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). 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.

Overview for Request cder_mpl1r_wp125

Request ID: cder_mpl1r_wp125

Request Description: The goal of this request was to estimate rates of valsartan (contaminated and uncontaminated with N-nitrosodimethylamine (NDMA) or N-nitrosodiethylamine (NDEA)), angiotensin II receptor blocker (ARB), and angiotensin-converting enzyme (ACE) inhibitor use in the Sentinel Distributed Database (SDD).

Sentinel Modular Program Tool Used: Cohort Identification and Descriptive Analysis (CIDA) tool, version 6.0.0

Data Source: Data from January 1, 2000 to December 31, 2009 and January 1, 2010 to June 30, 2018 from 17 Data Partners contributing to the SDD were included in this report. Data from each respective time period were separately assessed. This request was distributed on October 30, 2018. Please see Appendix A for a list of the dates of available data for each Data Partner.

Study Design: The request was designed to identify background rates of valsartan, ARB, and ACE inhibitor use among patients in the SDD. The number of qualifying patients with the exposures of interest were calculated overall and stratified by year. Additionally, time to censor was calculated for all exposures of interest.

Exposures of Interest: The exposures of interest were:

1. Recalled valsartan products
2. Valsartan products that tested positive for NDMA
3. Valsartan products that tested positive for NDMA and NDEA
4. Valsartan products that tested negative for NDMA
5. Other valsartan products not included in exposures 1-4 above
6. All ARBs except valsartan
7. Azilsartan
8. Candesartan
9. Eprosartan
10. Irbesartan
11. Losartan
12. Olmesartan
13. Telmisartan
14. ACE inhibitors

All exposures were defined using National Drug Codes (NDCs). Please see Appendix B for a list of generic and brand drug names used to define exposures in this request.

Cohort Eligibility Criteria: Individuals included in each cohort were required to be continuously enrolled in health plans with medical and drug coverage for at least 365 days prior to their first valid dispensing date, during which gaps in coverage of up to 45 days were allowed. The following age groups were included in the cohorts: 0-1, 2-4, 5-9, 10-14, 15-18, 19-21, 22-44, 45-64, 65-74, 75+ years. Each member's first qualifying exposure (index) that occurred between January 1, 2000 and December 31, 2009 was included in the pre-contamination cohort. Additionally, each member's first qualifying exposure that occurred between January 1, 2010 and June 30, 2018 was included in the post-contamination cohort. Separate incidence and truncation criteria were applied to each exposure. Please see Appendices C and D for specific incidence and truncation criteria for each exposure.

Overview for Request cder_mpl1r_wp125, continued

Follow-Up Time: Follow-up time was determined by the length of the exposure episodes. Exposure episode lengths were defined using outpatient pharmacy dispensing days supplied to create a sequence of continuous exposure. Exposure episodes were considered continuous if gaps in days supplied were 15 days or less. The end date of each exposure episode was extended by 15 additional days. Follow-up began on the day of the first exposure of interest and continued until the first occurrence of any of the following: 1) disenrollment; 2) the end date of the data provided by each Data Partner (see Appendix A); 3) the end of the query period; 4) the end of the exposure episode; 5) occurrence of censoring criteria defined under "Cohort Eligibility Criteria" above; or 6) death. Only the first qualifying exposure episode that occurred during the study period was included per patient. Each exposure was assessed with and without truncation of follow-up at the end of the exposure episode or the censoring criteria defined under "Cohort Eligibility Criteria".

Please see Appendices C and D for the specifications of parameters used in the analyses for this request.

Limitations: Algorithms used to define exposures and inclusion criteria are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind.

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

Sentinel

Table of Contents

Table of Contents

Table of Contents

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.

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).

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).

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

Table 1a. Baseline Characteristics of Recalled Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	-		73,245	
Number of unique patients	-		73,245	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	-	-	67.5	10.9
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	-	-	0	0.0%
2-4	-	-	0	0.0%
5-9	-	-	*****	*****
10-14	-	-	*****	*****
15-18	-	-	*****	*****
19-21	-	-	34	0.0%
22-44	-	-	4,451	6.1%
45-64	-	-	21,696	29.6%
65-74	-	-	25,603	35.0%
75+	-	-	21,446	29.3%
Sex				
Female	-	-	40,907	55.8%
Male	-	-	*****	*****
Other	-	-	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	-	-	-	-
2001	-	-	-	-
2002	-	-	-	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	0	0.0%
2011	-	-	0	0.0%
2012	-	-	0	0.0%
2013	-	-	2,509	3.4%
2014	-	-	3,953	5.4%
2015	-	-	15,391	21.0%
2016	-	-	33,976	46.4%
2017	-	-	15,931	21.8%
2018	-	-	1,485	2.0%

Table 1a. Baseline Characteristics of Recalled Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	-	-	0	0.0%
Valsartan - Other Products	-	-	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	-	-	24,442	33.4%
Losartan	-	-	16,384	22.4%
Azilsartan	-	-	516	0.7%
Candesartan	-	-	415	0.6%
Eprosartan	-	-	32	0.0%
Irbesartan	-	-	1,316	1.8%
Olmesartan	-	-	6,099	8.3%
Telmisartan	-	-	992	1.4%
Angiotensin-Converting Enzyme (ACE) Inhibitors	-	-	24,077	32.9%

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

Table 1b. Baseline Characteristics of N-nitrosodimethylamine (NDMA)-Positive Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	-		28,838	
Number of unique patients	-		28,838	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	-	-	68.1	10.3
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	-	-	0	0.0%
2-4	-	-	*****	*****
5-9	-	-	0	0.0%
10-14	-	-	0	0.0%
15-18	-	-	*****	*****
19-21	-	-	*****	*****
22-44	-	-	1,332	4.6%
45-64	-	-	8,176	28.4%
65-74	-	-	10,978	38.1%
75+	-	-	8,340	28.9%
Sex				
Female	-	-	15,354	53.2%
Male	-	-	*****	*****
Other	-	-	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	-	-	-	-
2001	-	-	-	-
2002	-	-	-	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	0	0.0%
2011	-	-	0	0.0%
2012	-	-	0	0.0%
2013	-	-	508	1.8%
2014	-	-	792	2.7%
2015	-	-	5,679	19.7%
2016	-	-	15,066	52.2%
2017	-	-	6,195	21.5%
2018	-	-	598	2.1%

Table 1b. Baseline Characteristics of N-nitrosodimethylamine (NDMA)-Positive Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	-	-	0	0.0%
Valsartan - NDMA Positive	-	-	0	0.0%
Valsartan - NDMA and N-nitrosodiethylamine (NDEA) Positive	-	-	0	0.0%
Valsartan - NDMA Negative	-	-	0	0.0%
Valsartan - Other Products	-	-	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	-	-	15,125	52.4%
Losartan	-	-	10,714	37.2%
Azilsartan	-	-	347	1.2%
Candesartan	-	-	205	0.7%
Eprosartan	-	-	*****	*****
Irbesartan	-	-	888	3.1%
Olmesartan	-	-	3,434	11.9%
Telmisartan	-	-	423	1.5%
Angiotensin-Converting Enzyme (ACE) Inhibitors	-	-	8,934	31.0%

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

Table 1c. Baseline Characteristics of N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA)-Positive Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	-		6,686	
Number of unique patients	-		6,686	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	-	-	68.6	10.1
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	-	-	0	0.0%
2-4	-	-	0	0.0%
5-9	-	-	0	0.0%
10-14	-	-	0	0.0%
15-18	-	-	0	0.0%
19-21	-	-	*****	*****
22-44	-	-	*****	*****
45-64	-	-	1,671	25.0%
65-74	-	-	2,805	42.0%
75+	-	-	1,929	28.9%
Sex				
Female	-	-	3,768	56.4%
Male	-	-	2,918	43.6%
Other	-	-	0	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	-	-	-	-
2001	-	-	-	-
2002	-	-	-	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	0	0.0%
2011	-	-	0	0.0%
2012	-	-	0	0.0%
2013	-	-	508	7.6%
2014	-	-	792	11.8%
2015	-	-	3,726	55.7%
2016	-	-	1,198	17.9%
2017	-	-	426	6.4%
2018	-	-	36	0.5%

Table 1c. Baseline Characteristics of N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA)-Positive Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	-	-	0	0.0%
Valsartan - NDMA Positive	-	-	0	0.0%
Valsartan - NDMA and NDEA Positive	-	-	0	0.0%
Valsartan - NDMA Negative	-	-	0	0.0%
Valsartan - Other Products	-	-	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	-	-	3,156	47.2%
Losartan	-	-	2,210	33.1%
Azilsartan	-	-	68	1.0%
Candesartan	-	-	34	0.5%
Eprosartan	-	-	*****	*****
Irbesartan	-	-	208	3.1%
Olmesartan	-	-	737	11.0%
Telmisartan	-	-	127	1.9%
Angiotensin-Converting Enzyme (ACE) Inhibitors	-	-	2,121	31.7%

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

Table 1d. Baseline Characteristics of N-nitrosodimethylamine (NDMA)-Negative Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	29,482		141,261	
Number of unique patients	29,482		141,261	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	58.5	12.6	67.1	11.6
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	0	0.0%	*****	*****
2-4	*****	*****	*****	*****
5-9	*****	*****	*****	*****
10-14	*****	*****	*****	*****
15-18	18	0.1%	23	0.0%
19-21	29	0.1%	48	0.0%
22-44	4,346	14.7%	9,450	6.7%
45-64	16,284	55.2%	43,982	31.1%
65-74	5,273	17.9%	45,828	32.4%
75+	3,518	11.9%	41,918	29.7%
Sex				
Female	14,105	47.8%	79,083	56.0%
Male	*****	*****	*****	*****
Other	*****	*****	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	0	0.0%	-	-
2002	0	0.0%	-	-
2003	0	0.0%	-	-
2004	381	1.3%	-	-
2005	412	1.4%	-	-
2006	287	1.0%	-	-
2007	5,329	18.1%	-	-
2008	7,125	24.2%	-	-
2009	15,948	54.1%	-	-
2010	-	-	13,824	9.8%
2011	-	-	34,967	24.8%
2012	-	-	25,539	18.1%
2013	-	-	17,338	12.3%
2014	-	-	12,024	8.5%
2015	-	-	17,085	12.1%
2016	-	-	15,574	11.0%
2017	-	-	4,494	3.2%
2018	-	-	416	0.3%

Table 1d. Baseline Characteristics of N-nitrosodimethylamine (NDMA)-Negative Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - NDMA Positive	0	0.0%	0	0.0%
Valsartan - NDMA and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - NDMA Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	8,087	27.4%	57,083	40.4%
Losartan	2,052	7.0%	30,385	21.5%
Azilsartan	0	0.0%	712	0.5%
Candesartan	580	2.0%	1,592	1.1%
Eprosartan	94	0.3%	113	0.1%
Irbesartan	2,144	7.3%	8,862	6.3%
Olmesartan	2,645	9.0%	16,081	11.4%
Telmisartan	912	3.1%	4,119	2.9%
Angiotensin-Converting Enzyme (ACE) Inhibitors	11,361	38.5%	44,992	31.9%

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

Table 1e. Baseline Characteristics of other Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	247,473		860,275	
Number of unique patients	247,473		860,275	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	57.7	13.7	67.2	11.8
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	*****	*****	*****	*****
2-4	*****	*****	*****	*****
5-9	58	0.0%	25	0.0%
10-14	175	0.1%	80	0.0%
15-18	499	0.2%	253	0.0%
19-21	670	0.3%	510	0.1%
22-44	43,066	17.4%	63,318	7.4%
45-64	131,009	52.9%	261,228	30.4%
65-74	41,526	16.8%	266,461	31.0%
75+	30,441	12.3%	268,386	31.2%
Sex				
Female	137,885	55.7%	494,288	57.5%
Male	109,573	44.3%	365,952	42.5%
Other	15	0.0%	35	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	7,692	3.1%	-	-
2002	11,742	4.7%	-	-
2003	17,467	7.1%	-	-
2004	16,790	6.8%	-	-
2005	9,694	3.9%	-	-
2006	4,652	1.9%	-	-
2007	43,961	17.8%	-	-
2008	45,785	18.5%	-	-
2009	89,690	36.2%	-	-
2010	-	-	78,024	9.1%
2011	-	-	172,250	20.0%
2012	-	-	123,122	14.3%
2013	-	-	106,189	12.3%
2014	-	-	87,781	10.2%
2015	-	-	102,959	12.0%
2016	-	-	138,181	16.1%
2017	-	-	47,227	5.5%
2018	-	-	4,542	0.5%

Table 1e. Baseline Characteristics of other Valsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	39,259	15.9%	236,732	27.5%
Losartan	10,735	4.3%	132,189	15.4%
Azilsartan	0	0.0%	2,603	0.3%
Candesartan	4,089	1.7%	7,968	0.9%
Eprosartan	400	0.2%	338	0.0%
Irbesartan	9,461	3.8%	26,724	3.1%
Olmesartan	11,201	4.5%	62,644	7.3%
Telmisartan	5,072	2.0%	21,324	2.5%
Angiotensin-Converting Enzyme (ACE) Inhibitors	103,824	42.0%	307,232	35.7%

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

Table 1f. Baseline Characteristics of Angiotensin II Receptor Blocker (ARB) Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	469,903		3,909,866	
Number of unique patients	469,903		3,909,866	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	59.9	13.2	66.8	11.7
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	14	0.0%	20	0.0%
2-4	83	0.0%	133	0.0%
5-9	164	0.0%	349	0.0%
10-14	360	0.1%	745	0.0%
15-18	703	0.1%	1,891	0.0%
19-21	765	0.2%	2,864	0.1%
22-44	63,102	13.4%	295,692	7.6%
45-64	240,682	51.2%	1,194,417	30.5%
65-74	92,324	19.6%	1,279,033	32.7%
75+	71,706	15.3%	1,134,722	29.0%
Sex				
Female	257,133	54.7%	2,240,432	57.3%
Male	212,737	45.3%	1,669,270	42.7%
Other	33	0.0%	164	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	*****	*****	-	-
2001	*****	*****	-	-
2002	25,215	5.4%	-	-
2003	28,420	6.0%	-	-
2004	25,403	5.4%	-	-
2005	27,501	5.9%	-	-
2006	27,302	5.8%	-	-
2007	79,200	16.9%	-	-
2008	87,666	18.7%	-	-
2009	149,299	31.8%	-	-
2010	-	-	170,749	4.4%
2011	-	-	522,430	13.4%
2012	-	-	560,805	14.3%
2013	-	-	580,660	14.9%
2014	-	-	586,328	15.0%
2015	-	-	594,479	15.2%
2016	-	-	624,166	16.0%
2017	-	-	248,001	6.3%
2018	-	-	22,248	0.6%

Table 1f. Baseline Characteristics of Angiotensin II Receptor Blocker (ARB) Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
ARBs except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	254,509	54.2%	1,849,299	47.3%

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

Table 1g. Baseline Characteristics of Azilsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	-		22,388	
Number of unique patients	-		22,388	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	-	-	61.4	10.8
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	-	-	0	0.0%
2-4	-	-	0	0.0%
5-9	-	-	0	0.0%
10-14	-	-	0	0.0%
15-18	-	-	*****	*****
19-21	-	-	*****	*****
22-44	-	-	3,112	13.9%
45-64	-	-	9,670	43.2%
65-74	-	-	5,328	23.8%
75+	-	-	4,261	19.0%
Sex				
Female	-	-	11,066	49.4%
Male	-	-	*****	*****
Other	-	-	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	-	-	-	-
2001	-	-	-	-
2002	-	-	-	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	0	0.0%
2011	-	-	1,309	5.8%
2012	-	-	3,917	17.5%
2013	-	-	4,952	22.1%
2014	-	-	2,915	13.0%
2015	-	-	2,954	13.2%
2016	-	-	4,084	18.2%
2017	-	-	2,140	9.6%
2018	-	-	117	0.5%

Table 1g. Baseline Characteristics of Azilsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	-	-	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	-	-	0	0.0%
Valsartan - Other Products	-	-	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	-	-	0	0.0%
Losartan	-	-	0	0.0%
Azilsartan	-	-	0	0.0%
Candesartan	-	-	0	0.0%
Eprosartan	-	-	0	0.0%
Irbesartan	-	-	0	0.0%
Olmesartan	-	-	0	0.0%
Telmisartan	-	-	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	-	-	8,946	40.0%

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

Table 1h. Baseline Characteristics of Candesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	13,218		24,027	
Number of unique patients	13,218		24,027	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	59.1	13.8	65.2	13
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	0	0.0%	0	0.0%
2-4	*****	*****	*****	*****
5-9	*****	*****	*****	*****
10-14	12	0.1%	13	0.1%
15-18	26	0.2%	83	0.3%
19-21	36	0.3%	83	0.3%
22-44	1,929	14.6%	2,479	10.3%
45-64	6,937	52.5%	7,973	33.2%
65-74	2,397	18.1%	6,486	27.0%
75+	1,865	14.1%	6,897	28.7%
Sex				
Female	7,173	54.3%	13,926	58.0%
Male	6,045	45.7%	*****	*****
Other	0	0.0%	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	1,021	7.7%	-	-
2002	1,085	8.2%	-	-
2003	830	6.3%	-	-
2004	373	2.8%	-	-
2005	315	2.4%	-	-
2006	229	1.7%	-	-
2007	2,960	22.4%	-	-
2008	2,609	19.7%	-	-
2009	3,796	28.7%	-	-
2010	-	-	2,242	9.3%
2011	-	-	3,105	12.9%
2012	-	-	2,104	8.8%
2013	-	-	3,433	14.3%
2014	-	-	4,463	18.6%
2015	-	-	3,761	15.7%
2016	-	-	3,294	13.7%
2017	-	-	1,501	6.2%
2018	-	-	124	0.5%

Table 1h. Baseline Characteristics of Candesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	5,151	39.0%	6,635	27.6%

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

Table 1i. Baseline Characteristics of Eprosartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	563		310	
Number of unique patients	563		310	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	59	13.7	64.3	11
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	0	0.0%	0	0.0%
2-4	*****	*****	0	0.0%
5-9	0	0.0%	0	0.0%
10-14	0	0.0%	0	0.0%
15-18	*****	*****	0	0.0%
19-21	*****	*****	0	0.0%
22-44	*****	*****	32	10.3%
45-64	282	50.1%	117	37.7%
65-74	117	20.8%	83	26.8%
75+	74	13.1%	78	25.2%
Sex				
Female	351	62.3%	162	52.3%
Male	212	37.7%	148	47.7%
Other	0	0.0%	0	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	38	6.7%	-	-
2002	79	14.0%	-	-
2003	169	30.0%	-	-
2004	63	11.2%	-	-
2005	*****	*****	-	-
2006	*****	*****	-	-
2007	67	11.9%	-	-
2008	42	7.5%	-	-
2009	52	9.2%	-	-
2010	-	-	39	12.6%
2011	-	-	49	15.8%
2012	-	-	62	20.0%
2013	-	-	61	19.7%
2014	-	-	37	11.9%
2015	-	-	26	8.4%
2016	-	-	21	6.8%
2017	-	-	*****	*****
2018	-	-	*****	*****

Table 1i. Baseline Characteristics of Eprosartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	262	46.5%	73	23.5%

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

Table 1j. Baseline Characteristics of Irbesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	56,077		126,834	
Number of unique patients	56,077		126,834	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	59.3	13.2	67.2	11
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	0	0.0%	0	0.0%
2-4	*****	*****	*****	*****
5-9	*****	*****	*****	*****
10-14	29	0.1%	*****	*****
15-18	81	0.1%	49	0.0%
19-21	76	0.1%	74	0.1%
22-44	7,876	14.0%	8,506	6.7%
45-64	29,576	52.7%	37,679	29.7%
65-74	10,404	18.6%	43,322	34.2%
75+	8,018	14.3%	37,182	29.3%
Sex				
Female	29,997	53.5%	69,447	54.8%
Male	*****	*****	*****	*****
Other	*****	*****	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	*****	*****	-	-
2001	*****	*****	-	-
2002	3,404	6.1%	-	-
2003	3,684	6.6%	-	-
2004	2,859	5.1%	-	-
2005	2,509	4.5%	-	-
2006	2,296	4.1%	-	-
2007	10,035	17.9%	-	-
2008	11,020	19.7%	-	-
2009	17,316	30.9%	-	-
2010	-	-	11,362	9.0%
2011	-	-	11,842	9.3%
2012	-	-	13,582	10.7%
2013	-	-	17,654	13.9%
2014	-	-	22,063	17.4%
2015	-	-	20,608	16.2%
2016	-	-	21,483	16.9%
2017	-	-	7,557	6.0%
2018	-	-	683	0.5%

Table 1j. Baseline Characteristics of Irbesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	26,665	47.6%	47,494	37.4%

