgery	Diagnosis	ICD-10-CM
I97.821	Postprocedural cerebrovascular infarction following other surgery	Diagnosis	ICD-10-CM
<b>Breast Cancer</b>			
C50.011	Malignant neoplasm of nipple and areola, right female breast	Diagnosis	ICD-10-CM
C50.012	Malignant neoplasm of nipple and areola, left female breast	Diagnosis	ICD-10-CM
C50.019	Malignant neoplasm of nipple and areola, unspecified female breast	Diagnosis	ICD-10-CM
C50.021	Malignant neoplasm of nipple and areola, right male breast	Diagnosis	ICD-10-CM
C50.022	Malignant neoplasm of nipple and areola, left male breast	Diagnosis	ICD-10-CM
C50.029	Malignant neoplasm of nipple and areola, unspecified male breast	Diagnosis	ICD-10-CM
C50.111	Malignant neoplasm of central portion of right female breast	Diagnosis	ICD-10-CM
C50.112	Malignant neoplasm of central portion of left female breast	Diagnosis	ICD-10-CM
C50.119	Malignant neoplasm of central portion of unspecified female breast	Diagnosis	ICD-10-CM
C50.121	Malignant neoplasm of central portion of right male breast	Diagnosis	ICD-10-CM
C50.122	Malignant neoplasm of central portion of left male breast	Diagnosis	ICD-10-CM
C50.129	Malignant neoplasm of central portion of unspecified male breast	Diagnosis	ICD-10-CM
C50.211	Malignant neoplasm of upper-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.212	Malignant neoplasm of upper-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.219	Malignant neoplasm of upper-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.221	Malignant neoplasm of upper-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.222	Malignant neoplasm of upper-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.229	Malignant neoplasm of upper-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.311	Malignant neoplasm of lower-inner quadrant of right female breast	Diagnosis	ICD-10-CM
C50.312	Malignant neoplasm of lower-inner quadrant of left female breast	Diagnosis	ICD-10-CM
C50.319	Malignant neoplasm of lower-inner quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.321	Malignant neoplasm of lower-inner quadrant of right male breast	Diagnosis	ICD-10-CM
C50.322	Malignant neoplasm of lower-inner quadrant of left male breast	Diagnosis	ICD-10-CM
C50.329	Malignant neoplasm of lower-inner quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.411	Malignant neoplasm of upper-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.412	Malignant neoplasm of upper-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.419	Malignant neoplasm of upper-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.421	Malignant neoplasm of upper-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.422	Malignant neoplasm of upper-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.429	Malignant neoplasm of upper-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.511	Malignant neoplasm of lower-outer quadrant of right female breast	Diagnosis	ICD-10-CM
C50.512	Malignant neoplasm of lower-outer quadrant of left female breast	Diagnosis	ICD-10-CM
C50.519	Malignant neoplasm of lower-outer quadrant of unspecified female breast	Diagnosis	ICD-10-CM
C50.521	Malignant neoplasm of lower-outer quadrant of right male breast	Diagnosis	ICD-10-CM
C50.522	Malignant neoplasm of lower-outer quadrant of left male breast	Diagnosis	ICD-10-CM
C50.529	Malignant neoplasm of lower-outer quadrant of unspecified male breast	Diagnosis	ICD-10-CM
C50.611	Malignant neoplasm of axillary tail of right female breast	Diagnosis	ICD-10-CM
C50.612	Malignant neoplasm of axillary tail of left female breast	Diagnosis	ICD-10-CM
C50.619	Malignant neoplasm of axillary tail of unspecified female breast	Diagnosis	ICD-10-CM
C50.621	Malignant neoplasm of axillary tail of right male breast	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

