Disclaimer for using Medicare Claims Synthetic Public Use Files (SynPUFs)

The Medicare Claims Synthetic Public Use Files (SynPUFs) is a synthetic claims dataset created by combining randomized information from beneficiaries. Each record from the SynPUFs dataset contains extracted claims information from at least three unique beneficiaries. These records were further altered by changing variable values to provide additional beneficiary deidentification. Due to the synthetic nature of the dataset, results generated by SynPUFs may not be used to make any meaningful scientific conclusion.

The Sentinel Operations Center has converted SynPUFs into the Sentinel Common Data Model (SCDM) format to demonstrate the functionality of the Sentinel Cohort Identification and Descriptive Analysis (CIDA) tool; results generated by the SCDM-formatted SynPUFs may not be used to make any meaningful scientific conclusion.

The following report contains a description of the request, request specifications, and results from the modular program run.

If you are using a web page screen reader and are unable to access this document, please contact the Sentinel Operations Center for assistance at info@sentinelsystem.org.

Disclaimer for Sentinel Modular Programs

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.

Overview for Request demo_mpl2r_wp001_nsdp_v01

Request ID: demo_mpl2r_wp001_nsdp_v01

Purpose: To demonstrate the ability to execute the Cohort Identification and Descriptive Analysis (CIDA) tool on Sentinel Common Data Model (SCDM)-formatted Centers for Medicare and Medicaid Services Synthetic Public Use Files (SynPUFs) datasets. A prior Sentinel analysis assessing risk of angioedema among new angiotensin-converting enzyme (ACE) inhibitor users compared to beta blocker users was selected for testing of the CIDA tool on SCDM formatted SynPUF dataset.

Data Source: SCDM-formatted SynPUFs from January 1, 2008 to December 31, 2010

Sentinel Modular Program Tool Used: CIDA tool, with Propensity Score Matching (PSM) version 5.3.1.

Study Design: This study used a retrospective new-user cohort design.

Exposures of Interest: The exposure of interest was new ACE inhibitors use, with new beta blocker use as the comparator, defined using National Drug Codes (NDCs). See **Appendix A** for generic names and brand names.

Cohort Eligibility Criteria: A patient's first qualifying exposure episode was included. Patients included in the cohorts were required to be enrolled in plans with medical and drug coverage for 183 days prior to the first qualifying dispensing date (index), during which gaps in coverage up to 45 days were allowed. New use of ACE inhibitors or beta blockers was defined as no use of ACE inhibitors, beta blockers, aliskiren hemifumarate, or angiotensin receptor blockers (ARBs) in the 183 days prior to the first qualifying dispensing date. See **Appendix A** for generic names and brand names.

Follow-up: Follow-up time was determined by the length of the exposure episodes. Exposure episode lengths were determined using outpatient pharmacy dispensing days supplied to create continuous exposure episodes. Exposure episodes were considered continuous if gaps in days supplied were 14 days or less. The end date of each exposure episode was extended by 14 additional days. A maximum episode duration of 60 days was applied to all exposure episodes. Follow-up began on the first day of exposure initiation and continued until the first occurrence of any of the following: 1) occurrence of an outcome; 2) a dispensing of the beta blockers, ARBs, or aliskiren hemifumarate; 3) disenrollment; 4) death; 5) cessation of exposure of interest (ACE inhibitors or beta blockers), defined as when the days supplied was exhausted for longer than 14 days without a subsequent dispensing; or 6) end of the query period. Only the first valid exposure episode that occurred during the study period was included per patient.

Outcome of Interest: The outcome of interest was an angioedema diagnosis that occurred in the inpatient, outpatient, or emergency department care setting. Angioedema was defined using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes. See **Appendix B** for specific codes.

Propensity Score Estimation: The following characteristics were assessed during the baseline period and were included in the propensity score model: age, sex, Charlson/Elixhauser combined comorbidity score[1], health service utilization, ambulatory allergies, diabetes, heart failure, ischemic heart disease, nonsteroidal anti-inflammatory drug (NSAID) use, and serious allergies. In addition, everolimus use and sirolimus use were assessed during the baseline period and were not included in the propensity score model. Occurrence of these baseline characteristics were evaluated in the 183 days prior to the date of exposure initiation. See **Appendix C** for specific codes used to define baseline characteristics.

Matching: The matching ratio for the propensity score analysis was 1:1 and the matching caliper was 0.025. Patients in the exposed and comparator cohorts were nearest neighbor matched without replacement, meaning that each comparator patient was matched one time, at most, to an exposed patient.

See **Appendix D** for the complete specifications for this request.

Limitations: As with all observational studies, this evaluation was limited in its ability to control for all sources of potential bias. For example, the exposures, outcome, exclusions, and covariates may have been misclassified due to imperfect algorithms used to identify them. For specific limitations inherent to the dataset used in this package, please refer to **Disclaimer for Using SynPUFs**.

Notes: Please contact the Sentinel Operations Center Query Fulfillment Team (qf@sentinelsystem.org) for questions and to provide comments/suggestions for future enhancements to this document.

[1]Gagne, J. J., Glynn, R. J., Avorn, J., Levin, R., Schneeweiss, S. (2011). "A combined comorbidity score predicted mortality in elderly patients better than existing scores." J Clin Epidemiol 64(7):749-759.

Sentinel

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

Amount Supplied - number of units (pills, tablets, vials) dispensed. Net amount per NDC per dispensing. This is equivalent to the "RxAmt" value in the Sentinel Common Data Model.