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

Table 1k. Baseline Characteristics of Losartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	266,329		3,335,506	
Number of unique patients	266,329		3,335,506	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	61.9	13.3	67.1	11.7
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	*****	*****	18	0.0%
2-4	*****	*****	123	0.0%
5-9	116	0.0%	319	0.0%
10-14	251	0.1%	676	0.0%
15-18	440	0.2%	1,598	0.0%
19-21	389	0.1%	2,396	0.1%
22-44	27,432	10.3%	237,378	7.1%
45-64	127,631	47.9%	993,598	29.8%
65-74	60,804	22.8%	1,111,406	33.3%
75+	49,205	18.5%	987,994	29.6%
Sex				
Female	151,922	57.0%	1,924,511	57.7%
Male	114,386	42.9%	1,410,869	42.3%
Other	21	0.0%	126	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	*****	*****	-	-
2001	*****	*****	-	-
2002	19,416	7.3%	-	-
2003	21,333	8.0%	-	-
2004	20,400	7.7%	-	-
2005	22,861	8.6%	-	-
2006	23,527	8.8%	-	-
2007	42,296	15.9%	-	-
2008	41,827	15.7%	-	-
2009	59,337	22.3%	-	-
2010	-	-	98,787	3.0%
2011	-	-	420,043	12.6%
2012	-	-	476,255	14.3%
2013	-	-	489,483	14.7%
2014	-	-	503,793	15.1%
2015	-	-	528,072	15.8%
2016	-	-	570,918	17.1%
2017	-	-	227,695	6.8%
2018	-	-	20,460	0.6%

Table 1k. Baseline Characteristics of Losartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	171,193	64.3%	1,644,001	49.3%

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

Table 1l. Baseline Characteristics of Olmesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	104,644		363,726	
Number of unique patients	104,644		363,726	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	56.3	12.6	64.3	11.4
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	*****	*****	*****	*****
2-4	*****	*****	*****	*****
5-9	17	0.0%	*****	*****
10-14	44	0.0%	34	0.0%
15-18	104	0.1%	127	0.0%
19-21	199	0.2%	263	0.1%
22-44	20,102	19.2%	39,412	10.8%
45-64	59,167	56.5%	130,326	35.8%
65-74	14,952	14.3%	101,299	27.9%
75+	10,043	9.6%	92,246	25.4%
Sex				
Female	52,705	50.4%	202,425	55.7%
Male	*****	*****	*****	*****
Other	*****	*****	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	0	0.0%	-	-
2002	482	0.5%	-	-
2003	1,607	1.5%	-	-
2004	1,321	1.3%	-	-
2005	1,448	1.4%	-	-
2006	924	0.9%	-	-
2007	17,336	16.6%	-	-
2008	25,125	24.0%	-	-
2009	56,401	53.9%	-	-
2010	-	-	47,177	13.0%
2011	-	-	71,432	19.6%
2012	-	-	57,570	15.8%
2013	-	-	62,215	17.1%
2014	-	-	50,918	14.0%
2015	-	-	38,825	10.7%
2016	-	-	25,648	7.1%
2017	-	-	9,131	2.5%
2018	-	-	810	0.2%

Table 1l. Baseline Characteristics of Olmesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	0	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	0	0.0%
Valsartan - Other Products	0	0.0%	0	0.0%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	0	0.0%
Losartan	0	0.0%	0	0.0%
Azilsartan	0	0.0%	0	0.0%
Candesartan	0	0.0%	0	0.0%
Eprosartan	0	0.0%	0	0.0%
Irbesartan	0	0.0%	0	0.0%
Olmesartan	0	0.0%	0	0.0%
Telmisartan	0	0.0%	0	0.0%
Angiotensin-Converting Enzyme (ACE) Inhibitors	40,398	38.6%	129,174	35.5%

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

Table 1m. Baseline Characteristics of Telmisartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	31,033		67,162	
Number of unique patients	31,033		67,162	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	55.8	13	64.7	11.6
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	0	0.0%	*****	*****
2-4	*****	*****	*****	*****
5-9	*****	*****	*****	*****
10-14	25	0.1%	*****	*****
15-18	57	0.2%	30	0.0%
19-21	71	0.2%	51	0.1%
22-44	6,003	19.3%	6,623	9.9%
45-64	18,129	58.4%	24,058	35.8%
65-74	3,969	12.8%	19,180	28.6%
75+	2,761	8.9%	17,210	25.6%
Sex				
Female	16,182	52.1%	37,110	55.3%
Male	*****	*****	*****	*****
Other	*****	*****	*****	*****
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	0	0.0%	-	-
2001	572	1.8%	-	-
2002	805	2.6%	-	-
2003	916	3.0%	-	-
2004	670	2.2%	-	-
2005	572	1.8%	-	-
2006	518	1.7%	-	-
2007	6,741	21.7%	-	-
2008	7,371	23.8%	-	-
2009	12,868	41.5%	-	-
2010	-	-	11,175	16.6%
2011	-	-	15,195	22.6%
2012	-	-	9,523	14.2%
2013	-	-	7,193	10.7%
2014	-	-	7,894	11.8%
2015	-	-	7,065	10.5%
2016	-	-	6,534	9.7%
2017	-	-	2,349	3.5%
2018	-	-	234	0.3%

Table 1m. Baseline Characteristics of Telmisartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	8,723	0.1%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	4,193	0.1%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	1,938	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	0	0.0%	66,229	0.9%
Valsartan - Other Products	0	0.0%	180,257	2.3%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	0	0.0%	470,561	6.1%
Losartan	0	0.0%	288,290	3.7%
Azilsartan	0	0.0%	3,156	0.0%
Candesartan	0	0.0%	9,383	0.1%
Eprosartan	0	0.0%	396	0.0%
Irbesartan	0	0.0%	40,831	0.5%
Olmesartan	0	0.0%	123,082	1.6%
Telmisartan	0	0.0%	28,853	0.4%
Angiotensin-Converting Enzyme (ACE) Inhibitors	11,707	37.7%	0	0.0%

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

Table 1n. Baseline Characteristics of Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Characteristic	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Number of episodes	1,883,626		7,704,682	
Number of unique patients	1,883,626		7,704,682	
Demographics	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Mean Age (Years)	57.5	14.2	63.6	13.1
Age (Years)	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
0-1	267	0.0%	360	0.0%
2-4	715	0.0%	998	0.0%
5-9	1,315	0.1%	2,172	0.0%
10-14	3,012	0.2%	4,791	0.1%
15-18	6,527	0.3%	11,337	0.1%
19-21	6,640	0.4%	14,671	0.2%
22-44	347,249	18.4%	933,465	12.1%
45-64	957,116	50.8%	2,787,092	36.2%
65-74	307,898	16.3%	2,082,285	27.0%
75+	252,887	13.4%	1,867,511	24.2%
Sex				
Female	919,312	48.8%	3,915,734	50.8%
Male	964,199	51.2%	3,788,662	49.2%
Other	115	0.0%	286	0.0%
Year	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
2000	73	0.0%	-	-
2001	98,830	5.2%	-	-
2002	106,824	5.7%	-	-
2003	104,479	5.5%	-	-
2004	115,931	6.2%	-	-
2005	122,457	6.5%	-	-
2006	119,997	6.4%	-	-
2007	274,590	14.6%	-	-
2008	321,993	17.1%	-	-
2009	618,452	32.8%	-	-
2010	-	-	606,817	7.9%
2011	-	-	1,250,437	16.2%
2012	-	-	1,154,399	15.0%
2013	-	-	1,126,703	14.6%
2014	-	-	1,100,165	14.3%
2015	-	-	1,032,754	13.4%
2016	-	-	1,007,035	13.1%
2017	-	-	392,877	5.1%
2018	-	-	33,495	0.4%

Table 1n. Baseline Characteristics of Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	Pre-Contamination (January 1, 2000 to December 31, 2009)		Post-Contamination (January 1, 2010 to June 30, 2018)	
Recorded history of:	**Number of Patients**	**Percent**	**Number of Patients**	**Percent**
Valsartan - Recalled Products	0	0.0%	8,723	0.1%
Valsartan - N-nitrosodimethylamine (NDMA) Positive	0	0.0%	4,193	0.1%
Valsartan - N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	0.0%	1,938	0.0%
Valsartan - N-nitrosodimethylamine (NDMA) Negative	12,746	0.7%	66,229	0.9%
Valsartan - Other Products	57,387	3.0%	180,257	2.3%
All Angiotensin II Receptor Blockers (ARBs) except Valsartan	99,956	5.3%	470,561	6.1%
Losartan	38,573	2.0%	288,290	3.7%
Azilsartan	0	0.0%	3,156	0.0%
Candesartan	5,526	0.3%	9,383	0.1%
Eprosartan	558	0.0%	396	0.0%
Irbesartan	18,363	1.0%	40,831	0.5%
Olmesartan	29,645	1.6%	123,082	1.6%
Telmisartan	9,948	0.5%	28,853	0.4%
ACE Inhibitors	0	0.0%	0	0.0%

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

Table 2a. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Valsartan: Recalled	0	51,040,383	0	0	0	0	96,218,874.3
Valsartan: N-nitrosodimethylamine (NDMA) Positive	0	51,040,383	0	0	0	0	96,218,874.3
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	0	51,040,383	0	0	0	0	96,218,874.3
Valsartan: N-nitrosodimethylamine (NDMA) Negative	29,482	51,040,383	112,531	112,567	3,933,002	3,977,903	96,216,550.5
Valsartan: Other	247,473	51,040,383	1,350,783	1,355,383	45,102,910	63,759,527	96,147,255.5
ARBs	469,903	50,202,771	2,558,475	2,560,967	134,515,309	185,993,444	93,946,423.9
Azilsartan	0	50,202,771	0	0	0	0	94,089,324.1
Candesartan	13,218	50,202,771	60,148	60,230	2,032,270	2,123,244	94,084,734.3
Eprosartan	563	50,202,771	2,537	2,554	75,347	170,794	94,088,960.8
Irbesartan	56,077	50,202,771	335,553	335,732	13,131,113	13,407,197	94,073,712.4
Losartan	266,329	50,202,771	1,621,504	1,623,353	100,807,174	150,881,252	93,981,055.6
Olmesartan	104,644	50,202,771	385,113	385,298	13,096,045	13,356,832	94,079,955.4
Telmisartan	31,033	50,202,771	120,643	120,751	4,141,350	4,291,810	94,083,852.8
ACE Inhibitors	1,883,626	48,721,019	9,527,898	9,552,424	470,098,865	530,809,556	87,654,144.9

Table 2a. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Valsartan: Recalled	73,245	123,978,640	219,054	219,164	9,421,969	9,750,280	348,786,399.7
Valsartan: N-nitrosodimethylamine (NDMA) Positive	28,838	123,978,640	87,812	87,844	3,918,228	3,925,341	348,790,079.3
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	6,686	123,978,640	19,606	19,606	924,960	937,724	348,790,403.4
Valsartan: N-nitrosodimethylamine (NDMA) Negative	141,261	123,978,640	663,571	663,745	26,145,416	26,107,566	348,680,927.7
Valsartan: Other	860,275	123,978,640	4,676,618	4,682,028	184,198,671	196,934,855	348,184,266.7
ARBs	3,909,866	119,224,742	28,308,041	28,338,740	1,318,387,452	1,367,488,812	324,441,336.3
Azilsartan	22,388	119,224,742	103,547	103,561	3,767,208	3,783,518	325,802,217.8
Candesartan	24,027	119,224,742	116,429	116,581	4,881,325	5,133,971	325,799,115.1
Eprosartan	310	119,224,742	1,488	1,489	58,495	59,551	325,809,500.7
Irbesartan	126,834	119,224,742	754,887	755,598	34,954,348	35,246,979	325,767,870.3
Losartan	3,335,506	119,224,742	24,558,228	24,586,118	1,161,754,344	1,209,255,602	324,721,430.4
Olmesartan	363,726	119,224,742	1,928,042	1,929,083	75,227,333	75,316,560	325,621,526.5
Telmisartan	67,162	119,224,742	316,014	316,338	12,620,884	12,715,690	325,771,438.7
ACE Inhibitors	7,704,682	114,231,011	44,770,854	44,837,776	1,978,245,519	2,129,451,694	296,320,211.1

[1]Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on a least one day during the query period

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Valsartan: Recalled							
2000	0	5,659,214	0	0	0	0	15,494.1
2001	0	6,256,407	0	0	0	0	5,469,399.8
2002	0	6,368,819	0	0	0	0	5,529,640.2
2003	0	6,392,768	0	0	0	0	5,560,443.8
2004	0	7,058,757	0	0	0	0	5,595,049.6
2005	0	6,935,684	0	0	0	0	6,029,976.0
2006	0	6,922,891	0	0	0	0	6,014,765.6
2007	0	17,761,724	0	0	0	0	14,829,764.9
2008	0	36,776,013	0	0	0	0	16,472,365.4
2009	0	37,298,260	0	0	0	0	30,701,975.1
Valsartan: N-nitrosodimethylamine (NDMA) Positive							
2000	0	5,659,214	0	0	0	0	15,494.1
2001	0	6,256,407	0	0	0	0	5,469,399.8
2002	0	6,368,819	0	0	0	0	5,529,640.2
2003	0	6,392,768	0	0	0	0	5,560,443.8
2004	0	7,058,757	0	0	0	0	5,595,049.6
2005	0	6,935,684	0	0	0	0	6,029,976.0
2006	0	6,922,891	0	0	0	0	6,014,765.6
2007	0	17,761,724	0	0	0	0	14,829,764.9
2008	0	36,776,013	0	0	0	0	16,472,365.4
2009	0	37,298,260	0	0	0	0	30,701,975.1

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive							
2000	0	5,659,214	0	0	0	0	15,494.1
2001	0	6,256,407	0	0	0	0	5,469,399.8
2002	0	6,368,819	0	0	0	0	5,529,640.2
2003	0	6,392,768	0	0	0	0	5,560,443.8
2004	0	7,058,757	0	0	0	0	5,595,049.6
2005	0	6,935,684	0	0	0	0	6,029,976.0
2006	0	6,922,891	0	0	0	0	6,014,765.6
2007	0	17,761,724	0	0	0	0	14,829,764.9
2008	0	36,776,013	0	0	0	0	16,472,365.4
2009	0	37,298,260	0	0	0	0	30,701,975.1
Valsartan: N-nitrosodimethylamine (NDMA) Negative							
2000	0	5,659,214	0	0	0	0	15,494.1
2001	0	6,256,407	0	0	0	0	5,469,399.8
2002	0	6,368,819	0	0	0	0	5,529,640.2
2003	0	6,392,768	0	0	0	0	5,560,443.8
2004	381	7,058,757	2,342	2,342	68,802	131,800	5,595,049.6
2005	412	6,935,614	1,641	1,641	51,624	50,839	6,029,957.3
2006	287	6,922,755	1,373	1,375	46,924	45,385	6,014,697.1
2007	5,329	17,761,450	31,684	31,694	1,155,158	1,149,577	14,829,580.9
2008	7,125	36,774,878	32,058	32,067	1,143,014	1,138,904	16,471,822.5
2009	15,948	37,295,620	43,433	43,448	1,467,480	1,461,398	30,700,465.3

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Valsartan: Other							
2000	0	5,659,214	0	0	0	0	15,494.1
2001	7,692	6,256,407	86,808	87,580	2,683,050	3,712,948	5,469,399.8
2002	11,742	6,367,302	120,099	120,817	3,712,308	5,947,146	5,529,076.9
2003	17,467	6,388,244	164,891	166,133	5,092,033	12,441,699	5,557,893.9
2004	16,790	7,050,174	125,657	126,648	3,944,044	11,242,856	5,589,700.1
2005	9,694	6,921,995	47,533	47,872	1,516,651	1,606,480	6,020,978.5
2006	4,652	6,911,598	30,020	30,105	1,059,365	1,114,030	6,007,722.1
2007	43,961	17,747,896	287,840	288,023	10,400,514	10,650,506	14,819,067.9
2008	45,785	36,754,185	229,440	229,591	8,080,070	8,249,254	16,457,449.3
2009	89,690	37,266,243	258,495	258,614	8,614,875	8,794,606	30,680,472.8
ARBs							
2000	*****	5,622,907	56	56	1,611	2,484	15,394.7
2001	*****	6,221,376	209,762	210,131	12,304,350	18,429,428	5,426,300.8
2002	25,215	6,316,092	246,531	246,947	14,435,466	21,913,571	5,469,116.5
2003	28,420	6,317,089	245,439	245,838	14,696,074	23,816,406	5,477,328.6
2004	25,403	6,954,413	212,836	213,171	12,634,563	20,765,835	5,493,764.5
2005	27,501	6,814,480	200,530	200,722	13,260,685	19,169,225	5,905,526.3
2006	27,302	6,798,670	187,961	188,058	12,830,713	18,077,266	5,886,199.6
2007	79,200	17,398,375	458,893	459,130	22,155,928	27,258,326	14,457,543.2
2008	87,666	35,852,893	394,365	394,585	17,449,568	20,663,843	16,000,601.2
2009	149,299	36,401,824	402,102	402,329	14,746,351	15,897,060	29,814,648.4

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Azilsartan							
2000	0	5,622,907	0	0	0	0	15,394.7
2001	0	6,221,376	0	0	0	0	5,426,300.8
2002	0	6,319,036	0	0	0	0	5,470,200.1
2003	0	6,325,151	0	0	0	0	5,481,928.5
2004	0	6,969,336	0	0	0	0	5,503,272.2
2005	0	6,836,585	0	0	0	0	5,920,899.8
2006	0	6,822,341	0	0	0	0	5,902,898.0
2007	0	17,427,533	0	0	0	0	14,479,589.2
2008	0	35,896,240	0	0	0	0	16,030,673.2
2009	0	36,464,824	0	0	0	0	29,858,167.7
Candesartan							
2000	0	5,622,907	0	0	0	0	15,394.7
2001	1,021	6,221,376	8,732	8,753	261,695	274,224	5,426,300.8
2002	1,085	6,318,840	6,839	6,858	205,856	213,681	5,470,129.0
2003	830	6,324,643	4,004	4,011	119,075	123,074	5,481,642.1
2004	373	6,968,460	1,662	1,664	58,298	93,731	5,502,727.9
2005	315	6,835,600	1,180	1,183	38,355	38,593	5,920,188.2
2006	229	6,821,742	983	984	37,121	38,848	5,902,506.2
2007	2,960	17,426,834	15,652	15,664	575,230	590,632	14,479,048.7
2008	2,609	35,895,005	10,962	10,969	389,606	396,038	16,029,860.0
2009	3,796	36,462,920	10,134	10,144	347,034	354,423	29,856,936.6

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Eprosartan							
2000	0	5,622,907	0	0	0	0	15,394.7
2001	38	6,221,376	361	364	10,731	11,867	5,426,300.8
2002	79	6,319,028	607	612	17,315	18,617	5,470,196.1
2003	169	6,325,131	631	635	17,204	108,753	5,481,917.5
2004	63	6,969,252	195	196	5,135	6,415	5,503,230.5
2005	*****	6,836,484	128	132	3,526	3,653	5,920,829.9
2006	*****	6,822,282	45	45	1,246	1,246	5,902,857.4
2007	67	17,427,462	277	277	9,885	9,825	14,479,527.6
2008	42	35,896,155	156	156	5,434	5,434	16,030,609.8
2009	52	36,464,728	137	137	4,871	4,984	29,858,096.6
Irbesartan							
2000	*****	5,622,907	36	36	1,023	1,434	15,394.7
2001	*****	6,221,376	36,687	36,701	1,503,233	1,582,189	5,426,300.8
2002	3,404	6,318,623	40,806	40,847	1,640,114	1,688,543	5,470,044.5
2003	3,684	6,324,095	33,514	33,539	1,340,143	1,408,986	5,481,312.3
2004	2,859	6,967,447	27,278	27,289	1,175,627	1,261,045	5,502,091.9
2005	2,509	6,833,970	22,138	22,158	917,051	922,824	5,919,083.2
2006	2,296	6,819,799	20,060	20,066	866,494	867,597	5,901,126.2
2007	10,035	17,424,736	57,527	57,541	2,229,794	2,233,281	14,477,419.6
2008	11,020	35,891,639	50,225	50,249	1,859,748	1,852,726	16,027,669.9
2009	17,316	36,457,505	47,282	47,306	1,597,886	1,588,572	29,853,269.2

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Losartan							
2000	*****	5,622,907	20	20	588	1,050	15,394.7
2001	*****	6,221,376	156,079	156,385	10,282,551	16,182,013	5,426,300.8
2002	19,416	6,316,837	185,458	185,765	12,166,228	19,509,420	5,469,393.1
2003	21,333	6,319,067	189,743	190,059	12,633,022	21,287,243	5,478,443.5
2004	20,400	6,958,391	167,932	168,216	10,818,741	18,425,867	5,496,088.8
2005	22,861	6,819,799	164,472	164,619	11,845,332	17,737,827	5,909,192.5
2006	23,527	6,802,975	156,538	156,619	11,522,528	16,765,183	5,889,098.6
2007	42,296	17,403,488	253,807	253,978	14,635,470	19,696,651	14,461,437.7
2008	41,827	35,864,617	190,256	190,395	10,267,611	13,478,726	16,007,361.3
2009	59,337	36,424,489	157,199	157,297	6,635,103	7,797,273	29,828,344.7
Olmesartan							
2000	0	5,622,907	0	0	0	0	15,394.7
2001	0	6,221,376	0	0	0	0	5,426,300.8
2002	482	6,319,036	3,132	3,148	93,345	93,837	5,470,200.1
2003	1,607	6,325,084	7,011	7,029	219,359	340,230	5,481,916.0
2004	1,321	6,968,826	8,059	8,067	262,022	410,145	5,503,076.4
2005	1,448	6,835,706	7,102	7,115	226,753	230,930	5,920,362.1
2006	924	6,821,634	5,615	5,617	202,945	202,210	5,902,478.0
2007	17,336	17,426,486	91,087	91,105	3,281,679	3,290,379	14,478,833.1
2008	25,125	35,892,133	110,208	110,241	3,803,049	3,799,923	16,028,640.2
2009	56,401	36,455,031	152,899	152,976	5,006,893	4,989,177	29,852,754.0