Code	Description	Code Category	Code Type
C50.622	Malignant neoplasm of axillary tail of left male breast	Diagnosis	ICD-10-CM
C50.629	Malignant neoplasm of axillary tail of unspecified male breast	Diagnosis	ICD-10-CM
C50.811	Malignant neoplasm of overlapping sites of right female breast	Diagnosis	ICD-10-CM
C50.812	Malignant neoplasm of overlapping sites of left female breast	Diagnosis	ICD-10-CM
C50.819	Malignant neoplasm of overlapping sites of unspecified female breast	Diagnosis	ICD-10-CM
C50.821	Malignant neoplasm of overlapping sites of right male breast	Diagnosis	ICD-10-CM
C50.822	Malignant neoplasm of overlapping sites of left male breast	Diagnosis	ICD-10-CM
C50.829	Malignant neoplasm of overlapping sites of unspecified male breast	Diagnosis	ICD-10-CM
C50.911	Malignant neoplasm of unspecified site of right female breast	Diagnosis	ICD-10-CM
C50.912	Malignant neoplasm of unspecified site of left female breast	Diagnosis	ICD-10-CM
C50.919	Malignant neoplasm of unspecified site of unspecified female breast	Diagnosis	ICD-10-CM
C50.921	Malignant neoplasm of unspecified site of right male breast	Diagnosis	ICD-10-CM
C50.922	Malignant neoplasm of unspecified site of left male breast	Diagnosis	ICD-10-CM
C50.929	Malignant neoplasm of unspecified site of unspecified male breast	Diagnosis	ICD-10-CM
D05.00	Lobular carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.01	Lobular carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.02	Lobular carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.10	Intraductal carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.11	Intraductal carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.12	Intraductal carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.80	Other specified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.81	Other specified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.82	Other specified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
D05.90	Unspecified type of carcinoma in situ of unspecified breast	Diagnosis	ICD-10-CM
D05.91	Unspecified type of carcinoma in situ of right breast	Diagnosis	ICD-10-CM
D05.92	Unspecified type of carcinoma in situ of left breast	Diagnosis	ICD-10-CM
Z17.0	Estrogen receptor positive status [ER+]	Diagnosis	ICD-10-CM
Z17.1	Estrogen receptor negative status [ER-]	Diagnosis	ICD-10-CM
Z19.1	Hormone sensitive malignancy status	Diagnosis	ICD-10-CM
Z19.2	Hormone resistant malignancy status	Diagnosis	ICD-10-CM
Z85.3	Personal history of malignant neoplasm of breast	Diagnosis	ICD-10-CM
Z86.000	Personal history of in-situ neoplasm of breast	Diagnosis	ICD-10-CM
<b>Colorectal Cancer</b>			
C18.0	Malignant neoplasm of cecum	Diagnosis	ICD-10-CM
C18.1	Malignant neoplasm of appendix	Diagnosis	ICD-10-CM
C18.2	Malignant neoplasm of ascending colon	Diagnosis	ICD-10-CM
C18.3	Malignant neoplasm of hepatic flexure	Diagnosis	ICD-10-CM
C18.4	Malignant neoplasm of transverse colon	Diagnosis	ICD-10-CM
C18.5	Malignant neoplasm of splenic flexure	Diagnosis	ICD-10-CM
C18.6	Malignant neoplasm of descending colon	Diagnosis	ICD-10-CM
C18.7	Malignant neoplasm of sigmoid colon	Diagnosis	ICD-10-CM
C18.8	Malignant neoplasm of overlapping sites of colon	Diagnosis	ICD-10-CM
C18.9	Malignant neoplasm of colon, unspecified	Diagnosis	ICD-10-CM
C19	Malignant neoplasm of rectosigmoid junction	Diagnosis	ICD-10-CM
C20	Malignant neoplasm of rectum	Diagnosis	ICD-10-CM
C49.A4	Gastrointestinal stromal tumor of large intestine	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
C49.A5	Gastrointestinal stromal tumor of rectum	Diagnosis	ICD-10-CM
D01.0	Carcinoma in situ of colon	Diagnosis	ICD-10-CM
D01.1	Carcinoma in situ of rectosigmoid junction	Diagnosis	ICD-10-CM
D01.2	Carcinoma in situ of rectum	Diagnosis	ICD-10-CM
Z85.030	Personal history of malignant carcinoid tumor of large intestine	Diagnosis	ICD-10-CM
Z85.038	Personal history of other malignant neoplasm of large intestine	Diagnosis	ICD-10-CM
Z85.040	Personal history of malignant carcinoid tumor of rectum	Diagnosis	ICD-10-CM
Z85.048	Personal history of other malignant neoplasm of rectum, rectosigmoid junction, and anus	Diagnosis	ICD-10-CM
<b>Prostate Cancer</b>			
C61	Malignant neoplasm of prostate	Diagnosis	ICD-10-CM
D07.5	Carcinoma in situ of prostate	Diagnosis	ICD-10-CM
Z85.46	Personal history of malignant neoplasm of prostate	Diagnosis	ICD-10-CM
<b>Lung Cancer</b>			
C34.00	Malignant neoplasm of unspecified main bronchus	Diagnosis	ICD-10-CM
C34.01	Malignant neoplasm of right main bronchus	Diagnosis	ICD-10-CM
C34.02	Malignant neoplasm of left main bronchus	Diagnosis	ICD-10-CM
C34.10	Malignant neoplasm of upper lobe, unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.11	Malignant neoplasm of upper lobe, right bronchus or lung	Diagnosis	ICD-10-CM
C34.12	Malignant neoplasm of upper lobe, left bronchus or lung	Diagnosis	ICD-10-CM
C34.2	Malignant neoplasm of middle lobe, bronchus or lung	Diagnosis	ICD-10-CM
C34.30	Malignant neoplasm of lower lobe, unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.31	Malignant neoplasm of lower lobe, right bronchus or lung	Diagnosis	ICD-10-CM
C34.32	Malignant neoplasm of lower lobe, left bronchus or lung	Diagnosis	ICD-10-CM
C34.80	Malignant neoplasm of overlapping sites of unspecified bronchus and lung	Diagnosis	ICD-10-CM
C34.81	Malignant neoplasm of overlapping sites of right bronchus and lung	Diagnosis	ICD-10-CM
C34.82	Malignant neoplasm of overlapping sites of left bronchus and lung	Diagnosis	ICD-10-CM
C34.90	Malignant neoplasm of unspecified part of unspecified bronchus or lung	Diagnosis	ICD-10-CM
C34.91	Malignant neoplasm of unspecified part of right bronchus or lung	Diagnosis	ICD-10-CM
C34.92	Malignant neoplasm of unspecified part of left bronchus or lung	Diagnosis	ICD-10-CM
D02.20	Carcinoma in situ of unspecified bronchus and lung	Diagnosis	ICD-10-CM
D02.21	Carcinoma in situ of right bronchus and lung	Diagnosis	ICD-10-CM
D02.22	Carcinoma in situ of left bronchus and lung	Diagnosis	ICD-10-CM
Z85.110	Personal history of malignant carcinoid tumor of bronchus and lung	Diagnosis	ICD-10-CM
Z85.118	Personal history of other malignant neoplasm of bronchus and lung	Diagnosis	ICD-10-CM
<b>Endometrial Cancer</b>			
C54.0	Malignant neoplasm of isthmus uteri	Diagnosis	ICD-10-CM
C54.1	Malignant neoplasm of endometrium	Diagnosis	ICD-10-CM
C54.2	Malignant neoplasm of myometrium	Diagnosis	ICD-10-CM
C54.3	Malignant neoplasm of fundus uteri	Diagnosis	ICD-10-CM
C54.8	Malignant neoplasm of overlapping sites of corpus uteri	Diagnosis	ICD-10-CM
C54.9	Malignant neoplasm of corpus uteri, unspecified	Diagnosis	ICD-10-CM
D07.0	Carcinoma in situ of endometrium	Diagnosis	ICD-10-CM
Z85.42	Personal history of malignant neoplasm of other parts of uterus	Diagnosis	ICD-10-CM
<b>Urologic Cancer</b>			
C64.1	Malignant neoplasm of right kidney, except renal pelvis	Diagnosis	ICD-10-CM