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). Along with the Principal Diagnosis Indicator, forms the Care Setting/PDX parameter.

- **Ambulatory Visit (AV) -** includes visits at outpatient clinics, same-day surgeries, urgent care visits, and other same-day ambulatory hospital encounters, but excludes emergency department encounters.
- **Emergency Department (ED) -** includes ED encounters that become inpatient stays (in which case inpatient stays would be a separate encounter). Excludes urgent care visits.
- **Inpatient Hospital Stay (IP) -** includes all inpatient stays, same-day hospital discharges, hospital transfers, and acute hospital care where the discharge is after the admission date.
- **Non-Acute Institutional Stay (IS) -** includes hospice, skilled nursing facility (SNF), rehab center, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays.
- **Other Ambulatory Visit (OA) -** includes other non overnight AV encounters such as hospice visits, home health visits, skilled nursing facility visits, other non-hospital visits, as well as telemedicine, telephone and email consultations.

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).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Treatment Episode Truncation Indicator - indicates whether observation of the incident query code during follow-up requires truncation of valid treatment episodes. A value of Y indicates that the treatment episodes should be truncated at the first occurrence of an incident query code. A value of N indicates that the treatment episodes should not be truncated at the occurrence of the incident query code.

Users - number of members with exposure during the query period. Member must have no evidence of exposure(s) of interest (defined by incidence criteria) in the prior washout period. A user may only be counted once in a query period.

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.

*not all terms may be used in this report

**incident treatment episodes must be incident to both the exposure and the event

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

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

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

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 ratio.

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.

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 unmatched and the matched population.

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.

*not all terms may be used in this report

Table 1a. Baseline Characteristics of New Initiators of Angiotensin-Converting Enzyme (ACE) Inhibitors and Beta Blockers at Risk for Angioedema (Unmatched)

	Exposure Cohort					
	ACE Inhibitors		Beta Blockers		Covariate Balance	
Characteristic	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Patients	30,567	100.0%	25,189	100.0%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean Age (Years)	72.5	13.1	73	13.0	-0.47	-0.04
	Number	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Age (Years)						
18-44	1,370	4.5%	996	4.0%	0.53	0.03
45-54	1,720	5.6%	1,395	5.5%	0.09	0.00
55-64	2,422	7.9%	1,999	7.9%	-0.01	0.00
65+	25,055	82.0%	20,799	82.6%	-0.60	-0.02
Sex						
Female	18,252	59.7%	15,248	60.5%	-0.82	-0.02
Male	12,315	40.3%	9,941	39.5%	0.82	0.02
Recorded History during Baseline Period:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.7	3.5	2.9	3.6	-0.27	-0.08
	Number	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Ambulatory allergies	9,342	30.6%	7,890	31.3%	-0.76	-0.02
Diabetes	14,037	45.9%	12,039	47.8%	-1.87	-0.04
Heart failure	6,890	22.5%	6,202	24.6%	-2.08	-0.05
Ischemic heart disease	10,154	33.2%	9,038	35.9%	-2.66	-0.06
Serious allergies	262	0.9%	214	0.8%	0.01	0.00
History of Use:	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Everolimus[2]	17	0.1%	13	0.1%	0.00	0.00
NSAIDs	4,046	13.2%	3,267	13.0%	0.27	0.01
Sirolimus[2]	12	0.0%	7	0.0%	0.01	0.01
Health Service Utilization Intensity:	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Mean number of generic drugs	5.0	3.7	5.2	3.8	-0.18	-0.05
Mean number of unique drug classes	4.8	3.4	4.9	3.4	-0.18	-0.05
Mean number of filled prescriptions	5.2	3.8	5.3	3.9	-0.18	-0.05
Mean number of inpatient hospital encounters (IP)	0.1	0.4	0.1	0.5	-0.01	-0.03
Mean number of non-acute institutional encounters (IS)	0.0	0.0	0.0	0.0	0.00	0.00
Mean number of emergency room encounters (ED)	0.1	0.4	0.1	0.4	-0.01	-0.02
Mean number of ambulatory encounters (AV)	9.0	8.6	9.8	9.1	-0.78	-0.09
Mean number of other ambulatory encounters (OA)	0.1	0.2	0.1	0.2	0.00	-0.02

[1]The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (first qualifying dispensing date)

[2]Characteristic not included in propensity score model

Table 1b. Baseline Characteristics of New Initiators of Angiotensin-Converting Enzyme (ACE) Inhibitors and Beta Blockers at Risk for Angioedema (Matched 1:1 Unconditional Propensity Score, Caliper = 0.025)