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Pre-Contamination (January 1, 2000 to December 31, 2009)							
Telmisartan							
2000	0	5,622,907	0	0	0	0	15,394.7
2001	572	6,221,376	4,227	4,237	126,444	130,818	5,426,300.8
2002	805	6,318,903	5,003	5,012	146,719	149,422	5,470,152.9
2003	916	6,324,808	4,594	4,605	165,132	172,920	5,481,730.7
2004	670	6,968,663	4,622	4,639	194,800	314,937	5,502,881.7
2005	572	6,835,734	3,678	3,682	149,167	149,530	5,920,307.4
2006	518	6,821,836	3,556	3,566	147,979	149,344	5,902,565.5
2007	6,741	17,426,853	34,014	34,030	1,164,915	1,170,841	14,479,098.8
2008	7,371	35,894,227	28,663	28,679	971,841	975,969	16,029,604.2
2009	12,868	36,460,864	32,286	32,301	1,074,353	1,078,028	29,855,816.2
ACE Inhibitors							
2000	73	5,279,446	378	378	16,777	20,883	14,454.3
2001	98,830	5,898,196	867,008	871,125	45,405,880	53,496,090	5,074,592.3
2002	106,824	5,954,728	868,058	871,711	48,509,645	57,303,844	5,090,268.7
2003	104,479	5,911,749	781,734	784,743	45,662,183	56,866,061	5,062,998.4
2004	115,931	6,476,841	807,837	810,684	47,489,256	61,583,933	5,043,733.2
2005	122,457	6,298,728	703,088	705,595	44,763,362	48,460,163	5,385,748.2
2006	119,997	6,284,784	662,687	664,628	42,881,133	45,915,880	5,364,270.7
2007	274,590	16,545,332	1,599,917	1,602,702	72,088,617	76,592,822	13,590,492.7
2008	321,993	34,183,907	1,493,248	1,495,337	61,781,537	65,625,861	14,909,931.0
2009	618,452	34,754,243	1,743,943	1,745,521	61,500,475	64,944,018	28,117,655.5

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Valsartan: Recalled							
2010	0	35,765,165	0	0	0	0	29,901,239.7
2011	0	50,405,940	0	0	0	0	43,404,359.6
2012	0	55,657,796	0	0	0	0	43,991,739.4
2013	2,509	52,939,691	11,827	11,828	546,565	548,586	45,936,493.1
2014	3,953	56,423,809	16,836	16,839	805,664	809,241	48,868,846.3
2015	15,391	58,733,185	48,499	48,531	2,158,942	2,238,765	51,155,590.4
2016	33,976	66,270,175	96,597	96,660	4,084,763	4,268,286	53,098,280.1
2017	15,931	38,140,362	43,369	43,380	1,778,592	1,836,783	30,247,609.5
2018	1,485	10,309,237	1,926	1,926	47,443	48,620	2,182,241.5
Valsartan: N-nitrosodimethylamine (NDMA) Positive							
2010	0	35,765,165	0	0	0	0	29,901,239.7
2011	0	50,405,940	0	0	0	0	43,404,359.6
2012	0	55,657,796	0	0	0	0	43,991,739.4
2013	508	52,939,691	2,235	2,235	114,904	115,131	45,936,493.1
2014	792	56,424,089	3,061	3,061	155,642	155,469	48,868,918.0
2015	5,679	58,734,320	19,379	19,380	869,919	881,046	51,156,222.8
2016	15,066	66,273,242	44,887	44,911	1,990,232	1,986,655	53,099,971.9
2017	6,195	38,142,454	17,517	17,524	768,688	768,259	30,248,764.5
2018	598	10,310,184	733	733	18,843	18,781	2,182,370.2

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive							
2010	0	35,765,165	0	0	0	0	29,901,239.7
2011	0	50,405,940	0	0	0	0	43,404,359.6
2012	0	55,657,796	0	0	0	0	43,991,739.4
2013	508	52,939,691	2,235	2,235	114,904	115,131	45,936,493.1
2014	792	56,424,089	3,060	3,060	155,560	155,387	48,868,918.0
2015	3,726	58,734,320	9,924	9,924	435,486	446,738	51,156,222.8
2016	1,198	66,273,451	3,296	3,296	159,405	160,788	53,100,021.5
2017	426	38,143,051	1,049	1,049	58,736	58,811	30,248,998.9
2018	36	10,310,519	42	42	869	869	2,182,410.3
Valsartan: N-nitrosodimethylamine (NDMA) Negative							
2010	13,824	35,765,165	70,203	70,211	2,629,039	2,621,877	29,901,239.7
2011	34,967	50,403,378	212,327	212,354	8,276,235	8,261,343	43,403,411.4
2012	25,539	55,646,449	129,886	129,911	4,980,563	4,965,919	43,985,781.8
2013	17,338	52,918,965	86,730	86,753	3,350,209	3,343,826	45,922,613.7
2014	12,024	56,395,556	44,616	44,626	1,823,539	1,820,305	48,847,483.1
2015	17,085	58,700,104	62,156	62,199	2,704,527	2,714,855	51,129,137.9
2016	15,574	66,235,708	44,731	44,762	1,875,744	1,873,927	53,068,777.6
2017	4,494	38,132,743	12,385	12,392	490,986	490,933	30,240,701.1
2018	416	10,306,061	537	537	14,574	14,582	2,181,781.4

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Valsartan: Other							
2010	78,024	35,765,165	469,306	469,615	17,879,547	18,407,814	29,901,239.7
2011	172,250	50,390,106	1,221,516	1,222,933	47,717,234	50,070,308	43,398,321.5
2012	123,122	55,594,544	797,899	799,146	30,667,019	32,463,516	43,957,716.5
2013	106,189	52,828,715	645,814	646,495	25,519,037	26,849,252	45,860,069.3
2014	87,781	56,270,958	462,451	463,038	19,124,804	20,103,830	48,754,005.0
2015	102,959	58,548,013	475,329	475,919	20,056,974	21,646,372	51,009,351.7
2016	138,181	66,059,920	457,082	457,531	17,899,528	21,018,913	52,925,436.0
2017	47,227	38,079,976	140,968	141,097	5,182,304	6,192,389	30,199,581.8
2018	4,542	10,285,225	6,253	6,254	152,224	182,462	2,178,545.1
ARBs							
2010	170,749	34,963,152	1,349,303	1,350,239	64,479,050	68,542,319	29,077,230.5
2011	522,430	48,294,795	5,189,327	5,194,359	242,489,780	252,436,939	41,206,173.4
2012	560,805	52,851,102	5,339,913	5,345,190	250,142,244	260,329,911	41,347,614.5
2013	580,660	49,765,536	5,014,187	5,019,236	236,796,529	245,756,168	42,730,022.3
2014	586,328	52,401,957	4,421,791	4,427,004	211,111,651	218,349,396	44,867,989.3
2015	594,479	54,129,302	3,696,077	3,700,677	172,330,061	177,499,511	46,615,257.5
2016	624,166	60,851,596	2,515,379	2,518,807	108,431,365	111,159,280	48,023,116.8
2017	248,001	36,306,979	750,787	751,928	31,704,491	32,504,538	28,537,397.0
2018	22,248	9,463,842	31,277	31,300	902,281	910,749	2,036,535.0

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Azilsartan							
2010	0	34,963,152	0	0	0	0	29,077,230.5
2011	1,309	48,317,747	7,438	7,438	254,022	254,385	41,214,397.9
2012	3,917	52,958,545	21,973	21,977	780,624	785,408	41,399,172.5
2013	4,952	49,989,255	27,294	27,297	1,027,452	1,031,108	42,865,946.3
2014	2,915	52,743,641	14,422	14,423	545,755	548,271	45,095,803.5
2015	2,954	54,596,222	12,633	12,634	482,704	487,497	46,943,031.8
2016	4,084	61,446,462	13,511	13,512	473,773	473,365	48,454,242.6
2017	2,140	36,548,959	6,119	6,123	199,003	199,526	28,703,104.6
2018	117	9,542,049	157	157	3,875	3,958	2,049,288.1
Candesartan							
2010	2,242	34,963,152	11,194	11,199	445,633	466,542	29,077,230.5
2011	3,105	48,317,314	14,076	14,111	562,908	582,112	41,214,216.1
2012	2,104	52,957,479	10,175	10,185	437,724	452,085	41,398,465.7
2013	3,433	49,988,362	22,798	22,822	981,010	1,011,290	42,865,181.4
2014	4,463	52,743,340	23,475	23,498	1,042,847	1,103,322	45,095,386.9
2015	3,761	54,595,731	18,574	18,597	790,945	844,951	46,942,712.8
2016	3,294	61,445,693	11,767	11,788	461,886	499,912	48,453,722.4
2017	1,501	36,548,895	4,203	4,213	153,552	168,341	28,702,936.8
2018	124	9,541,956	167	168	4,820	5,415	2,049,262.4
Eprosartan							
2010	39	34,963,152	263	264	11,447	11,537	29,077,230.5
2011	49	48,317,744	278	278	8,515	9,002	41,214,396.5
2012	62	52,958,707	388	388	15,003	15,875	41,399,203.9
2013	61	49,990,103	232	232	10,809	10,479	42,866,357.3
2014	37	52,745,549	132	132	5,451	5,636	45,096,896.2
2015	26	54,598,985	57	57	2,411	2,253	46,944,888.8
2016	21	61,450,040	103	103	3,492	3,403	48,456,793.7
2017	*****	36,550,891	*****	*****	1,336	1,336	28,704,355.4
2018	*****	9,542,599	*****	*****	31	31	2,049,378.4

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Irbesartan							
2010	11,362	34,963,152	52,977	53,010	2,154,259	2,154,955	29,077,230.5
2011	11,842	48,315,860	61,752	61,815	2,628,721	2,634,465	41,213,663.0
2012	13,582	52,954,116	105,059	105,121	4,969,025	4,992,262	41,396,546.4
2013	17,654	49,983,454	139,347	139,464	6,789,947	6,878,600	42,862,102.6
2014	22,063	52,735,933	155,843	155,994	7,642,875	7,719,242	45,090,639.4
2015	20,608	54,585,148	126,567	126,697	5,979,249	6,038,327	46,935,463.8
2016	21,483	61,431,778	87,652	87,759	3,781,212	3,811,319	48,443,826.1
2017	7,557	36,543,835	24,748	24,796	984,772	993,581	28,699,430.5
2018	683	9,539,775	942	942	24,288	24,228	2,048,967.9
Losartan							
2010	98,787	34,963,152	915,080	915,802	47,610,126	51,533,898	29,077,230.5
2011	420,043	48,306,754	4,433,841	4,438,414	212,047,585	221,706,485	41,210,738.9
2012	476,255	52,886,558	4,690,491	4,695,382	223,361,732	233,212,029	41,367,106.9
2013	489,483	49,820,928	4,332,037	4,336,547	207,583,586	216,229,752	42,765,815.7
2014	503,793	52,474,313	3,864,474	3,869,199	186,282,480	193,251,646	44,917,079.8
2015	528,072	54,219,840	3,308,164	3,312,407	155,243,164	160,252,728	46,679,478.1
2016	570,918	60,958,178	2,299,895	2,303,079	99,562,229	102,225,697	48,101,345.2
2017	227,695	36,344,323	685,521	686,541	29,227,987	30,000,105	28,564,238.3
2018	20,460	9,475,413	28,725	28,747	835,455	843,263	2,038,397.0
Olmesartan							
2010	47,177	34,963,152	233,640	233,756	8,617,102	8,607,328	29,077,230.5
2011	71,432	48,310,086	427,894	428,059	16,427,979	16,439,888	41,211,494.1
2012	57,570	52,935,124	349,753	349,929	13,360,985	13,432,602	41,386,338.7
2013	62,215	49,952,350	364,999	365,171	14,498,697	14,497,109	42,842,151.9
2014	50,918	52,695,939	265,428	265,619	10,887,995	10,909,897	45,063,254.9
2015	38,825	54,537,476	176,452	176,559	7,242,233	7,240,888	46,901,272.8
2016	25,648	61,378,704	82,717	82,788	3,201,676	3,196,696	48,404,396.5
2017	9,131	36,527,028	26,033	26,076	962,191	963,670	28,687,093.9
2018	810	9,535,622	1,126	1,126	28,475	28,481	2,048,293.3

Table 2b. Summary of Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Use in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

	New Users	Eligible Members	Adjusted Dispensings	Raw Dispensings	Days Supplied	Amount Supplied	Eligible Member-Years[1]
Post-Contamination (January 1, 2010 to June 30, 2018)							
Telmisartan							
2010	11,175	34,963,152	53,712	53,719	1,994,575	2,015,951	29,077,230.5
2011	15,195	48,315,765	76,236	76,281	2,920,271	2,932,594	41,213,649.7
2012	9,523	52,952,877	46,371	46,389	1,823,948	1,844,245	41,396,045.0
2013	7,193	49,981,474	34,374	34,480	1,384,972	1,395,534	42,860,574.5
2014	7,894	52,735,591	41,096	41,156	1,762,313	1,768,317	45,089,879.6
2015	7,065	54,587,584	33,900	33,947	1,496,270	1,512,838	46,936,473.8
2016	6,534	61,437,104	23,081	23,110	960,881	966,338	48,447,166.3
2017	2,349	36,546,632	6,914	6,926	268,882	271,079	28,701,290.4
2018	234	9,541,366	330	330	8,772	8,794	2,049,128.8
ACE Inhibitors							
2010	606,817	33,538,638	3,766,723	3,770,918	169,590,289	182,306,126	27,525,114.5
2011	1,250,437	44,390,375	8,887,300	8,901,780	392,106,956	426,401,134	37,123,591.4
2012	1,154,399	48,533,429	7,950,029	7,962,174	353,883,110	383,117,751	37,248,926.9
2013	1,126,703	45,652,381	7,376,966	7,387,579	331,320,129	356,977,729	38,608,714.9
2014	1,100,165	48,139,869	6,698,475	6,708,863	298,370,419	319,900,604	40,629,716.5
2015	1,032,754	49,814,188	5,320,527	5,328,731	234,713,938	249,661,891	42,398,314.2
2016	1,007,035	56,348,570	3,627,119	3,632,497	151,918,929	162,934,236	43,874,837.4
2017	392,877	34,571,439	1,097,024	1,098,502	44,968,827	46,751,095	26,987,831.6
2018	33,495	8,827,618	46,691	46,732	1,372,922	1,401,129	1,923,163.6

[1]Eligible Members and Member-Years are reflective of the number of patients that met all cohort entry criteria on a least one day during the query period

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

Table 3a. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

		Category of Follow-Up Time					Descriptive Statistics of Follow-Up Time						
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years	Minimum	Q1	Median	Q3	Maximum	Mean	Standard Deviation
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]													
Valsartan: Recalled	-	-	-	-	-	-	-	-	-	-	-	-	-
Valsartan: N-nitrosodimethylamine	-	-	-	-	-	-	-	-	-	-	-	-	-
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	-	-	-	-	-	-	-	-	-	-	-	-	-
Valsartan: N-nitrosodimethylamine (NDMA) Negative	29,475	18,897	6,642	3,548	313	75	1	134	280	524	2,139	361.00	304.46
Valsartan: Other	247,468	120,028	57,824	40,954	17,491	11,171	1	185	387	787	3,287	568.82	551.00
ARBs	469,903	194,752	98,405	71,807	55,436	49,503	1	219	505	1,030	3,288	753.88	732.18
Azilsartan	0	0	0	0	0	0	-	-	-	-	-	-	-
Candesartan	13,218	5,493	3,006	2,598	1,447	674	1	225	496	940	3,285	664.31	605.34
Eprosartan	563	143	111	160	91	58	3	362	809	1,133	3,153	892.84	657.50
Irbesartan	56,077	24,111	12,728	9,168	5,275	4,795	1	212	466	932	3,286	691.91	682.07
Losartan	266,329	83,000	52,030	42,673	45,864	42,762	1	291	717	1,405	3,288	949.48	812.76
Olmesartan	104,644	66,373	23,691	12,430	1,505	645	1	142	286	532	2,786	375.60	330.30
Telmisartan	31,033	16,445	7,382	5,050	1,494	662	1	173	344	701	3,270	489.57	452.61
ACE Inhibitors	1,883,626	811,997	368,534	252,075	237,561	213,459	1	205	477	1,066	3,288	761.95	757.22

Table 3a. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period

		Category of Follow-Up Time					Descriptive Statistics of Follow-Up Time						
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years	Minimum	Q1	Median	Q3	Maximum	Mean	Standard Deviation
Post-Contamination (January 1, 2010 to June 30, 2018)[2]													
Valsartan: Recalled	73,192	44,662	19,910	5,940	2,680	0	1	123	286	513	1,803	363.54	312.76
Valsartan: N-nitrosodimethylamine	28,814	19,001	7,516	1,711	586	0	1	111	257	465	1,769	325.09	278.57
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive	6,684	1,924	2,946	1,229	585	0	1	323	550	779	1,769	583.15	353.94
Valsartan: N-nitrosodimethylamine (NDMA) Negative	141,171	34,600	27,902	19,330	34,166	25,173	1	375	885	1,617	3,021	1,022.34	730.35
Valsartan: Other	860,079	258,996	169,039	120,555	187,327	124,162	1	301	735	1,442	3,069	917.90	716.94
ARBs	3,909,866	1,116,967	824,568	646,492	891,668	430,171	1	317	738	1,346	3,102	881.41	664.44
Azilsartan	22,388	7,259	5,069	3,535	5,278	1,247	1	275	643	1,211	2,557	774.16	583.42
Candesartan	24,027	6,846	5,181	4,426	5,222	2,352	1	318	728	1,269	3,062	866.83	661.56
Eprosartan	310	77	51	41	93	48	7	383	1,026	1,608	2,874	1,042.15	724.97
Irbesartan	126,834	36,625	27,666	22,972	27,848	11,723	1	319	719	1,265	3,011	859.39	656.68
Losartan	3,335,506	981,787	713,822	546,227	746,010	347,660	1	306	714	1,320	3,102	862.24	656.05
Olmesartan	363,726	79,260	67,969	63,980	96,606	55,911	1	426	933	1,511	3,069	1,025.82	702.35
Telmisartan	67,162	16,134	12,920	10,726	15,317	12,065	1	384	895	1,594	3,071	1,027.83	738.93
ACE Inhibitors	7,704,682	2,167,474	1,583,909	1,242,927	1,733,135	977,237	1	322	758	1,391	3,103	911.31	693.94

[1]Follow-up time is truncated at whichever occurs first: disenrollment, evidence of death, or query end date (December 31, 2009)

[2]Follow-up time is truncated at whichever occurs first: disenrollment, evidence of death, or Data Partner end date (See Appendix A)