**Appendix G. List of International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Codes Used to Define Covariates in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
C64.2	Malignant neoplasm of left kidney, except renal pelvis	Diagnosis	ICD-10-CM
C64.9	Malignant neoplasm of unspecified kidney, except renal pelvis	Diagnosis	ICD-10-CM
C65.1	Malignant neoplasm of right renal pelvis	Diagnosis	ICD-10-CM
C65.2	Malignant neoplasm of left renal pelvis	Diagnosis	ICD-10-CM
C65.9	Malignant neoplasm of unspecified renal pelvis	Diagnosis	ICD-10-CM
C66.1	Malignant neoplasm of right ureter	Diagnosis	ICD-10-CM
C66.2	Malignant neoplasm of left ureter	Diagnosis	ICD-10-CM
C66.9	Malignant neoplasm of unspecified ureter	Diagnosis	ICD-10-CM
C68.8	Malignant neoplasm of overlapping sites of urinary organs	Diagnosis	ICD-10-CM
C68.9	Malignant neoplasm of urinary organ, unspecified	Diagnosis	ICD-10-CM
D09.10	Carcinoma in situ of unspecified urinary organ	Diagnosis	ICD-10-CM
D09.19	Carcinoma in situ of other urinary organs	Diagnosis	ICD-10-CM
Z85.520	Personal history of malignant carcinoid tumor of kidney	Diagnosis	ICD-10-CM
Z85.528	Personal history of other malignant neoplasm of kidney	Diagnosis	ICD-10-CM
Z85.53	Personal history of malignant neoplasm of renal pelvis	Diagnosis	ICD-10-CM
Z85.54	Personal history of malignant neoplasm of ureter	Diagnosis	ICD-10-CM
Z85.59	Personal history of malignant neoplasm of other urinary tract organ	Diagnosis	ICD-10-CM