	Exposure Cohort					
	ACE Inhibitors		Beta Blockers		Covariate Balance	
Characteristic	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Patients (N)	25,136	82.2%	25,136	99.8%	---	---
Patient Characteristics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Mean Age (Years)	73.0	13.0	73	13.0	0.02	0.00
	Number	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Age (Years)						
18-44	1,032	4.1%	995	4.0%	0.15	0.01
45-54	1,332	5.3%	1,394	5.5%	-0.25	-0.01
55-64	1,936	7.7%	1,996	7.9%	-0.24	-0.01
65+	20,836	82.9%	20,751	82.6%	0.34	0.01
Sex						
Female	15,221	60.6%	15,215	60.5%	0.02	0.00
Male	9,915	39.4%	9,921	39.5%	-0.02	0.00
Recorded History during Baseline Period:	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**	**Absolute Difference**	**Standardized Difference**
Charlson/Elixhauser combined comorbidity score[1]	2.9	3.6	2.9	3.6	0.01	0.00
	Number	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Ambulatory allergies	7,919	31.5%	7,869	31.3%	0.20	0.00
Diabetes	11,991	47.7%	11,991	47.7%	0.00	0.00
Heart failure	6,164	24.5%	6,151	24.5%	0.05	0.00
Ischemic heart disease	8,968	35.7%	8,988	35.8%	-0.08	0.00
Serious allergies	219	0.9%	213	0.8%	0.02	0.00
History of Use:	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Everolimus[2]	16	0.1%	13	0.1%	0.01	0.01
NSAIDs	3,225	12.8%	3,265	13.0%	-0.16	-0.01
Sirolimus[2]	12	0.0%	7	0.0%	0.02	0.01
Health Service Utilization Intensity:	**Number**	**%**	**Number**	**%**	**Absolute Difference**	**Standardized Difference**
Mean number of generic drugs	5.2	3.8	5.2	3.7	0.00	0.00
Mean number of unique drug classes	4.9	3.4	4.9	3.4	0.00	0.00
Mean number of filled prescriptions	5.3	3.9	5.3	3.9	0.00	0.00
Mean number of inpatient hospital encounters (IP)	0.1	0.4	0.1	0.5	0.00	0.00
Mean number of non-acute institutional encounters (IS)	0.0	0.0	0.0	0.0	0.00	0.00
Mean number of emergency room encounters (ED)	0.1	0.4	0.1	0.4	0.00	0.00
Mean number of ambulatory encounters (AV)	9.8	8.9	9.8	9.0	-0.01	0.00
Mean number of other ambulatory encounters (OA)	0.1	0.2	0.1	0.2	0.00	0.00

[1]The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (first qualifying dispensing date)

[2]Characteristic not included in propensity score model

Table 2. Effect Estimates for Angiotensin-Converting Enzyme (ACE) Inhibitors and Beta Blockers and Risk of Angioedema by Analysis Type

Exposure Definition	New Users	Person-Years at Risk	Average Person-Days at Risk	Average Person-Years at Risk	Number of Events	Incidence Rate per 1000 Person-Years	Risk per 1000 New Users	Incidence Rate Difference per 1000 Person-Years	Difference in Risk per 1000 New Users	Hazard Ratio (95% Confidence Interval)
Unmatched Analysis (Site-adjusted only)										
ACE Inhibitors	30,567	3,734.48	44.62	0.12	9	2.41	0.29	-1.50	-0.18	0.62 (0.26, 1.46)
Beta Blockers	25,189	3,069.36	44.51	0.12	12	3.91	0.48			
1:1 Matched Unconditional Analysis; Caliper=0.025										
ACE Inhibitors	25,136	3,069.26	44.60	0.12	9	2.93	0.36	-0.66	-0.08	0.82 (0.34, 1.97)
Beta Blockers	25,136	3,063.39	44.51	0.12	11	3.59	0.44			
Predefined Deciles Analysis										
ACE Inhibitors	30,567	3,734.48	44.62	0.12	9	2.41	0.29	-1.50	-0.18	0.66 (0.28, 1.57)
Beta Blockers	25,189	3,069.36	44.51	0.12	12	3.91	0.48			

Appendix A. List of Generic and Brand Names Used to Define Exposures and Incidence Criteria in this Request

Brand Name	Generic Name
Angiotensin Converting Enzyme Inhibitors	
Accupril	Quinapril hcl
Accuretic	Quinapril hcl/hydrochlorothiazide
Aceon	Perindopril erbumine
Altace	Ramipril
Amlodipine-benazepril	Amlodipine besylate/benazepril hcl
Benazepril	Benazepril hcl
Benazepril-hydrochlorothiazide	Benazepril hcl/hydrochlorothiazide
Captopril	Captopril
Captopril-hydrochlorothiazide	Captopril/hydrochlorothiazide
Enalapril maleate	Enalapril maleate
Enalapril-hydrochlorothiazide	Enalapril maleate/hydrochlorothiazide
Epaned	Enalapril maleate
Fosinopril	Fosinopril sodium
Fosinopril-hydrochlorothiazide	Fosinopril sodium/hydrochlorothiazide
Lisinopril	Lisinopril
Lisinopril-hydrochlorothiazide	Lisinopril/hydrochlorothiazide
Lotensin	Benazepril hcl
Lotensin HCT	Benazepril hcl/hydrochlorothiazide
Lotrel	Amlodipine besylate/benazepril hcl
Mavik	Trandolapril
Moexipril	Moexipril hcl
Moexipril-hydrochlorothiazide	Moexipril hcl/hydrochlorothiazide
Perindopril erbumine	Perindopril erbumine
Prestalia	Perindopril arginine/amlodipine besylate
Prinivil	Lisinopril
Quinapril	Quinapril hcl
Quinapril-hydrochlorothiazide	Quinapril hcl/hydrochlorothiazide
Ramipril	Ramipril
Tarka	Trandolapril/verapamil hcl
Trandolapril	Trandolapril
Trandolapril-verapamil	Trandolapril/verapamil hcl
Uniretic	Moexipril hcl/hydrochlorothiazide
Univasc	Moexipril hcl
Vaseretic	Enalapril maleate/hydrochlorothiazide
Vasotec	Enalapril maleate
Zestoretic	Lisinopril/hydrochlorothiazide
Zestril	Lisinopril
Beta Blockers	
Acebutolol	Acebutolol hcl
Atenolol	Atenolol
Atenolol-chlorthalidone	Atenolol/chlorthalidone
Betimol	Timolol