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]						
Valsartan: Recalled						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
Valsartan: N-nitrosodimethylamine (NDMA) Positive						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]						
Valsartan: N-nitrosodimethylamine (NDMA) Negative						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	381	61	195	14	36	75
2005	412	270	15	20	107	0
2006	286	55	35	42	154	0
2007	5,328	980	884	3,448	16	0
2008	7,124	*****	*****	24	0	0
2009	15,944	*****	*****	0	0	0
Valsartan: Other						
2000	0	0	0	0	0	0
2001	7,692	788	785	604	3,764	1,751
2002	11,742	1,463	1,031	1,625	5,144	2,479
2003	17,467	1,678	3,176	7,918	1,305	3,390
2004	16,790	2,660	8,178	1,023	*****	*****
2005	9,694	5,211	801	563	*****	*****
2006	4,652	856	635	504	2,657	0
2007	43,959	7,727	7,524	28,584	124	0
2008	45,785	9,989	35,663	133	0	0
2009	89,687	89,656	31	0	0	0
ARBs						
2000	*****	*****	*****	*****	*****	*****
2001	19,888	1,806	1,824	1,377	4,886	9,995
2002	25,215	2,520	2,001	2,169	6,100	12,425
2003	28,420	2,676	2,758	6,037	2,879	14,070
2004	25,403	2,771	5,497	1,718	2,413	13,004
2005	*****	*****	*****	*****	*****	*****
2006	27,302	2,834	2,040	1,841	20,587	0
2007	79,200	11,501	10,736	56,773	190	0
2008	87,666	16,079	71,301	286	0	0
2009	149,299	149,236	63	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]						
Azilsartan						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	0	0	0	0	0	0
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	0	0	0	0	0	0
Candesartan						
2000	0	0	0	0	0	0
2001	1,021	99	99	88	546	189
2002	1,085	128	87	133	532	205
2003	830	89	98	389	73	181
2004	373	64	140	32	38	99
2005	315	156	21	20	118	0
2006	229	43	28	*****	*****	0
2007	2,960	548	502	*****	*****	0
2008	2,609	*****	*****	*****	0	0
2009	3,796	*****	*****	0	0	0
Eprosartan						
2000	0	0	0	0	0	0
2001	38	*****	*****	*****	22	*****
2002	79	*****	*****	12	37	15
2003	169	19	19	90	11	30
2004	63	12	36	*****	*****	*****
2005	45	31	*****	*****	*****	0
2006	*****	*****	*****	*****	*****	*****
2007	*****	*****	*****	*****	*****	*****
2008	42	*****	31	*****	0	0
2009	52	52	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]						
Irbesartan						
2000	*****	0	0	0	*****	*****
2001	*****	387	345	274	*****	*****
2002	3,404	473	379	336	976	1,240
2003	3,684	458	447	1,042	482	1,255
2004	2,859	383	640	370	323	1,143
2005	2,509	693	376	181	*****	*****
2006	2,296	468	215	188	1,425	0
2007	10,035	1,675	1,599	6,742	19	0
2008	11,020	*****	*****	35	0	0
2009	17,316	*****	*****	0	0	0
Losartan						
2000	*****	*****	*****	0	0	*****
2001	*****	*****	*****	978	3,191	*****
2002	19,416	1,773	1,410	1,505	3,938	10,790
2003	21,333	1,828	1,866	3,357	2,150	12,132
2004	20,400	1,979	4,070	1,207	1,886	11,258
2005	22,861	3,696	1,621	1,257	16,284	*****
2006	23,527	2,100	1,635	1,495	18,297	0
2007	42,296	4,964	4,489	32,725	118	0
2008	41,827	6,067	35,611	149	0	0
2009	59,337	59,324	13	0	0	0
Olmesartan						
2000	0	0	0	0	0	0
2001	0	0	0	0	0	0
2002	482	47	50	83	241	61
2003	1,607	184	252	779	106	286
2004	1,321	284	535	87	117	298
2005	1,448	710	131	115	492	0
2006	924	178	127	101	518	0
2007	17,336	3,103	3,010	11,192	31	0
2008	25,125	5,500	19,552	73	0	0
2009	56,401	56,367	34	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Pre-Contamination (January 1, 2000 to December 31, 2009)[1]						
Telmisartan						
2000	0	0	0	0	0	0
2001	572	50	66	36	343	77
2002	805	102	72	108	398	125
2003	916	104	92	442	65	213
2004	670	99	237	26	61	247
2005	572	209	43	39	281	0
2006	518	74	61	50	333	0
2007	6,741	1,225	1,173	4,330	13	0
2008	7,371	*****	*****	19	0	0
2009	12,868	*****	*****	0	0	0
ACE Inhibitors						
2000	73	25	*****	*****	*****	27
2001	98,830	10,653	*****	*****	*****	47,321
2002	106,824	12,409	9,342	9,062	23,558	52,453
2003	104,479	11,414	10,256	17,829	11,574	53,406
2004	115,931	13,948	21,275	8,669	11,831	60,208
2005	122,457	24,245	10,500	7,940	79,728	44
2006	119,997	14,032	10,826	8,662	86,477	0
2007	274,590	43,648	38,600	191,660	682	0
2008	321,993	63,440	257,829	724	0	0
2009	618,452	618,183	269	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Post-Contamination (January 1, 2010 to June 30, 2018)[2]						
Valsartan: Recalled						
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	2,508	325	234	190	1,759	0
2014	3,952	491	356	2,324	781	0
2015	15,386	1,887	10,291	3,068	140	0
2016	33,948	25,524	8,066	358	0	0
2017	15,913	14,950	963	0	0	0
2018	1,485	1,485	0	0	0	0
Valsartan: N-nitrosodimethylamine (NDMA) Positive						
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	508	52	45	42	369	0
2014	792	109	73	443	167	0
2015	5,676	691	3,867	1,068	50	0
2016	15,051	11,760	3,133	158	0	0
2017	6,189	5,791	398	0	0	0
2018	598	598	0	0	0	0
Valsartan: N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) Positive						
2010	0	0	0	0	0	0
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	508	52	45	42	369	0
2014	792	109	73	443	167	0
2015	3,725	463	2,492	721	49	0
2016	1,198	878	297	23	0	0
2017	425	386	39	0	0	0
2018	36	36	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Post-Contamination (January 1, 2010 to June 30, 2018)[2]						
Valsartan: N-nitrosodimethylamine (NDMA) Negative						
2010	13,820	3,476	2,339	1,432	2,339	4,234
2011	34,957	4,698	3,648	3,429	5,339	17,843
2012	25,524	3,547	2,991	2,602	13,488	2,896
2013	17,325	2,610	2,137	1,499	10,879	200
2014	12,010	1,865	1,317	6,908	1,920	0
2015	17,074	2,225	11,561	3,087	201	0
2016	15,554	11,565	3,616	373	0	0
2017	4,491	4,198	293	0	0	0
2018	416	416	0	0	0	0
Valsartan: Other						
2010	78,019	18,754	13,033	8,425	13,353	24,454
2011	172,232	23,864	18,752	17,223	26,679	85,714
2012	123,106	17,336	15,349	12,790	64,822	12,809
2013	106,156	16,502	12,751	9,589	66,129	1,185
2014	87,748	13,687	9,478	49,956	14,627	0
2015	102,922	14,349	66,426	20,430	1,717	0
2016	138,137	105,603	30,392	2,142	0	0
2017	47,217	44,359	2,858	0	0	0
2018	4,542	4,542	0	0	0	0
ARBs						
2010	170,749	35,424	25,968	17,035	27,594	64,728
2011	522,430	68,909	53,970	51,100	74,338	274,113
2012	560,805	73,356	65,964	52,505	285,569	83,411
2013	580,660	83,881	64,255	48,924	375,681	7,919
2014	586,328	83,231	59,588	325,523	117,986	0
2015	594,479	79,329	366,654	137,996	10,500	0
2016	624,166	438,524	172,233	13,409	0	0
2017	248,001	232,065	15,936	0	0	0
2018	22,248	22,248	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Post-Contamination (January 1, 2010 to June 30, 2018)[2]						
Azilsartan						
2010	0	0	0	0	0	0
2011	1,309	285	211	202	187	424
2012	3,917	694	668	412	1,400	743
2013	4,952	866	587	428	2,991	80
2014	2,915	434	282	1,530	669	0
2015	2,954	422	1,650	851	31	0
2016	4,084	2,392	1,580	112	0	0
2017	2,140	2,049	91	0	0	0
2018	117	117	0	0	0	0
Candesartan						
2010	2,242	566	413	205	393	665
2011	3,105	510	376	301	522	1,396
2012	2,104	341	291	231	981	260
2013	3,433	508	359	300	2,235	31
2014	4,463	672	496	2,323	972	0
2015	3,761	607	2,063	972	119	0
2016	3,294	2,132	1,068	94	0	0
2017	1,501	1,386	115	0	0	0
2018	124	124	0	0	0	0
Eprosartan						
2010	39	*****	*****	*****	*****	*****
2011	49	*****	*****	*****	*****	24
2012	62	*****	*****	*****	38	10
2013	61	14	*****	*****	34	*****
2014	37	*****	*****	16	*****	0
2015	26	*****	16	*****	*****	0
2016	21	15	*****	*****	0	0
2017	14	14	0	0	0	0
2018	*****	*****	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Post-Contamination (January 1, 2010 to June 30, 2018)[2]						
Irbesartan						
2010	11,362	2,667	1,742	1,181	1,906	3,866
2011	11,842	1,579	1,293	1,130	1,764	6,076
2012	13,582	1,618	1,426	1,248	7,739	1,551
2013	17,654	2,341	1,804	1,467	11,812	230
2014	22,063	2,929	2,128	12,776	4,230	0
2015	20,608	2,568	12,966	4,677	397	0
2016	21,483	15,160	5,830	493	0	0
2017	7,557	7,080	477	0	0	0
2018	683	683	0	0	0	0
Losartan						
2010	98,787	18,431	13,576	9,425	15,017	42,338
2011	420,043	53,540	42,560	39,660	59,408	224,875
2012	476,255	61,299	54,677	43,979	242,550	73,750
2013	489,483	70,488	54,323	41,136	316,839	6,697
2014	503,793	71,841	51,501	277,556	102,895	0
2015	528,072	70,660	325,802	122,309	9,301	0
2016	570,918	402,069	156,687	12,162	0	0
2017	227,695	212,999	14,696	0	0	0
2018	20,460	20,460	0	0	0	0
Olmesartan						
2010	47,177	11,058	8,229	5,001	8,288	14,601
2011	71,432	10,942	7,970	8,299	10,312	33,909
2012	57,570	8,488	8,041	5,954	28,557	6,530
2013	62,215	9,262	6,928	5,327	39,827	871
2014	50,918	7,069	4,986	29,831	9,032	0
2015	38,825	4,966	24,225	9,044	590	0
2016	25,648	18,073	7,051	524	0	0
2017	9,131	8,592	539	0	0	0
2018	810	810	0	0	0	0

Table 3b. Summary of Follow-Up Time for Valsartan, Angiotensin II Receptor Blockers (ARBs), and Angiotensin-Converting Enzyme (ACE) Inhibitor Users in the Sentinel Distributed Database (SDD) from January 1, 2000 to June 30, 2018, by Pre-Contamination and Post-Contamination Time Period and Year

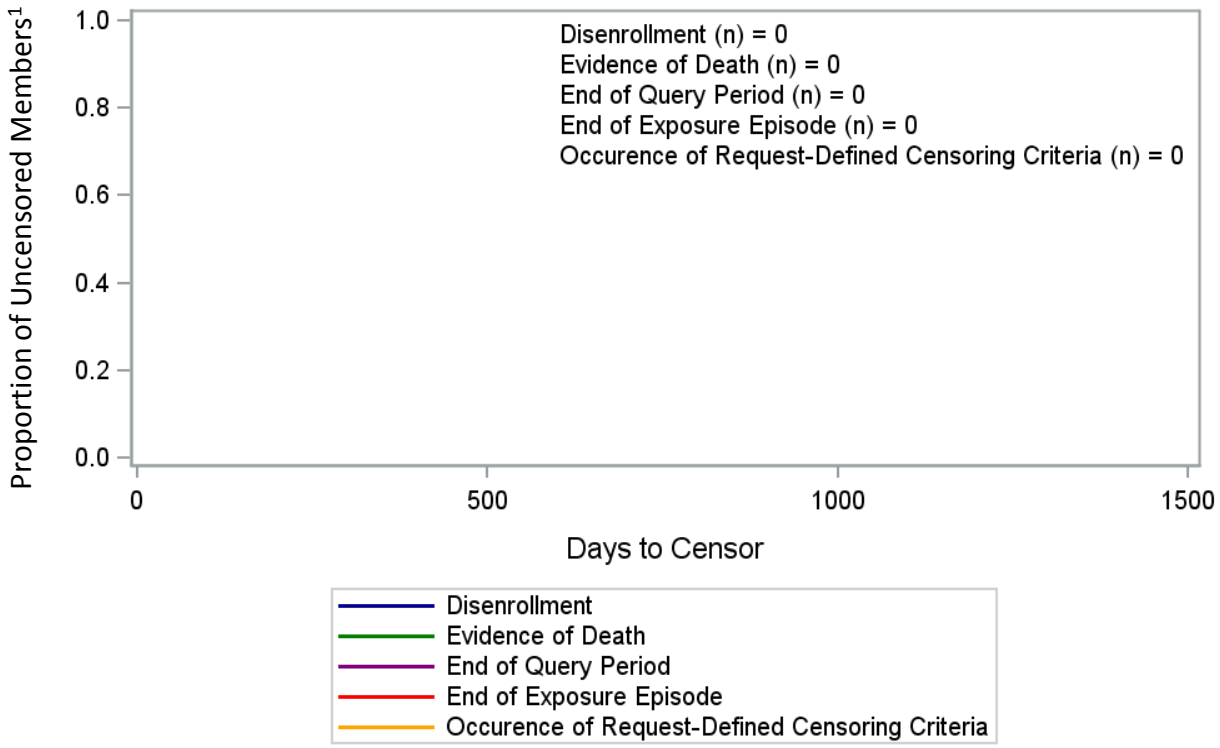
		Category of Follow-Up Time				
	Number of Members	< 1 Year	1 - < 2 Years	2 - < 3 Years	3 - < 5 Years	5+ Years
Post-Contamination (January 1, 2010 to June 30, 2018)[2]						
Telmisartan						
2010	11,175	2,700	2,007	1,221	1,993	3,254
2011	15,195	2,134	1,633	1,571	2,229	7,628
2012	9,523	1,251	1,192	902	5,067	1,111
2013	7,193	1,126	782	624	4,589	72
2014	7,894	1,091	821	4,691	1,291	0
2015	7,065	953	4,412	1,552	148	0
2016	6,534	4,485	1,884	165	0	0
2017	2,349	2,160	189	0	0	0
2018	234	234	0	0	0	0
ACE Inhibitors						
2010	606,817	140,992	95,243	62,193	97,384	211,005
2011	1,250,437	204,634	144,660	130,090	183,753	587,300
2012	1,154,399	184,991	149,860	117,155	538,526	163,867
2013	1,126,703	195,909	141,294	103,751	670,684	15,065
2014	1,100,165	190,099	127,954	557,918	224,194	0
2015	1,032,754	169,699	594,487	249,974	18,594	0
2016	1,007,035	679,951	305,238	21,846	0	0
2017	392,877	367,704	25,173	0	0	0
2018	33,495	33,495	0	0	0	0

[1]Follow-up time is truncated at whichever occurs first: disenrollment, evidence of death, or query end date (December 31, 2009)

[2]Follow-up time is truncated at whichever occurs first: disenrollment, evidence of death, or Data Partner end date (See Appendix A)

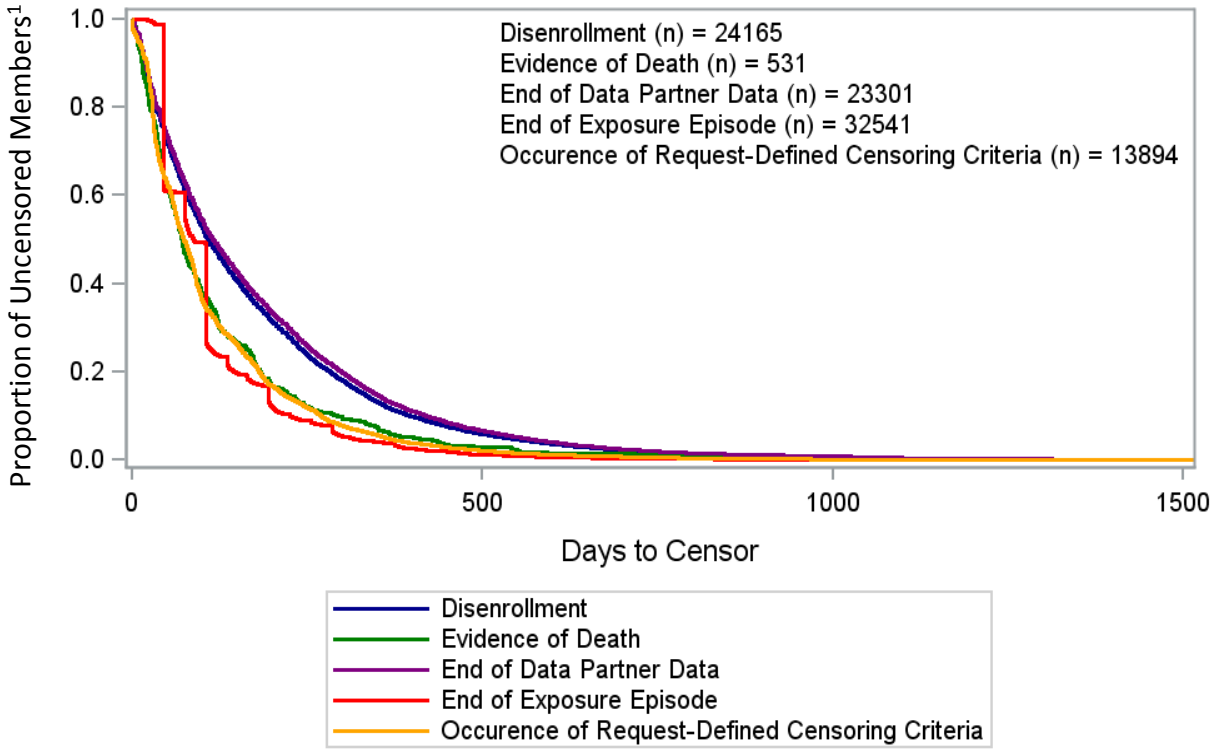
*****Data are not presented in these cells due to a small sample size or to assure a small cell cannot be recalculated through the cells presented.

Figure 1a. Time to Censor for All Recalled Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



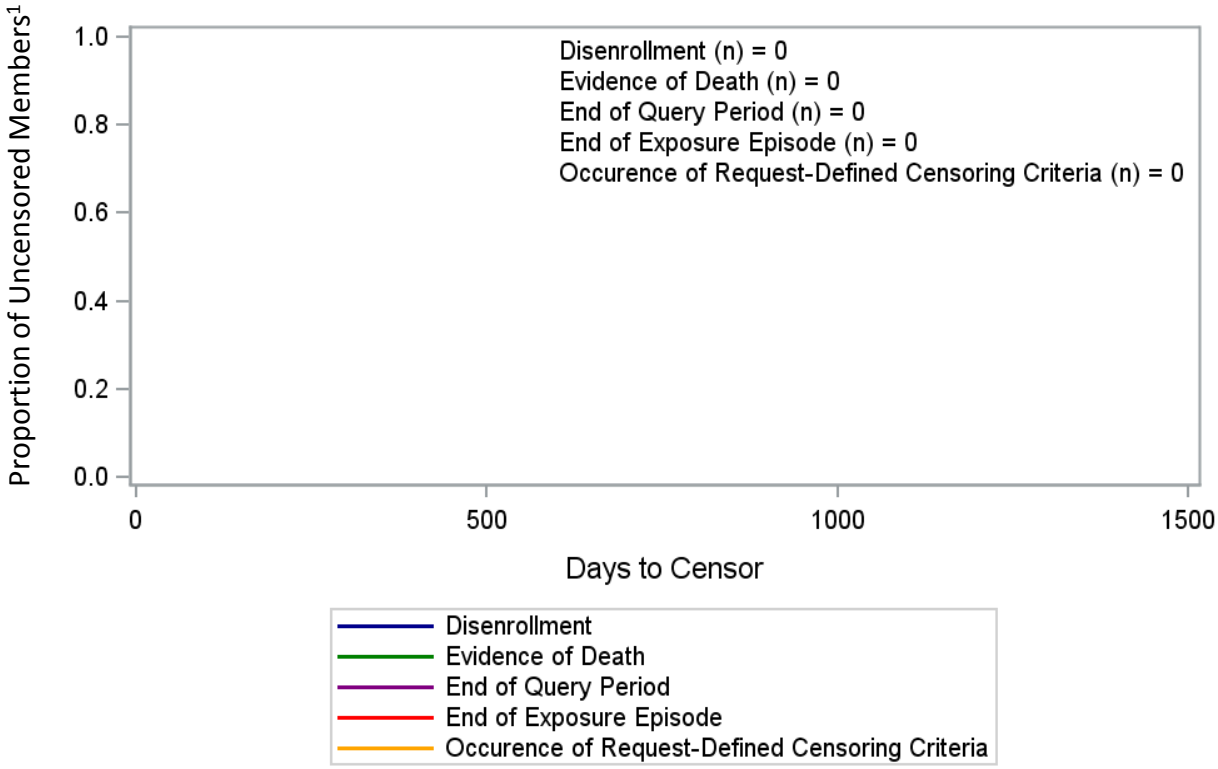
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 1b. Time to Censor for All Recalled Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



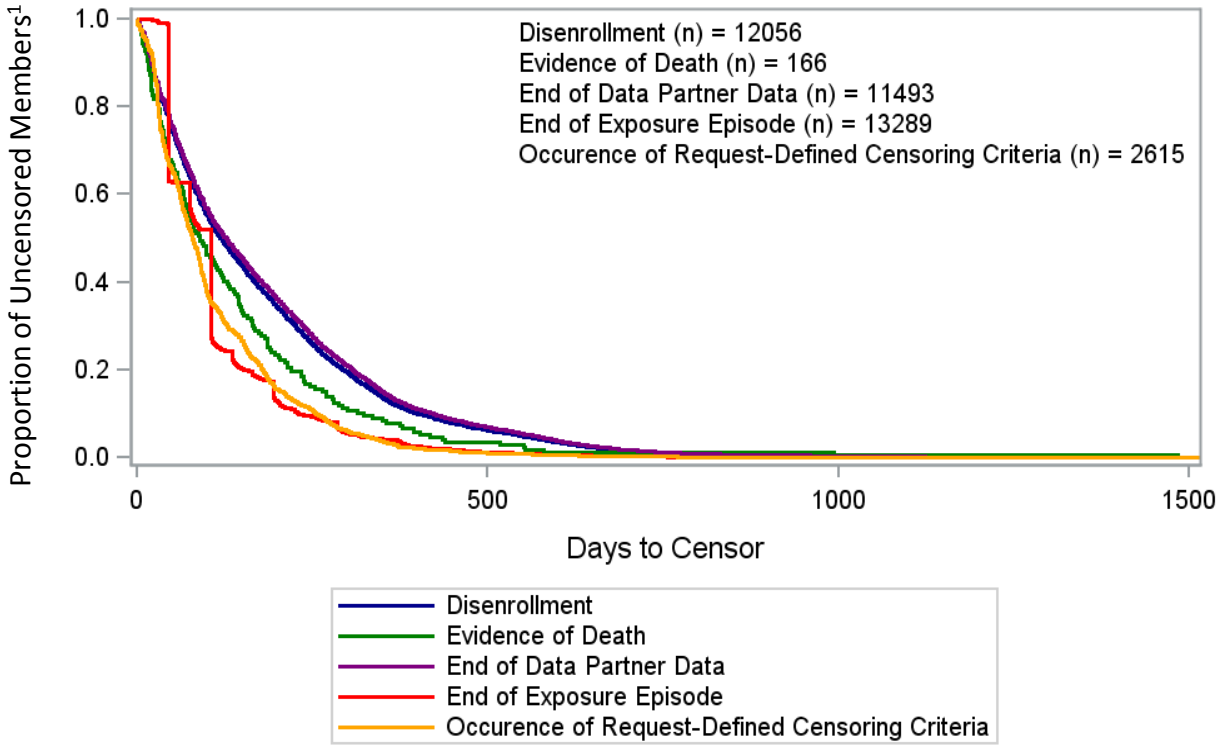
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 2a. Time to Censor for N-nitrosodimethylamine (NDMA)-Positive Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