### Appendix H. Specifications Defining Parameters for this Request

SOC is using the CIDA tool [version 12.1.2] to replicate a known positive association between ACE inhibitors and angioedema using beta blockers as a comparator, in Market Scan and CMS data from pandemic years to understand how pandemic-related changes in healthcare utilization impact a known positive association.

**Query Period:** 5/22/2018-12/11/2019 (Pre-Pandemic)  
**Coverage Requirement:** Medical & Drug Coverage  
**Pre-index enrollment requirement:** Varies; see below  
**Post-index enrollment requirement:** N/A  
**Post-episode requirement for T2 analyses :** N/A  
**Enrollment gap:** 45  
**Restrictions:** Demographic: M/F sex  
**Age groups:** 18-44, 45-64, and ≥ 65  
**Stratifications:** Year  
**Tensor output categorization:** N/A  
**Envelope macro:** Reclassify encounters  
**Never-exposed cohort:** N/A  
**Distribution of index-defining codes:** N/A  
**Freeze data:** Yes

	SCENARIO 1.1 (PRE-PANDEMIC) <i>short lookback</i>		SCENARIO 1.2 (PRE-PANDEMIC) <i>long lookback</i>	
<b>Pre-index enrollment requirement:</b>	183		365	
<b>Group</b>	r1_acei	r1_bb	r4_acei	r4_bb
<b>Drug/Exposure</b>				
<b>Index Exposure/Comparator</b>	ACEi	Beta Blockers	ACEi	Beta Blockers
<b>Cohort Definition</b>	First valid exposure episodes during query period		First valid exposure episodes during query period	
<b>Stockpiling</b>	See stockpiling tab		See stockpiling tab	
<b>Build Episodes on Point Exposure?</b>	No		No	
<b>Treatment Episode Gap</b>	14		14	
<b>Exposure episode extension</b>	14		14	
<b>Minimum days supplied</b>	1		1	
<b>Incidence Criteria Care Setting</b>	N/A		N/A	
<b>Principal Diagnosis Position</b>	N/A		N/A	
<b>Forced supply to attach to dispensings</b>	N/A		N/A	
<b>Create Baseline Table?</b>	Yes		Yes	

Appendix H. Specifications Defining Parameters for this Request

	SCENARIO 1.1 (PRE-PANDEMIC) <i>short lookback</i>	SCENARIO 1.2 (PRE-PANDEMIC) <i>long lookback</i>
<b>Inclusion/Exclusion Criteria</b>		
<b>Inclusion/Exclusion group</b>	Aliskiren, ARBs, ACEi, beta	Aliskiren, ARBs, ACEi, beta
<b>Type of criteria</b>	Exclusion	Exclusion
<b>Evaluation Period Start</b>	-183	-365
<b>Evaluation Period End</b>	-1	-1
<b>Care Setting/PDX</b>	N/A	N/A
<b>Principal Diagnosis Position</b>	N/A	N/A
<b>Exclude evidence of days supply if inclusion/exclusion evaluation period includes dispensings</b>	Evaluation period should search for evidence of days supply	Evaluation period should search for evidence of days supply
<b>Number of instances the criteria should be found in the evaluation period</b>	1	1
<b>Minimum Days Supplied</b>	1	1
<b>Minimum cumulative dose</b>	N/A	N/A
<b>Minimum average filled daily dose</b>	N/A	N/A
<b>Maximum average filled daily dose</b>	N/A	N/A
<b>Minimum current filled daily dose</b>	N/A	N/A
<b>Maximum current filled daily dose</b>	N/A	N/A
<b>Forced supply to attach to dispensings</b>	N/A	N/A
<b>Inclusion/Exclusion group</b>	Angioedema DX	Angioedema DX
<b>Type of criteria</b>	Exclusion	Exclusion
<b>Evaluation Period Start</b>	-183	-365
<b>Evaluation Period End</b>	-1	-1
<b>Care Setting/PDX</b>	Any	Any
<b>Principal Diagnosis Position</b>	Any	Any
<b>Exclude evidence of days supply if inclusion/exclusion evaluation period includes dispensings</b>	N/A	N/A
<b>Number of instances the criteria should be found in the evaluation period</b>	1	1
<b>At Risk Time</b>		
<b>Minimum exposure episode duration</b>	0	0
<b>Maximum exposure episode duration</b>	90	90



Appendix H. Specifications Defining Parameters for this Request

	SCENARIO 1.1 (PRE-PANDEMIC) <i>short lookback</i>	SCENARIO 1.2 (PRE-PANDEMIC) <i>long lookback</i>
Risk window interval start	0	0
Censor treatment episode at evidence	DP end date; death;   DP end date; death;	DP end date; death;   DP end date; death;
Blackout Period		
Event/Outcome		
Event/Outcome	Angioedema DX	Angioedema DX
Care Setting	IP, ED, AV	IP, ED, AV
Principal Diagnosis Position	Any	Any
Exclude evidence of days supply if event washout includes dispensings	N/A	N/A
Event de-duplication	De-duplicates occurrences of the same event code	De-duplicates occurrences of the same event
Forced supply to attach to dispensings	N/A	N/A
Propensity Score Model Parameters		
PS Model Label	ps_r1_base, ps_r1_adj (includes YEAR)	ps_r4_base, ps_r4_adj (includes YEAR)
Covariates	Age; sex; see also Covariates, Utilization, & Comorbidity tabs	Age; sex; see also Covariates, Utilization, & Comorbidity tabs
Firth Logistic Intercept Correct (FLIC)	No	No
High-dimensional Propensity Score	No	No
Output Kaplan Meier Plot	Yes	Yes
PS Stratification		
Stratif. Comparison Identifier	r1_strat_base, r1_strat_adj	r4_strat_base, r4_strat_adj
Percentiles	5	5
PS Trimming Indicator	0 (Trim Non-Overlap)	0 (Trim Non-Overlap)
Percentile Distribution Indicator	0 (Overall)	0 (Overall)
PS Matching		
PS Comparison Identifier	r1_fixed_base, r1_fixed_adj	r4_fixed_base, r4_fixed_adj
Ratio Type	Fixed ratio matching	Fixed ratio matching
Matching Ratio	1:1	1:1
Matching Caliper Settings	0.025	0.025
Analysis Type	Conditional and unconditional	Conditional and unconditional
Subgroup Analyses		
Stratifying variable	Calendar year	Calendar year
Subgroup Categories	Year	Year