Appendix A. List of Generic and Brand Names Used to Define Exposures and Incidence Criteria in this Request

Brand Name	Generic Name
Bisoprolol fumarate	Bisoprolol fumarate
Bisoprolol-hydrochlorothiazide	Bisoprolol fumarate/hydrochlorothiazide
Bystolic	Nebivolol hcl
Carvedilol	Carvedilol
Coreg	Carvedilol
Coreg CR	Carvedilol phosphate
Dutoprol	Metoprolol succinate/hydrochlorothiazide
Hemangeol	Propranolol hcl
Inderal LA	Propranolol hcl
Inderal XL	Propranolol hcl
Innopran XL	Propranolol hcl
Istalol	Timolol maleate
Labetalol	Labetalol hcl
Lopressor	Metoprolol tartrate
Lopressor HCT	Metoprolol tartrate/hydrochlorothiazide
Metoprolol succinate	Metoprolol succinate
Metoprolol ta-hydrochlorothiaz	Metoprolol tartrate/hydrochlorothiazide
Metoprolol tartrate	Metoprolol tartrate
Pindolol	Pindolol
Propranolol	Propranolol hcl
Propranolol-hydrochlorothiazid	Propranolol hcl/hydrochlorothiazide
Sectral	Acebutolol hcl
Tenoretic 100	Atenolol/chlorthalidone
Tenoretic 50	Atenolol/chlorthalidone
Tenormin	Atenolol
Timolol maleate	Timolol maleate
Timoptic	Timolol maleate
Timoptic ocudose (pf)	Timolol maleate/pf
Timoptic-XE	Timolol maleate
Toprol XL	Metoprolol succinate
Trandate	Labetalol hcl
Zebeta	Bisoprolol fumarate
Ziac	Bisoprolol fumarate/hydrochlorothiazide
Aliskiren Hemifumarate	
Amturnide	Aliskiren hemifumarate/amlodipine/hydrochlorothiazide
Tekamlo	Aliskiren hemifumarate/amlodipine besylate
Tekturna	Aliskiren hemifumarate
Tekturna HCT	Aliskiren hemifumarate/hydrochlorothiazide
Angiotensin Receptor Blockers	
Amlodipine-valsartan	Amlodipine besylate/valsartan
Amlodipine-valsartan-hcthiazid	Amlodipine besylate/valsartan/hydrochlorothiazide
Atacand	Candesartan cilexetil
Atacand HCT	Candesartan cilexetil/hydrochlorothiazide

Appendix A. List of Generic and Brand Names Used to Define Exposures and Incidence Criteria in this Request

Brand Name	Generic Name
Avalide	Irbesartan/hydrochlorothiazide
Avapro	Irbesartan
Benicar	Olmesartan medoxomil
Benicar HCT	Olmesartan medoxomil/hydrochlorothiazide
Candesartan	Candesartan cilexetil
Candesartan-hydrochlorothiazid	Candesartan cilexetil/hydrochlorothiazide
Cozaar	Losartan potassium
Diovan	Valsartan
Diovan HCT	Valsartan/hydrochlorothiazide
Entresto	Sacubitril/valsartan
Eprosartan	Eprosartan mesylate
Exforge	Amlodipine besylate/valsartan
Exforge HCT	Amlodipine besylate/valsartan/hydrochlorothiazide
Hyzaar	Losartan potassium/hydrochlorothiazide
Irbesartan	Irbesartan
Irbesartan-hydrochlorothiazide	Irbesartan/hydrochlorothiazide
Losartan	Losartan potassium
Losartan-hydrochlorothiazide	Losartan potassium/hydrochlorothiazide
Micardis	Telmisartan
Micardis HCT	Telmisartan/hydrochlorothiazide
Telmisartan	Telmisartan
Telmisartan-amlodipine	Telmisartan/amlodipine besylate
Telmisartan-hydrochlorothiazide	Telmisartan/hydrochlorothiazide
Teveten	Eprosartan mesylate
Teveten HCT	Eprosartan mesylate/hydrochlorothiazide
Tribenzor	Olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide
Twynsta	Telmisartan/amlodipine besylate
Valsartan	Valsartan
Valsartan-hydrochlorothiazide	Valsartan/hydrochlorothiazide

Appendix B. List of Diagnosis International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Angioedema in this Request