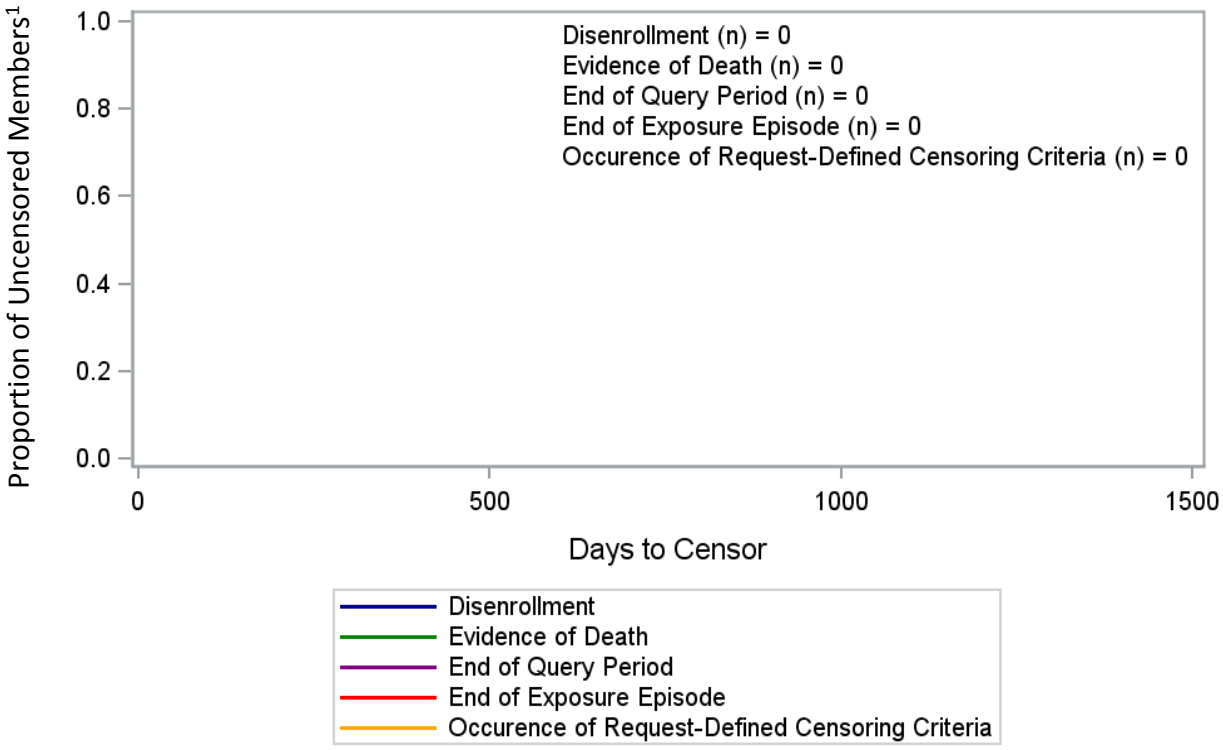
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 2b. Time to Censor for N-nitrosodimethylamine (NDMA)-Positive Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



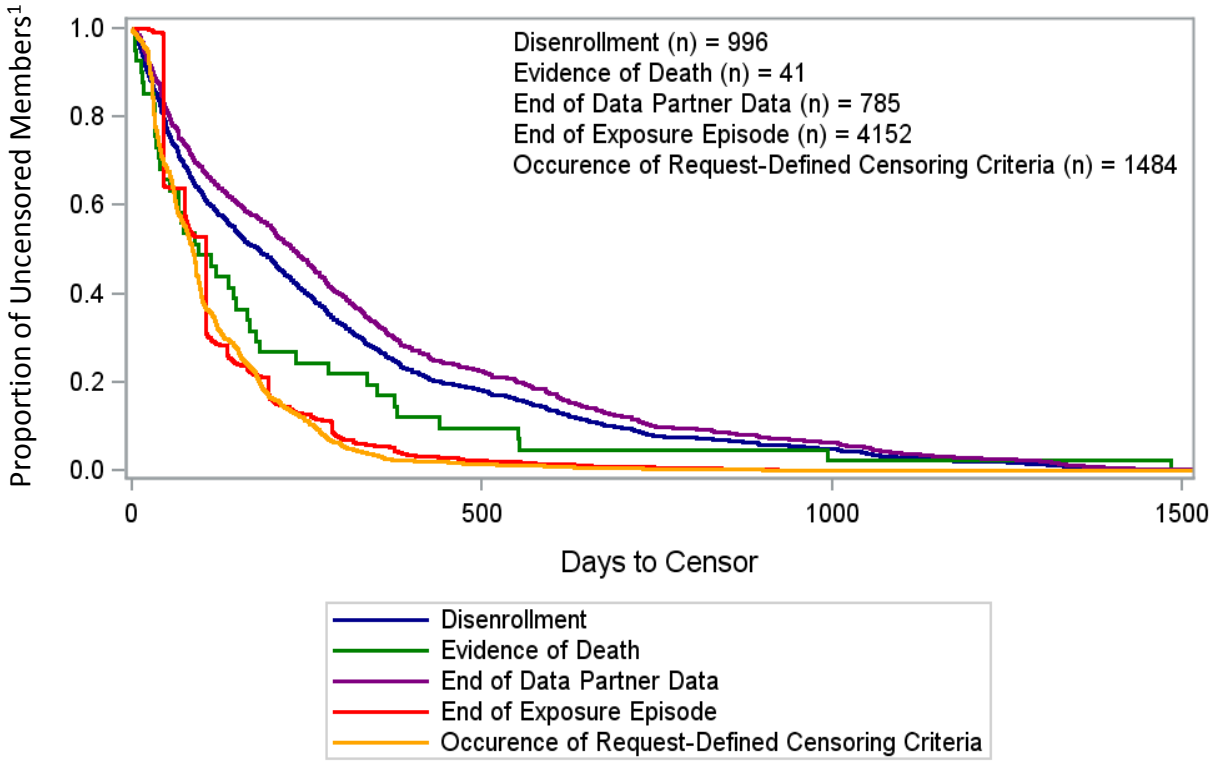
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 3a. Time to Censor for N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA)-Positive Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



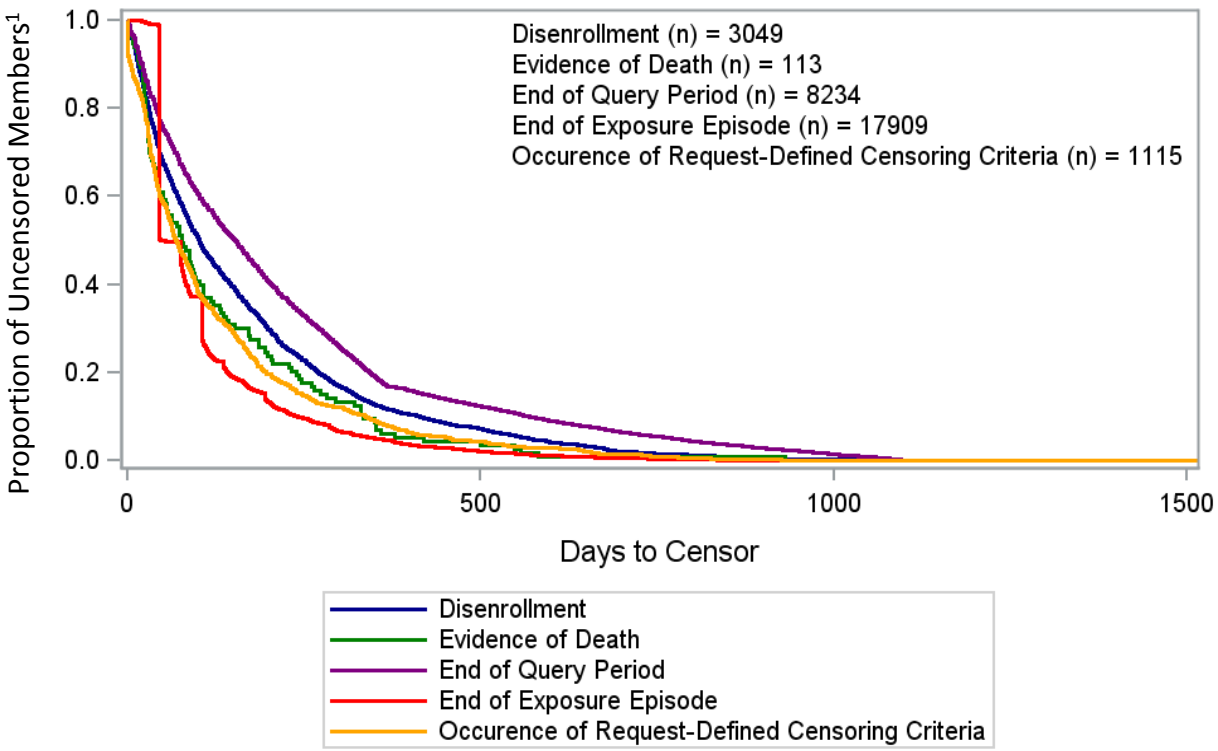
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 3b. Time to Censor for N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA)-Positive Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



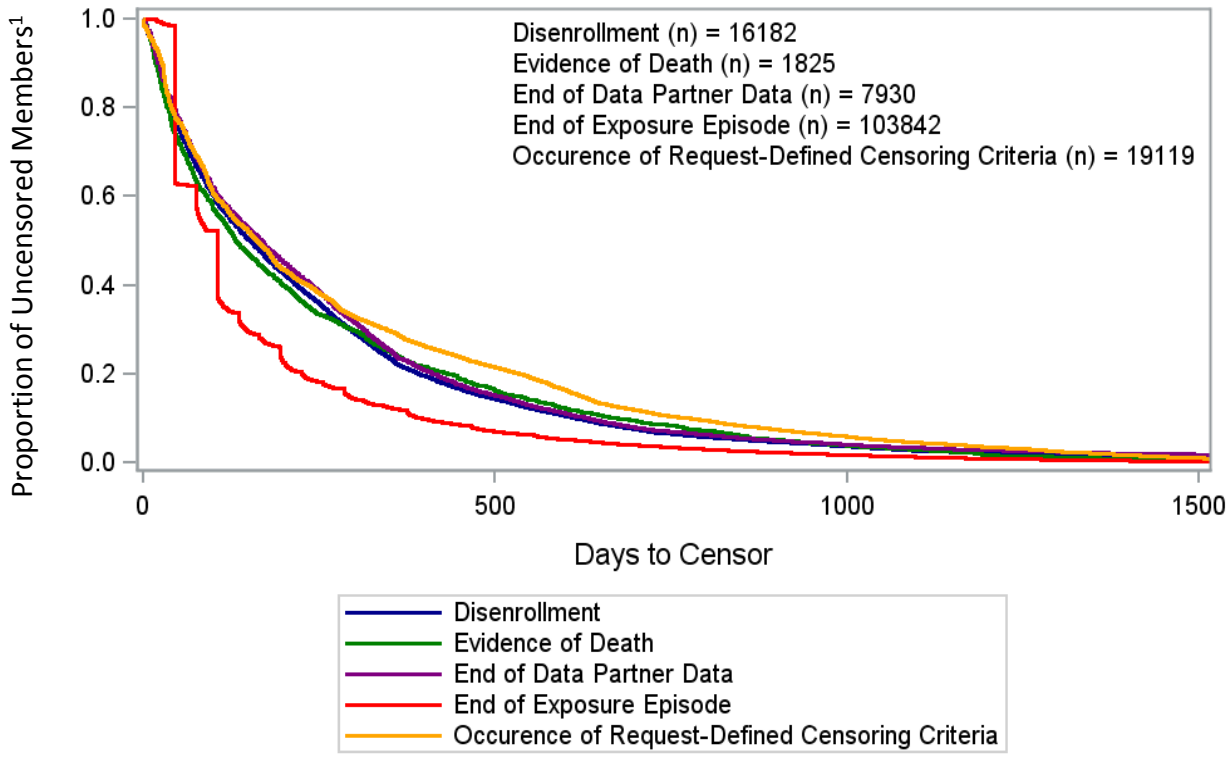
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 4a. Time to Censor for N-nitrosodimethylamine (NDMA)-Negative Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



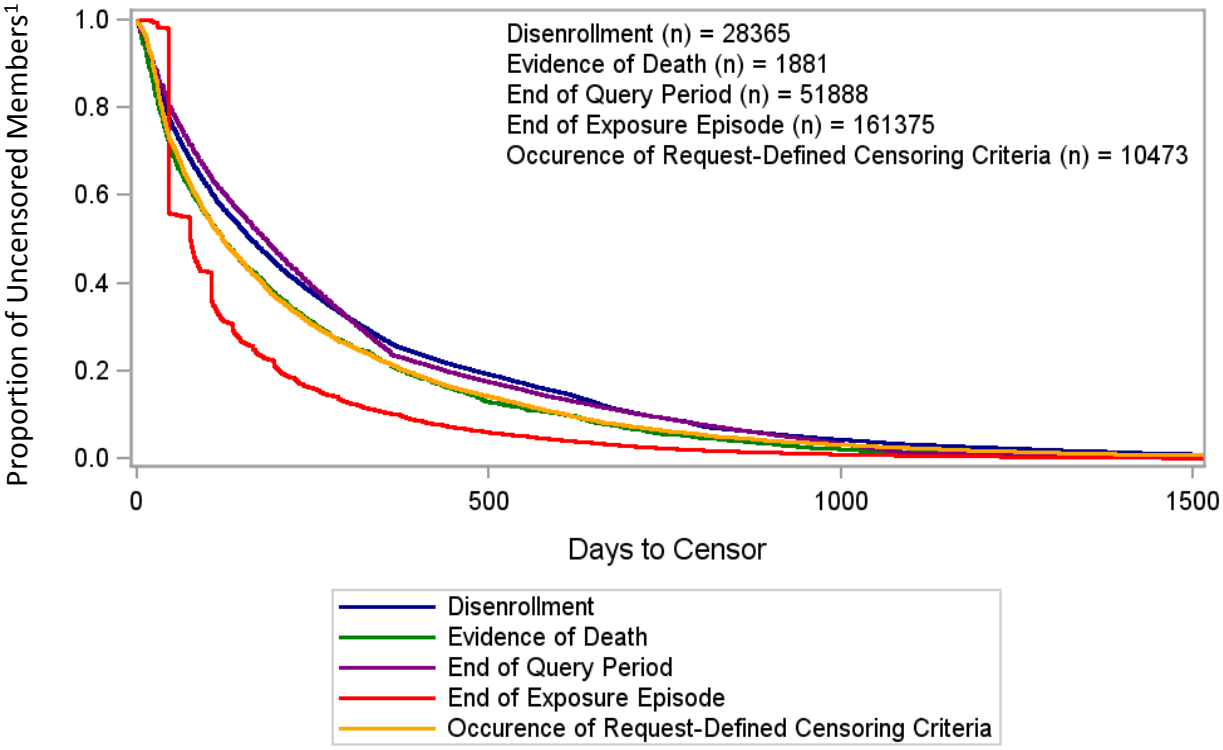
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 4b. Time to Censor for N-nitrosodimethylamine (NDMA)-Negative Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



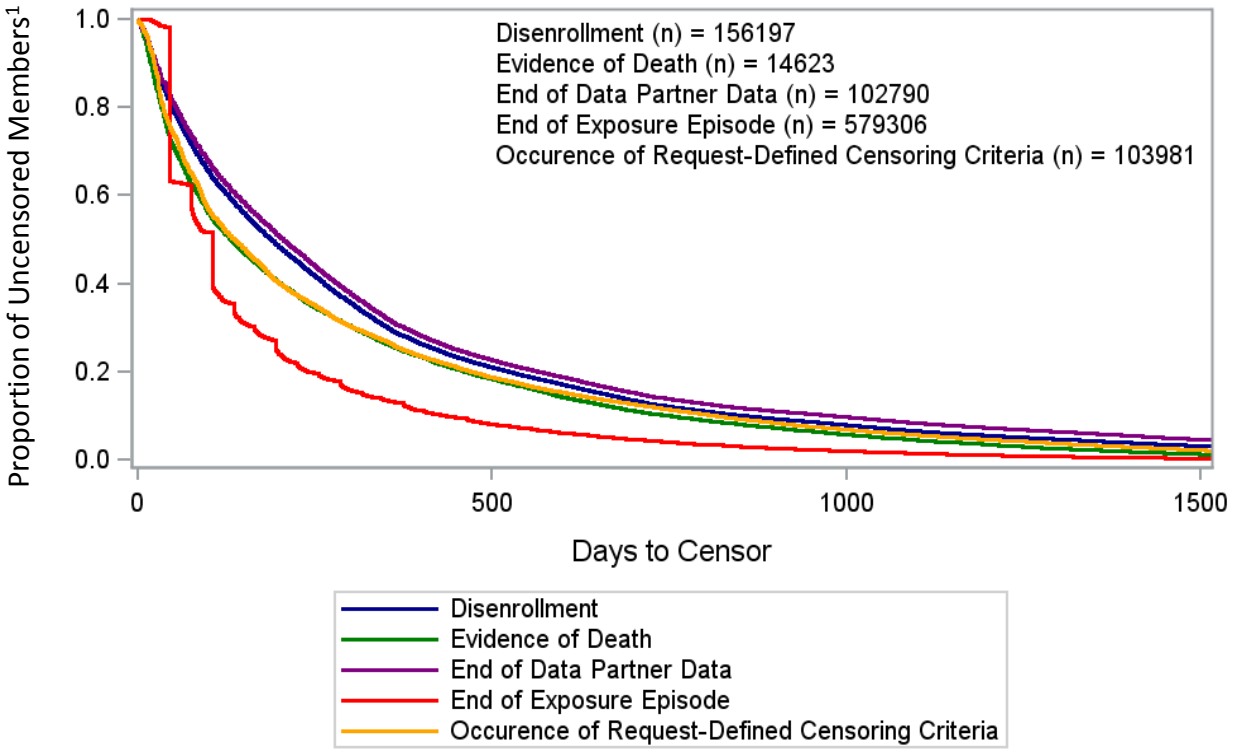
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 5a. Time to Censor for other Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



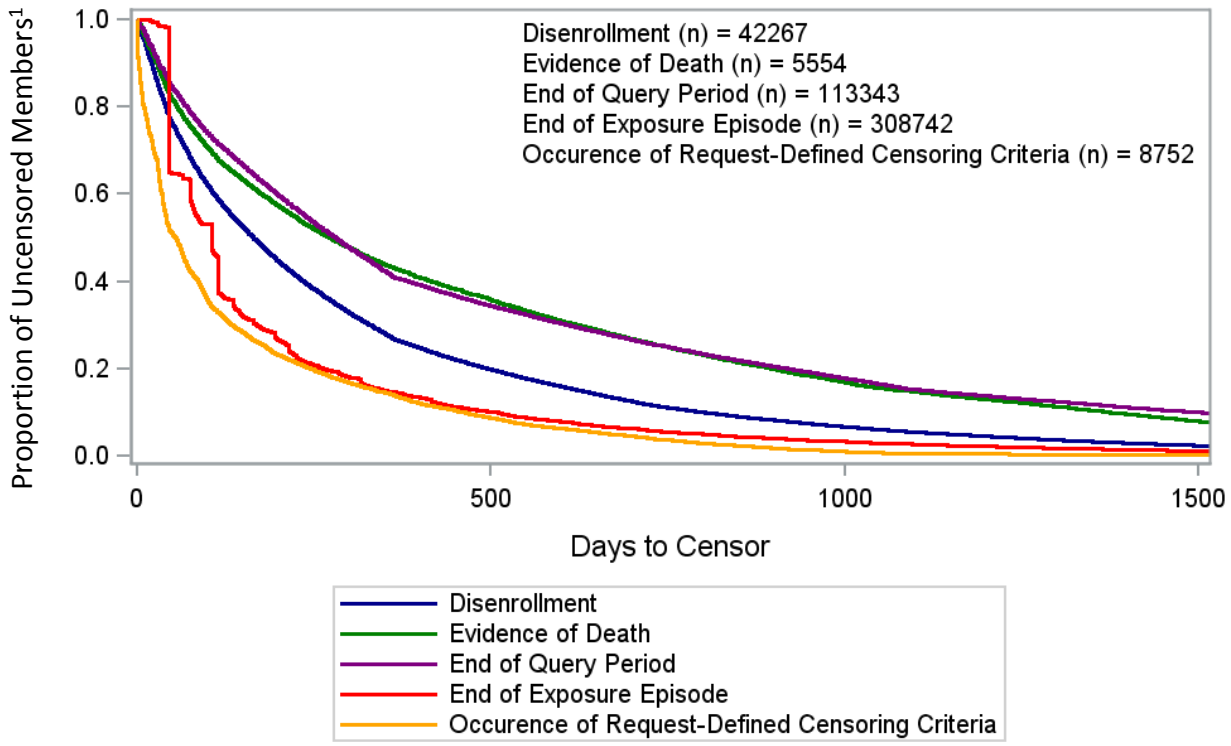
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 5b. Time to Censor for other Valsartan Product Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