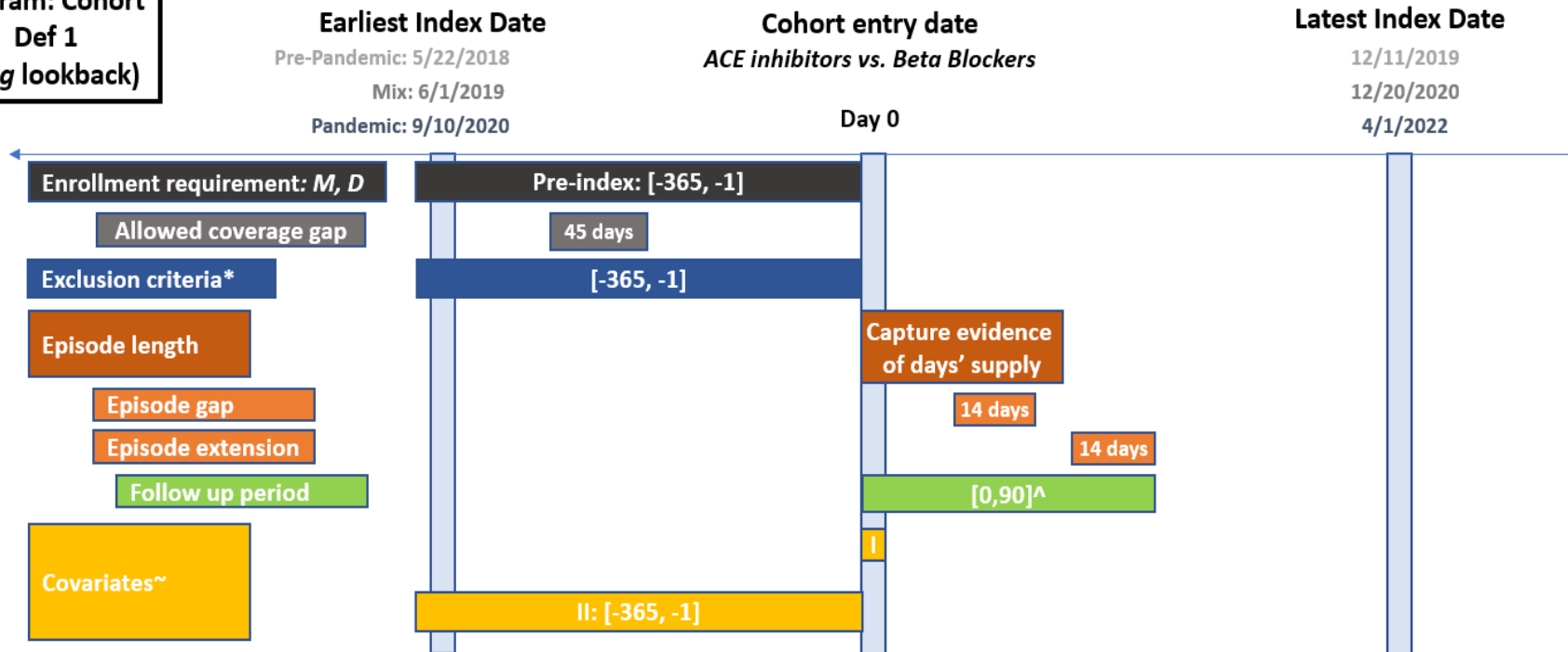


**Appendix H. Specifications Defining Parameters for this Request**

	<b>SCENARIO 1.1 (PRE-PANDEMIC)</b> <i>short lookback</i>	<b>SCENARIO 1.2 (PRE-PANDEMIC)</b> <i>long lookback</i>
<b>Firth Logistic Intercept Correct (FLIC) Method</b>	No	No
<b>Re-estimate Propensity Score within subgroup level</b>	No	No
<b>Should subgroup re-matching be restricted to the</b>	Yes	Yes
<i>ICD-9-CM, HCPCS, and CPT codes are provided by Optum360. NDC codes are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."</i>		

Appendix I. Diagrams Detailing the Design of the Request

**Type 2 design  
diagram: Cohort  
Def 1  
(long lookback)**



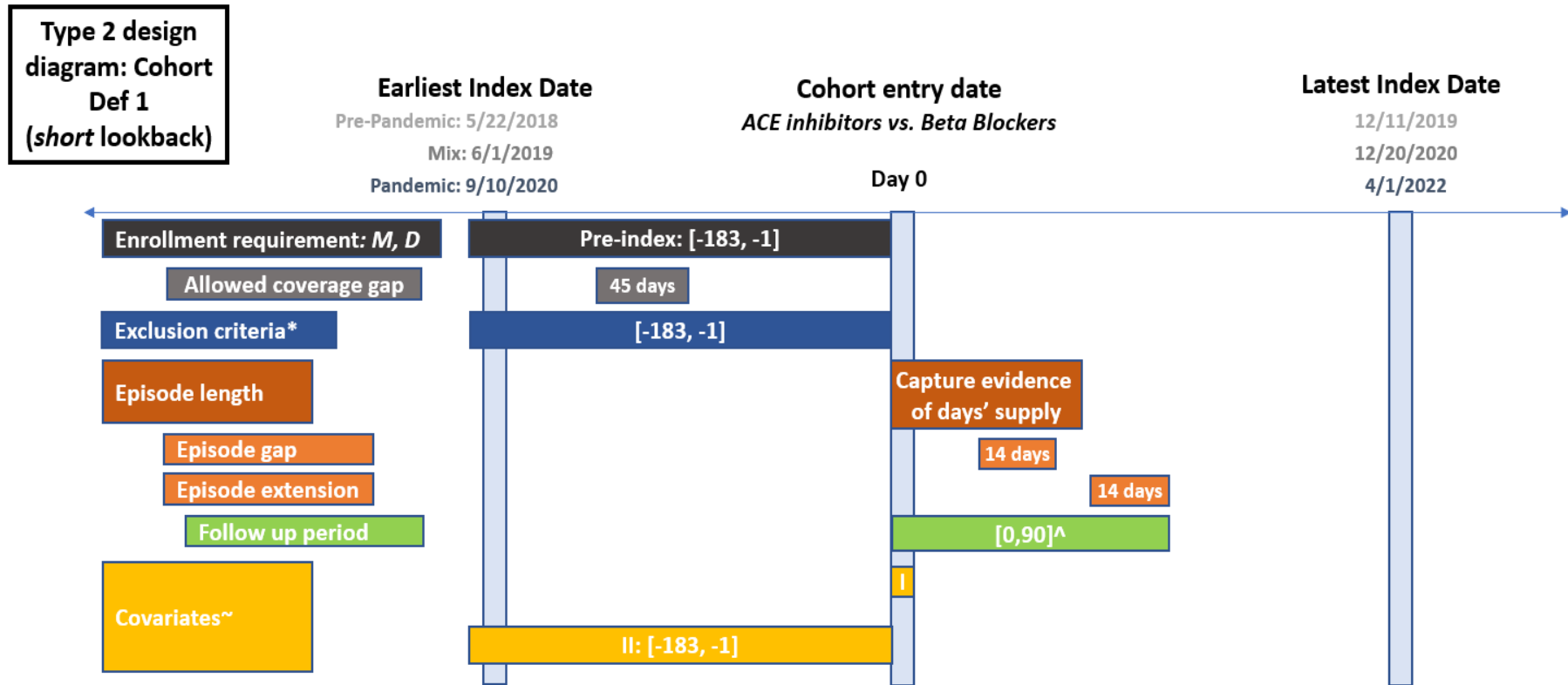
\* **Exclusion Criteria:** Aliskiren, ARBs, ACE inhibitors/beta blockers; angioedema

^ **The follow up period** begins on the day of the index date and ends at the earliest occurrence of the end of at-risk time; angioedema; comparator drug, aliskiren, or ARBs; disenrollment; Data Partner end date; or death.

~ **Covariates:** Window I: Age, sex, year, race

Window II: History of: allergic reaction, diabetes, heart failure, ischemic heart disease, NSAID use; Comorbidity Score; Drug Utilization (dispensings, unique generics); Medical Utilization (IP hospital stays, non-acute institutional stays, ED visits, AV visits, OA visits), CCW conditions (acquired hypothyroidism, acute myocardial infarction, Alzheimer's disease & related disorders or senile dementia, anemia, asthma, atrial fibrillation, benign prostatic hyperplasia, cancer (breast, colorectal, endometrial, lung, prostate), cataract, chronic kidney disease, chronic obstructive pulmonary disease & bronchiectasis, depression, glaucoma, hip/pelvic fracture, hyperlipidemia, hypertension, osteoporosis, rheumatoid arthritis/osteoarthritis, stroke/transient ischemic attack)

Appendix I. Diagrams Detailing the Design of the Request



\* **Exclusion Criteria:** Aliskiren, ARBs, ACE inhibitors/beta blockers; angioedema

^ **The follow up period** begins on the day of the index date and ends at the earliest occurrence of the end of at-risk time; angioedema; comparator drug, aliskiren, or ARBs; disenrollment; Data Partner end date; or death.

~ **Covariates:** Window I: Age, sex, year, race

Window II: History of: allergic reaction, diabetes, heart failure, ischemic heart disease, NSAID use; Comorbidity Score; Drug Utilization (dispensings, unique generics); Medical Utilization (IP hospital stays, non-acute institutional stays, ED visits, AV visits, OA visits), CCW conditions (acquired hypothyroidism, acute myocardial infarction, Alzheimer's disease & related disorders or senile dementia, anemia, asthma, atrial fibrillation, benign prostatic hyperplasia, cancer (breast, colorectal, endometrial, lung, prostate), cataract, chronic kidney disease, chronic obstructive pulmonary disease & bronchiectasis, depression, glaucoma, hip/pelvic fracture, hyperlipidemia, hypertension, osteoporosis, rheumatoid arthritis/osteoarthritis, stroke/transient ischemic attack)