Code	Description	Code Type
995.1	Angioneurotic edema not elsewhere classified	ICD-9-CM
T783XXA	Angioneurotic edema, initial encounter	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
Ambulatory Allergies		
477.0	Allergic rhinitis due to pollen	ICD-9-CM
477.1	Allergic rhinitis, due to food	ICD-9-CM
477.2	Allergic rhinitis due to animal (cat) (dog) hair and dander	ICD-9-CM
477.8	Allergic rhinitis due to other allergen	ICD-9-CM
477.9	Allergic rhinitis, cause unspecified	ICD-9-CM
558.3	Gastroenteritis and colitis, allergic	ICD-9-CM
691.0	Diaper or napkin rash	ICD-9-CM
691.8	Other atopic dermatitis and related conditions	ICD-9-CM
692.0	Contact dermatitis and other eczema due to detergents	ICD-9-CM
692.1	Contact dermatitis and other eczema due to oils and greases	ICD-9-CM
692.2	Contact dermatitis and other eczema due to solvents	ICD-9-CM
692.3	Contact dermatitis and other eczema due to drugs and medicines in contact with skin	ICD-9-CM
692.4	Contact dermatitis and other eczema due to other chemical products	ICD-9-CM
692.5	Contact dermatitis and other eczema due to food in contact with skin	ICD-9-CM
692.6	Contact dermatitis and other eczema due to plants (except food)	ICD-9-CM
692.70	Unspecified dermatitis due to sun	ICD-9-CM
692.71	Contact dermatitis and other eczema due to sunburn	ICD-9-CM
692.72	Acute dermatitis due to solar radiation	ICD-9-CM
692.73	Actinic reticuloid and actinic granuloma	ICD-9-CM
692.74	Other chronic dermatitis due to solar radiation	ICD-9-CM
692.75	Disseminated superficial actinic porokeratosis (DSAP)	ICD-9-CM
692.76	Sunburn of second degree	ICD-9-CM
692.77	Sunburn of third degree	ICD-9-CM
692.79	Other dermatitis due to solar radiation	ICD-9-CM
692.81	Dermatitis due to cosmetics	ICD-9-CM
692.82	Dermatitis due to other radiation	ICD-9-CM
692.83	Dermatitis due to metals	ICD-9-CM
692.84	Contact dermatitis and other eczema due to animal (cat) (dog) dander	ICD-9-CM
692.89	Contact dermatitis and other eczema due to other specified agent	ICD-9-CM
692.9	Contact dermatitis and other eczema, due to unspecified cause	ICD-9-CM
693.0	Dermatitis due to drugs and medicines taken internally	ICD-9-CM
693.1	Dermatitis due to food taken internally	ICD-9-CM
693.8	Dermatitis due to other specified substances taken internally	ICD-9-CM
693.9	Dermatitis due to unspecified substance taken internally	ICD-9-CM
708.0	Allergic urticaria	ICD-9-CM
708.1	Idiopathic urticaria	ICD-9-CM
708.2	Urticaria due to cold and heat	ICD-9-CM
708.3	Dermatographic urticaria	ICD-9-CM
708.4	Vibratory urticaria	ICD-9-CM
708.5	Cholinergic urticaria	ICD-9-CM
708.8	Other specified urticaria	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
708.9	Unspecified urticaria	ICD-9-CM
995.0	Other anaphylactic reaction	ICD-9-CM
995.27	Other drug allergy	ICD-9-CM
995.3	Allergy, unspecified not elsewhere classified	ICD-9-CM
995.7	Other adverse food reactions, not elsewhere classified	ICD-9-CM
V07.1	Need for desensitization to allergens	ICD-9-CM
V13.81	Personal history of anaphylaxis	ICD-9-CM
V14.0	Personal history of allergy to penicillin	ICD-9-CM
V14.1	Personal history of allergy to other antibiotic agent	ICD-9-CM
V14.2	Personal history of allergy to sulfonamides	ICD-9-CM
V14.3	Personal history of allergy to other anti-infective agent	ICD-9-CM
V14.4	Personal history of allergy to anesthetic agent	ICD-9-CM
V14.5	Personal history of allergy to narcotic agent	ICD-9-CM
V14.6	Personal history of allergy to analgesic agent	ICD-9-CM
V14.7	Personal history of allergy to serum or vaccine	ICD-9-CM
V14.8	Personal history of allergy to other specified medicinal agents	ICD-9-CM
V14.9	Personal history of allergy to unspecified medicinal agent	ICD-9-CM
V72.7	Diagnostic skin and sensitization tests	ICD-9-CM
Diabetes		
250	Diabetes mellitus	ICD-9-CM
250.0	Diabetes mellitus without mention of complication	ICD-9-CM
250.00	Diabetes mellitus without mention of complication, type II or unspecified type, not stated as u	ICD-9-CM
250.01	Diabetes mellitus without mention of complication, type I [juvenile type], not stated as uncont	ICD-9-CM
250.02	Diabetes mellitus without mention of complication, type II or unspecified type, uncontrolled	ICD-9-CM
250.03	Diabetes mellitus without mention of complication, type I [juvenile type], uncontrolled	ICD-9-CM
250.1	Diabetes with ketoacidosis	ICD-9-CM
250.10	Diabetes with ketoacidosis, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.11	Diabetes with ketoacidosis, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.12	Diabetes with ketoacidosis, type II or unspecified type, uncontrolled	ICD-9-CM
250.13	Diabetes with ketoacidosis, type I [juvenile type], uncontrolled	ICD-9-CM
250.2	Diabetes with hyperosmolarity	ICD-9-CM
250.20	Diabetes with hyperosmolarity, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.21	Diabetes with hyperosmolarity, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.22	Diabetes with hyperosmolarity, type II or unspecified type, uncontrolled	ICD-9-CM
250.23	Diabetes with hyperosmolarity, type I [juvenile type], uncontrolled	ICD-9-CM
250.3	Diabetes with other coma	ICD-9-CM
250.30	Diabetes with other coma, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.31	Diabetes with other coma, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.32	Diabetes with other coma, type II or unspecified type, uncontrolled	ICD-9-CM
250.33	Diabetes with other coma, type I [juvenile type], uncontrolled	ICD-9-CM
250.4	Diabetes with renal manifestations	ICD-9-CM
250.40	Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
250.41	Diabetes with renal manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.42	Diabetes with renal manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.43	Diabetes with renal manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.5	Diabetes with ophthalmic manifestations	ICD-9-CM