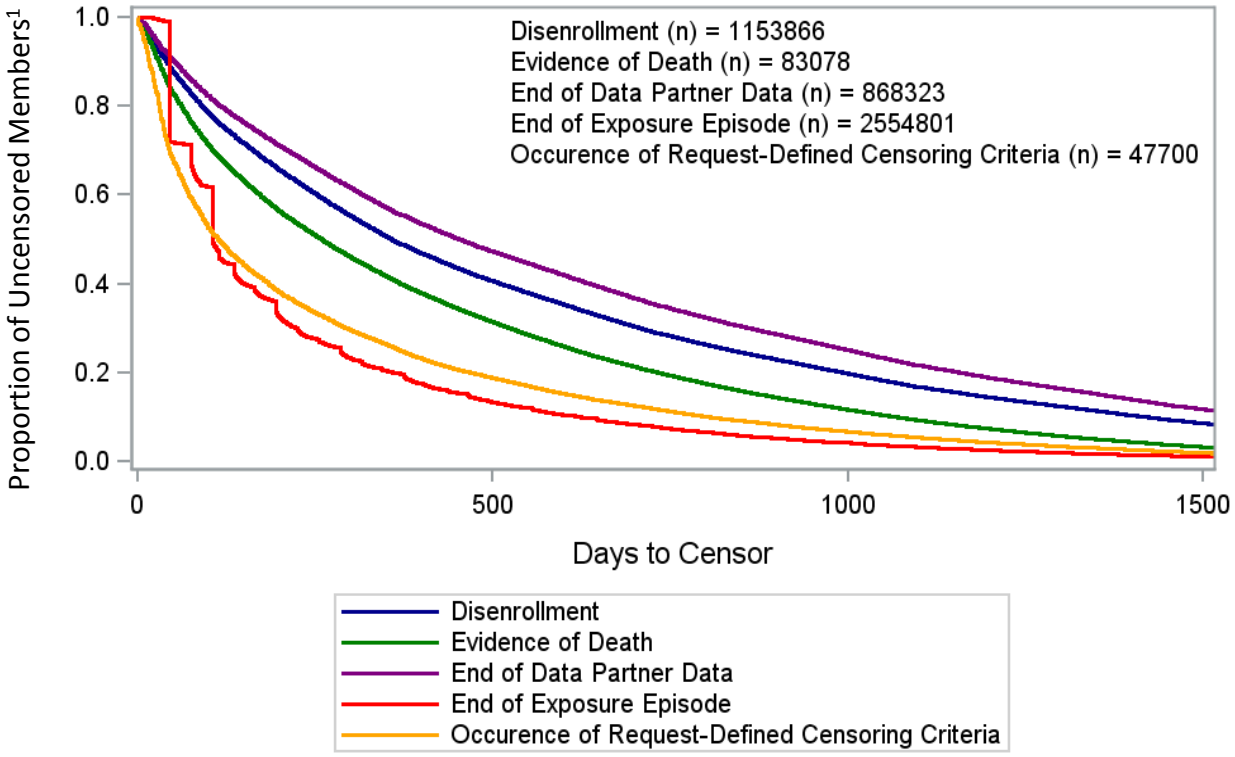
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 6a. Time to Censor for Angiotensin II Receptor Blocker (ARB) Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



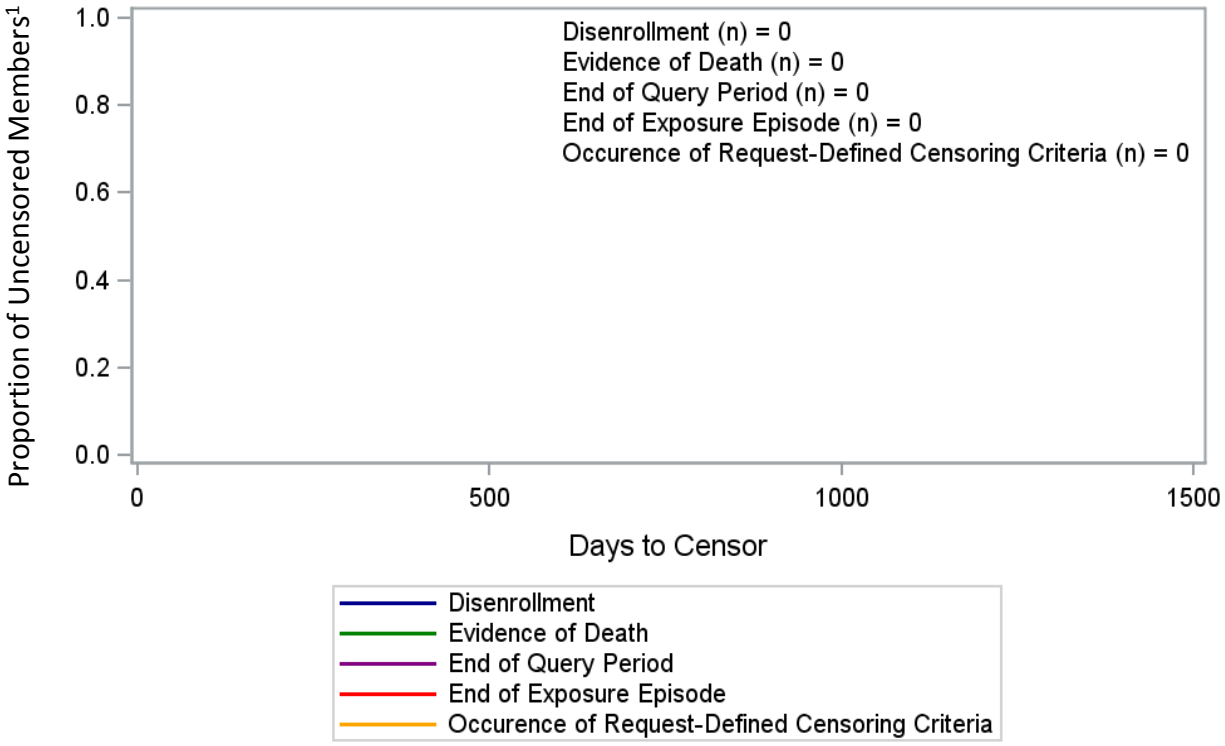
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 6b. Time to Censor for Angiotensin II Receptor Blocker (ARB) Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



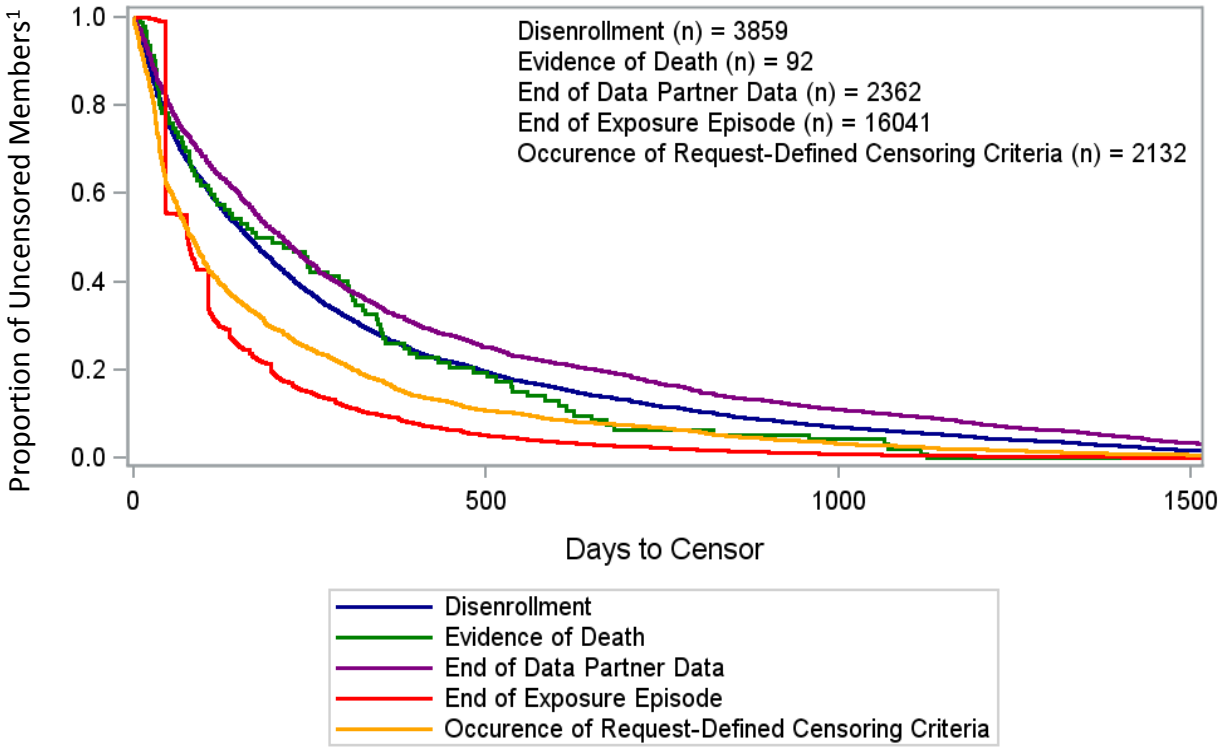
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 7a. Time to censor for Azilsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



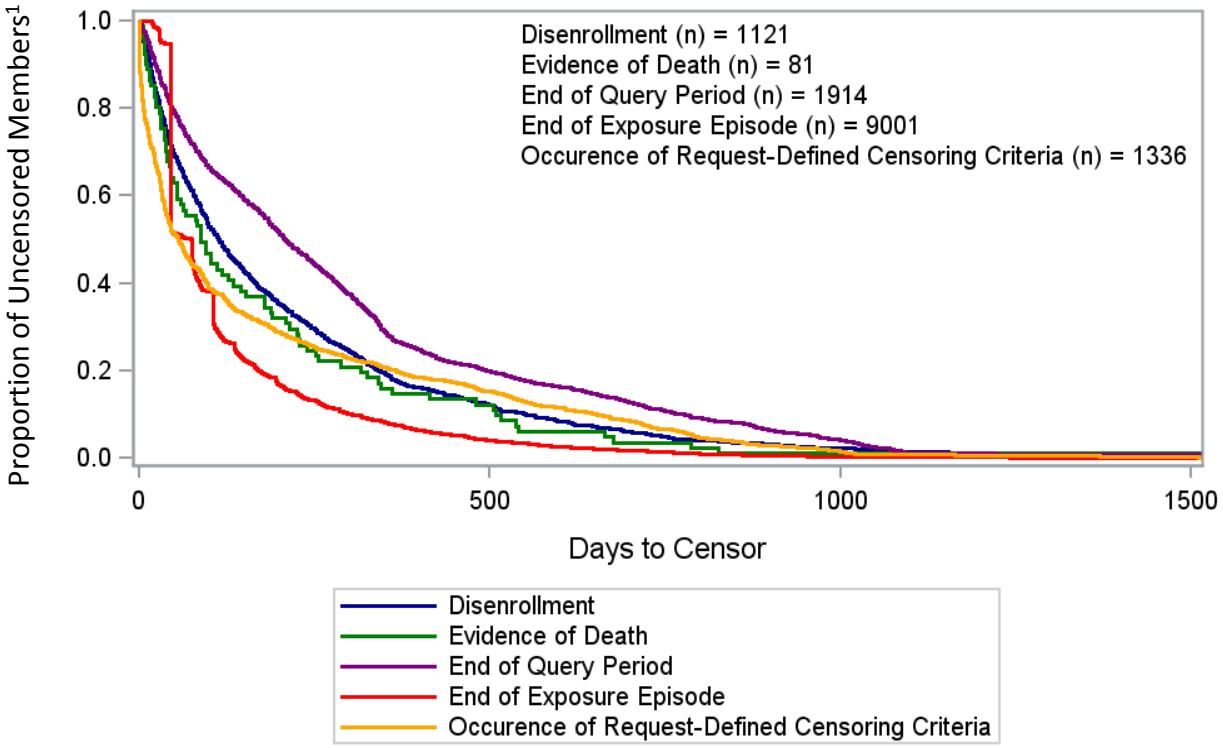
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 7b. Time to censor for Azilsartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



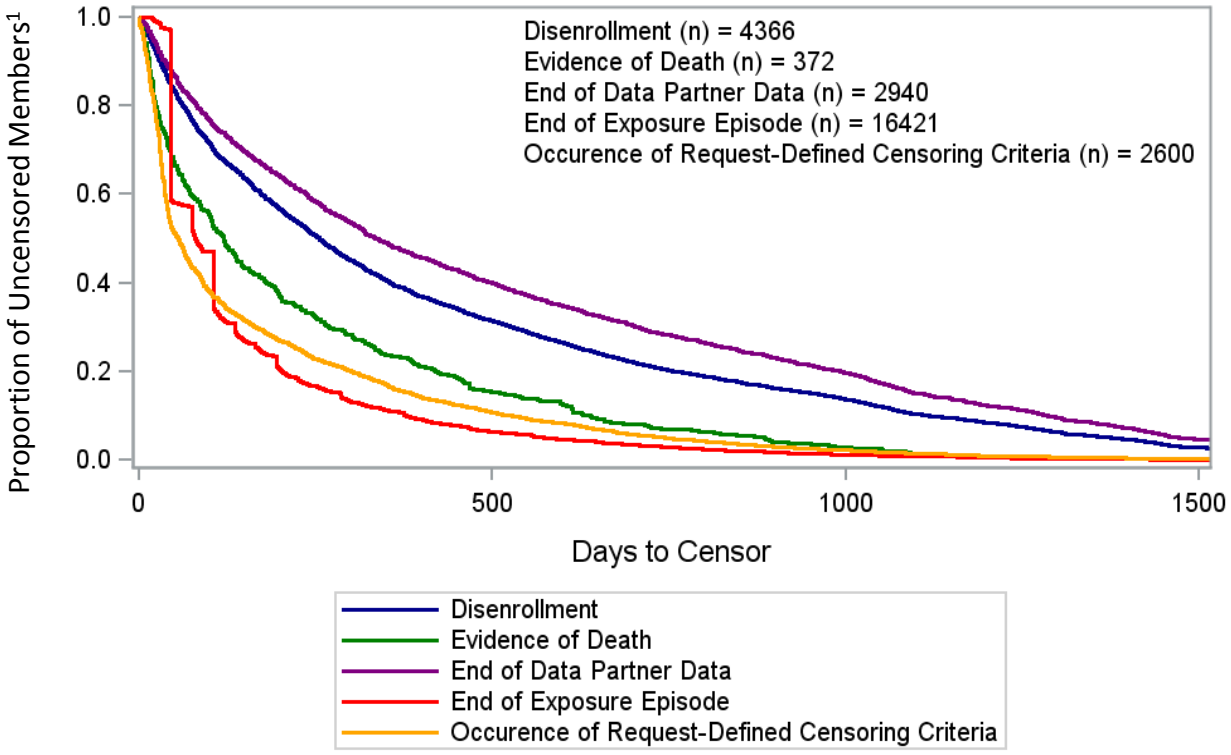
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 8a. Time to Censor for Candesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



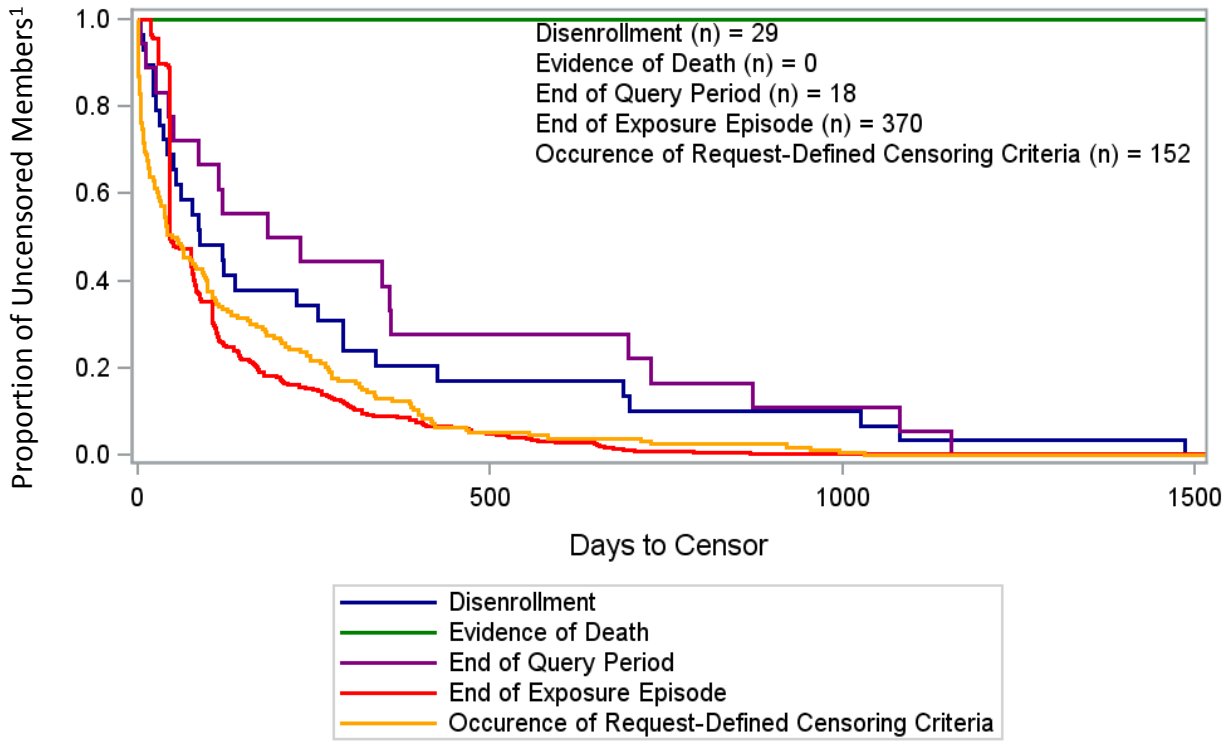
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 8b. Time to Censor for Candesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



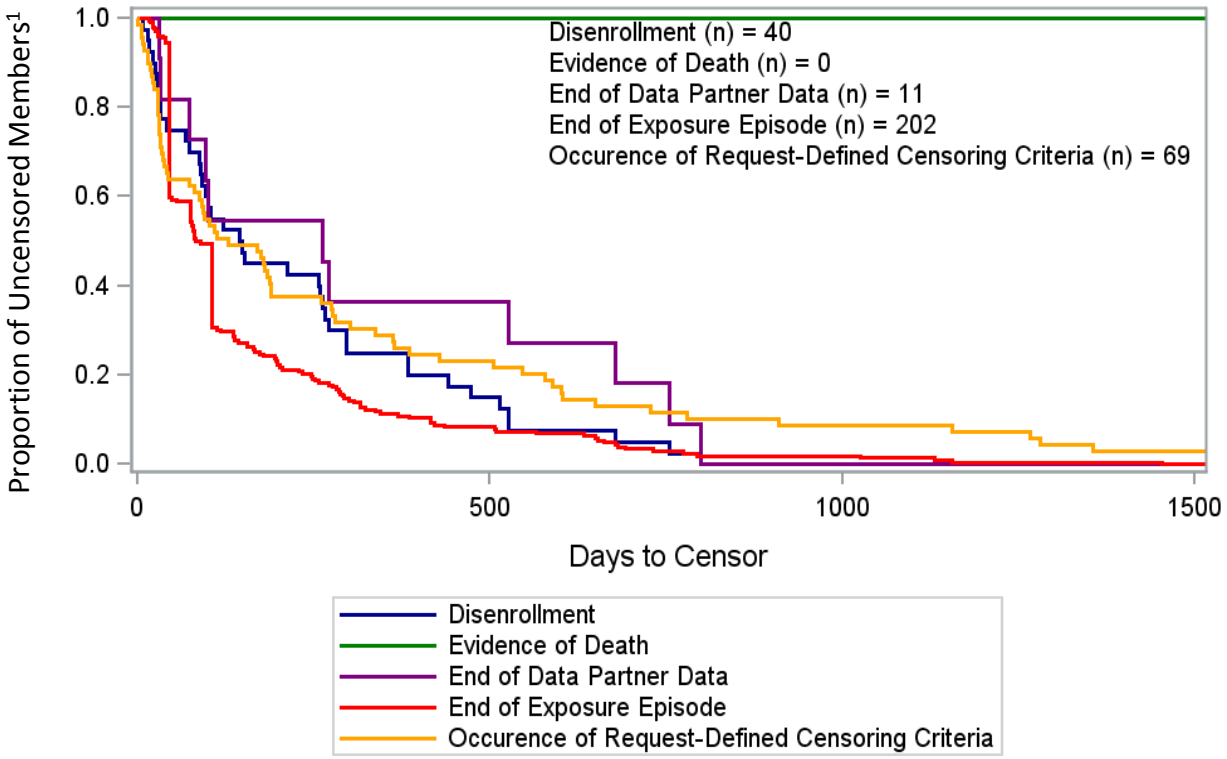
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 9a. Time to Censor for Eprosartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



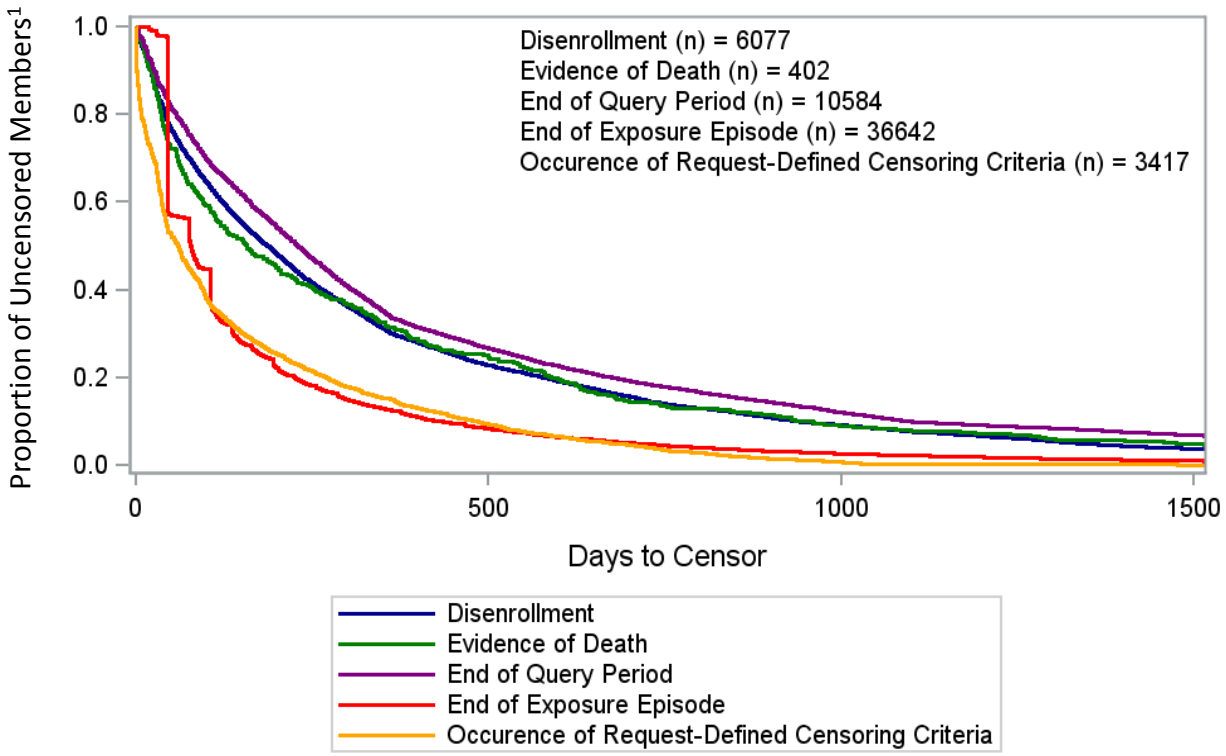
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 9b. Time to Censor for Eprosartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



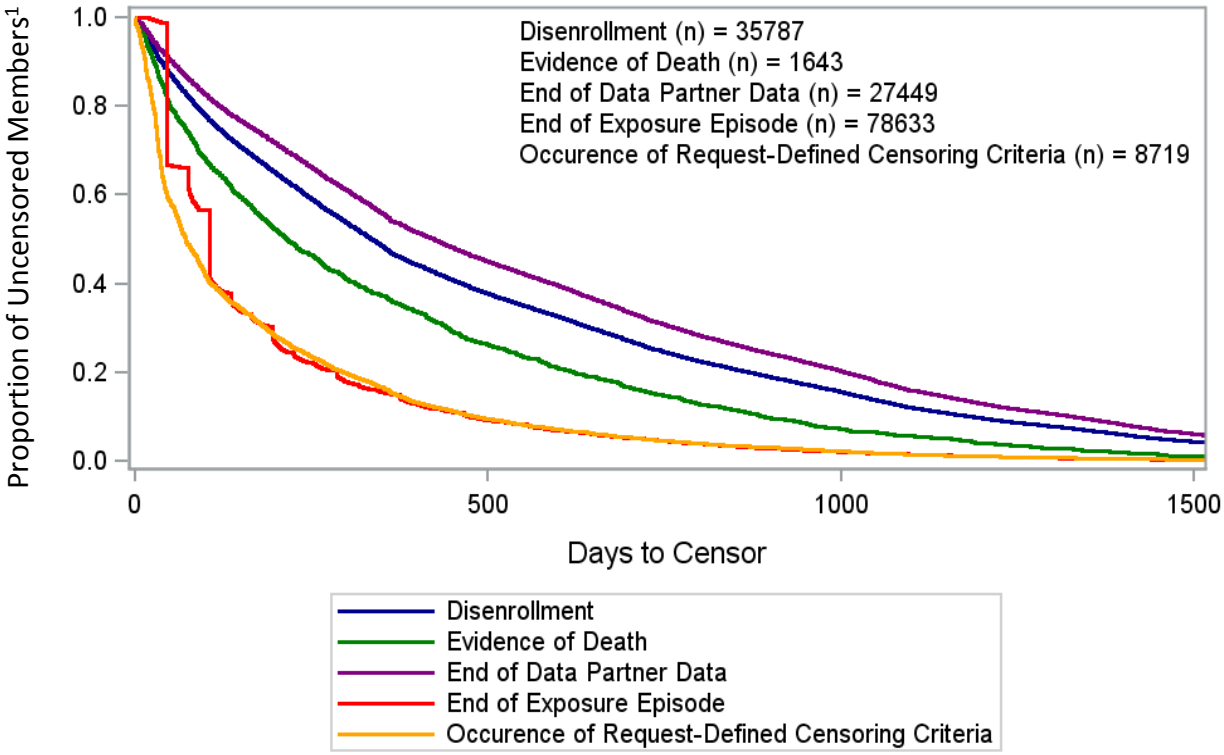
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 10a. Time to Censor for Irbesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



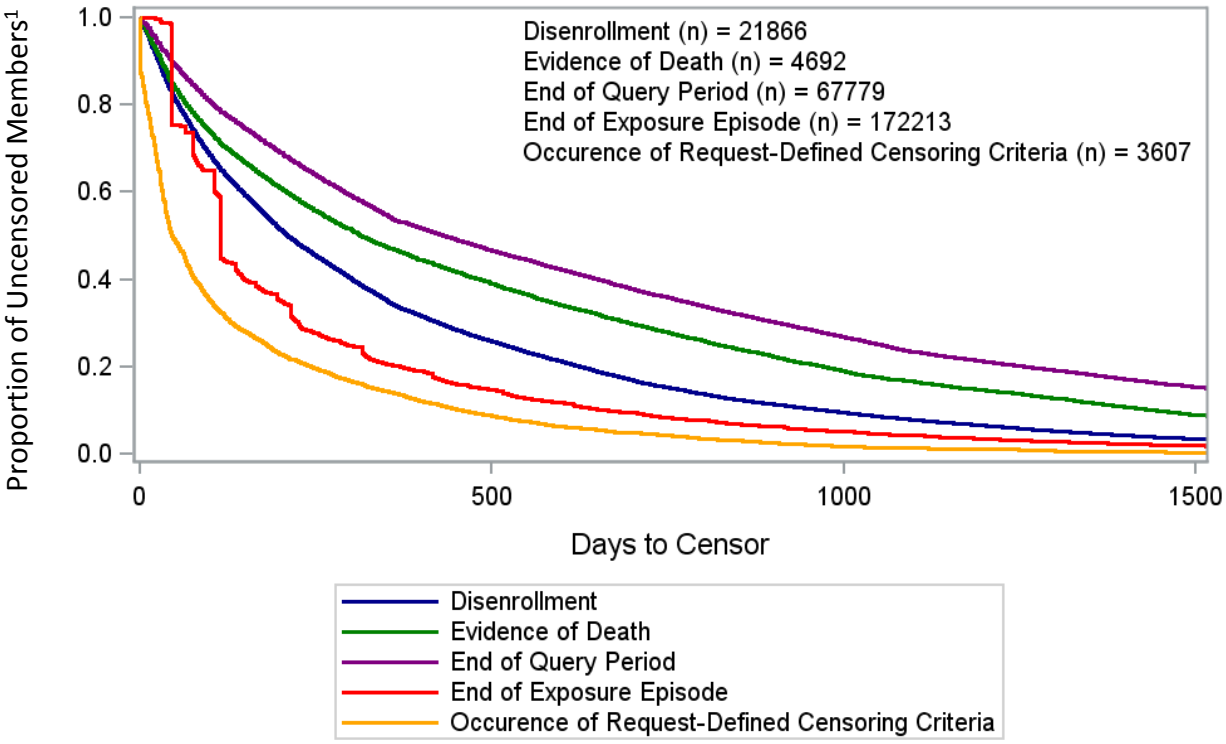
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 10b. Time to Censor for Irbesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



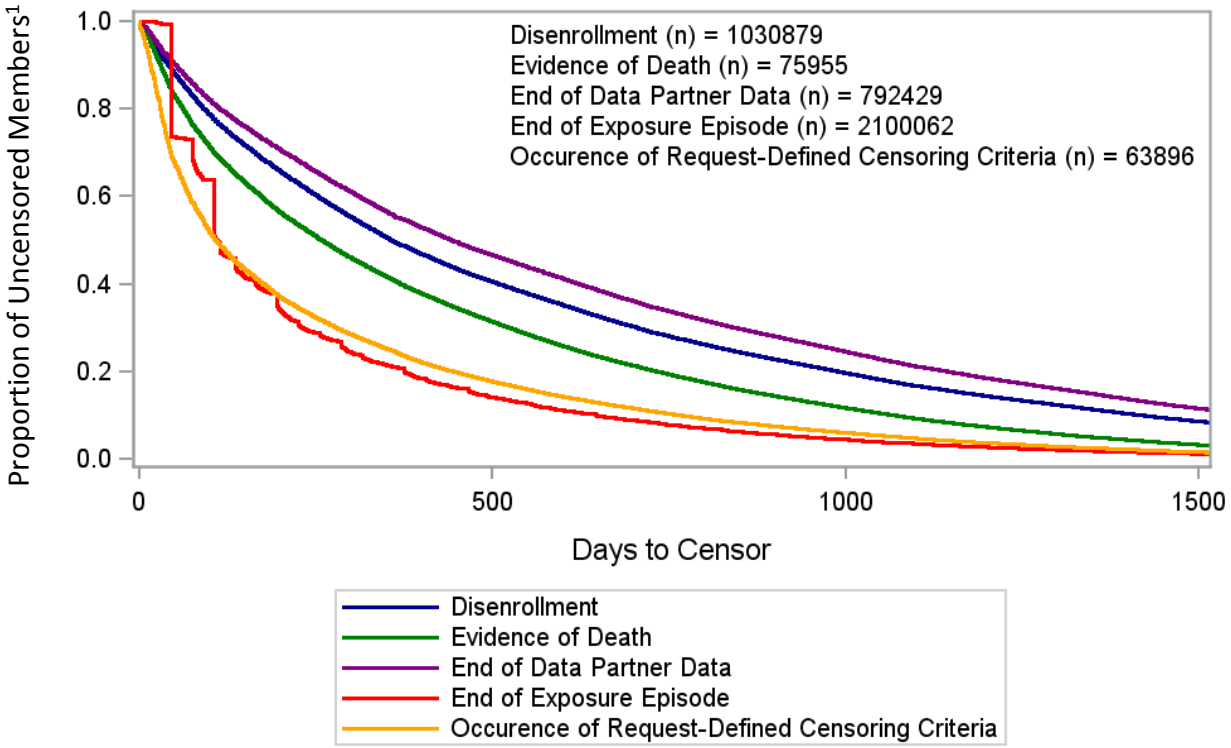
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 11a. Time to Censor for Losartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



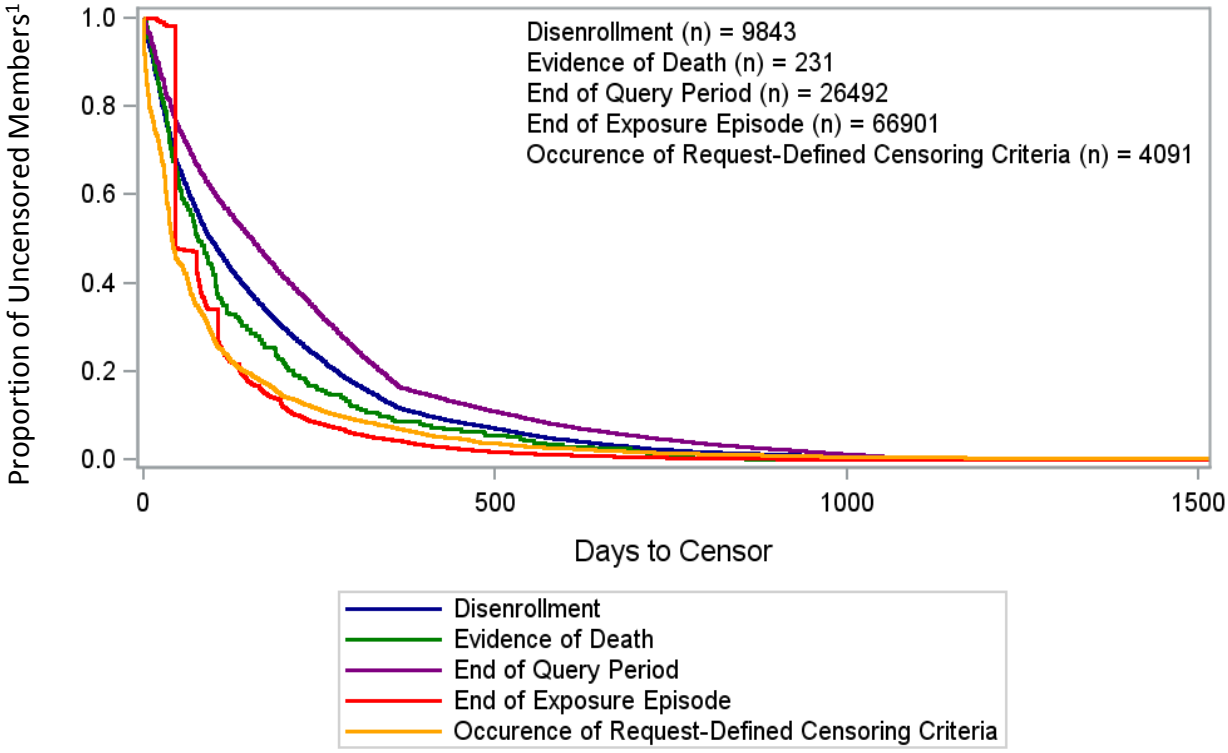
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 11b. Time to Censor for Losartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



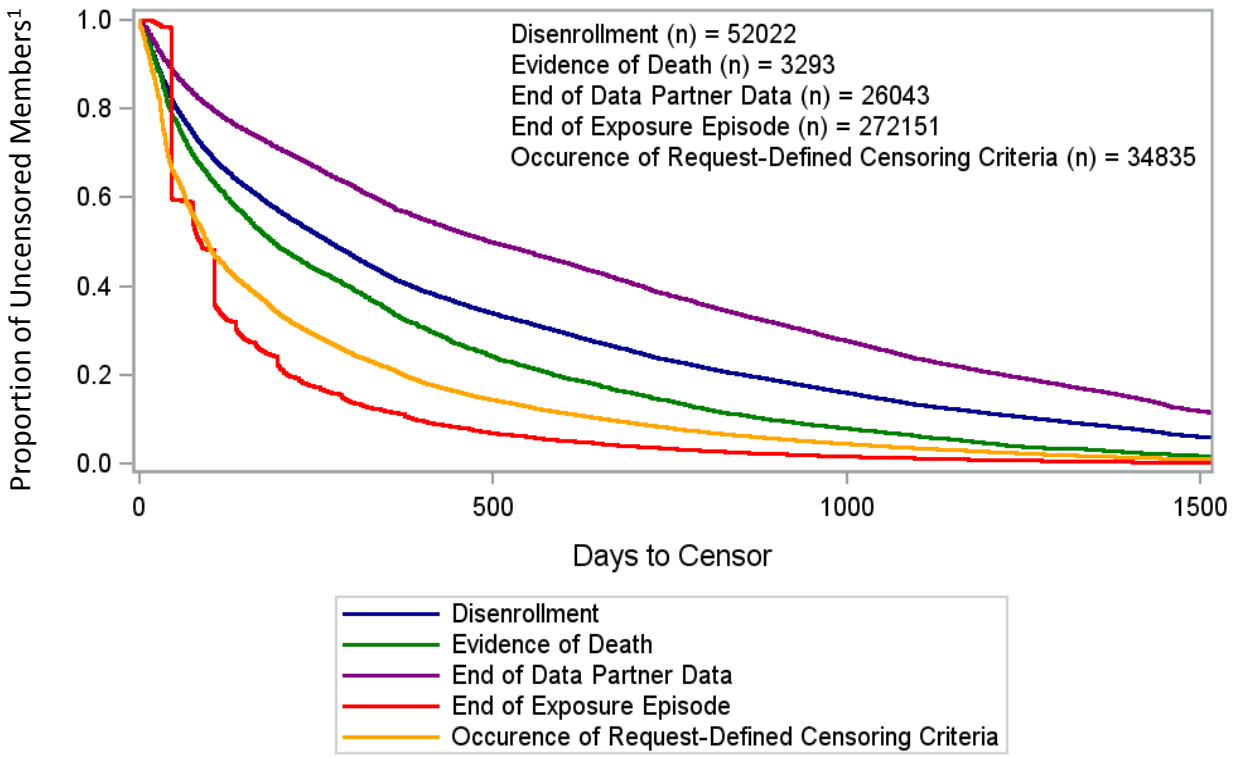
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 12a. Time to Censor for Olmesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



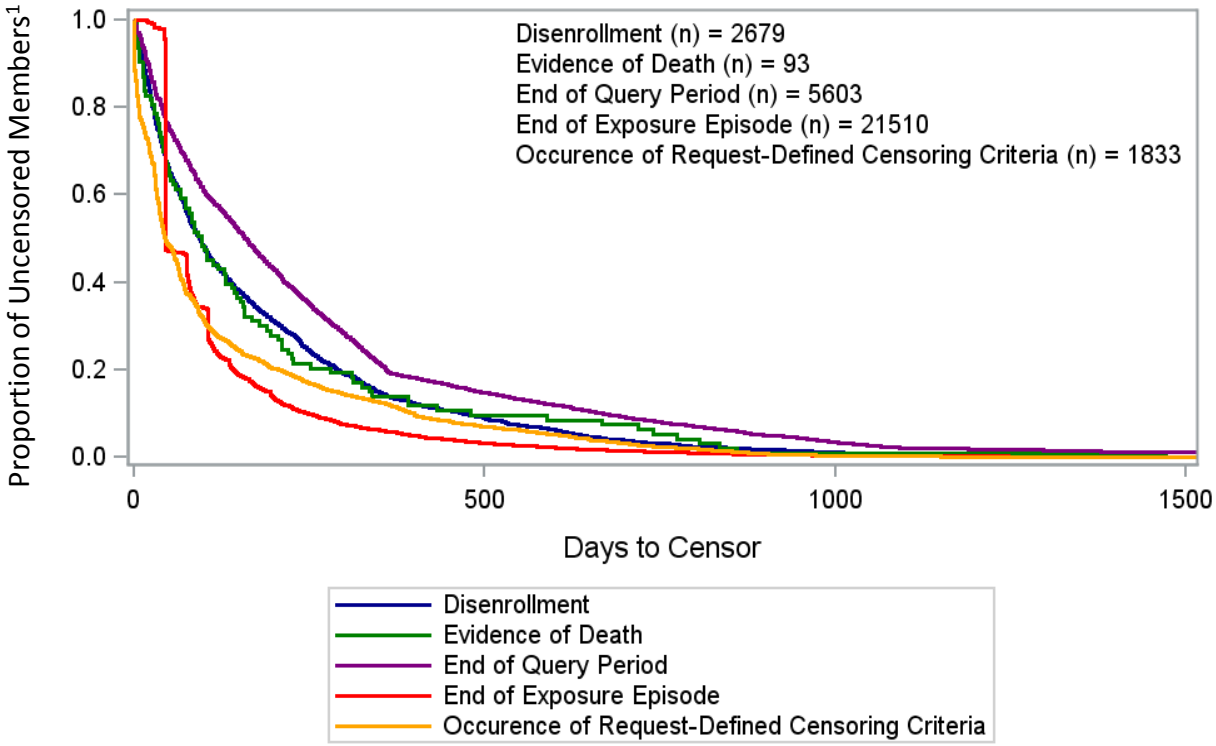
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 12b. Time to Censor for Olmesartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



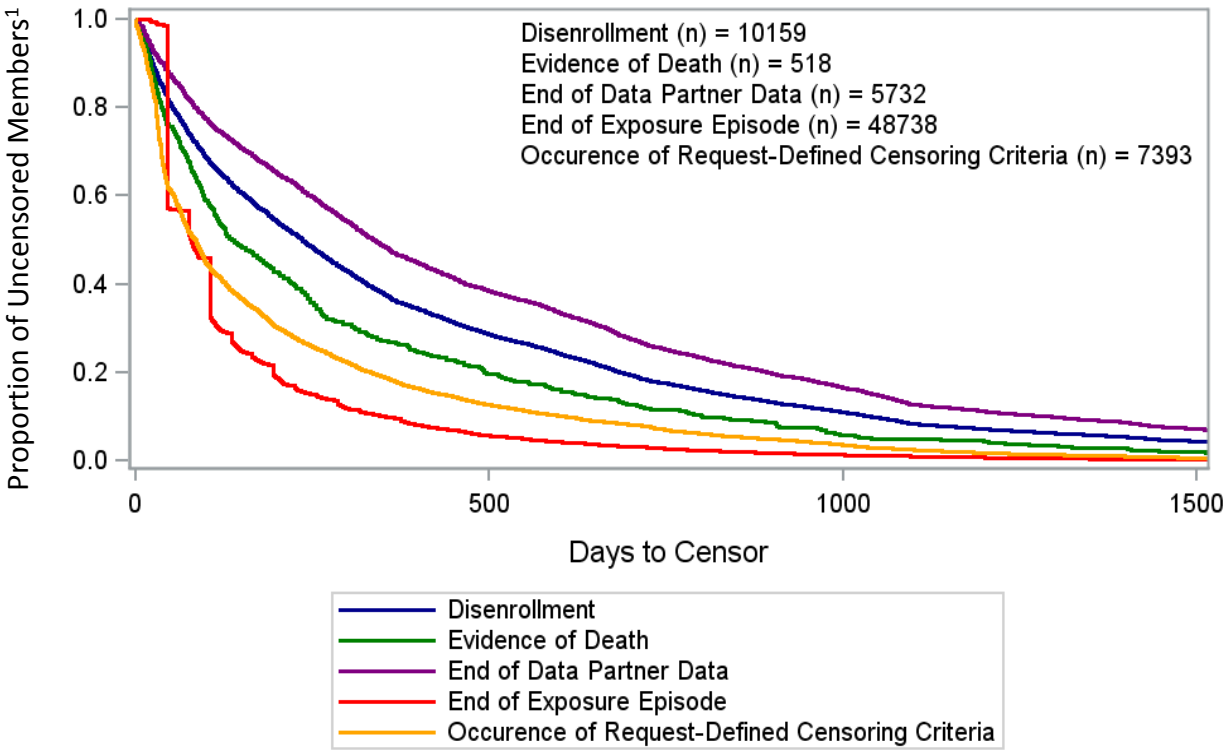
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 13a. Time to Censor for Telmisartan Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



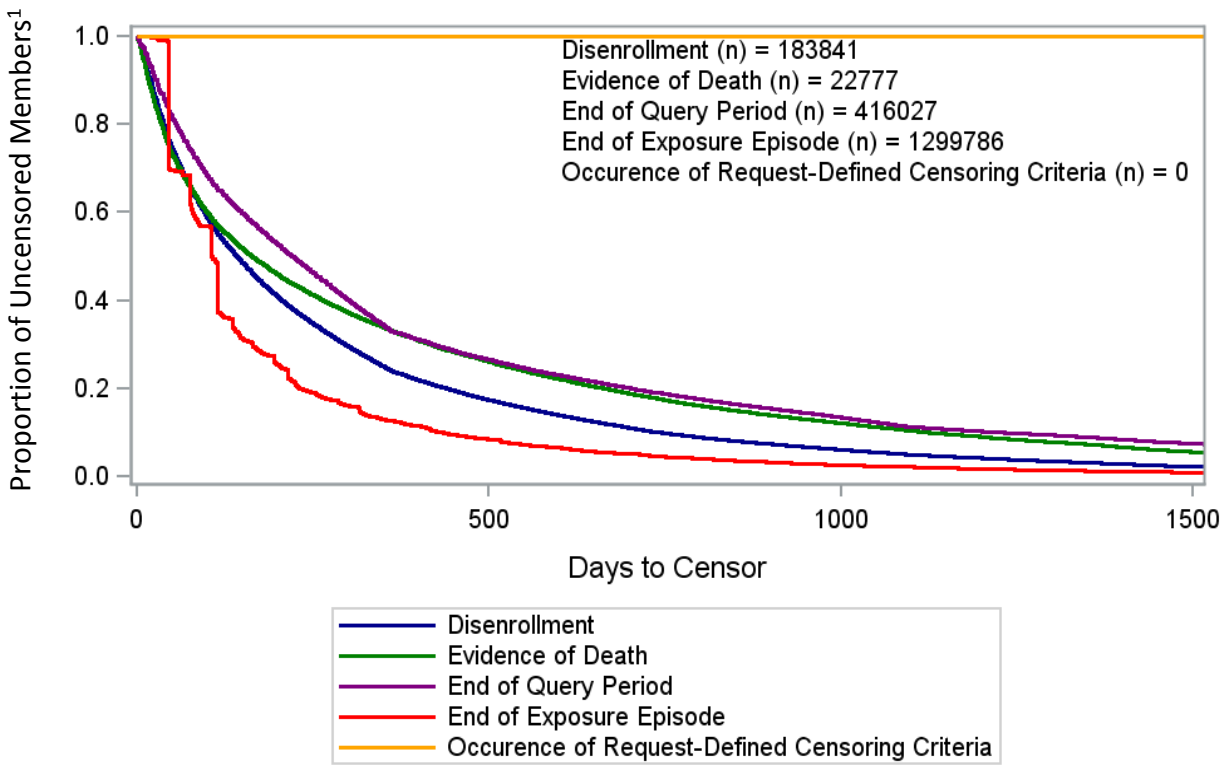
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 13b. Time to Censor for Telmisartan Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



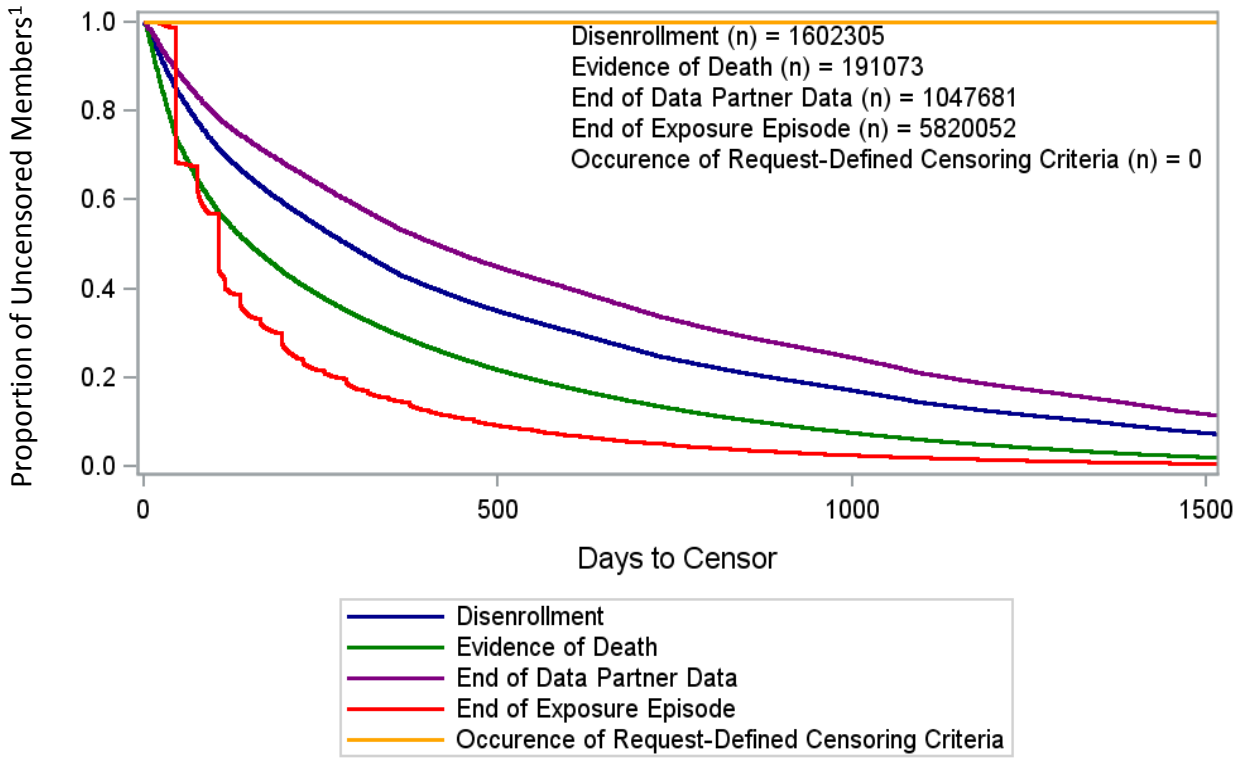
[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 14a. Time to Censor for Angiotensin-Converting Enzyme (ACE) inhibitor Users in the Sentinel Distributed Database (SDD) between January 1, 2000 and December 31, 2009, by Censoring Criteria



[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

Figure 14b. Time to Censor for Angiotensin-Converting Enzyme (ACE) inhibitor Users in the Sentinel Distributed Database (SDD) between January 1, 2010 and June 30, 2018, by Censoring Criteria



[1]The denominator for each cumulative distribution function is the number of episodes with the exposure drug that was censored for the corresponding reason.

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

DP ID	DP Start Date*	DP End Date*
DP01	06/01/2007	1/31/2018
DP02	01/01/2000	10/31/2017
DP03	01/01/2000	6/30/2018
DP04	01/01/2008	3/31/2018
DP05	01/01/2006	12/31/2017
DP06	01/01/2000	12/31/2016
DP07	01/01/2008	9/30/2017
DP08	01/01/2010	12/31/2016
DP09	01/01/2005	12/17/2017
DP10	01/01/2000	3/31/2016
DP11	01/01/2000	5/31/2015
DP12	01/01/2000	3/31/2018
DP13	01/01/2000	12/31/2017
DP14	01/01/2000	6/30/2017
DP15	01/01/2004	5/31/2018
DP16	01/01/2000	3/31/2018
DP17	01/01/2012	6/30/2017

*The start and end dates are based on the minimum and maximum dates within each DP. The month with the maximum date must have at least 80% of the number of records in the previous month.

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

Generic Name	Brand Name
Recalled Valsartan Products	
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
valsartan	valsartan
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
NDMA+ Valsartan Products	
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-thiazide
valsartan	valsartan
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
NDMA/NDEA+ Valsartan Products	
valsartan	valsartan
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
NDMA- Valsartan Products	
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan	Exforge
amlodipine besylate/valsartan/hydrochlorothiazide	Exforge HCT
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
valsartan	Diovan
valsartan	valsartan
valsartan/hydrochlorothiazide	Diovan HCT
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide
Other Valsartan Products	
aliskiren/valsartan	Valturna
amlodipine besylate/valsartan	Exforge
amlodipine besylate/valsartan	amlodipine-valsartan
amlodipine besylate/valsartan/hydrochlorothiazide	Exforge HCT
amlodipine besylate/valsartan/hydrochlorothiazide	amlodipine-valsartan-hcthiazid
nebivolol HCl/valsartan	Byvalson
sacubitril/valsartan	Entresto
valsartan	Diovan
valsartan	valsartan
valsartan/hydrochlorothiazide	Diovan HCT
valsartan/hydrochlorothiazide	valsartan-hydrochlorothiazide

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

Generic Name	Brand Name
Angiotensin II Receptor Blockers	
amlodipine besylate/olmesartan medoxomil	amlodipine-olmesartan
amlodipine besylate/olmesartan medoxomil	Azor
azilsartan medoxomil	Edarbi
azilsartan medoxomil/chlorthalidone	Edarbyclor
candesartan cilexetil	candesartan
candesartan cilexetil	Atacand
candesartan cilexetil/hydrochlorothiazide	Atacand HCT
candesartan cilexetil/hydrochlorothiazide	candesartan-hydrochlorothiazid
eprosartan mesylate	Teveten
eprosartan mesylate	eprosartan
eprosartan mesylate/hydrochlorothiazide	Teveten HCT
irbesartan	irbesartan
irbesartan	Avapro
irbesartan/hydrochlorothiazide	Avalide
irbesartan/hydrochlorothiazide	irbesartan-hydrochlorothiazide
losartan potassium	losartan
losartan potassium	Cozaar
losartan potassium/hydrochlorothiazide	losartan-hydrochlorothiazide
losartan potassium/hydrochlorothiazide	Hyzaar
olmesartan medoxomil	olmesartan
olmesartan medoxomil	Benicar
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	Tribenzor
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	olmesartan-amlodipin-hcthiazid
olmesartan medoxomil/hydrochlorothiazide	olmesartan-hydrochlorothiazide
olmesartan medoxomil/hydrochlorothiazide	Benicar HCT
telmisartan	telmisartan
telmisartan	Micardis
telmisartan/amlodipine besylate	Twynsta
telmisartan/amlodipine besylate	telmisartan-amlodipine
telmisartan/hydrochlorothiazide	telmisartan-hydrochlorothiazid
telmisartan/hydrochlorothiazide	Micardis HCT
Azilsartan	
azilsartan medoxomil	Edarbi
azilsartan medoxomil/chlorthalidone	Edarbyclor
Candesartan	
candesartan cilexetil	candesartan
candesartan cilexetil	Atacand
candesartan cilexetil/hydrochlorothiazide	Atacand HCT
candesartan cilexetil/hydrochlorothiazide	candesartan-hydrochlorothiazid
Eprosartan	
eprosartan mesylate	Teveten
eprosartan mesylate	eprosartan
eprosartan mesylate/hydrochlorothiazide	Teveten HCT

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

Generic Name	Brand Name
Irbesartan	
irbesartan	irbesartan
irbesartan	Avapro
irbesartan/hydrochlorothiazide	Avalide
irbesartan/hydrochlorothiazide	irbesartan-hydrochlorothiazide
Losartan	
losartan potassium	losartan
losartan potassium	Cozaar
losartan potassium/hydrochlorothiazide	losartan-hydrochlorothiazide
losartan potassium/hydrochlorothiazide	Hyzaar
Olmesartan	
amlodipine besylate/olmesartan medoxomil	amlodipine-olmesartan
amlodipine besylate/olmesartan medoxomil	Azor
olmesartan medoxomil	olmesartan
olmesartan medoxomil	Benicar
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	Tribenzor
olmesartan medoxomil/amlodipine besylate/hydrochlorothiazide	olmesartan-amlodipin-hcthiazid
olmesartan medoxomil/hydrochlorothiazide	olmesartan-hydrochlorothiazide
olmesartan medoxomil/hydrochlorothiazide	Benicar HCT
Telmisartan	
telmisartan	telmisartan
telmisartan	Micardis
telmisartan/amlodipine besylate	Twynsta
telmisartan/amlodipine besylate	telmisartan-amlodipine
telmisartan/hydrochlorothiazide	telmisartan-hydrochlorothiazid
telmisartan/hydrochlorothiazide	Micardis HCT
Angiotensin-converting Enzyme Inhibitors	
enalaprilat dihydrate	enalaprilat
enalaprilat dihydrate	Vasotec
amlodipine besylate/benazepril HCl	amlodipine-benazepril
lisinopril	lisinopril
quinapril HCl	Accupril
enalapril maleate	enalapril maleate
lisinopril/hydrochlorothiazide	lisinopril-hydrochlorothiazide
benazepril HCl	benazepril
quinapril HCl	quinapril
benazepril HCl/hydrochlorothiazide	benazepril-hydrochlorothiazide
captopril	captopril
benazepril HCl	Lotensin
lisinopril	Prinivil
fosinopril sodium	fosinopril
perindopril erbumine	Aceon
captopril/hydrochlorothiazide	captopril-hydrochlorothiazide
ramipril	Altace

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

Generic Name	Brand Name
moexipril HCl/hydrochlorothiazide	Uniretic
trandolapril/verapamil HCl	Tarka
fosinopril sodium/hydrochlorothiazide	fosinopril-hydrochlorothiazide
amlodipine besylate/benazepril HCl	Lotrel
ramipril	ramipril
trandolapril	trandolapril
moexipril HCl	moexipril
enalapril maleate/felodipine	Lexxel
perindopril erbumine	perindopril erbumine
captopril	Capoten
lisinopril	Zestril
quinapril HCl/hydrochlorothiazide	quinapril-hydrochlorothiazide
enalapril maleate/hydrochlorothiazide	enalapril-hydrochlorothiazide
moexipril HCl	Univasc
enalapril maleate	Vasotec
moexipril HCl/hydrochlorothiazide	moexipril-hydrochlorothiazide
fosinopril sodium	Monopril
lisinopril/hydrochlorothiazide	Prinzide
quinapril HCl/hydrochlorothiazide	Quinaretic
lisinopril/hydrochlorothiazide	Zestoretic
enalapril maleate/hydrochlorothiazide	Vaseretic
benazepril HCl/hydrochlorothiazide	Lotensin HCT
trandolapril	Mavik
trandolapril/verapamil HCl	trandolapril-verapamil
captopril/hydrochlorothiazide	Capozide
perindopril arginine/amlodipine besylate	Prestalia
lisinopril	Qbrelis
lisinopril/dietary supplement,comb.10	Lytensopril-90
fosinopril sodium/hydrochlorothiazide	Monopril HCT
quinapril HCl/hydrochlorothiazide	Accuretic
enalapril maleate	Epaned
lisinopril/dietary supplement,comb.10	Lytensopril

Appendix C. Part One: Specifications for Parameters in this Request without Truncation

This request utilized the Cohort Identification and Descriptive Analysis (CIDA) tool, version 6.0.0 to estimate rates of valsartan, angiotensin II receptor blockers (ARBs), and angiotensin-converting enzyme (ACE) inhibitors in the Sentinel Distributed Database.

Query Periods: January 1, 2000 to December 31, 2009
January 1, 2010 to June 30, 2018
Coverage Requirement: Medical and Drug Coverage
Enrollment Requirement: 365 days
Enrollment Gap: 45 days
Age Groups: 0-1, 2-4, 5-9, 10-14, 15-18, 19-21, 22-44, 45-64, 64-74, 75+ years
Censor Categories: 0<1, 1<2, 2<3, 3<5, 5+ years

	Exposure					
Scenario	**Index Exposure**	**Cohort Definition**	**Incidence Criteria**	**Washout Period (days)**	**NDC Lookback**	**Censor at evidence of**
1	Valsartan Recalled Products	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
2	Valsartan NDMA tested positive	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
3	Valsartan NDMA-NDEA tested positive	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
4	Valsartan NDMA tested negative	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment

Appendix C. Part One: Specifications for Parameters in this Request without Truncation						
		Exposure				
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Censor at evidence of
5	Valsartan Other products	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
6	All ARBs, except valsartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
7	Losartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
8	Azilsartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
9	Candesartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
10	Eprosartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
11	Irbesartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment

Appendix C. Part One: Specifications for Parameters in this Request without Truncation						
		Exposure				
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Censor at evidence of
12	Olmesartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
13	Telmisartan	First valid exposure episode during query period only	All ARBs	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
14	ACEI	First valid exposure episode during query period only	ACEI	365	Evidence of days supply	Death; Data Partner End Date; Query End Date; Disenrollment
National Drug Codes (NDCs) are checked against First Data Bank's “National Drug Data File (NDDF®) Plus.”						

Appendix D. Part Two: Specifications for Parameters in this Request with Truncation

This request utilized the Cohort Identification and Descriptive Analysis (CIDA) tool, version 6.0.0 to estimate rates of valsartan (affected and unaffected), angiotensin II receptor blockers (ARBs), and angiotensin-converting enzyme (ACE) inhibitors in the Sentinel Distributed Database.

Query Periods: January 1, 2000 to December 31, 2009
January 1, 2010 to June 30, 2018
Coverage Requirement: Medical and Drug Coverage
Enrollment Requirement: 365 days
Enrollment Gap: 45 days
Age Groups: 0+ years
Results stratified by: year
Censor Categories: 0<1, 1<2, 2<3, 3<5, 5+ years (overall and by year)

	Exposure								
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Episode Gap (days)	Episode Extension (days)	Truncation	Censor at evidence of
1	Valsartan Recalled Products	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	15	15	Switch to "Valsartan Other products"	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
2	Valsartan NDMA tested positive	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	15	15	Switch to "Valsartan Other products"	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
3	Valsartan NDMA-NDEA tested positive	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	15	15	Switch to "Valsartan Other products"	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode

Appendix D. Part Two: Specifications for Parameters in this Request with Truncation									
	Exposure								
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Episode Gap (days)	Episode Extension (days)	Truncation	Censor at evidence of
4	Valsartan NDMA tested negative	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	15	15	Switch to "Valsartan Other products"	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
5	Valsartan Other products	First valid exposure episode during query period only	All Valsartan	365	Evidence of days supply	15	15	Switch to recalled valsartan or any tested valsartan	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
6	All ARBs, except valsartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to valsartan	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
7	Losartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
8	Azilsartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode

Appendix D. Part Two: Specifications for Parameters in this Request with Truncation									
			Exposure						
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Episode Gap (days)	Episode Extension (days)	Truncation	Censor at evidence of
9	Candesartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
10	Eprosartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
11	Irbesartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
12	Olmesartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode
13	Telmisartan	First valid exposure episode during query period only	All ARBs, including valsartan	365	Evidence of days supply	15	15	Switch to other ARB (including valsartan)	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode

Appendix D. Part Two: Specifications for Parameters in this Request with Truncation

	Exposure								
Scenario	Index Exposure	Cohort Definition	Incidence Criteria	Washout Period (days)	NDC Lookback	Episode Gap (days)	Episode Extension (days)	Truncation	Censor at evidence of
14	ACEI	First valid exposure episode during query period only	ACEI	365	Evidence of days supply	15	15	None	Death; Data Partner End Date; Query End Date; Disenrollment End of treatment episode

National Drug Codes (NDCs) are checked against First Data Bank's "National Drug Data File (NDDF®) Plus."