250.50	Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolle	ICD-9-CM
250.51	Diabetes with ophthalmic manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.52	Diabetes with ophthalmic manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.53	Diabetes with ophthalmic manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.6	Diabetes with neurological manifestations	ICD-9-CM
250.60	Diabetes with neurological manifestations, type II or unspecified type, not stated as uncontroll	ICD-9-CM
250.61	Diabetes with neurological manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.62	Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.63	Diabetes with neurological manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.7	Diabetes with peripheral circulatory disorders	ICD-9-CM
250.70	Diabetes with peripheral circulatory disorders, type II or unspecified type, not stated as uncont	ICD-9-CM
250.71	Diabetes with peripheral circulatory disorders, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.72	Diabetes with peripheral circulatory disorders, type II or unspecified type, uncontrolled	ICD-9-CM
250.73	Diabetes with peripheral circulatory disorders, type I [juvenile type], uncontrolled	ICD-9-CM
250.8	Diabetes with other specified manifestations	ICD-9-CM
250.80	Diabetes with other specified manifestations, type II or unspecified type, not stated as uncontr	ICD-9-CM
250.81	Diabetes with other specified manifestations, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.82	Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	ICD-9-CM
250.83	Diabetes with other specified manifestations, type I [juvenile type], uncontrolled	ICD-9-CM
250.9	Diabetes with unspecified complication	ICD-9-CM
250.90	Diabetes with unspecified complication, type II or unspecified type, not stated as uncontrolled	ICD-9-CM
250.91	Diabetes with unspecified complication, type I [juvenile type], not stated as uncontrolled	ICD-9-CM
250.92	Diabetes with unspecified complication, type II or unspecified type, uncontrolled	ICD-9-CM
250.93	Diabetes with unspecified complication, type I [juvenile type], uncontrolled	ICD-9-CM
Heart Failure		
402.1	Benign hypertensive heart disease	ICD-9-CM
402.11	Benign hypertensive heart disease with heart failure	ICD-9-CM
402.91	Hypertensive heart disease, unspecified, with heart failure	ICD-9-CM
404.1	Hypertensive heart and chronic kidney disease, benign	ICD-9-CM
404.11	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidr	ICD-9-CM
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney d	ICD-9-CM
404.91	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic	ICD-9-CM
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidn	ICD-9-CM
428	Heart failure	ICD-9-CM
428.0	Congestive heart failure, unspecified	ICD-9-CM
428.1	Left heart failure	ICD-9-CM
428.2	Systolic heart failure	ICD-9-CM
428.20	Unspecified systolic heart failure	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
428.21	Acute systolic heart failure	ICD-9-CM
428.22	Chronic systolic heart failure	ICD-9-CM
428.23	Acute on chronic systolic heart failure	ICD-9-CM
428.3	Diastolic heart failure	ICD-9-CM
428.30	Unspecified diastolic heart failure	ICD-9-CM
428.31	Acute diastolic heart failure	ICD-9-CM
428.32	Chronic diastolic heart failure	ICD-9-CM
428.33	Acute on chronic diastolic heart failure	ICD-9-CM
428.4	Combined systolic and diastolic heart failure	ICD-9-CM
428.40	Unspecified combined systolic and diastolic heart failure	ICD-9-CM
428.41	Acute combined systolic and diastolic heart failure	ICD-9-CM
428.42	Chronic combined systolic and diastolic heart failure	ICD-9-CM
428.43	Acute on chronic combined systolic and diastolic heart failure	ICD-9-CM
428.9	Unspecified heart failure	ICD-9-CM
Ischemic Heart Disease		
410	Acute myocardial infarction	ICD-9-CM
410.0	Acute myocardial infarction of anterolateral wall	ICD-9-CM
410.00	Acute myocardial infarction of anterolateral wall, episode of care unspecified	ICD-9-CM
410.01	Acute myocardial infarction of anterolateral wall, initial episode of care	ICD-9-CM
410.02	Acute myocardial infarction of anterolateral wall, subsequent episode of care	ICD-9-CM
410.1	Acute myocardial infarction of other anterior wall	ICD-9-CM
410.10	Acute myocardial infarction of other anterior wall, episode of care unspecified	ICD-9-CM
410.11	Acute myocardial infarction of other anterior wall, initial episode of care	ICD-9-CM
410.12	Acute myocardial infarction of other anterior wall, subsequent episode of care	ICD-9-CM
410.2	Acute myocardial infarction of inferolateral wall	ICD-9-CM
410.20	Acute myocardial infarction of inferolateral wall, episode of care unspecified	ICD-9-CM
410.21	Acute myocardial infarction of inferolateral wall, initial episode of care	ICD-9-CM
410.22	Acute myocardial infarction of inferolateral wall, subsequent episode of care	ICD-9-CM
410.3	Acute myocardial infarction of inferoposterior wall	ICD-9-CM
410.30	Acute myocardial infarction of inferoposterior wall, episode of care unspecified	ICD-9-CM
410.31	Acute myocardial infarction of inferoposterior wall, initial episode of care	ICD-9-CM
410.32	Acute myocardial infarction of inferoposterior wall, subsequent episode of care	ICD-9-CM
410.4	Acute myocardial infarction of other inferior wall	ICD-9-CM
410.40	Acute myocardial infarction of other inferior wall, episode of care unspecified	ICD-9-CM
410.41	Acute myocardial infarction of other inferior wall, initial episode of care	ICD-9-CM
410.42	Acute myocardial infarction of other inferior wall, subsequent episode of care	ICD-9-CM
410.5	Acute myocardial infarction of other lateral wall	ICD-9-CM
410.50	Acute myocardial infarction of other lateral wall, episode of care unspecified	ICD-9-CM
410.51	Acute myocardial infarction of other lateral wall, initial episode of care	ICD-9-CM
410.52	Acute myocardial infarction of other lateral wall, subsequent episode of care	ICD-9-CM
410.6	Acute myocardial infarction, true posterior wall infarction	ICD-9-CM
410.60	Acute myocardial infarction, true posterior wall infarction, episode of care unspecified	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
410.61	Acute myocardial infarction, true posterior wall infarction, initial episode of care	ICD-9-CM
410.62	Acute myocardial infarction, true posterior wall infarction, subsequent episode of care	ICD-9-CM
410.7	Acute myocardial infarction, subendocardial infarction	ICD-9-CM
410.70	Acute myocardial infarction, subendocardial infarction, episode of care unspecified	ICD-9-CM
410.71	Acute myocardial infarction, subendocardial infarction, initial episode of care	ICD-9-CM
410.72	Acute myocardial infarction, subendocardial infarction, subsequent episode of care	ICD-9-CM
410.8	Acute myocardial infarction of other specified sites	ICD-9-CM
410.80	Acute myocardial infarction of other specified sites, episode of care unspecified	ICD-9-CM
410.81	Acute myocardial infarction of other specified sites, initial episode of care	ICD-9-CM
410.82	Acute myocardial infarction of other specified sites, subsequent episode of care	ICD-9-CM
410.9	Acute myocardial infarction, unspecified site	ICD-9-CM
410.90	Acute myocardial infarction, unspecified site, episode of care unspecified	ICD-9-CM
410.91	Acute myocardial infarction, unspecified site, initial episode of care	ICD-9-CM
410.92	Acute myocardial infarction, unspecified site, subsequent episode of care	ICD-9-CM
411	Other acute and subacute forms of ischemic heart disease	ICD-9-CM
411.0	Postmyocardial infarction syndrome	ICD-9-CM
411.1	Intermediate coronary syndrome	ICD-9-CM
411.8	Other acute and subacute forms of ischemic heart disease	ICD-9-CM
411.81	Acute coronary occlusion without myocardial infarction	ICD-9-CM
411.89	Other acute and subacute form of ischemic heart disease	ICD-9-CM
412	Old myocardial infarction	ICD-9-CM
413	Angina pectoris	ICD-9-CM
413.0	Angina decubitus	ICD-9-CM
413.1	Prinzmetal angina	ICD-9-CM
413.9	Other and unspecified angina pectoris	ICD-9-CM
414	Other forms of chronic ischemic heart disease	ICD-9-CM
414.0	Coronary atherosclerosis	ICD-9-CM
414.1	Aneurysm and dissection of heart	ICD-9-CM
414.10	Aneurysm of heart	ICD-9-CM
414.11	Aneurysm of coronary vessels	ICD-9-CM
414.12	Dissection of coronary artery	ICD-9-CM
414.19	Other aneurysm of heart	ICD-9-CM
414.2	Chronic total occlusion of coronary artery	ICD-9-CM
414.3	Coronary atherosclerosis due to lipid rich plaque	ICD-9-CM
414.4	Coronary atherosclerosis due to calcified coronary lesion	ICD-9-CM
414.8	Other specified forms of chronic ischemic heart disease	ICD-9-CM
414.9	Unspecified chronic ischemic heart disease	ICD-9-CM
Serious Allergies		
477.0	Allergic rhinitis due to pollen	ICD-9-CM
477.1	Allergic rhinitis, due to food	ICD-9-CM
477.2	Allergic rhinitis due to animal (cat) (dog) hair and dander	ICD-9-CM
477.8	Allergic rhinitis due to other allergen	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
477.9	Allergic rhinitis, cause unspecified	ICD-9-CM
558.3	Gastroenteritis and colitis, allergic	ICD-9-CM
691.0	Diaper or napkin rash	ICD-9-CM
691.8	Other atopic dermatitis and related conditions	ICD-9-CM
692.0	Contact dermatitis and other eczema due to detergents	ICD-9-CM
692.1	Contact dermatitis and other eczema due to oils and greases	ICD-9-CM
692.2	Contact dermatitis and other eczema due to solvents	ICD-9-CM
692.3	Contact dermatitis and other eczema due to drugs and medicines in contact with skin	ICD-9-CM
692.4	Contact dermatitis and other eczema due to other chemical products	ICD-9-CM
692.5	Contact dermatitis and other eczema due to food in contact with skin	ICD-9-CM
692.6	Contact dermatitis and other eczema due to plants (except food)	ICD-9-CM
692.70	Unspecified dermatitis due to sun	ICD-9-CM
692.71	Contact dermatitis and other eczema due to sunburn	ICD-9-CM
692.72	Acute dermatitis due to solar radiation	ICD-9-CM
692.73	Actinic reticuloid and actinic granuloma	ICD-9-CM
692.74	Other chronic dermatitis due to solar radiation	ICD-9-CM
692.75	Disseminated superficial actinic porokeratosis (DSAP)	ICD-9-CM
692.76	Sunburn of second degree	ICD-9-CM
692.77	Sunburn of third degree	ICD-9-CM
692.79	Other dermatitis due to solar radiation	ICD-9-CM
692.81	Dermatitis due to cosmetics	ICD-9-CM
692.82	Dermatitis due to other radiation	ICD-9-CM
692.83	Dermatitis due to metals	ICD-9-CM
692.84	Contact dermatitis and other eczema due to animal (cat) (dog) dander	ICD-9-CM
692.89	Contact dermatitis and other eczema due to other specified agent	ICD-9-CM
692.9	Contact dermatitis and other eczema, due to unspecified cause	ICD-9-CM
693.0	Dermatitis due to drugs and medicines taken internally	ICD-9-CM
693.1	Dermatitis due to food taken internally	ICD-9-CM
693.8	Dermatitis due to other specified substances taken internally	ICD-9-CM
693.9	Dermatitis due to unspecified substance taken internally	ICD-9-CM
708.0	Allergic urticaria	ICD-9-CM
708.1	Idiopathic urticaria	ICD-9-CM
708.2	Urticaria due to cold and heat	ICD-9-CM
708.3	Dermatographic urticaria	ICD-9-CM
708.4	Vibratory urticaria	ICD-9-CM
708.5	Cholinergic urticaria	ICD-9-CM
708.8	Other specified urticaria	ICD-9-CM
708.9	Unspecified urticaria	ICD-9-CM
995.0	Other anaphylactic reaction	ICD-9-CM
995.27	Other drug allergy	ICD-9-CM
995.3	Allergy, unspecified not elsewhere classified	ICD-9-CM
995.7	Other adverse food reactions, not elsewhere classified	ICD-9-CM

Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Baseline Characteristics in this Request

Code	Description	Code Type
V07.1	Need for desensitization to allergens	ICD-9-CM
V13.81	Personal history of anaphylaxis	ICD-9-CM
V14.0	Personal history of allergy to penicillin	ICD-9-CM
V14.1	Personal history of allergy to other antibiotic agent	ICD-9-CM
V14.2	Personal history of allergy to sulfonamides	ICD-9-CM
V14.3	Personal history of allergy to other anti-infective agent	ICD-9-CM
V14.4	Personal history of allergy to anesthetic agent	ICD-9-CM
V14.5	Personal history of allergy to narcotic agent	ICD-9-CM
V14.6	Personal history of allergy to analgesic agent	ICD-9-CM
V14.7	Personal history of allergy to serum or vaccine	ICD-9-CM
V14.8	Personal history of allergy to other specified medicinal agents	ICD-9-CM
V14.9	Personal history of allergy to unspecified medicinal agent	ICD-9-CM
V72.7	Diagnostic skin and sensitization tests	ICD-9-CM

Appendix D. Specifications for Request demo_mpl2r_wp001_nsdp_v01

Purpose: To demonstrate the ability to execute the Cohort Identification and Descriptive Analysis (CIDA) tool on Sentinel Common Data Model (SCDM)-formatted Centers for Medicare and Medicaid Services Synthetic Public Use Files (SynPUFs) datasets.

Query Period: January 1, 2008 - December 31, 2010
Coverage Requirement: Medical and Drug Coverage
Enrollment Gap: 45 days
Enrollment Requirement: 183 days
Age Groups: 18-44, 45-54, 55-64, 65+ years
Propensity Score Matching Ratio: 1:1 Unconditional
Propensity Score Matching Caliper: 0.025

	Comparison 1	
Drug/Exposure		
Incident Exposure/Comparator	ACE Inhibitors	Beta Blockers
Incidence and Truncation Criteria	Beta Blockers, Aliskiren, ARBs	ACE Inhibitors, Aliskiren, ARBs
Washout (days)	183	183
Exposure Episode Length (ITT)	None	None
Cohort Definition	Cohort includes only the first valid incident treatment episode during the query period	Cohort includes only the first valid incident treatment episode during the query period
Episode Gap	14	14
Episode Extension Period	14	14
Minimum Episode Duration	0	0
Maximum Episode Duration	60	60
Minimum Days Supplied	0	0
Episode Truncation at Death	Yes	Yes
Inclusion/Exclusion		
Pre-Existing Condition	None	None
Include/Exclude		
Lookback Period		
Event/Outcome		
Event/Outcome	Angioedema	
Care Setting/PDX	IP, ED, AV	
Incident w/ respect to:	Angioedema	
Incident Care Setting	IP, ED, AV	
Washout (days)	183	
Blackout Period	0	
Propensity Score Matching		
Covariates in PS Model	Diabetes, ambulatory allergy, serious allergy, heart failure, ischemic heart disease, and NSAID use	
Covariates Not in PS Model	Sirolimus and everolimus use	
Covariate Evaluation Window	(-183, -1)	
Matching Ratio	1:1	
Matching Caliper Settings	0.025	
Analysis Type	Unconditional	
Effect Estimation	Patient level and risk-set level	
Variable in Cox model	None	
Propensity Score Stratification	Deciles	

International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes are provided by Optum360. National Drug Codes (NDCs) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus".