

## Disclaimer

The following report(s) provides findings from an FDA-initiated query using Sentinel. While Sentinel queries may be undertaken to assess potential medical product safety risks, they may also be initiated for various other reasons. Some examples include determining a rate or count of an identified health outcome of interest, examining medical product use, exploring the feasibility of future, more detailed analyses within Sentinel, and seeking to better understand Sentinel capabilities.

Data obtained through Sentinel are intended to complement other types of evidence such as preclinical studies, clinical trials, postmarket studies, and adverse event reports, all of which are used by FDA to inform regulatory decisions regarding medical product safety. The information contained in this report is provided as part of FDA's commitment to place knowledge acquired from Sentinel in the public domain as soon as possible. Any public health actions taken by FDA regarding products involved in Sentinel queries will continue to be communicated through existing channels.

FDA wants to emphasize that the fact that FDA has initiated a query involving a medical product and is reporting findings related to that query does not mean that FDA is suggesting health care practitioners should change their prescribing practices for the medical product or that patients taking the medical product should stop using it. Patients who have questions about the use of an identified medical product should contact their health care practitioners.

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

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## Overview for Request: cder\_mpl1p\_wp035, report 1 of 2

**Request ID:** cder\_mpl1p\_wp035

**Request Description:** In this report we evaluated patterns of initiation of tacrolimus, an immunosuppressant used to prevent allograft rejection subsequent to organ transplant. In particular, we assessed the number of patients in the Sentinel Distributed Database (SDD) receiving inpatient kidney or liver transplants, duration of SDD follow-up time for these transplant recipients, how many of these patients initiated tacrolimus during their inpatient transplant stay, on the discharge date, and after hospital discharge, and, among these initiators, duration of tacrolimus use and reason for censoring.

**Sentinel Routine Querying Module:** Cohort Identification and Descriptive Analysis (CIDA) module, version 8.1.1

**Data Source:** We distributed this request to 14 Sentinel Data Partners on January 12, 2021. The study period included data from August 10, 2009 through February 29, 2020. Please see Appendix A for a list of dates of available data for each Data Partner.

**Study Design:** We identified all liver and kidney transplant recipients with no history of prior transplant and no prior use of tacrolimus. Among these cohorts, we assessed use of tacrolimus products overall and from different manufacturers that occurred between the hospital admission date for transplant procedure and 60 days after discharge date. This is a Type 2 analysis in the Query Request Package (QRP) documentation, modified with ad hoc programming.

**Exposure of Interest:** Liver and kidney transplants were the exposures of interest. We identified individuals of all ages with an inpatient stay for liver or kidney transplant. We assessed follow-up time in the SDD following transplant discharge date, censoring at disenrollment, death, or Data Partner data end date. We also evaluated use of tacrolimus products overall and from different manufacturers among identified liver and kidney transplant recipients, and assessed timing of tacrolimus initiation (during the hospital stay, on the discharge date, or within 60 days after the discharge date), duration of treatment, and reason for treatment episode censoring. Valid reasons for treatment episode censoring included disenrollment, death, Data Partner data end date, and switch to a tacrolimus product from a different manufacturer. Please see Appendix B for a list of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) procedure codes used to define liver and kidney transplants in this request.

**Cohort Eligibility Criteria:** Cohort members were required to be enrolled in health plans with medical and drug coverage in the 365 days prior to and following their index transplant; a gap in coverage of up to 45 days was allowed and treated as continuous enrollment. We included the following age groups in our analysis: <18, 18-64, and 65+ years. We stratified results by tacrolimus product manufacturer, timing of first tacrolimus dispensing, race, and census bureau region. Zip code was used to assign census bureau region. In the Sentinel Common Data Model there is one zip code assigned per member and zip codes are updated and overwritten as the members' location changes over time. The location reflected in this report is the member's most recent zip code.

**Incidence Criteria:** We assessed incidence criteria for liver and kidney transplants with respect to the index hospital admission date (no transplant or tacrolimus exposure in entire patient history). Please see Appendix C for a list of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) diagnosis and procedure codes.

## Overview for Request: cder\_mpl1p\_wp035, report 1 of 2

**Exclusion Criteria:** In addition to the incidence requirement of no history of any transplant in an entire patient's history prior to the index event, we also excluded patients who had additional transplants during their hospitalization for liver or kidney transplant. We achieved this by excluding patients with any transplant other than the transplant of interest in their entire history with respect to hospital discharge date for liver or kidney transplant. We excluded inpatient encounters with missing discharge dates from all cohorts. Please see Appendix D for a list of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) diagnosis and procedure codes used to define exclusion criteria in this request.

**Baseline Characteristics:** We assessed baseline demographic characteristics for liver and kidney transplant recipients on discharge date. We identified use of tacrolimus from different manufacturers and procedure codes that occurred between hospital admission date for the transplant surgery of interest through 60 days after hospital discharge date. Please see Appendices E and F for a list of Healthcare Common Procedure Coding System (HCPCS) procedure codes used to define tacrolimus exposure in this request and a list of generic and brands names and manufacturer group for tacrolimus used to define incidence criteria, use of tacrolimus, and covariates in this request.

**Please see Appendices G and H for the specifications of parameters and baseline characteristics used in this request.**

**Limitations:** The algorithms used to define the events are imperfect; thus, it is possible that there may be misclassification. Therefore, data should be interpreted with this limitation in mind. Although we stratified some estimates by race/ethnicity, please keep in mind that this information is not well captured in many systems. In addition, our program assigned census bureau region of residence using enrollee's most recent zip code, which may not reflect residence or place of exposure at the time of transplant. Please see Appendix I for the study design diagram.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**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 Patients at First Liver Transplant in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	3,464	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	54.1	13.1
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	129	3.7%
18-64	2,839	82.0%
65+	496	14.3%
Sex		
Female	1,227	35.4%
Male	2,237	64.6%
Year		
2009	93	2.7%
2010	290	8.4%
2011	301	8.7%
2012	283	8.2%
2013	278	8.0%
2014	328	9.5%
2015	343	9.9%
2016	369	10.7%
2017	403	11.6%
2018	398	11.5%
2019	367	10.6%
2020	11	0.3%
Race		
Black or African American	118	3.4%
White	980	28.3%
Other	151	4.4%
Unknown	2,215	63.9%
Census Bureau Region		
Mid West	640	18.5%
New England	372	10.7%
South	1,344	38.8%
West	1,096	31.6%
Other	1	0.0%
Missing	11	0.3%

**Table 1a. Baseline Characteristics of Patients at First Liver Transplant in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020**

<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>2</sup>	6.6	3.2
<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>3</sup>	2,840	82.0%
Generic - Dr. Reddys	695	20.1%
Generic - Accord	860	24.8%
Generic - Sandoz	1,312	37.9%
Generic - Mylan	131	3.8%
Brand - Astellas	536	15.5%
Procedure code J7507	290	8.4%
Other tacrolimus	86	2.5%

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1b. Baseline Characteristics at Discharge among Patients with Liver Transplant and Tacrolimus Dispensing in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	2,840	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	53.8	12.7
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	98	3.5%
18-64	2,414	85.0%
65+	328	11.5%
Sex		
Female	998	35.1%
Male	1,842	64.9%
Year		
2009	73	2.6%
2010	233	8.2%
2011	254	8.9%
2012	246	8.7%
2013	224	7.9%
2014	265	9.3%
2015	284	10.0%
2016	302	10.6%
2017	340	12.0%
2018	330	11.6%
2019	280	9.9%
2020	9	0.3%
Race		
Black or African American	95	3.3%
White	794	28.0%
Other	131	4.6%
Unknown	1,820	64.1%
Census Bureau Region		
Mid West	517	18.2%
New England	291	10.2%
South	1,097	38.6%
West	928	32.7%
Other	1	0.0%
Missing	6	0.2%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	6.4	3.2

**Table 1b. Baseline Characteristics at Discharge among Patients with Liver Transplant and Tacrolimus Dispensing in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	2,840	100.0%
Generic - Dr. Reddys	695	24.5%
Generic - Accord	860	30.3%
Generic - Sandoz	1,312	46.2%
Generic - Mylan	131	4.6%
Brand - Astellas	536	18.9%
Procedure code J7507	172	6.1%
Other tacrolimus	86	3.0%

This table includes a subset of liver transplant recipients who also had a tacrolimus dispensing between their hospital admission date and 60 days following discharge.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1c. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	1,599	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	52.4	13.3
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	66	4.1%
18-64	1,408	88.1%
65+	125	7.8%
Sex		
Female	557	34.8%
Male	1,042	65.2%
Year		
2009	37	2.3%
2010	134	8.4%
2011	125	7.8%
2012	126	7.9%
2013	130	8.1%
2014	152	9.5%
2015	185	11.6%
2016	186	11.6%
2017	185	11.6%
2018	181	11.3%
2019	152	9.5%
2020	6	0.4%
Race		
Black or African American	47	2.9%
White	291	18.2%
Other	45	2.8%
Unknown	1,216	76.0%
Census Bureau Region		
Mid West	288	18.0%
New England	189	11.8%
South	729	45.6%
West	388	24.3%
Other	0	0.0%
Missing	5	0.3%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	6.2	3.1

**Table 1c. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	1,599	100.0%
Generic - Dr. Reddys	495	31.0%
Generic - Accord	543	34.0%
Generic - Sandoz	649	40.6%
Generic - Mylan	79	4.9%
Brand - Astellas	320	20.0%
Procedure code J7507	97	6.1%
Other tacrolimus	60	3.8%

This table includes a subset of liver transplant recipients who also had a tacrolimus dispensing during their hospital stay.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1d. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing on Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	683	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	56.9	10.8
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	15	2.2%
18-64	544	79.6%
65+	124	18.2%
Sex		
Female	245	35.9%
Male	438	64.1%
Year		
2009	16	2.3%
2010	58	8.5%
2011	72	10.5%
2012	69	10.1%
2013	57	8.3%
2014	55	8.1%
2015	50	7.3%
2016	69	10.1%
2017	83	12.2%
2018	79	11.6%
2019	73	10.7%
2020	2	0.3%
Race		
Black or African American	26	3.8%
White	313	45.8%
Other	64	9.4%
Unknown	280	41.0%
Census Bureau Region		
Mid West	123	18.0%
New England	42	6.1%
South	154	22.5%
West	363	53.1%
Other	1	0.1%
Missing	0	0.0%
<b>Recorded History of:</b>		
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	6.2	3.0



**Table 1d. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing on Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>		
Any oral tacrolimus <sup>4</sup>	683	100.0%
Generic - Dr. Reddys	85	12.4%
Generic - Accord	162	23.7%
Generic - Sandoz	414	60.6%
Generic - Mylan	26	3.8%
Brand - Astellas	106	15.5%
Procedure code J7507	33	4.8%
Other tacrolimus	6	0.9%

This table includes a subset of liver transplant recipients who also had a tacrolimus dispensing on their hospital discharge date.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1e. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing within 60 Days After Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	558	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	53.9	12.9
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	17	3.0%
18-64	462	82.8%
65+	79	14.2%
Sex		
Female	196	35.1%
Male	362	64.9%
Year		
2009	20	3.6%
2010	41	7.3%
2011	57	10.2%
2012	51	9.1%
2013	37	6.6%
2014	58	10.4%
2015	49	8.8%
2016	47	8.4%
2017	72	12.9%
2018	70	12.5%
2019	55	9.9%
2020	1	0.2%
Race		
Black or African American	22	3.9%
White	190	34.1%
Other	22	3.9%
Unknown	324	58.1%
Census Bureau Region		
Mid West	106	19.0%
New England	60	10.8%
South	214	38.4%
West	177	31.7%
Other	0	0.0%
Missing	1	0.2%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	7.4	3.3

**Table 1e. Baseline Characteristics at Discharge among Patients with Liver Transplant and First Tacrolimus Dispensing within 60 Days After Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	558	100.0%
Generic - Dr. Reddys	115	20.6%
Generic - Accord	155	27.8%
Generic - Sandoz	249	44.6%
Generic - Mylan	26	4.7%
Brand - Astellas	110	19.7%
Procedure code J7507	42	7.5%
Other tacrolimus	20	3.6%

This table includes a subset of liver transplant recipients who also had a tacrolimus dispensing after hospital discharge.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1f. Baseline Characteristics of Patients at First Kidney Transplant in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	8,708	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	52.3	14.4
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	251	2.9%
18-64	6,702	77.0%
65+	1,755	20.2%
Sex		
Female	3,417	39.2%
Male	5,291	60.8%
Year		
2009	323	3.7%
2010	827	9.5%
2011	866	9.9%
2012	718	8.2%
2013	782	9.0%
2014	836	9.6%
2015	791	9.1%
2016	815	9.4%
2017	969	11.1%
2018	955	11.0%
2019	777	8.9%
2020	49	0.6%
Race		
Black or African American	938	10.8%
White	1,898	21.8%
Other	806	9.3%
Unknown	5,066	58.2%
Census Bureau Region		
Mid West	1,367	15.7%
New England	1,070	12.3%
South	2,907	33.4%
West	3,329	38.2%
Other	0	0.0%
Missing	35	0.4%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	4.5	2.0

**Table 1f. Baseline Characteristics of Patients at First Kidney Transplant in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	6,462	74.2%
Generic - Dr. Reddys	1,385	15.9%
Generic - Accord	1,477	17.0%
Generic - Sandoz	3,404	39.1%
Generic - Mylan	209	2.4%
Brand - Astellas	1,257	14.4%
Procedure code J7507	1,275	14.6%
Other tacrolimus	91	1.0%

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1g. Baseline Characteristics at Discharge among Patients with Kidney Transplant and Tacrolimus Dispensing in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	6,462	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	51.8	14.0
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	183	2.8%
18-64	5,123	79.3%
65+	1,156	17.9%
Sex		
Female	2,542	39.3%
Male	3,920	60.7%
Year		
2009	234	3.6%
2010	604	9.3%
2011	645	10.0%
2012	562	8.7%
2013	594	9.2%
2014	628	9.7%
2015	603	9.3%
2016	587	9.1%
2017	714	11.0%
2018	733	11.3%
2019	530	8.2%
2020	28	0.4%
Race		
Black or African American	693	10.7%
White	1,528	23.6%
Other	713	11.0%
Unknown	3,528	54.6%
Census Bureau Region		
Mid West	895	13.9%
New England	776	12.0%
South	1,957	30.3%
West	2,811	43.5%
Other	0	0.0%
Missing	23	0.4%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	4.4	2.0

**Table 1g. Baseline Characteristics at Discharge among Patients with Kidney Transplant and Tacrolimus Dispensing in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	6,462	100.0%
Generic - Dr. Reddys	1,385	21.4%
Generic - Accord	1,477	22.9%
Generic - Sandoz	3,404	52.7%
Generic - Mylan	209	3.2%
Brand - Astellas	1,257	19.5%
Procedure code J7507	481	7.4%
Other tacrolimus	91	1.4%

This table includes a subset of kidney transplant recipients who also had a tacrolimus dispensing between their hospital admission date and 60 days following discharge.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1h. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	3,293	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	50.9	14.0
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	113	3.4%
18-64	2,682	81.4%
65+	498	15.1%
Sex		
Female	1,314	39.9%
Male	1,979	60.1%
Year		
2009	123	3.7%
2010	294	8.9%
2011	324	9.8%
2012	267	8.1%
2013	263	8.0%
2014	326	9.9%
2015	316	9.6%
2016	289	8.8%
2017	383	11.6%
2018	381	11.6%
2019	310	9.4%
2020	17	0.5%
Race		
Black or African American	295	9.0%
White	666	20.2%
Other	231	7.0%
Unknown	2,101	63.8%
Census Bureau Region		
Mid West	468	14.2%
New England	531	16.1%
South	1,193	36.2%
West	1,085	32.9%
Other	0	0.0%
Missing	16	0.5%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	4.4	2.0



**Table 1h. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	3,293	100.0%
Generic - Dr. Reddys	886	26.9%
Generic - Accord	959	29.1%
Generic - Sandoz	1,501	45.6%
Generic - Mylan	134	4.1%
Brand - Astellas	695	21.1%
Procedure code J7507	194	5.9%
Other tacrolimus	51	1.5%

This table includes a subset of kidney transplant recipients who also had a tacrolimus dispensing during their hospital stay.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1i. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing on Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	2,062	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	52.8	14.0
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	35	1.7%
18-64	1,598	77.5%
65+	429	20.8%
Sex		
Female	814	39.5%
Male	1,248	60.5%
Year		
2009	66	3.2%
2010	210	10.2%
2011	221	10.7%
2012	201	9.7%
2013	218	10.6%
2014	192	9.3%
2015	190	9.2%
2016	201	9.7%
2017	215	10.4%
2018	212	10.3%
2019	134	6.5%
2020	2	0.1%
Race		
Black or African American	274	13.3%
White	644	31.2%
Other	377	18.3%
Unknown	767	37.2%
Census Bureau Region		
Mid West	224	10.9%
New England	111	5.4%
South	400	19.4%
West	1,324	64.2%
Other	0	0.0%
Missing	3	0.1%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	4.4	2.0

**Table 1i. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing on Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	2,062	100.0%
Generic - Dr. Reddys	251	12.2%
Generic - Accord	258	12.5%
Generic - Sandoz	1,427	69.2%
Generic - Mylan	36	1.7%
Brand - Astellas	339	16.4%
Procedure code J7507	90	4.4%
Other tacrolimus	21	1.0%

This table includes a subset of kidney transplant recipients who also had a tacrolimus dispensing on their hospital discharge date.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 1j. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing within 60 Days After Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Characteristic<sup>1</sup></b>	<b>Number</b>	<b>Percent</b>
Number of dispensings	1,107	
<b>Demographics</b>	<b>Mean</b>	<b>Standard Deviation</b>
Mean Age (years)	52.5	14.2
Age (years)	<b>Number</b>	<b>Percent</b>
00-17	35	3.2%
18-64	843	76.2%
65+	229	20.7%
Sex		
Female	414	37.4%
Male	693	62.6%
Year		
2009	45	4.1%
2010	100	9.0%
2011	100	9.0%
2012	94	8.5%
2013	113	10.2%
2014	110	9.9%
2015	97	8.8%
2016	97	8.8%
2017	116	10.5%
2018	140	12.6%
2019	86	7.8%
2020	9	0.8%
Race		
Black or African American	124	11.2%
White	218	19.7%
Other	105	9.5%
Unknown	660	59.6%
Census Bureau Region		
Mid West	203	18.3%
New England	134	12.1%
South	364	32.9%
West	402	36.3%
Other	0	0.0%
Missing	4	0.4%
<b>Recorded History of:</b>	<b>Mean</b>	<b>Standard Deviation</b>
Charlson/Elixhauser Combined Comorbidity Score <sup>3</sup>	4.5	2.0

**Table 1j. Baseline Characteristics at Discharge among Patients with Kidney Transplant and First Tacrolimus Dispensing within 60 Days After Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

<b>Breakdown by Manufacturer</b>	<b>Number</b>	<b>Percent</b>
Any oral tacrolimus <sup>4</sup>	1,107	100.0%
Generic - Dr. Reddys	248	22.4%
Generic - Accord	260	23.5%
Generic - Sandoz	476	43.0%
Generic - Mylan	39	3.5%
Brand - Astellas	223	20.1%
Procedure code J7507	197	17.8%
Other tacrolimus	19	1.7%

This table includes a subset of kidney transplant recipients who also had a tacrolimus dispensing after hospital discharge.

<sup>1</sup>All metrics are based on total number of episodes per group, except for sex, and census bureau region which are based on total number of unique patients.

<sup>2</sup>The Charlson/Elixhauser Combined Comorbidity Score is calculated based on comorbidities observed during a requester-defined window around the exposure episode start date (index date).

<sup>3</sup>Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507.

**Table 2a. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair**

Summary Statistics (Days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Any oral tacrolimus*	1,599	-10.1	11.98	-111	-13	-5	-2	-1
Dr Reddy's tacrolimus	236	-11	12.09	-44	-19	-5	-2	-1
Accord tacrolimus	435	-11.6	12.79	-94	-16	-6	-2	-1
Sandoz tacrolimus	570	-8.9	11.37	-111	-10	-4	-2	-1
Mylan tacrolimus	63	-10	9.89	-36	-12	-6	-3	-1
Astellas tacrolimus	294	-9.6	11.89	-71	-11	-4	-2	-1
<b>Kidney transplant</b>								
Any oral tacrolimus*	3,293	-3.7	4.28	-52	-4	-2	-1	-1
Dr Reddy's tacrolimus	418	-3.9	3.74	-25	-5	-3	-2	-1
Accord tacrolimus	806	-4.5	4.73	-40	-5	-3	-2	-1
Sandoz tacrolimus	1,360	-3.4	4.6	-52	-4	-2	-1	-1
Mylan tacrolimus	97	-3.7	4.26	-29	-4	-3	-2	-1
Astellas tacrolimus	645	-3.1	3.13	-39	-4	-2	-1	-1

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2a. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair**

Group by Organ-Product Pair	Time of Tacrolimus Dispensing Prior to Discharge in Days									
	≥21 days		11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>										
Any oral tacrolimus*	309	19.3%	147	9.2%	256	16.0%	403	25.2%	484	30.3%
Dr Reddy's tacrolimus	58	24.6%	19	8.1%	28	11.9%	59	25.0%	72	30.5%
Accord tacrolimus	95	21.8%	55	12.6%	76	17.5%	100	23.0%	109	25.1%
Sandoz tacrolimus	92	16.1%	43	7.5%	93	16.3%	152	26.7%	190	33.3%
Mylan tacrolimus	10	15.9%	9	14.3%	17	27.0%	18	28.6%	9	14.3%
Astellas tacrolimus	54	18.4%	22	7.5%	41	13.9%	72	24.5%	105	35.7%
<b>Kidney transplant</b>										
Any oral tacrolimus*	30	0.9%	186	5.6%	300	9.1%	1,093	33.2%	1,684	51.1%
Dr Reddy's tacrolimus	2	0.5%	27	6.5%	47	11.2%	144	34.4%	198	47.4%
Accord tacrolimus	9	1.1%	84	10.4%	84	10.4%	281	34.9%	348	43.2%
Sandoz tacrolimus	14	1.0%	58	4.3%	109	8.0%	405	29.8%	774	56.9%
Mylan tacrolimus	2	2.1%	3	3.1%	10	10.3%	35	36.1%	47	48.5%
Astellas tacrolimus	4	0.6%	14	2.2%	53	8.2%	232	36.0%	342	53.0%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2b. Time between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair**

Summary Statistics (Days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Any oral tacrolimus*	558	15.2	15.13	1	3	9	24	60
Dr Reddy's tacrolimus	77	15.1	15.67	1	3	8	27	58
Accord tacrolimus	122	14.4	14.65	1	2	9	23	59
Sandoz tacrolimus	230	15.8	15.81	1	3	10	24	60
Mylan tacrolimus	23	17.5	16.47	1	4	13	24	55
Astellas tacrolimus	102	14.9	13.57	1	4	10	24	58
<b>Kidney transplant</b>								
Any oral tacrolimus*	1,107	12.6	15.51	1	1	4	21	60
Dr Reddy's tacrolimus	177	17	15.63	1	3	14	26	60
Accord tacrolimus	231	14.7	16.7	1	1	6	23	60
Sandoz tacrolimus	449	9.8	13.91	1	1	3	13	58
Mylan tacrolimus	34	11.7	16.03	1	1	5	18	59
Astellas tacrolimus	216	12.5	16.29	1	1	4	21	60

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507



**Table 2b. Time between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair**

Group by Organ-Product Pair	Time from Discharge to Tacrolimus Dispensing in Days									
	1-2 days		3-5 days		6-10 days		11-20 days		21-60 days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>										
Any oral tacrolimus*	136	24.4%	61	10.9%	95	17.0%	101	18.1%	165	29.6%
Dr Reddy's tacrolimus	19	24.7%	7	9.1%	18	23.4%	12	15.6%	21	27.3%
Accord tacrolimus	35	28.7%	11	9.0%	20	16.4%	21	17.2%	35	28.7%
Sandoz tacrolimus	53	23.0%	26	11.3%	38	16.5%	45	19.6%	68	29.6%
Mylan tacrolimus	4	17.4%	2	8.7%	3	13.0%	6	26.1%	8	34.8%
Astellas tacrolimus	22	21.6%	15	14.7%	16	15.7%	15	14.7%	34	33.3%
<b>Kidney transplant</b>										
Any oral tacrolimus*	435	39.3%	167	15.1%	95	8.6%	127	11.5%	283	25.6%
Dr Reddy's tacrolimus	40	22.6%	18	10.2%	22	12.4%	33	18.6%	64	36.2%
Accord tacrolimus	80	34.6%	34	14.7%	17	7.4%	32	13.9%	68	29.4%
Sandoz tacrolimus	217	48.3%	77	17.1%	32	7.1%	33	7.3%	90	20.0%
Mylan tacrolimus	12	35.3%	8	23.5%	2	5.9%	6	17.6%	6	17.6%
Astellas tacrolimus	89	41.2%	31	14.4%	21	9.7%	21	9.7%	54	25.0%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2c. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing on Hospital Discharge Date, by Organ-Product Pair**

Group by Organ-Product Pair	Summary Statistics (Days)								Time from Discharge to Tacrolimus Dispensing in Days
	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum	0 days
<b>Liver transplant</b>									
Any oral tacrolimus*	683	0	0	0	0	0	0	0	683
Dr Reddy's tacrolimus	50	0	0	0	0	0	0	0	50
Accord tacrolimus	131	0	0	0	0	0	0	0	131
Sandoz tacrolimus	385	0	0	0	0	0	0	0	385
Mylan tacrolimus	21	0	0	0	0	0	0	0	21
Astellas tacrolimus	99	0	0	0	0	0	0	0	99
<b>Kidney transplant</b>									
Any oral tacrolimus*	2,062	0	0	0	0	0	0	0	2,062
Dr Reddy's tacrolimus	133	0	0	0	0	0	0	0	133
Accord tacrolimus	203	0	0	0	0	0	0	0	203
Sandoz tacrolimus	1,385	0	0	0	0	0	0	0	1,385
Mylan tacrolimus	29	0	0	0	0	0	0	0	29
Astellas tacrolimus	315	0	0	0	0	0	0	0	315

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2d. Time Between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Time of Tacrolimus Dispensing Prior to Discharge in Days										
	≥21 days		11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>											
<i>Any oral tacrolimus*</i>											
Black or African American	47	0.0%	8	17.0%	9	19.1%	14	29.8%	16	34.0%	
White	291	3.8%	18	6.2%	49	16.8%	96	33.0%	117	40.2%	
Other	45	0.0%	3	6.7%	10	22.2%	12	26.7%	20	44.4%	
Unknown	1,216	24.5%	118	9.7%	188	15.5%	281	23.1%	331	27.2%	
<i>Dr Reddy's tacrolimus</i>											
Black or African American	6	0.0%	1	16.7%	0	0.0%	1	16.7%	4	66.7%	
White	21	4.8%	3	14.3%	2	9.5%	7	33.3%	8	38.1%	
Other	7	0.0%	0	0.0%	2	28.6%	4	57.1%	1	14.3%	
Unknown	202	28.2%	15	7.4%	24	11.9%	47	23.3%	59	29.2%	
<i>Accord tacrolimus</i>											
Black or African American	10	0.0%	1	10.0%	2	20.0%	5	50.0%	2	20.0%	
White	56	5.4%	4	7.1%	9	16.1%	16	28.6%	24	42.9%	
Other	5	0.0%	0	0.0%	0	0.0%	2	40.0%	3	60.0%	
Unknown	364	25.3%	50	13.7%	65	17.9%	77	21.2%	80	22.0%	
<i>Sandoz tacrolimus</i>											
Black or African American	19	0.0%	2	10.5%	3	15.8%	4	21.1%	10	52.6%	
White	159	3.8%	9	5.7%	29	18.2%	50	31.4%	65	40.9%	
Other	25	0.0%	1	4.0%	6	24.0%	4	16.0%	14	56.0%	
Unknown	367	23.4%	31	8.4%	55	15.0%	94	25.6%	101	27.5%	
<i>Mylan tacrolimus</i>											
Black or African American	2	0.0%	1	50.0%	1	50.0%	0	0.0%	0	0.0%	
White	11	0.0%	2	18.2%	4	36.4%	3	27.3%	2	18.2%	
Other	2	0.0%	1	50.0%	0	0.0%	1	50.0%	0	0.0%	
Unknown	48	20.8%	5	10.4%	12	25.0%	14	29.2%	7	14.6%	
<i>Astellas tacrolimus</i>											
Black or African American	9	0.0%	3	33.3%	2	22.2%	3	33.3%	1	11.1%	
White	44	2.3%	1	2.3%	5	11.4%	19	43.2%	18	40.9%	
Other	6	0.0%	1	16.7%	2	33.3%	1	16.7%	2	33.3%	
Unknown	235	22.6%	17	7.2%	32	13.6%	49	20.9%	84	35.7%	

**Table 2d. Time Between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Number	Time of Tacrolimus Dispensing Prior to Discharge in Days									
		≥21 days		11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Kidney transplant</b>											
<i>Any oral tacrolimus*</i>											
Black or African American	295	2	0.7%	10	3.4%	36	12.2%	92	31.2%	155	52.5%
White	666	2	0.3%	12	1.8%	48	7.2%	196	29.4%	408	61.3%
Other	231	1	0.4%	4	1.7%	6	2.6%	64	27.7%	156	67.5%
Unknown	2,101	25	1.2%	160	7.6%	210	10.0%	741	35.3%	965	45.9%
<i>Dr Reddy's tacrolimus</i>											
Black or African American	31	0	0.0%	3	9.7%	5	16.1%	12	38.7%	11	35.5%
White	55	0	0.0%	2	3.6%	2	3.6%	21	38.2%	30	54.5%
Other	4	0	0.0%	1	25.0%	0	0.0%	2	50.0%	1	25.0%
Unknown	328	2	0.6%	21	6.4%	40	12.2%	109	33.2%	156	47.6%
<i>Accord tacrolimus</i>											
Black or African American	41	1	2.4%	1	2.4%	6	14.6%	14	34.1%	19	46.3%
White	105	1	1.0%	0	0.0%	12	11.4%	36	34.3%	56	53.3%
Other	14	0	0.0%	1	7.1%	2	14.3%	6	42.9%	5	35.7%
Unknown	646	7	1.1%	82	12.7%	64	9.9%	225	34.8%	268	41.5%
<i>Sandoz tacrolimus</i>											
Black or African American	175	1	0.6%	6	3.4%	19	10.9%	52	29.7%	97	55.4%
White	371	1	0.3%	8	2.2%	22	5.9%	97	26.1%	243	65.5%
Other	188	1	0.5%	2	1.1%	4	2.1%	47	25.0%	134	71.3%
Unknown	626	11	1.8%	42	6.7%	64	10.2%	209	33.4%	300	47.9%

**Table 2d. Time Between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Time of Tacrolimus Dispensing Prior to Discharge in Days										
	≥21 days		11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<i>Mylan tacrolimus</i>											
Black or African American	6	0.0%	1	16.7%	2	33.3%	2	33.3%	1	16.7%	
White	10	0.0%	0	0.0%	0	0.0%	4	40.0%	6	60.0%	
Other	3	0.0%	0	0.0%	0	0.0%	1	33.3%	2	66.7%	
Unknown	78	2.6%	2	2.6%	8	10.3%	28	35.9%	38	48.7%	
<i>Astellas tacrolimus</i>											
Black or African American	47	2.1%	0	0.0%	5	10.6%	13	27.7%	28	59.6%	
White	134	0.0%	2	1.5%	12	9.0%	42	31.3%	78	58.2%	
Other	23	0.0%	0	0.0%	0	0.0%	8	34.8%	15	65.2%	
Unknown	441	0.7%	12	2.7%	36	8.2%	169	38.3%	221	50.1%	

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2e. Time Between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Number	Time from Discharge to Tacrolimus Dispensing in Days									
		1-2 days		3-5 days		6-10 days		11-20 days		21-60 days	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>											
<i>Any oral tacrolimus*</i>											
Black or African American	22	2	9.1%	3	13.6%	4	18.2%	6	27.3%	7	31.8%
White	190	62	32.6%	18	9.5%	22	11.6%	35	18.4%	53	27.9%
Other	22	2	9.1%	3	13.6%	6	27.3%	4	18.2%	7	31.8%
Unknown	324	70	21.6%	37	11.4%	63	19.4%	56	17.3%	98	30.2%
<i>Dr Reddy's tacrolimus</i>											
Black or African American	4	0	0.0%	0	0.0%	0	0.0%	2	50.0%	2	50.0%
White	17	6	35.3%	3	17.6%	2	11.8%	2	11.8%	4	23.5%
Other	0	0	----	0	----	0	----	0	----	0	----
Unknown	56	13	23.2%	4	7.1%	16	28.6%	8	14.3%	15	26.8%
<i>Accord tacrolimus</i>											
Black or African American	1	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
White	24	11	45.8%	1	4.2%	4	16.7%	2	8.3%	6	25.0%
Other	0	0	----	0	----	0	----	0	----	0	----
Unknown	97	24	24.7%	10	10.3%	15	15.5%	19	19.6%	29	29.9%
<i>Sandoz tacrolimus</i>											
Black or African American	11	1	9.1%	2	18.2%	1	9.1%	3	27.3%	4	36.4%
White	114	35	30.7%	10	8.8%	12	10.5%	24	21.1%	33	28.9%
Other	17	2	11.8%	2	11.8%	5	29.4%	2	11.8%	6	35.3%
Unknown	88	15	17.0%	12	13.6%	20	22.7%	16	18.2%	25	28.4%
<i>Mylan tacrolimus</i>											
Black or African American	0	0	----	0	----	0	----	0	----	0	----
White	5	1	20.0%	0	0.0%	1	20.0%	0	0.0%	3	60.0%
Other	0	0	----	0	----	0	----	0	----	0	----
Unknown	18	3	16.7%	2	11.1%	2	11.1%	6	33.3%	5	27.8%
<i>Astellas tacrolimus</i>											
Black or African American	4	1	25.0%	1	25.0%	1	25.0%	0	0.0%	1	25.0%
White	31	8	25.8%	4	12.9%	4	12.9%	6	19.4%	9	29.0%
Other	5	0	0.0%	1	20.0%	1	20.0%	2	40.0%	1	20.0%
Unknown	62	13	21.0%	9	14.5%	10	16.1%	7	11.3%	23	37.1%

**Table 2e. Time Between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Time from Discharge to Tacrolimus Dispensing in Days										
	1-2 days			3-5 days		6-10 days		11-20 days		21-60 days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Kidney transplant</b>											
<i>Any oral tacrolimus*</i>											
Black or African American	124	57	46.0%	22	17.7%	11	8.9%	14	11.3%	20	16.1%
White	218	103	47.2%	41	18.8%	13	6.0%	19	8.7%	42	19.3%
Other	105	50	47.6%	23	21.9%	8	7.6%	4	3.8%	20	19.0%
Unknown	660	225	34.1%	81	12.3%	63	9.5%	90	13.6%	201	30.5%
<i>Dr Reddy's tacrolimus</i>											
Black or African American	3	0	0.0%	1	33.3%	0	0.0%	0	0.0%	2	66.7%
White	18	7	38.9%	4	22.2%	0	0.0%	3	16.7%	4	22.2%
Other	6	4	66.7%	0	0.0%	0	0.0%	0	0.0%	2	33.3%
Unknown	150	29	19.3%	13	8.7%	22	14.7%	30	20.0%	56	37.3%
<i>Accord tacrolimus</i>											
Black or African American	21	8	38.1%	3	14.3%	0	0.0%	6	28.6%	4	19.0%
White	34	15	44.1%	3	8.8%	0	0.0%	6	17.6%	10	29.4%
Other	7	2	28.6%	3	42.9%	1	14.3%	0	0.0%	1	14.3%
Unknown	169	55	32.5%	25	14.8%	16	9.5%	20	11.8%	53	31.4%
<i>Sandoz tacrolimus</i>											
Black or African American	69	34	49.3%	13	18.8%	8	11.6%	4	5.8%	10	14.5%
White	117	61	52.1%	24	20.5%	10	8.5%	6	5.1%	16	13.7%
Other	74	38	51.4%	18	24.3%	5	6.8%	3	4.1%	10	13.5%
Unknown	189	84	44.4%	22	11.6%	9	4.8%	20	10.6%	54	28.6%
<i>Mylan tacrolimus</i>											
Black or African American	3	2	66.7%	1	33.3%	0	0.0%	0	0.0%	0	0.0%
White	6	0	0.0%	2	33.3%	0	0.0%	2	33.3%	2	33.3%
Other	0	0	----	0	----	0	----	0	----	0	----
Unknown	25	10	40.0%	5	20.0%	2	8.0%	4	16.0%	4	16.0%
<i>Astellas tacrolimus</i>											
Black or African American	29	14	48.3%	5	17.2%	3	10.3%	3	10.3%	4	13.8%
White	43	20	46.5%	8	18.6%	3	7.0%	2	4.7%	10	23.3%
Other	18	6	33.3%	2	11.1%	2	11.1%	1	5.6%	7	38.9%
Unknown	126	49	38.9%	16	12.7%	13	10.3%	15	11.9%	33	26.2%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing after hospital discharge

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 2f. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing on Hospital Discharge Date, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Time from Discharge to Tacrolimus Dispensing in Days	
	Number	0 days
<b>Liver transplant</b>		
<i>Any oral tacrolimus*</i>		
Black or African American	26	26
White	313	313
Other	64	64
Unknown	280	280
<i>Dr Reddy's tacrolimus</i>		
Black or African American	2	2
White	7	7
Other	0	0
Unknown	41	41
<i>Accord tacrolimus</i>		
Black or African American	3	3
White	51	51
Other	2	2
Unknown	75	75
<i>Sandoz tacrolimus</i>		
Black or African American	16	16
White	214	214
Other	56	56
Unknown	99	99
<i>Mylan tacrolimus</i>		
Black or African American	0	0
White	7	7
Other	0	0
Unknown	14	14
<i>Astellas tacrolimus</i>		
Black or African American	5	5
White	36	36
Other	6	6
Unknown	52	52
<b>Kidney transplant</b>		
<i>Any oral tacrolimus*</i>		
Black or African American	274	274
White	644	644
Other	377	377
Unknown	767	767
<i>Dr Reddy's tacrolimus</i>		
Black or African American	12	12
White	28	28
Other	7	7
Unknown	86	86
<i>Accord tacrolimus</i>		
Black or African American	18	18
White	46	46
Other	3	3
Unknown	136	136



**Table 2f. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing on Hospital Discharge Date, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Time from Discharge to Tacrolimus Dispensing in Days	
	Number	0 days
<b>Kidney transplant</b>		
<i>Sandoz tacrolimus</i>		
Black or African American	207	207
White	472	472
Other	328	328
Unknown	378	378
<i>Mylan tacrolimus</i>		
Black or African American	4	4
White	6	6
Other	0	0
Unknown	19	19
<i>Astellas tacrolimus</i>		
Black or African American	33	33
White	91	91
Other	39	39
Unknown	152	152

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 2g. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time of Tacrolimus Dispensing Prior to Discharge in Days										
	≥21 days		11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>											
<i>Any oral tacrolimus*</i>											
Census Bureau Region: NE	189	18	9.5%	22	11.6%	39	20.6%	45	23.8%	65	34.4%
Census Bureau Region: MW	288	112	38.9%	22	7.6%	36	12.5%	51	17.7%	67	23.3%
Census Bureau Region: S	729	125	17.1%	75	10.3%	123	16.9%	205	28.1%	201	27.6%
Census Bureau Region: W	388	52	13.4%	28	7.2%	57	14.7%	101	26.0%	150	38.7%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	5	2	40.0%	0	0.0%	1	20.0%	1	20.0%	1	20.0%
<i>Dr Reddy's tacrolimus</i>											
Census Bureau Region: NE	34	3	8.8%	3	8.8%	6	17.6%	7	20.6%	15	44.1%
Census Bureau Region: MW	42	20	47.6%	1	2.4%	6	14.3%	6	14.3%	9	21.4%
Census Bureau Region: S	87	17	19.5%	10	11.5%	12	13.8%	24	27.6%	24	27.6%
Census Bureau Region: W	70	17	24.3%	5	7.1%	4	5.7%	21	30.0%	23	32.9%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	3	1	33.3%	0	0.0%	0	0.0%	1	33.3%	1	33.3%
<i>Accord tacrolimus</i>											
Census Bureau Region: NE	67	10	14.9%	14	20.9%	16	23.9%	17	25.4%	10	14.9%
Census Bureau Region: MW	84	34	40.5%	7	8.3%	10	11.9%	13	15.5%	20	23.8%
Census Bureau Region: S	197	35	17.8%	25	12.7%	33	16.8%	52	26.4%	52	26.4%
Census Bureau Region: W	87	16	18.4%	9	10.3%	17	19.5%	18	20.7%	27	31.0%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<i>Sandoz tacrolimus</i>											
Census Bureau Region: NE	52	4	7.7%	3	5.8%	10	19.2%	13	25.0%	22	42.3%
Census Bureau Region: MW	92	34	37.0%	5	5.4%	10	10.9%	22	23.9%	21	22.8%
Census Bureau Region: S	244	38	15.6%	24	9.8%	42	17.2%	73	29.9%	67	27.5%
Census Bureau Region: W	180	15	8.3%	11	6.1%	30	16.7%	44	24.4%	80	44.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	2	1	50.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%

**Table 2g. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time of Tacrolimus Dispensing Prior to Discharge in Days										
	≥21 days			11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Mylan tacrolimus</i>											
Census Bureau Region: NE	5	1	20.0%	1	20.0%	2	40.0%	1	20.0%	0	0.0%
Census Bureau Region: MW	14	5	35.7%	1	7.1%	3	21.4%	2	14.3%	3	21.4%
Census Bureau Region: S	24	2	8.3%	3	12.5%	10	41.7%	6	25.0%	3	12.5%
Census Bureau Region: W	20	2	10.0%	4	20.0%	2	10.0%	9	45.0%	3	15.0%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<i>Astellas tacrolimus</i>											
Census Bureau Region: NE	33	0	0.0%	2	6.1%	5	15.2%	7	21.2%	19	57.6%
Census Bureau Region: MW	52	16	30.8%	8	15.4%	7	13.5%	7	13.5%	14	26.9%
Census Bureau Region: S	171	35	20.5%	12	7.0%	25	14.6%	48	28.1%	51	29.8%
Census Bureau Region: W	38	3	7.9%	0	0.0%	4	10.5%	10	26.3%	21	55.3%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<b>Kidney transplant</b>											
<i>Any oral tacrolimus*</i>											
Census Bureau Region: NE	531	3	0.6%	12	2.3%	46	8.7%	245	46.1%	225	42.4%
Census Bureau Region: MW	468	3	0.6%	61	13.0%	40	8.5%	117	25.0%	247	52.8%
Census Bureau Region: S	1,193	10	0.8%	76	6.4%	149	12.5%	411	34.5%	547	45.9%
Census Bureau Region: W	1,085	14	1.3%	37	3.4%	62	5.7%	316	29.1%	656	60.5%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	16	0	0.0%	0	0.0%	3	18.8%	4	25.0%	9	56.3%
<i>Dr Reddy's tacrolimus</i>											
Census Bureau Region: NE	70	0	0.0%	2	2.9%	5	7.1%	34	48.6%	29	41.4%
Census Bureau Region: MW	55	0	0.0%	12	21.8%	4	7.3%	10	18.2%	29	52.7%
Census Bureau Region: S	198	1	0.5%	10	5.1%	29	14.6%	76	38.4%	82	41.4%
Census Bureau Region: W	89	1	1.1%	3	3.4%	7	7.9%	22	24.7%	56	62.9%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	6	0	0.0%	0	0.0%	2	33.3%	2	33.3%	2	33.3%

**Table 2g. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing During Hospital Stay, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time of Tacrolimus Dispensing Prior to Discharge in Days										
	≥21 days			11 - 20 days		6 - 10 days		3 - 5 days		1 - 2 days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Accord tacrolimus</i>											
Census Bureau Region: NE	158	2	1.3%	6	3.8%	18	11.4%	63	39.9%	69	43.7%
Census Bureau Region: MW	139	2	1.4%	28	20.1%	17	12.2%	36	25.9%	56	40.3%
Census Bureau Region: S	338	4	1.2%	38	11.2%	38	11.2%	114	33.7%	144	42.6%
Census Bureau Region: W	168	1	0.6%	12	7.1%	11	6.5%	66	39.3%	78	46.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	3	0	0.0%	0	0.0%	0	0.0%	2	66.7%	1	33.3%
<i>Sandoz tacrolimus</i>											
Census Bureau Region: NE	140	0	0.0%	3	2.1%	11	7.9%	69	49.3%	57	40.7%
Census Bureau Region: MW	151	1	0.7%	18	11.9%	11	7.3%	38	25.2%	83	55.0%
Census Bureau Region: S	364	4	1.1%	19	5.2%	57	15.7%	116	31.9%	168	46.2%
Census Bureau Region: W	701	9	1.3%	18	2.6%	30	4.3%	182	26.0%	462	65.9%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	100.0%
<i>Mylan tacrolimus</i>											
Census Bureau Region: NE	15	0	0.0%	0	0.0%	3	20.0%	7	46.7%	5	33.3%
Census Bureau Region: MW	16	0	0.0%	0	0.0%	0	0.0%	4	25.0%	12	75.0%
Census Bureau Region: S	41	1	2.4%	2	4.9%	4	9.8%	15	36.6%	19	46.3%
Census Bureau Region: W	24	1	4.2%	1	4.2%	3	12.5%	9	37.5%	10	41.7%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
<i>Astellas tacrolimus</i>											
Census Bureau Region: NE	150	1	0.7%	2	1.3%	9	6.0%	70	46.7%	68	45.3%
Census Bureau Region: MW	112	0	0.0%	2	1.8%	9	8.0%	29	25.9%	72	64.3%
Census Bureau Region: S	268	1	0.4%	7	2.6%	23	8.6%	94	35.1%	143	53.4%
Census Bureau Region: W	113	2	1.8%	3	2.7%	11	9.7%	39	34.5%	58	51.3%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	2	0	0.0%	0	0.0%	1	50.0%	0	0.0%	1	50.0%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 2h. Time between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time from Discharge to Tacrolimus Dispensing in Days										
	1-2 days			3-5 days		6-10 days		11-20 days		21-60 days	
Bureau Region	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>											
<i>Any oral tacrolimus*</i>											
Census Bureau Region: NE	60	11	18.3%	6	10.0%	12	20.0%	11	18.3%	20	33.3%
Census Bureau Region: MW	106	16	15.1%	7	6.6%	24	22.6%	23	21.7%	36	34.0%
Census Bureau Region: S	214	63	29.4%	24	11.2%	33	15.4%	35	16.4%	59	27.6%
Census Bureau Region: W	177	46	26.0%	23	13.0%	26	14.7%	32	18.1%	50	28.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
<i>Dr Reddy's tacrolimus</i>											
Census Bureau Region: NE	20	3	15.0%	1	5.0%	6	30.0%	2	10.0%	8	40.0%
Census Bureau Region: MW	11	1	9.1%	1	9.1%	1	9.1%	4	36.4%	4	36.4%
Census Bureau Region: S	30	9	30.0%	4	13.3%	6	20.0%	4	13.3%	7	23.3%
Census Bureau Region: W	16	6	37.5%	1	6.3%	5	31.3%	2	12.5%	2	12.5%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<i>Accord tacrolimus</i>											
Census Bureau Region: NE	15	3	20.0%	0	0.0%	4	26.7%	4	26.7%	4	26.7%
Census Bureau Region: MW	21	4	19.0%	0	0.0%	4	19.0%	5	23.8%	8	38.1%
Census Bureau Region: S	59	24	40.7%	6	10.2%	10	16.9%	7	11.9%	12	20.3%
Census Bureau Region: W	26	4	15.4%	4	15.4%	2	7.7%	5	19.2%	11	42.3%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
<i>Sandoz tacrolimus</i>											
Census Bureau Region: NE	11	1	9.1%	3	27.3%	2	18.2%	2	18.2%	3	27.3%
Census Bureau Region: MW	45	8	17.8%	2	4.4%	11	24.4%	10	22.2%	14	31.1%
Census Bureau Region: S	63	14	22.2%	4	6.3%	9	14.3%	14	22.2%	22	34.9%
Census Bureau Region: W	111	30	27.0%	17	15.3%	16	14.4%	19	17.1%	29	26.1%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----

**Table 2h. Time between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time from Discharge to Tacrolimus Dispensing in Days										
	1-2 days			3-5 days		6-10 days		11-20 days		21-60 days	
Bureau Region	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Mylan tacrolimus</i>											
Census Bureau Region: NE	3	1	33.3%	0	0.0%	0	0.0%	0	0.0%	2	66.7%
Census Bureau Region: MW	7	0	0.0%	1	14.3%	2	28.6%	3	42.9%	1	14.3%
Census Bureau Region: S	8	2	25.0%	0	0.0%	1	12.5%	2	25.0%	3	37.5%
Census Bureau Region: W	5	1	20.0%	1	20.0%	0	0.0%	1	20.0%	2	40.0%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<i>Astellas tacrolimus</i>											
Census Bureau Region: NE	11	3	27.3%	2	18.2%	1	9.1%	2	18.2%	3	27.3%
Census Bureau Region: MW	21	2	9.5%	3	14.3%	6	28.6%	1	4.8%	9	42.9%
Census Bureau Region: S	51	13	25.5%	10	19.6%	6	11.8%	6	11.8%	16	31.4%
Census Bureau Region: W	19	4	21.1%	0	0.0%	3	15.8%	6	31.6%	6	31.6%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<b>Kidney transplant</b>											
<i>Any oral tacrolimus*</i>											
Census Bureau Region: NE	134	63	47.0%	21	15.7%	11	8.2%	14	10.4%	25	18.7%
Census Bureau Region: MW	203	61	30.0%	27	13.3%	16	7.9%	30	14.8%	69	34.0%
Census Bureau Region: S	364	119	32.7%	42	11.5%	43	11.8%	59	16.2%	101	27.7%
Census Bureau Region: W	402	190	47.3%	77	19.2%	25	6.2%	24	6.0%	86	21.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	4	2	50.0%	0	0.0%	0	0.0%	0	0.0%	2	50.0%
<i>Dr Reddy's tacrolimus</i>											
Census Bureau Region: NE	24	7	29.2%	1	4.2%	3	12.5%	6	25.0%	7	29.2%
Census Bureau Region: MW	50	5	10.0%	7	14.0%	6	12.0%	9	18.0%	23	46.0%
Census Bureau Region: S	65	12	18.5%	6	9.2%	11	16.9%	15	23.1%	21	32.3%
Census Bureau Region: W	37	16	43.2%	4	10.8%	2	5.4%	3	8.1%	12	32.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%

**Table 2h. Time between Hospital Discharge and First Dispensing for Tacrolimus among Patients with First Dispensing within 60 Days After Hospital Discharge, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time from Discharge to Tacrolimus Dispensing in Days										
	1-2 days			3-5 days		6-10 days		11-20 days		21-60 days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Accord tacrolimus</i>											
Census Bureau Region: NE	40	14	35.0%	9	22.5%	5	12.5%	2	5.0%	10	25.0%
Census Bureau Region: MW	56	19	33.9%	5	8.9%	3	5.4%	10	17.9%	19	33.9%
Census Bureau Region: S	80	27	33.8%	11	13.8%	7	8.8%	15	18.8%	20	25.0%
Census Bureau Region: W	54	19	35.2%	9	16.7%	2	3.7%	5	9.3%	19	35.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<i>Sandoz tacrolimus</i>											
Census Bureau Region: NE	40	27	67.5%	8	20.0%	2	5.0%	1	2.5%	2	5.0%
Census Bureau Region: MW	43	18	41.9%	4	9.3%	3	7.0%	6	14.0%	12	27.9%
Census Bureau Region: S	101	32	31.7%	9	8.9%	10	9.9%	13	12.9%	37	36.6%
Census Bureau Region: W	263	139	52.9%	56	21.3%	17	6.5%	13	4.9%	38	14.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	2	1	50.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%
<i>Mylan tacrolimus</i>											
Census Bureau Region: NE	6	3	50.0%	0	0.0%	0	0.0%	1	16.7%	2	33.3%
Census Bureau Region: MW	7	1	14.3%	3	42.9%	2	28.6%	1	14.3%	0	0.0%
Census Bureau Region: S	14	7	50.0%	2	14.3%	0	0.0%	3	21.4%	2	14.3%
Census Bureau Region: W	7	1	14.3%	3	42.9%	0	0.0%	1	14.3%	2	28.6%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----
<i>Astellas tacrolimus</i>											
Census Bureau Region: NE	25	13	52.0%	3	12.0%	1	4.0%	4	16.0%	4	16.0%
Census Bureau Region: MW	46	17	37.0%	8	17.4%	2	4.3%	4	8.7%	15	32.6%
Census Bureau Region: S	102	43	42.2%	13	12.7%	14	13.7%	11	10.8%	21	20.6%
Census Bureau Region: W	43	16	37.2%	7	16.3%	4	9.3%	2	4.7%	14	32.6%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----

This table includes a subset of transplant recipients who also had a tacrolimus dispensing after hospital discharge

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 2i. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing on Hospital Discharge Date, by Organ-Product Pair and Census Bureau Region**

Time from Discharge to Tacrolimus Dispensing in Days		
Group by Organ-Product Pair and Census Bureau Region	Number	0 days
<b>Liver transplant</b>		
<i>Any oral tacrolimus*</i>		
Census Bureau Region: NE	42	42
Census Bureau Region: MW	123	123
Census Bureau Region: S	154	154
Census Bureau Region: W	363	363
Census Bureau Region: Other	1	1
Census Bureau Region: Missing	0	0
<i>Dr Reddy's tacrolimus</i>		
Census Bureau Region: NE	9	9
Census Bureau Region: MW	13	13
Census Bureau Region: S	17	17
Census Bureau Region: W	11	11
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Accord tacrolimus</i>		
Census Bureau Region: NE	13	13
Census Bureau Region: MW	36	36
Census Bureau Region: S	61	61
Census Bureau Region: W	21	21
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Sandoz tacrolimus</i>		
Census Bureau Region: NE	9	9
Census Bureau Region: MW	44	44
Census Bureau Region: S	34	34
Census Bureau Region: W	297	297
Census Bureau Region: Other	1	1
Census Bureau Region: Missing	0	0
<i>Mylan tacrolimus</i>		
Census Bureau Region: NE	3	3
Census Bureau Region: MW	7	7
Census Bureau Region: S	6	6
Census Bureau Region: W	5	5
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Astellas tacrolimus</i>		
Census Bureau Region: NE	8	8
Census Bureau Region: MW	22	22
Census Bureau Region: S	37	37
Census Bureau Region: W	32	32
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0



**Table 2i. Time between First Dispensing for Tacrolimus and Hospital Discharge among Patients with First Dispensing on Hospital Discharge Date, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Time from Discharge to Tacrolimus Dispensing in Days	
	Number	0 days
<b>Kidney transplant</b>		
<i>Any oral tacrolimus*</i>		
Census Bureau Region: NE	111	111
Census Bureau Region: MW	224	224
Census Bureau Region: S	400	400
Census Bureau Region: W	1,324	1,324
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	3	3
<i>Dr Reddy's tacrolimus</i>		
Census Bureau Region: NE	16	16
Census Bureau Region: MW	27	27
Census Bureau Region: S	64	64
Census Bureau Region: W	26	26
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Accord tacrolimus</i>		
Census Bureau Region: NE	24	24
Census Bureau Region: MW	61	61
Census Bureau Region: S	76	76
Census Bureau Region: W	40	40
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	2	2
<i>Sandoz tacrolimus</i>		
Census Bureau Region: NE	41	41
Census Bureau Region: MW	78	78
Census Bureau Region: S	152	152
Census Bureau Region: W	1,114	1,114
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Mylan tacrolimus</i>		
Census Bureau Region: NE	2	2
Census Bureau Region: MW	6	6
Census Bureau Region: S	18	18
Census Bureau Region: W	3	3
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0
<i>Astellas tacrolimus</i>		
Census Bureau Region: NE	29	29
Census Bureau Region: MW	56	56
Census Bureau Region: S	89	89
Census Bureau Region: W	141	141
Census Bureau Region: Other	0	0
Census Bureau Region: Missing	0	0

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 3. Total Enrolled Follow-up Time\* Following Organ Transplant in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020**

Group by Organ Transplant	Summary Statistics (Days)							
	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
Liver transplant	3,464	870.2	846.6	1	228	580	1,252	3,791
Kidney transplant	8,708	1,062.8	929.7	1	296	779	1,622	3,851

\*Follow-up was truncated at disenrollment, death, or data partner end date

**Table 4a. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary Statistics (Days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Any oral tacrolimus*	1,599	486.5	569.52	1	120	289	618	3,629
Dr Reddy's tacrolimus	236	222.8	324.42	1	30	89	296	2,406
Accord tacrolimus	435	172	239.09	1	30	65	212	1,342
Sandoz tacrolimus	570	229.7	401.78	1	30	83	242	3,278
Mylan tacrolimus	63	81.1	92.64	1	29	54	95	509
Astellas tacrolimus	294	277.8	404.63	3	51	127	300	2,330
<b>Kidney transplant</b>								
Any oral tacrolimus*	3,293	550.3	664.27	1	119	288	734	3,760
Dr Reddy's tacrolimus	418	245.3	377.74	1	30	90	265	2,596
Accord tacrolimus	806	169.7	272.24	1	27	60	200	1,947
Sandoz tacrolimus	1,360	388.1	602.54	1	32	128	423	3,202
Mylan tacrolimus	97	79.2	105.24	1	21	35	90	560
Astellas tacrolimus	645	323.9	468.82	1	48	134	398	3,592

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4a. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Duration of use (days)											
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>												
Any oral tacrolimus*	127	7.9%	99	6.2%	90	5.6%	254	15.9%	361	22.6%	668	41.8%
Dr Reddy's	69	29.2%	35	14.8%	20	8.5%	27	11.4%	37	15.7%	48	20.3%
Accord tacrolimus	155	35.6%	56	12.9%	43	9.9%	57	13.1%	56	12.9%	68	15.6%
Sandoz tacrolimus	179	31.4%	75	13.2%	55	9.6%	84	14.7%	78	13.7%	99	17.4%
Mylan tacrolimus	24	38.1%	16	25.4%	5	7.9%	11	17.5%	5	7.9%	2	3.2%
Astellas tacrolimus	58	19.7%	38	12.9%	22	7.5%	61	20.7%	54	18.4%	61	20.7%
<b>Kidney transplant</b>												
Any oral tacrolimus*	264	8.0%	209	6.3%	198	6.0%	559	17.0%	654	19.9%	1,409	42.8%
Dr Reddy's	112	26.8%	59	14.1%	44	10.5%	65	15.6%	50	12.0%	88	21.1%
Accord tacrolimus	311	38.6%	111	13.8%	66	8.2%	103	12.8%	116	14.4%	99	12.3%
Sandoz tacrolimus	337	24.8%	148	10.9%	95	7.0%	208	15.3%	201	14.8%	371	27.3%
Mylan tacrolimus	45	46.4%	15	15.5%	13	13.4%	14	14.4%	6	6.2%	4	4.1%
Astellas tacrolimus	140	21.7%	57	8.8%	62	9.6%	107	16.6%	106	16.4%	173	26.8%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4b. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary Statistics (Days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Any oral tacrolimus*	558	433.7	521.96	1	116	269	528	3,397
Dr Reddy's tacrolimus	77	178.5	259.5	1	24	79	238	1,620
Accord tacrolimus	122	185.7	262.28	1	30	82	256	1,696
Sandoz tacrolimus	230	219.1	346.07	1	30	95	298	2,819
Mylan tacrolimus	23	82.5	91.42	1	24	55	90	340
Astellas tacrolimus	102	299.5	445.14	2	60	152	333	2,535
<b>Kidney transplant</b>								
Any oral tacrolimus*	1,107	456.2	645.2	1	72	210	517	3,576
Dr Reddy's tacrolimus	177	244.5	376.72	1	30	109	266	2,296
Accord tacrolimus	231	186.1	313.45	1	30	63	199	2,176
Sandoz tacrolimus	449	367.7	593.17	1	32	120	393	3,205
Mylan tacrolimus	34	69	81.82	1	26	34	89	361
Astellas tacrolimus	216	262.6	341.97	1	47	120	346	2,051

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge.

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4b. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Duration of use (days)											
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>												
Any oral tacrolimus*	54	9.7%	35	6.3%	32	5.7%	100	17.9%	123	22.0%	214	38.4%
Dr Reddy's tacrolimus	27	35.1%	9	11.7%	5	6.5%	13	16.9%	12	15.6%	11	14.3%
Accord tacrolimus	43	35.2%	10	8.2%	14	11.5%	16	13.1%	19	15.6%	20	16.4%
Sandoz tacrolimus	63	27.4%	32	13.9%	16	7.0%	45	19.6%	34	14.8%	40	17.4%
Mylan tacrolimus	10	43.5%	3	13.0%	5	21.7%	2	8.7%	3	13.0%	0	0.0%
Astellas tacrolimus	20	19.6%	7	6.9%	12	11.8%	22	21.6%	19	18.6%	22	21.6%
<b>Kidney transplant</b>												
Any oral tacrolimus*	166	15.0%	77	7.0%	91	8.2%	182	16.4%	206	18.6%	385	34.8%
Dr Reddy's tacrolimus	45	25.4%	13	7.3%	20	11.3%	34	19.2%	34	19.2%	31	17.5%
Accord tacrolimus	74	32.0%	40	17.3%	21	9.1%	34	14.7%	31	13.4%	31	13.4%
Sandoz tacrolimus	110	24.5%	53	11.8%	42	9.4%	59	13.1%	66	14.7%	119	26.5%
Mylan tacrolimus	17	50.0%	3	8.8%	8	23.5%	2	5.9%	4	11.8%	0	0.0%
Astellas tacrolimus	53	24.5%	14	6.5%	21	9.7%	39	18.1%	38	17.6%	51	23.6%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge.

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4c. Duration of Continuous Tacrolimus Use<sup>1</sup> Among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary Statistics (Days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Any oral tacrolimus*	683	469.6	615.04	1	97	240	569	3,728
Dr Reddy's tacrolimus	50	214.5	397.08	1	21	60	202	2,174
Accord tacrolimus	131	203	253.43	1	30	95	270	1,361
Sandoz tacrolimus	385	353.2	533.87	1	62	169	429	3,292
Mylan tacrolimus	21	82.4	85.96	1	30	38	134	285
Astellas tacrolimus	99	325.5	503.75	1	41	144	339	3,083
<b>Kidney transplant</b>								
Any oral tacrolimus*	2,062	653.3	786.99	2	100	309	906	3,554
Dr Reddy's tacrolimus	133	172.5	293.91	1	30	64	193	2,029
Accord tacrolimus	203	150.7	223.45	1	29	68	170	1,425
Sandoz tacrolimus	1,385	612.5	782.4	1	71	240	867	3,177
Mylan tacrolimus	29	76.9	90.05	1	25	38	62	310
Astellas tacrolimus	315	310.2	459.91	1	71	170	321	3,334

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4c. Duration of Continuous Tacrolimus Use<sup>1</sup> Among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Duration of use (days)											
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>												
Any oral tacrolimus*	71	10.4%	40	5.9%	52	7.6%	119	17.4%	138	20.2%	263	38.5%
Dr Reddy's tacrolimus	20	40.0%	7	14.0%	6	12.0%	4	8.0%	5	10.0%	8	16.0%
Accord tacrolimus	38	29.0%	15	11.5%	12	9.2%	21	16.0%	19	14.5%	26	19.8%
Sandoz tacrolimus	73	19.0%	23	6.0%	32	8.3%	71	18.4%	75	19.5%	111	28.8%
Mylan tacrolimus	9	42.9%	5	23.8%	1	4.8%	3	14.3%	3	14.3%	0	0.0%
Astellas tacrolimus	22	22.2%	10	10.1%	10	10.1%	14	14.1%	21	21.2%	22	22.2%
<b>Kidney transplant</b>												
Any oral tacrolimus*	202	9.8%	99	4.8%	134	6.5%	338	16.4%	342	16.6%	947	45.9%
Dr Reddy's tacrolimus	47	35.3%	16	12.0%	12	9.0%	22	16.5%	22	16.5%	14	10.5%
Accord tacrolimus	72	35.5%	24	11.8%	23	11.3%	38	18.7%	26	12.8%	20	9.9%
Sandoz tacrolimus	235	17.0%	84	6.1%	100	7.2%	189	13.6%	203	14.7%	574	41.4%
Mylan tacrolimus	14	48.3%	6	20.7%	3	10.3%	1	3.4%	5	17.2%	0	0.0%
Astellas tacrolimus	49	15.6%	20	6.3%	25	7.9%	74	23.5%	81	25.7%	66	21.0%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507



**Table 4d. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	47	4	8.5%	2	4.3%	3	6.4%	8	17.0%	10	21.3%	20	42.6%
White	291	31	10.7%	17	5.8%	20	6.9%	46	15.8%	52	17.9%	125	43.0%
Other	45	1	2.2%	4	8.9%	3	6.7%	10	22.2%	7	15.6%	20	44.4%
Unknown	1,216	91	7.5%	76	6.3%	64	5.3%	190	15.6%	292	24.0%	503	41.4%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	6	2	33.3%	2	33.3%	0	0.0%	1	16.7%	1	16.7%	0	0.0%
White	21	6	28.6%	6	28.6%	0	0.0%	2	9.5%	1	4.8%	6	28.6%
Other	7	1	14.3%	1	14.3%	3	42.9%	0	0.0%	0	0.0%	2	28.6%
Unknown	202	60	29.7%	26	12.9%	17	8.4%	24	11.9%	35	17.3%	40	19.8%
<i>Accord tacrolimus</i>													
Black or African American	10	4	40.0%	1	10.0%	3	30.0%	2	20.0%	0	0.0%	0	0.0%
White	56	14	25.0%	8	14.3%	12	21.4%	11	19.6%	6	10.7%	5	8.9%
Other	5	0	0.0%	0	0.0%	1	20.0%	2	40.0%	2	40.0%	0	0.0%
Unknown	364	137	37.6%	47	12.9%	27	7.4%	42	11.5%	48	13.2%	63	17.3%
<i>Sandoz tacrolimus</i>													
Black or African American	19	6	31.6%	2	10.5%	3	15.8%	2	10.5%	3	15.8%	3	15.8%
White	159	27	17.0%	16	10.1%	13	8.2%	32	20.1%	24	15.1%	47	29.6%
Other	25	4	16.0%	3	12.0%	3	12.0%	6	24.0%	1	4.0%	8	32.0%
Unknown	367	142	38.7%	54	14.7%	36	9.8%	44	12.0%	50	13.6%	41	11.2%
<i>Mylan tacrolimus</i>													
Black or African American	2	0	0.0%	0	0.0%	0	0.0%	1	50.0%	1	50.0%	0	0.0%
White	11	5	45.5%	2	18.2%	1	9.1%	1	9.1%	1	9.1%	1	9.1%
Other	2	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown	48	18	37.5%	13	27.1%	4	8.3%	9	18.8%	3	6.3%	1	2.1%
<i>Astellas tacrolimus</i>													
Black or African American	9	3	33.3%	1	11.1%	0	0.0%	1	11.1%	2	22.2%	2	22.2%
White	44	7	15.9%	7	15.9%	4	9.1%	7	15.9%	11	25.0%	8	18.2%
Other	6	1	16.7%	1	16.7%	0	0.0%	4	66.7%	0	0.0%	0	0.0%
Unknown	235	47	20.0%	29	12.3%	18	7.7%	49	20.9%	41	17.4%	51	21.7%

**Table 4d. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Kidney transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	295	26	8.8%	20	6.8%	15	5.1%	43	14.6%	42	14.2%	149	50.5%
White	666	68	10.2%	31	4.7%	39	5.9%	111	16.7%	122	18.3%	295	44.3%
Other	231	17	7.4%	11	4.8%	5	2.2%	36	15.6%	45	19.5%	117	50.6%
Unknown	2,101	153	7.3%	147	7.0%	139	6.6%	369	17.6%	445	21.2%	848	40.4%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	31	5	16.1%	6	19.4%	1	3.2%	4	12.9%	4	12.9%	11	35.5%
White	55	16	29.1%	8	14.5%	6	10.9%	10	18.2%	5	9.1%	10	18.2%
Other	4	1	25.0%	1	25.0%	0	0.0%	2	50.0%	0	0.0%	0	0.0%
Unknown	328	90	27.4%	44	13.4%	37	11.3%	49	14.9%	41	12.5%	67	20.4%
<i>Accord tacrolimus</i>													
Black or African American	41	13	31.7%	6	14.6%	4	9.8%	10	24.4%	5	12.2%	3	7.3%
White	105	36	34.3%	14	13.3%	12	11.4%	17	16.2%	13	12.4%	13	12.4%
Other	14	3	21.4%	4	28.6%	2	14.3%	4	28.6%	1	7.1%	0	0.0%
Unknown	646	259	40.1%	87	13.5%	48	7.4%	72	11.1%	97	15.0%	83	12.8%
<i>Sandoz tacrolimus</i>													
Black or African American	175	20	11.4%	14	8.0%	10	5.7%	23	13.1%	26	14.9%	82	46.9%
White	371	82	22.1%	26	7.0%	20	5.4%	60	16.2%	55	14.8%	128	34.5%
Other	188	21	11.2%	9	4.8%	5	2.7%	29	15.4%	39	20.7%	85	45.2%
Unknown	626	214	34.2%	99	15.8%	60	9.6%	96	15.3%	81	12.9%	76	12.1%
<i>Mylan tacrolimus</i>													
Black or African American	6	1	16.7%	1	16.7%	0	0.0%	3	50.0%	1	16.7%	0	0.0%
White	10	1	10.0%	2	20.0%	4	40.0%	2	20.0%	0	0.0%	1	10.0%
Other	3	1	33.3%	1	33.3%	0	0.0%	0	0.0%	1	33.3%	0	0.0%
Unknown	78	42	53.8%	11	14.1%	9	11.5%	9	11.5%	4	5.1%	3	3.8%
<i>Astellas tacrolimus</i>													
Black or African American	47	15	31.9%	5	10.6%	5	10.6%	6	12.8%	7	14.9%	9	19.1%
White	134	30	22.4%	9	6.7%	15	11.2%	23	17.2%	23	17.2%	34	25.4%
Other	23	6	26.1%	1	4.3%	2	8.7%	6	26.1%	1	4.3%	7	30.4%
Unknown	441	89	20.2%	42	9.5%	40	9.1%	72	16.3%	75	17.0%	123	27.9%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

**Table 4e. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
Race	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	22	4	18.2%	2	9.1%	1	4.5%	5	22.7%	7	31.8%	3	13.6%
White	190	18	9.5%	15	7.9%	11	5.8%	39	20.5%	31	16.3%	76	40.0%
Other	22	1	4.5%	1	4.5%	0	0.0%	6	27.3%	4	18.2%	10	45.5%
Unknown	324	31	9.6%	17	5.2%	20	6.2%	50	15.4%	81	25.0%	125	38.6%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	4	1	25.0%	3	75.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
White	17	5	29.4%	4	23.5%	0	0.0%	2	11.8%	2	11.8%	4	23.5%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	56	21	37.5%	2	3.6%	5	8.9%	11	19.6%	10	17.9%	7	12.5%
<i>Accord tacrolimus</i>													
Black or African American	1	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
White	24	13	54.2%	5	20.8%	0	0.0%	2	8.3%	2	8.3%	2	8.3%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	97	30	30.9%	5	5.2%	13	13.4%	14	14.4%	17	17.5%	18	18.6%
<i>Sandoz tacrolimus</i>													
Black or African American	11	3	27.3%	0	0.0%	0	0.0%	4	36.4%	3	27.3%	1	9.1%
White	114	26	22.8%	13	11.4%	6	5.3%	24	21.1%	18	15.8%	27	23.7%
Other	17	1	5.9%	1	5.9%	0	0.0%	6	35.3%	3	17.6%	6	35.3%
Unknown	88	33	37.5%	18	20.5%	10	11.4%	11	12.5%	10	11.4%	6	6.8%
<i>Mylan tacrolimus</i>													
Black or African American	0	0	----	0	----	0	----	0	----	0	----	0	----
White	5	2	40.0%	1	20.0%	1	20.0%	1	20.0%	0	0.0%	0	0.0%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	18	8	44.4%	2	11.1%	4	22.2%	1	5.6%	3	16.7%	0	0.0%
<i>Astellas tacrolimus</i>													
Black or African American	4	0	0.0%	0	0.0%	1	25.0%	1	25.0%	2	50.0%	0	0.0%
White	31	6	19.4%	2	6.5%	5	16.1%	8	25.8%	5	16.1%	5	16.1%
Other	5	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	60.0%	2	40.0%
Unknown	62	14	22.6%	5	8.1%	6	9.7%	13	21.0%	9	14.5%	15	24.2%

**Table 4e. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
Race	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Kidney transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	124	18	14.5%	11	8.9%	9	7.3%	15	12.1%	23	18.5%	48	38.7%
White	218	25	11.5%	17	7.8%	18	8.3%	40	18.3%	45	20.6%	73	33.5%
Other	105	21	20.0%	5	4.8%	2	1.9%	18	17.1%	15	14.3%	44	41.9%
Unknown	660	102	15.5%	44	6.7%	62	9.4%	109	16.5%	123	18.6%	220	33.3%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	3	1	33.3%	1	33.3%	0	0.0%	0	0.0%	1	33.3%	0	0.0%
White	18	6	33.3%	1	5.6%	1	5.6%	5	27.8%	4	22.2%	1	5.6%
Other	6	2	33.3%	0	0.0%	0	0.0%	2	33.3%	0	0.0%	2	33.3%
Unknown	150	36	24.0%	11	7.3%	19	12.7%	27	18.0%	29	19.3%	28	18.7%
<i>Accord tacrolimus</i>													
Black or African American	21	10	47.6%	3	14.3%	1	4.8%	2	9.5%	3	14.3%	2	9.5%
White	34	7	20.6%	7	20.6%	3	8.8%	6	17.6%	3	8.8%	8	23.5%
Other	7	3	42.9%	1	14.3%	1	14.3%	1	14.3%	1	14.3%	0	0.0%
Unknown	169	54	32.0%	29	17.2%	16	9.5%	25	14.8%	24	14.2%	21	12.4%
<i>Sandoz tacrolimus</i>													
Black or African American	69	12	17.4%	6	8.7%	7	10.1%	8	11.6%	9	13.0%	27	39.1%
White	117	19	16.2%	14	12.0%	13	11.1%	15	12.8%	26	22.2%	30	25.6%
Other	74	13	17.6%	4	5.4%	1	1.4%	11	14.9%	13	17.6%	32	43.2%
Unknown	189	66	34.9%	29	15.3%	21	11.1%	25	13.2%	18	9.5%	30	15.9%
<i>Mylan tacrolimus</i>													
Black or African American	3	2	66.7%	0	0.0%	0	0.0%	0	0.0%	1	33.3%	0	0.0%
White	6	4	66.7%	0	0.0%	1	16.7%	0	0.0%	1	16.7%	0	0.0%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	25	11	44.0%	3	12.0%	7	28.0%	2	8.0%	2	8.0%	0	0.0%

**Table 4e. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
Race	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<i>Astellas tacrolimus</i>													
Black or African American	29	27.6%	8	10.3%	3	3.4%	5	17.2%	4	13.8%	8	27.6%	
White	43	20.9%	9	7.0%	3	11.6%	11	25.6%	8	18.6%	7	16.3%	
Other	18	33.3%	6	5.6%	1	0.0%	5	27.8%	4	22.2%	2	11.1%	
Unknown	126	23.8%	30	5.6%	7	11.9%	15	14.3%	18	17.5%	22	27.0%	

This table includes a subset of transplant recipients who also had a tacrolimus dispensing after hospital discharge

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

---Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 4f. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
Race	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Liver transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	26	0	0.0%	2	7.7%	3	11.5%	5	19.2%	7	26.9%	9	34.6%
White	313	37	11.8%	18	5.8%	23	7.3%	43	13.7%	73	23.3%	119	38.0%
Other	64	9	14.1%	3	4.7%	9	14.1%	17	26.6%	14	21.9%	12	18.8%
Unknown	280	25	8.9%	17	6.1%	17	6.1%	54	19.3%	44	15.7%	123	43.9%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	2	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
White	7	3	42.9%	1	14.3%	0	0.0%	2	28.6%	0	0.0%	1	14.3%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	41	16	39.0%	5	12.2%	6	14.6%	2	4.9%	5	12.2%	7	17.1%
<i>Accord tacrolimus</i>													
Black or African American	3	0	0.0%	0	0.0%	1	33.3%	1	33.3%	0	0.0%	1	33.3%
White	51	12	23.5%	6	11.8%	4	7.8%	12	23.5%	8	15.7%	9	17.6%
Other	2	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown	75	25	33.3%	8	10.7%	7	9.3%	8	10.7%	11	14.7%	16	21.3%
<i>Sandoz tacrolimus</i>													
Black or African American	16	0	0.0%	1	6.3%	2	12.5%	4	25.0%	3	18.8%	6	37.5%
White	214	33	15.4%	10	4.7%	21	9.8%	33	15.4%	50	23.4%	67	31.3%
Other	56	9	16.1%	3	5.4%	6	10.7%	14	25.0%	12	21.4%	12	21.4%
Unknown	99	31	31.3%	9	9.1%	3	3.0%	20	20.2%	10	10.1%	26	26.3%
<i>Mylan tacrolimus</i>													
Black or African American	0	0	----	0	----	0	----	0	----	0	----	0	----
White	7	4	57.1%	2	28.6%	1	14.3%	0	0.0%	0	0.0%	0	0.0%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	14	5	35.7%	3	21.4%	0	0.0%	3	21.4%	3	21.4%	0	0.0%
<i>Astellas tacrolimus</i>													
Black or African American	5	1	20.0%	1	20.0%	0	0.0%	1	20.0%	1	20.0%	1	20.0%
White	36	7	19.4%	3	8.3%	2	5.6%	6	16.7%	13	36.1%	5	13.9%
Other	6	1	16.7%	0	0.0%	2	33.3%	2	33.3%	1	16.7%	0	0.0%
Unknown	52	13	25.0%	6	11.5%	6	11.5%	5	9.6%	6	11.5%	16	30.8%

Table 4f. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
Race	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Kidney transplant</b>													
<i>Any oral tacrolimus*</i>													
Black or African American	274	29	10.6%	11	4.0%	9	3.3%	41	15.0%	29	10.6%	155	56.6%
White	644	61	9.5%	23	3.6%	54	8.4%	112	17.4%	114	17.7%	280	43.5%
Other	377	39	10.3%	23	6.1%	26	6.9%	48	12.7%	53	14.1%	188	49.9%
Unknown	767	73	9.5%	42	5.5%	45	5.9%	137	17.9%	146	19.0%	324	42.2%
<i>Dr Reddy's tacrolimus</i>													
Black or African American	12	2	16.7%	3	25.0%	2	16.7%	2	16.7%	1	8.3%	2	16.7%
White	28	11	39.3%	2	7.1%	3	10.7%	5	17.9%	5	17.9%	2	7.1%
Other	7	3	42.9%	1	14.3%	0	0.0%	2	28.6%	0	0.0%	1	14.3%
Unknown	86	31	36.0%	10	11.6%	7	8.1%	13	15.1%	16	18.6%	9	10.5%
<i>Accord tacrolimus</i>													
Black or African American	18	6	33.3%	3	16.7%	3	16.7%	3	16.7%	2	11.1%	1	5.6%
White	46	8	17.4%	4	8.7%	7	15.2%	14	30.4%	4	8.7%	9	19.6%
Other	3	0	0.0%	1	33.3%	0	0.0%	0	0.0%	1	33.3%	1	33.3%
Unknown	136	58	42.6%	16	11.8%	13	9.6%	21	15.4%	19	14.0%	9	6.6%
<i>Sandoz tacrolimus</i>													
Black or African American	207	22	10.6%	5	2.4%	7	3.4%	31	15.0%	21	10.1%	121	58.5%
White	472	64	13.6%	24	5.1%	46	9.7%	74	15.7%	82	17.4%	182	38.6%
Other	328	37	11.3%	23	7.0%	23	7.0%	38	11.6%	47	14.3%	160	48.8%
Unknown	378	112	29.6%	32	8.5%	24	6.3%	46	12.2%	53	14.0%	111	29.4%

**Table 4f. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Race**

Group by Organ-Product Pair and Race	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
Race	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Mylan tacrolimus</i>													
Black or African American	4	1	25.0%	2	50.0%	0	0.0%	0	0.0%	1	25.0%	0	0.0%
White	6	3	50.0%	0	0.0%	2	33.3%	0	0.0%	1	16.7%	0	0.0%
Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Unknown	19	10	52.6%	4	21.1%	1	5.3%	1	5.3%	3	15.8%	0	0.0%
<i>Astellas tacrolimus</i>													
Black or African American	33	7	21.2%	5	15.2%	2	6.1%	7	21.2%	7	21.2%	5	15.2%
White	91	13	14.3%	3	3.3%	11	12.1%	21	23.1%	26	28.6%	17	18.7%
Other	39	6	15.4%	0	0.0%	2	5.1%	10	25.6%	17	43.6%	4	10.3%
Unknown	152	23	15.1%	12	7.9%	10	6.6%	36	23.7%	31	20.4%	40	26.3%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.



**Table 4g. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)													
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>														
<i>Any oral tacrolimus*</i>														
Census Bureau Region: NE	189	12	6.3%	11	5.8%	7	3.7%	35	18.5%	49	25.9%	75	39.7%	
Census Bureau Region: MW	288	22	7.6%	18	6.3%	8	2.8%	48	16.7%	72	25.0%	120	41.7%	
Census Bureau Region: S	729	72	9.9%	42	5.8%	51	7.0%	107	14.7%	158	21.7%	299	41.0%	
Census Bureau Region: W	388	21	5.4%	28	7.2%	24	6.2%	63	16.2%	80	20.6%	172	44.3%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	5	0	0.0%	0	0.0%	0	0.0%	1	20.0%	2	40.0%	2	40.0%	
<i>Dr Reddy's tacrolimus</i>														
Census Bureau Region: NE	34	9	26.5%	8	23.5%	1	2.9%	6	17.6%	3	8.8%	7	20.6%	
Census Bureau Region: MW	42	12	28.6%	4	9.5%	3	7.1%	7	16.7%	5	11.9%	11	26.2%	
Census Bureau Region: S	87	27	31.0%	15	17.2%	10	11.5%	6	6.9%	15	17.2%	14	16.1%	
Census Bureau Region: W	70	20	28.6%	8	11.4%	6	8.6%	7	10.0%	14	20.0%	15	21.4%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	3	1	33.3%	0	0.0%	0	0.0%	1	33.3%	0	0.0%	1	33.3%	
<i>Accord tacrolimus</i>														
Census Bureau Region: NE	67	22	32.8%	11	16.4%	6	9.0%	8	11.9%	9	13.4%	11	16.4%	
Census Bureau Region: MW	84	34	40.5%	8	9.5%	5	6.0%	13	15.5%	10	11.9%	14	16.7%	
Census Bureau Region: S	197	76	38.6%	23	11.7%	19	9.6%	22	11.2%	26	13.2%	31	15.7%	
Census Bureau Region: W	87	23	26.4%	14	16.1%	13	14.9%	14	16.1%	11	12.6%	12	13.8%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<i>Sandoz tacrolimus</i>														
Census Bureau Region: NE	52	15	28.8%	6	11.5%	5	9.6%	8	15.4%	9	17.3%	9	17.3%	
Census Bureau Region: MW	92	39	42.4%	12	13.0%	6	6.5%	9	9.8%	12	13.0%	14	15.2%	
Census Bureau Region: S	244	84	34.4%	33	13.5%	32	13.1%	33	13.5%	34	13.9%	28	11.5%	
Census Bureau Region: W	180	41	22.8%	24	13.3%	12	6.7%	33	18.3%	22	12.2%	48	26.7%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	2	0	0.0%	0	0.0%	0	0.0%	1	50.0%	1	50.0%	0	0.0%	
<i>Mylan tacrolimus</i>														
Census Bureau Region: NE	5	1	20.0%	0	0.0%	0	0.0%	2	40.0%	1	20.0%	1	20.0%	
Census Bureau Region: MW	14	7	50.0%	3	21.4%	1	7.1%	1	7.1%	2	14.3%	0	0.0%	
Census Bureau Region: S	24	11	45.8%	6	25.0%	2	8.3%	3	12.5%	1	4.2%	1	4.2%	
Census Bureau Region: W	20	5	25.0%	7	35.0%	2	10.0%	5	25.0%	1	5.0%	0	0.0%	

**Table 4g. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)													
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<i>Astellas tacrolimus</i>														
Census Bureau Region: NE	33	1	3.0%	7	21.2%	1	3.0%	9	27.3%	5	15.2%	10	30.3%	
Census Bureau Region: MW	52	10	19.2%	6	11.5%	2	3.8%	11	21.2%	10	19.2%	13	25.0%	
Census Bureau Region: S	171	39	22.8%	20	11.7%	14	8.2%	36	21.1%	33	19.3%	29	17.0%	
Census Bureau Region: W	38	8	21.1%	5	13.2%	5	13.2%	5	13.2%	6	15.8%	9	23.7%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<b>Kidney transplant</b>														
<i>Any oral tacrolimus*</i>														
Census Bureau Region: NE	531	37	7.0%	32	6.0%	37	7.0%	89	16.8%	97	18.3%	239	45.0%	
Census Bureau Region: MW	468	39	8.3%	29	6.2%	25	5.3%	76	16.2%	102	21.8%	197	42.1%	
Census Bureau Region: S	1,193	118	9.9%	86	7.2%	81	6.8%	210	17.6%	250	21.0%	448	37.6%	
Census Bureau Region: W	1,085	67	6.2%	61	5.6%	55	5.1%	180	16.6%	202	18.6%	520	47.9%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	16	3	18.8%	1	6.3%	0	0.0%	4	25.0%	3	18.8%	5	31.3%	
<i>Dr Reddy's tacrolimus</i>														
Census Bureau Region: NE	70	18	25.7%	7	10.0%	7	10.0%	15	21.4%	6	8.6%	17	24.3%	
Census Bureau Region: MW	55	16	29.1%	7	12.7%	5	9.1%	7	12.7%	7	12.7%	13	23.6%	
Census Bureau Region: S	198	50	25.3%	32	16.2%	25	12.6%	28	14.1%	24	12.1%	39	19.7%	
Census Bureau Region: W	89	27	30.3%	12	13.5%	7	7.9%	15	16.9%	11	12.4%	17	19.1%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	6	1	16.7%	1	16.7%	0	0.0%	0	0.0%	2	33.3%	2	33.3%	
<i>Accord tacrolimus</i>														
Census Bureau Region: NE	158	56	35.4%	24	15.2%	12	7.6%	21	13.3%	19	12.0%	26	16.5%	
Census Bureau Region: MW	139	67	48.2%	17	12.2%	14	10.1%	17	12.2%	15	10.8%	9	6.5%	
Census Bureau Region: S	338	140	41.4%	42	12.4%	20	5.9%	42	12.4%	55	16.3%	39	11.5%	
Census Bureau Region: W	168	47	28.0%	28	16.7%	20	11.9%	22	13.1%	26	15.5%	25	14.9%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	3	1	33.3%	0	0.0%	0	0.0%	1	33.3%	1	33.3%	0	0.0%	
<i>Sandoz tacrolimus</i>														
Census Bureau Region: NE	140	45	32.1%	16	11.4%	14	10.0%	20	14.3%	22	15.7%	23	16.4%	
Census Bureau Region: MW	151	57	37.7%	22	14.6%	10	6.6%	25	16.6%	20	13.2%	17	11.3%	

**Table 4g. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)													
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Census Bureau Region: S	364	120	33.0%	47	12.9%	28	7.7%	47	12.9%	52	14.3%	70	19.2%	
Census Bureau Region: W	701	111	15.8%	63	9.0%	43	6.1%	116	16.5%	107	15.3%	261	37.2%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	4	4	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
<i>Mylan tacrolimus</i>														
Census Bureau Region: NE	15	1	6.7%	3	20.0%	3	20.0%	2	13.3%	3	20.0%	3	20.0%	
Census Bureau Region: MW	16	13	81.3%	1	6.3%	1	6.3%	1	6.3%	0	0.0%	0	0.0%	
Census Bureau Region: S	41	18	43.9%	9	22.0%	5	12.2%	6	14.6%	2	4.9%	1	2.4%	
Census Bureau Region: W	24	12	50.0%	2	8.3%	4	16.7%	5	20.8%	1	4.2%	0	0.0%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
<i>Astellas tacrolimus</i>														
Census Bureau Region: NE	150	23	15.3%	5	3.3%	21	14.0%	24	16.0%	26	17.3%	51	34.0%	
Census Bureau Region: MW	112	21	18.8%	13	11.6%	7	6.3%	17	15.2%	20	17.9%	34	30.4%	
Census Bureau Region: S	268	78	29.1%	30	11.2%	28	10.4%	42	15.7%	33	12.3%	57	21.3%	
Census Bureau Region: W	113	18	15.9%	8	7.1%	6	5.3%	23	20.4%	27	23.9%	31	27.4%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	2	0	0.0%	1	50.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 4h. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)												
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
<i>Any oral tacrolimus*</i>													
Census Bureau Region: NE	60	4	6.7%	4	6.7%	6	10.0%	10	16.7%	12	20.0%	24	40.0%
Census Bureau Region: MW	106	15	14.2%	8	7.5%	3	2.8%	17	16.0%	23	21.7%	40	37.7%
Census Bureau Region: S	214	23	10.7%	12	5.6%	10	4.7%	41	19.2%	51	23.8%	77	36.0%
Census Bureau Region: W	177	12	6.8%	11	6.2%	12	6.8%	32	18.1%	37	20.9%	73	41.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
<i>Dr Reddy's tacrolimus</i>													
Census Bureau Region: NE	20	5	25.0%	2	10.0%	5	25.0%	3	15.0%	3	15.0%	2	10.0%
Census Bureau Region: MW	11	4	36.4%	1	9.1%	0	0.0%	3	27.3%	2	18.2%	1	9.1%
Census Bureau Region: S	30	12	40.0%	4	13.3%	0	0.0%	4	13.3%	5	16.7%	5	16.7%
Census Bureau Region: W	16	6	37.5%	2	12.5%	0	0.0%	3	18.8%	2	12.5%	3	18.8%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Accord tacrolimus</i>													
Census Bureau Region: NE	15	7	46.7%	1	6.7%	2	13.3%	1	6.7%	3	20.0%	1	6.7%
Census Bureau Region: MW	21	8	38.1%	0	0.0%	3	14.3%	5	23.8%	2	9.5%	3	14.3%
Census Bureau Region: S	59	20	33.9%	6	10.2%	6	10.2%	9	15.3%	6	10.2%	12	20.3%
Census Bureau Region: W	26	7	26.9%	3	11.5%	3	11.5%	1	3.8%	8	30.8%	4	15.4%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<i>Sandoz tacrolimus</i>													
Census Bureau Region: NE	11	4	36.4%	3	27.3%	0	0.0%	1	9.1%	2	18.2%	1	9.1%
Census Bureau Region: MW	45	19	42.2%	5	11.1%	3	6.7%	6	13.3%	6	13.3%	6	13.3%
Census Bureau Region: S	63	21	33.3%	14	22.2%	4	6.3%	11	17.5%	8	12.7%	5	7.9%
Census Bureau Region: W	111	19	17.1%	10	9.0%	9	8.1%	27	24.3%	18	16.2%	28	25.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----

**Table 4h. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)													
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<i>Mylan tacrolimus</i>														
Census Bureau Region: NE	3	2	66.7%	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
Census Bureau Region: MW	7	3	42.9%	0	0.0%	1	14.3%	2	28.6%	1	14.3%	0	0.0%	
Census Bureau Region: S	8	4	50.0%	2	25.0%	2	25.0%	0	0.0%	0	0.0%	0	0.0%	
Census Bureau Region: W	5	1	20.0%	0	0.0%	2	40.0%	0	0.0%	2	40.0%	0	0.0%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<i>Astellas tacrolimus</i>														
Census Bureau Region: NE	11	0	0.0%	2	18.2%	0	0.0%	4	36.4%	1	9.1%	4	36.4%	
Census Bureau Region: MW	21	5	23.8%	1	4.8%	1	4.8%	4	19.0%	7	33.3%	3	14.3%	
Census Bureau Region: S	51	10	19.6%	1	2.0%	9	17.6%	10	19.6%	8	15.7%	13	25.5%	
Census Bureau Region: W	19	5	26.3%	3	15.8%	2	10.5%	4	21.1%	3	15.8%	2	10.5%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<b>Kidney transplant</b>														
<i>Any oral tacrolimus*</i>														
Census Bureau Region: NE	134	19	14.2%	5	3.7%	14	10.4%	22	16.4%	28	20.9%	46	34.3%	
Census Bureau Region: MW	203	27	13.3%	14	6.9%	18	8.9%	29	14.3%	43	21.2%	72	35.5%	
Census Bureau Region: S	364	68	18.7%	30	8.2%	33	9.1%	66	18.1%	61	16.8%	106	29.1%	
Census Bureau Region: W	402	51	12.7%	27	6.7%	25	6.2%	64	15.9%	74	18.4%	161	40.0%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	4	1	25.0%	1	25.0%	1	25.0%	1	25.0%	0	0.0%	0	0.0%	
<i>Dr Reddy's tacrolimus</i>														
Census Bureau Region: NE	24	8	33.3%	1	4.2%	2	8.3%	6	25.0%	2	8.3%	5	20.8%	
Census Bureau Region: MW	50	10	20.0%	4	8.0%	3	6.0%	10	20.0%	16	32.0%	7	14.0%	
Census Bureau Region: S	65	19	29.2%	5	7.7%	9	13.8%	11	16.9%	10	15.4%	11	16.9%	
Census Bureau Region: W	37	8	21.6%	3	8.1%	5	13.5%	7	18.9%	6	16.2%	8	21.6%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	1	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	
<i>Accord tacrolimus</i>														
Census Bureau Region: NE	40	14	35.0%	5	12.5%	2	5.0%	5	12.5%	7	17.5%	7	17.5%	
Census Bureau Region: MW	56	14	25.0%	10	17.9%	9	16.1%	9	16.1%	6	10.7%	8	14.3%	
Census Bureau Region: S	80	29	36.3%	14	17.5%	5	6.3%	12	15.0%	10	12.5%	10	12.5%	
Census Bureau Region: W	54	16	29.6%	11	20.4%	5	9.3%	8	14.8%	8	14.8%	6	11.1%	

**Table 4h. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)													
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	1	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
<i>Sandoz tacrolimus</i>														
Census Bureau Region: NE	40	9	22.5%	8	20.0%	5	12.5%	6	15.0%	6	15.0%	6	15.0%	
Census Bureau Region: MW	43	19	44.2%	7	16.3%	5	11.6%	3	7.0%	5	11.6%	4	9.3%	
Census Bureau Region: S	101	31	30.7%	11	10.9%	12	11.9%	13	12.9%	16	15.8%	18	17.8%	
Census Bureau Region: W	263	50	19.0%	26	9.9%	20	7.6%	37	14.1%	39	14.8%	91	34.6%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	2	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
<i>Mylan tacrolimus</i>														
Census Bureau Region: NE	6	4	66.7%	0	0.0%	1	16.7%	0	0.0%	1	16.7%	0	0.0%	
Census Bureau Region: MW	7	4	57.1%	2	28.6%	1	14.3%	0	0.0%	0	0.0%	0	0.0%	
Census Bureau Region: S	14	7	50.0%	0	0.0%	4	28.6%	1	7.1%	2	14.3%	0	0.0%	
Census Bureau Region: W	7	2	28.6%	1	14.3%	2	28.6%	1	14.3%	1	14.3%	0	0.0%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	
<i>Astellas tacrolimus</i>														
Census Bureau Region: NE	25	3	12.0%	2	8.0%	5	20.0%	4	16.0%	6	24.0%	5	20.0%	
Census Bureau Region: MW	46	11	23.9%	1	2.2%	3	6.5%	3	6.5%	10	21.7%	18	39.1%	
Census Bureau Region: S	102	24	23.5%	9	8.8%	12	11.8%	21	20.6%	15	14.7%	21	20.6%	
Census Bureau Region: W	43	15	34.9%	2	4.7%	1	2.3%	11	25.6%	7	16.3%	7	16.3%	
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----	
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----	

This table includes a subset of transplant recipients who also had a tacrolimus dispensing after hospital discharge

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 4i. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)												
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
<i>Any oral tacrolimus*</i>													
Census Bureau Region: NE	42	1	2.4%	2	4.8%	3	7.1%	10	23.8%	10	23.8%	16	38.1%
Census Bureau Region: MW	123	15	12.2%	9	7.3%	3	2.4%	19	15.4%	26	21.1%	51	41.5%
Census Bureau Region: S	154	16	10.4%	10	6.5%	14	9.1%	26	16.9%	21	13.6%	67	43.5%
Census Bureau Region: W	363	39	10.7%	19	5.2%	32	8.8%	64	17.6%	81	22.3%	128	35.3%
Census Bureau Region: Other	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Dr Reddy's tacrolimus</i>													
Census Bureau Region: NE	9	2	22.2%	0	0.0%	2	22.2%	2	22.2%	0	0.0%	3	33.3%
Census Bureau Region: MW	13	8	61.5%	0	0.0%	2	15.4%	1	7.7%	1	7.7%	1	7.7%
Census Bureau Region: S	17	7	41.2%	6	35.3%	0	0.0%	0	0.0%	2	11.8%	2	11.8%
Census Bureau Region: W	11	3	27.3%	1	9.1%	2	18.2%	1	9.1%	2	18.2%	2	18.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Accord tacrolimus</i>													
Census Bureau Region: NE	13	4	30.8%	2	15.4%	1	7.7%	2	15.4%	3	23.1%	1	7.7%
Census Bureau Region: MW	36	6	16.7%	8	22.2%	2	5.6%	5	13.9%	7	19.4%	8	22.2%
Census Bureau Region: S	61	20	32.8%	2	3.3%	6	9.8%	13	21.3%	6	9.8%	14	23.0%
Census Bureau Region: W	21	8	38.1%	3	14.3%	3	14.3%	1	4.8%	3	14.3%	3	14.3%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Sandoz tacrolimus</i>													
Census Bureau Region: NE	9	3	33.3%	0	0.0%	0	0.0%	2	22.2%	3	33.3%	1	11.1%
Census Bureau Region: MW	44	12	27.3%	4	9.1%	1	2.3%	5	11.4%	7	15.9%	15	34.1%
Census Bureau Region: S	34	12	35.3%	3	8.8%	2	5.9%	7	20.6%	3	8.8%	7	20.6%
Census Bureau Region: W	297	46	15.5%	16	5.4%	29	9.8%	57	19.2%	61	20.5%	88	29.6%
Census Bureau Region: Other	1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Mylan tacrolimus</i>													
Census Bureau Region: NE	3	2	66.7%	0	0.0%	0	0.0%	0	0.0%	1	33.3%	0	0.0%
Census Bureau Region: MW	7	2	28.6%	3	42.9%	0	0.0%	1	14.3%	1	14.3%	0	0.0%
Census Bureau Region: S	6	5	83.3%	0	0.0%	1	16.7%	0	0.0%	0	0.0%	0	0.0%
Census Bureau Region: W	5	0	0.0%	2	40.0%	0	0.0%	2	40.0%	1	20.0%	0	0.0%

**Table 4i. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)												
	1-30 days			31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Astellas tacrolimus</i>													
Census Bureau Region: NE	8	1	12.5%	1	12.5%	0	0.0%	1	12.5%	2	25.0%	3	37.5%
Census Bureau Region: MW	22	4	18.2%	3	13.6%	1	4.5%	2	9.1%	5	22.7%	7	31.8%
Census Bureau Region: S	37	10	27.0%	3	8.1%	6	16.2%	3	8.1%	5	13.5%	10	27.0%
Census Bureau Region: W	32	7	21.9%	3	9.4%	3	9.4%	8	25.0%	9	28.1%	2	6.3%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<b>Kidney transplant</b>													
<i>Any oral tacrolimus*</i>													
Census Bureau Region: NE	111	8	7.2%	8	7.2%	7	6.3%	14	12.6%	26	23.4%	48	43.2%
Census Bureau Region: MW	224	8	3.6%	13	5.8%	11	4.9%	41	18.3%	45	20.1%	106	47.3%
Census Bureau Region: S	400	44	11.0%	25	6.3%	24	6.0%	84	21.0%	55	13.8%	168	42.0%
Census Bureau Region: W	1,324	142	10.7%	53	4.0%	91	6.9%	199	15.0%	214	16.2%	625	47.2%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	3	0	0.0%	0	0.0%	1	33.3%	0	0.0%	2	66.7%	0	0.0%
<i>Dr Reddy's tacrolimus</i>													
Census Bureau Region: NE	16	9	56.3%	1	6.3%	0	0.0%	3	18.8%	1	6.3%	2	12.5%
Census Bureau Region: MW	27	9	33.3%	1	3.7%	3	11.1%	3	11.1%	8	29.6%	3	11.1%
Census Bureau Region: S	64	23	35.9%	8	12.5%	3	4.7%	10	15.6%	11	17.2%	9	14.1%
Census Bureau Region: W	26	6	23.1%	6	23.1%	6	23.1%	6	23.1%	2	7.7%	0	0.0%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	0	----	0	----	0	----	0	----	0	----	0	----
<i>Accord tacrolimus</i>													
Census Bureau Region: NE	24	8	33.3%	5	20.8%	2	8.3%	5	20.8%	3	12.5%	1	4.2%
Census Bureau Region: MW	61	16	26.2%	6	9.8%	6	9.8%	13	21.3%	10	16.4%	10	16.4%
Census Bureau Region: S	76	40	52.6%	5	6.6%	10	13.2%	10	13.2%	8	10.5%	3	3.9%
Census Bureau Region: W	40	7	17.5%	8	20.0%	5	12.5%	9	22.5%	5	12.5%	6	15.0%
Census Bureau Region: Other	0	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	2	1	50.0%	0	0.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%
<i>Sandoz tacrolimus</i>													
Census Bureau Region: NE	41	15	36.6%	4	9.8%	2	4.9%	3	7.3%	8	19.5%	9	22.0%
Census Bureau Region: MW	78	25	32.1%	14	17.9%	2	2.6%	10	12.8%	9	11.5%	18	23.1%



**Table 4i. Duration of Continuous Tacrolimus Use<sup>1</sup> among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair and Census Bureau Region**

Group by Organ-Product Pair and Census Bureau Region	Duration of use (days)											
	1-30 days		31-60 days		61-90 days		91-180 days		181-364 days		365+ days	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Census Bureau Region: S	152	32.9%	50	9.2%	14	9.2%	14	14.5%	22	8.6%	13	25.7%
Census Bureau Region: W	1,114	13.0%	145	4.7%	52	7.4%	82	13.8%	154	15.5%	173	45.6%
Census Bureau Region: Other	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	----	0	----	0	----	0	----	0	----	0	----
<i>Mylan tacrolimus</i>												
Census Bureau Region: NE	2	50.0%	1	0.0%	0	0.0%	0	0.0%	0	50.0%	1	0.0%
Census Bureau Region: MW	6	66.7%	4	0.0%	0	16.7%	1	0.0%	0	16.7%	1	0.0%
Census Bureau Region: S	18	44.4%	8	27.8%	5	5.6%	1	5.6%	1	16.7%	3	0.0%
Census Bureau Region: W	3	33.3%	1	33.3%	1	0.0%	0	0.0%	0	0.0%	0	0.0%
Census Bureau Region: Other	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	----	0	----	0	----	0	----	0	----	0	----
<i>Astellas tacrolimus</i>												
Census Bureau Region: NE	29	6.9%	2	6.9%	2	10.3%	3	24.1%	7	24.1%	7	27.6%
Census Bureau Region: MW	56	7.1%	4	5.4%	3	7.1%	4	21.4%	12	25.0%	14	33.9%
Census Bureau Region: S	89	23.6%	21	10.1%	9	6.7%	6	21.3%	19	13.5%	12	24.7%
Census Bureau Region: W	141	15.6%	22	4.3%	6	8.5%	12	25.5%	36	34.0%	48	12.1%
Census Bureau Region: Other	0	----	0	----	0	----	0	----	0	----	0	----
Census Bureau Region: Missing	0	----	0	----	0	----	0	----	0	----	0	----

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

<sup>1</sup>Tacrolimus treatment episodes were truncated at end of days' supply, switch to another tacrolimus product, death, disenrollment, or Data Partner end date.

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

----Data presented by a dash represent their inability to be calculated. This table may not use all data representations.

**Table 5a. Reason for Censoring First Tacrolimus Episode among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Reason for Censoring												
	Disenrollment		Death		DP Data End Date		End of Exposure <sup>1</sup>		End of Treatment <sup>2</sup>		Switch to Other Tacrolimus Product		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
Any oral tacrolimus*	1,599	773	48.3%	23	1.4%	321	20.1%	1,599	100.0%	751	47.0%	0	0.0%
Dr Reddy's tacrolimus	236	40	16.9%	3	1.3%	0	0.0%	125	53.0%	79	33.5%	114	48.3%
Accord tacrolimus	435	95	21.8%	2	0.5%	41	9.4%	224	51.5%	122	28.0%	215	49.4%
Sandoz tacrolimus	570	85	14.9%	4	0.7%	39	6.8%	324	56.8%	218	38.2%	253	44.4%
Mylan tacrolimus	63	2	3.2%	0	0.0%	1	1.6%	25	39.7%	23	36.5%	38	60.3%
Astellas tacrolimus	294	58	19.7%	6	2.0%	2	0.7%	210	71.4%	144	49.0%	88	29.9%
<b>Kidney transplant</b>													
Any oral tacrolimus*	3,293	1,463	44.4%	41	1.2%	779	23.7%	3,293	100.0%	1,602	48.6%	0	0.0%
Dr Reddy's tacrolimus	418	67	16.0%	1	0.2%	8	1.9%	270	64.6%	198	47.4%	152	36.4%
Accord tacrolimus	806	152	18.9%	5	0.6%	85	10.5%	411	51.0%	236	29.3%	403	50.0%
Sandoz tacrolimus	1,360	309	22.7%	22	1.6%	263	19.3%	939	69.0%	517	38.0%	430	31.6%
Mylan tacrolimus	97	7	7.2%	0	0.0%	2	2.1%	39	40.2%	32	33.0%	58	59.8%
Astellas tacrolimus	645	134	20.8%	1	0.2%	3	0.5%	473	73.3%	332	51.5%	179	27.8%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

<sup>1</sup>End of Exposure includes patient episodes censored at disenrollment, death, or end of tacrolimus days' supply.

<sup>2</sup>End of Treatment includes patient episodes censored only due to the end of their tacrolimus days' supply. These patients did not meet any other censoring criteria on the same date.

**Table 5b. Reason for Censoring First Tacrolimus Episode among Patients with First Dispensing within 60 Days After Hospital Discharge in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Reason for Censoring												
	Disenrollment		Death		DP Data End Date		End of Exposure <sup>1</sup>		End of Treatment <sup>2</sup>		Switch to Other Tacrolimus Product		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
Any oral tacrolimus*	558	236	42.3%	13	2.3%	106	19.0%	558	100.0%	281	50.4%	0	0.0%
Dr Reddy's tacrolimus	77	18	23.4%	1	1.3%	3	3.9%	40	51.9%	19	24.7%	38	49.4%
Accord tacrolimus	122	22	18.0%	1	0.8%	6	4.9%	56	45.9%	29	23.8%	69	56.6%
Sandoz tacrolimus	230	33	14.3%	3	1.3%	21	9.1%	165	71.7%	122	53.0%	66	28.7%
Mylan tacrolimus	23	1	4.3%	0	0.0%	1	4.3%	7	30.4%	6	26.1%	16	69.6%
Astellas tacrolimus	102	22	21.6%	1	1.0%	0	0.0%	76	74.5%	53	52.0%	26	25.5%
<b>Kidney transplant</b>													
Any oral tacrolimus*	1,107	424	38.3%	23	2.1%	224	20.2%	1,107	100.0%	602	54.4%	0	0.0%
Dr Reddy's tacrolimus	177	39	22.0%	1	0.6%	4	2.3%	137	77.4%	97	54.8%	40	22.6%
Accord tacrolimus	231	59	25.5%	1	0.4%	24	10.4%	156	67.5%	93	40.3%	76	32.9%
Sandoz tacrolimus	449	94	20.9%	9	2.0%	83	18.5%	351	78.2%	229	51.0%	99	22.0%
Mylan tacrolimus	34	3	8.8%	0	0.0%	1	2.9%	14	41.2%	10	29.4%	21	61.8%
Astellas tacrolimus	216	49	22.7%	2	0.9%	3	1.4%	184	85.2%	132	61.1%	33	15.3%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

<sup>1</sup>End of Exposure includes patient episodes censored at disenrollment, death, or end of tacrolimus days' supply.

<sup>2</sup>End of Treatment includes patient episodes censored only due to the end of their tacrolimus days' supply. These patients did not meet any other censoring criteria on the same date.

**Table 5c. Reason for Censoring First Tacrolimus Episode among Patients with First Dispensing on Hospital Discharge Date in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Group by Organ-Product Pair	Reason for Censoring												
	Disenrollment		Death		DP Data End Date		End of Exposure <sup>1</sup>		End of Treatment <sup>2</sup>		Switch to Other Tacrolimus Product		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
<b>Liver transplant</b>													
Any oral tacrolimus*	683	248	36.3%	19	2.8%	150	22.0%	683	100.0%	387	56.7%	0	0.0%
Dr Reddy's tacrolimus	50	11	22.0%	0	0.0%	0	0.0%	28	56.0%	17	34.0%	22	44.0%
Accord tacrolimus	131	34	26.0%	1	0.8%	24	18.3%	80	61.1%	40	30.5%	51	38.9%
Sandoz tacrolimus	385	67	17.4%	9	2.3%	51	13.2%	326	84.7%	241	62.6%	60	15.6%
Mylan tacrolimus	21	2	9.5%	0	0.0%	1	4.8%	10	47.6%	7	33.3%	12	57.1%
Astellas tacrolimus	99	18	18.2%	2	2.0%	2	2.0%	66	66.7%	45	45.5%	33	33.3%
<b>Kidney transplant</b>													
Any oral tacrolimus*	2,062	796	38.6%	42	2.0%	559	27.1%	2,062	100.0%	1,120	54.3%	0	0.0%
Dr Reddy's tacrolimus	133	16	12.0%	0	0.0%	1	0.8%	82	61.7%	64	48.1%	53	39.8%
Accord tacrolimus	203	39	19.2%	0	0.0%	22	10.8%	106	52.2%	61	30.0%	99	48.8%
Sandoz tacrolimus	1,385	422	30.5%	27	1.9%	380	27.4%	1,211	87.4%	704	50.8%	175	12.6%
Mylan tacrolimus	29	3	10.3%	0	0.0%	2	6.9%	15	51.7%	12	41.4%	14	48.3%
Astellas tacrolimus	315	41	13.0%	1	0.3%	4	1.3%	229	72.7%	184	58.4%	88	27.9%

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

\*Any oral tacrolimus includes all products listed in Appendix F. It does not include the procedure code J7507

<sup>1</sup>End of Exposure includes patient episodes censored at disenrollment, death, or end of tacrolimus days' supply.

<sup>2</sup>End of Treatment includes patient episodes censored only due to the end of their tacrolimus days' supply. These patients did not meet any other censoring criteria on the same date.

**Table 6a. Time to Switch\* to Different Tacrolimus Product among Patients with Dispensing During Hospital Stay and Switched to a Different Tacrolimus Product in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary statistics for time to switch (days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Dr Reddy's tacrolimus	114	163.7	337.03	1	13	37	129	2,406
Accord tacrolimus	215	132.1	228.58	1	20	42	118	1,342
Sandoz tacrolimus	253	123.8	231.67	1	22	37	114	1,921
Mylan tacrolimus	38	81.2	106.19	1	27	46	77	509
Astellas tacrolimus	88	275.5	471.91	3	29	71	269	2,293
<b>Kidney transplant</b>								
Dr Reddy's tacrolimus	152	203	361.52	1	23	55	184	2,051
Accord tacrolimus	403	116.1	255.41	1	16	28	66	1,947
Sandoz tacrolimus	430	124.7	247.86	1	23	40	109	2,415
Mylan tacrolimus	58	66.1	109.32	1	14	28	59	560
Astellas tacrolimus	179	301.6	455.98	1	28	85	399	2,514

\*time to switch = time between date of first tacrolimus dispensing and date of dispensing of a different tacrolimus product.

First episode must have been censored due to the dispensing of a different tacrolimus product

This table includes a subset of transplant recipients who also had a tacrolimus dispensing during their hospital stay

**Table 6b. Time to Switch\* to Different Tacrolimus Product among Patients with First Dispensing within 60 Days After Hospital Discharge and Switched to a Different Tacrolimus Product in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary statistics for time to switch (days)								
Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Dr Reddy's tacrolimus	38	151.1	306.91	1	16	25	137	1,620
Accord tacrolimus	69	147.6	224.51	1	25	76	175	1,407
Sandoz tacrolimus	66	94.2	135.53	1	24	38	93	570
Mylan tacrolimus	16	40.6	37.55	1	20	26	60	153
Astellas tacrolimus	26	295.5	500.9	2	24	126	315	2,363
<b>Kidney transplant</b>								
Dr Reddy's tacrolimus	40	293.3	455.38	1	23	111	363	2,296
Accord tacrolimus	76	198.4	399.39	1	24	51	153	2,176
Sandoz tacrolimus	99	256.7	487.25	1	28	58	209	2,317
Mylan tacrolimus	21	58.1	93.72	1	10	28	57	361
Astellas tacrolimus	33	393.3	483.29	1	84	235	452	2,051

\*time to switch = time between date of first tacrolimus dispensing and date of dispensing of a different tacrolimus product.

First episode must have been censored due to the dispensing of a different tacrolimus product

This table includes a subset of transplant recipients who also had a tacrolimus dispensing within 60 days after hospital discharge

**Table 6c. Time to Switch\* to Different Tacrolimus Product among Patients with First Dispensing on Hospital Discharge Date and Switched to a Different Tacrolimus Product in the Sentinel Distributed Databases (SDD) between January 1, 2009 and February 29, 2020, by Organ-Product Pair**

Summary statistics for time to switch (days)

Group by Organ-Product Pair	Number	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum
<b>Liver transplant</b>								
Dr Reddy's tacrolimus	22	41.3	59.53	1	16	22	53	285
Accord tacrolimus	51	159.6	228.9	1	19	53	230	1,023
Sandoz tacrolimus	60	181.5	274.65	1	23	77	201	1,450
Mylan tacrolimus	12	57.4	76.79	1	17	33	55	275
Astellas tacrolimus	33	395.9	586.86	1	25	101	349	2,146
<b>Kidney transplant</b>								
Dr Reddy's tacrolimus	53	155.3	314.21	1	25	56	161	1,689
Accord tacrolimus	99	98.5	153.92	1	17	30	106	1,116
Sandoz tacrolimus	175	223.1	378.56	1	24	54	263	2,153
Mylan tacrolimus	14	74.1	87.26	1	24	51	74	296
Astellas tacrolimus	88	298.9	475.6	1	59	171	308	3,243

\*time to switch = time between date of first tacrolimus dispensing and date of dispensing of a different tacrolimus product.  
First episode must have been censored due to the dispensing of a different tacrolimus product

This table includes a subset of transplant recipients who also had a tacrolimus dispensing on their hospital discharge date

Figure 1. Duration of Continuous Tacrolimus Use among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Race

Figure 1a.

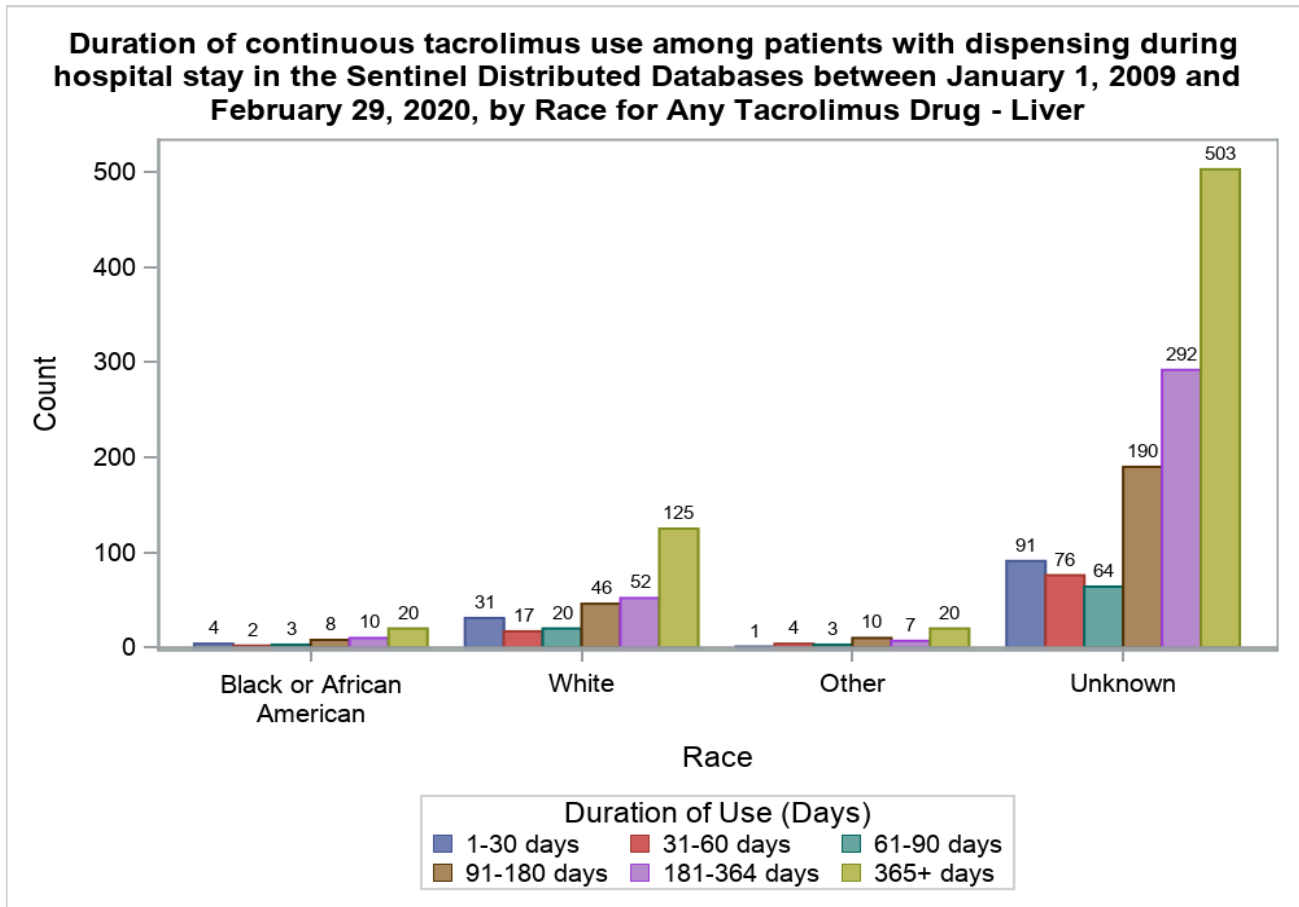




Figure 1c.

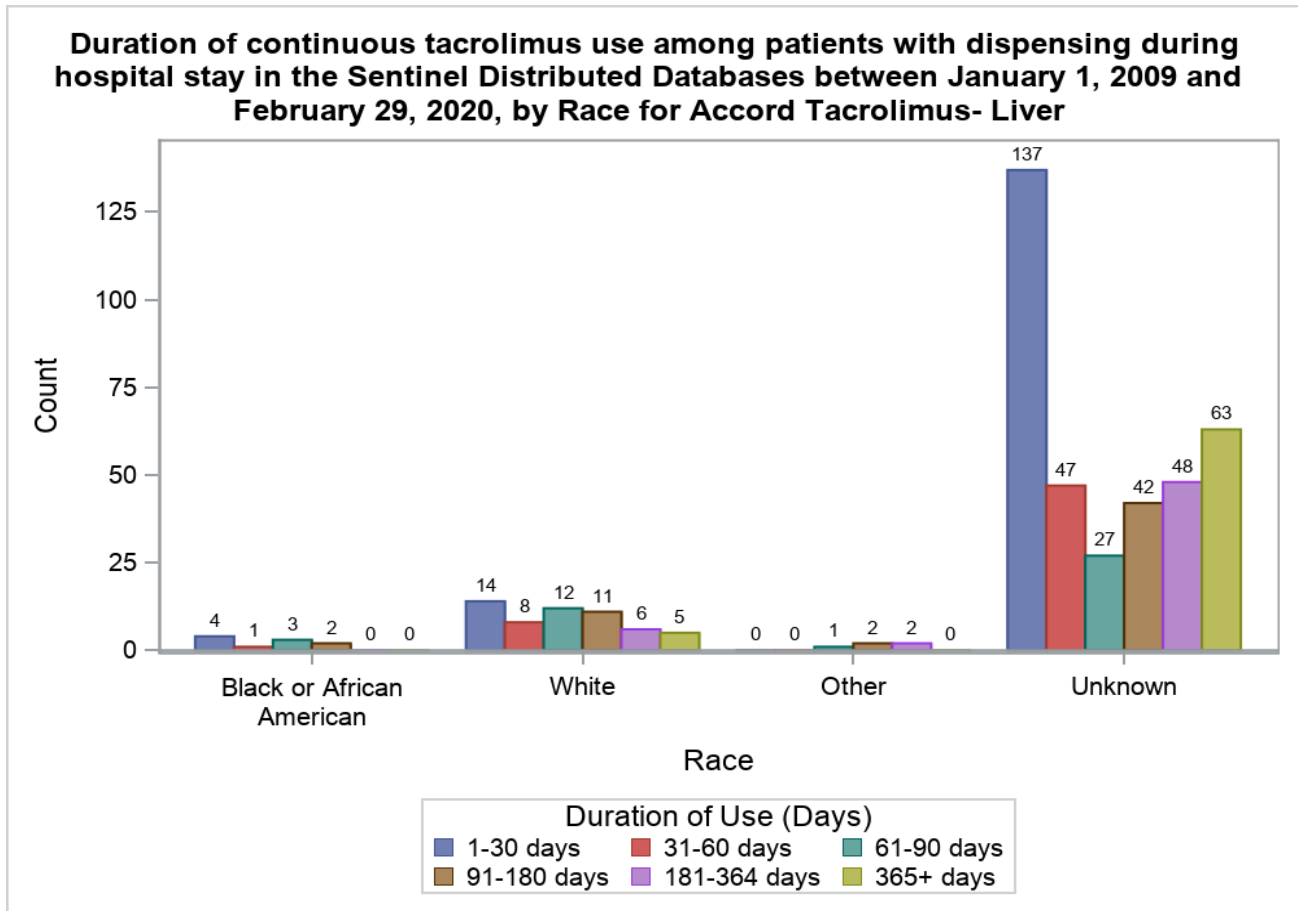


Figure 1e.

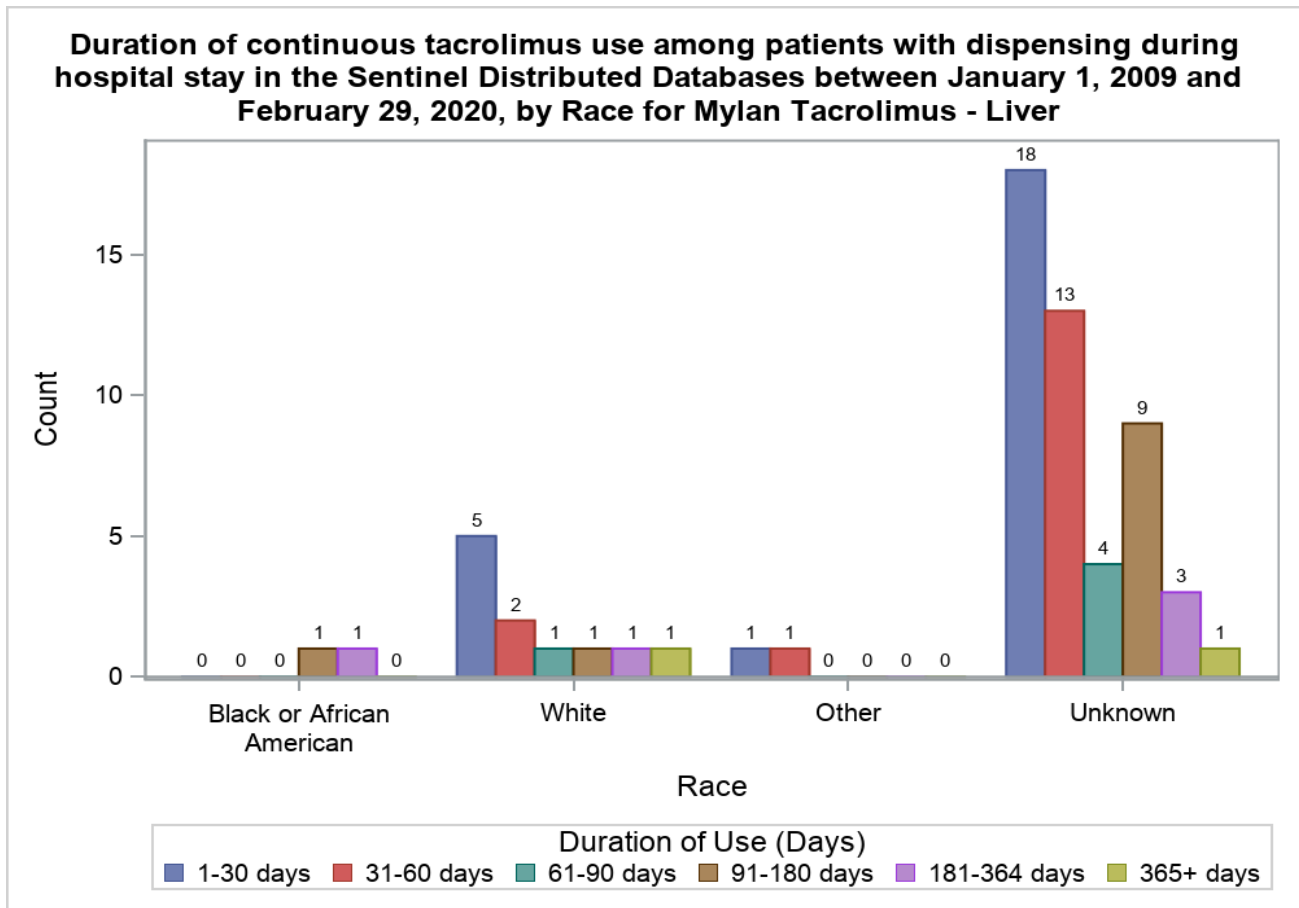


Figure 1g.

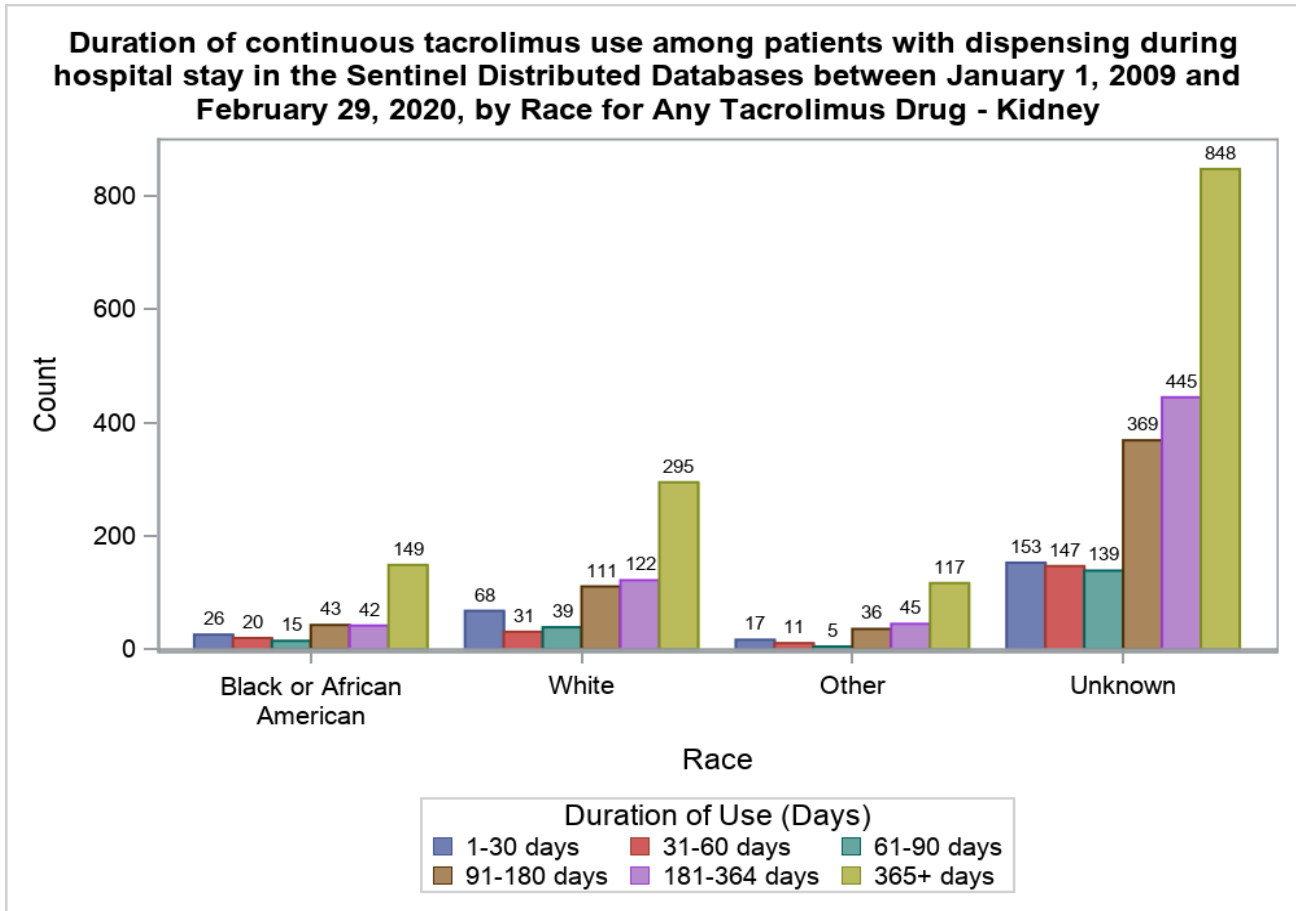


Figure 1i.

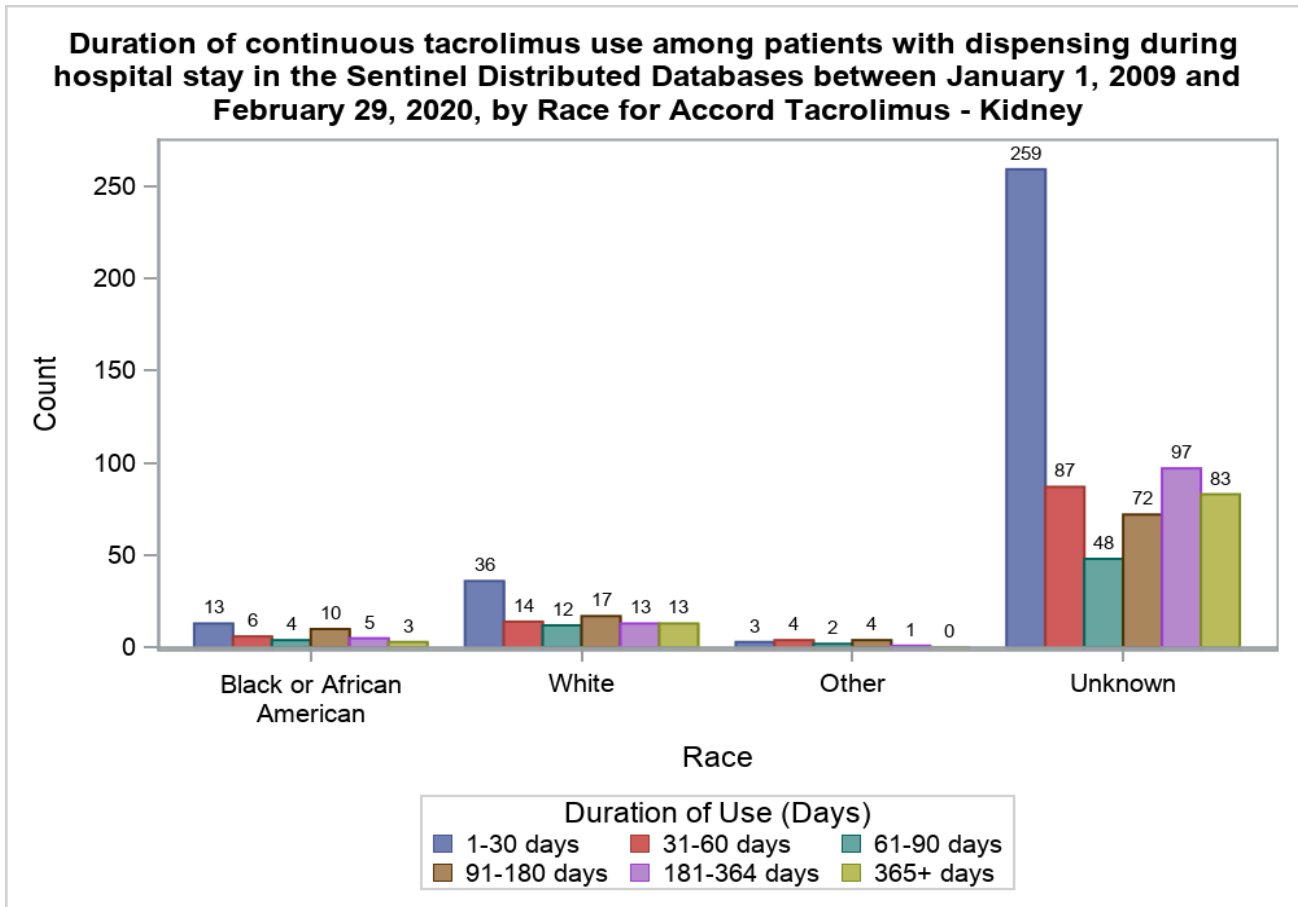


Figure 1k.

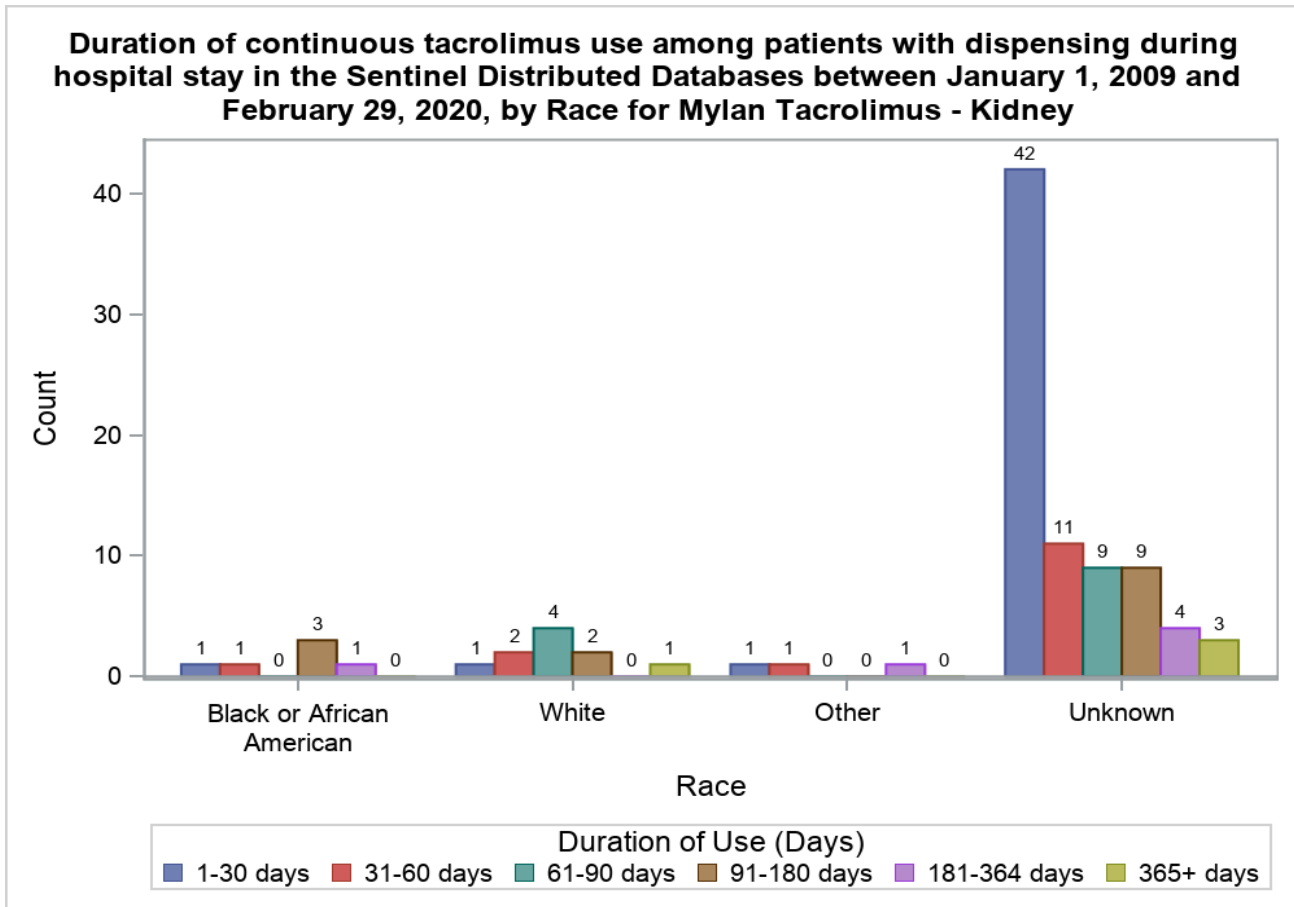


Figure 1b.

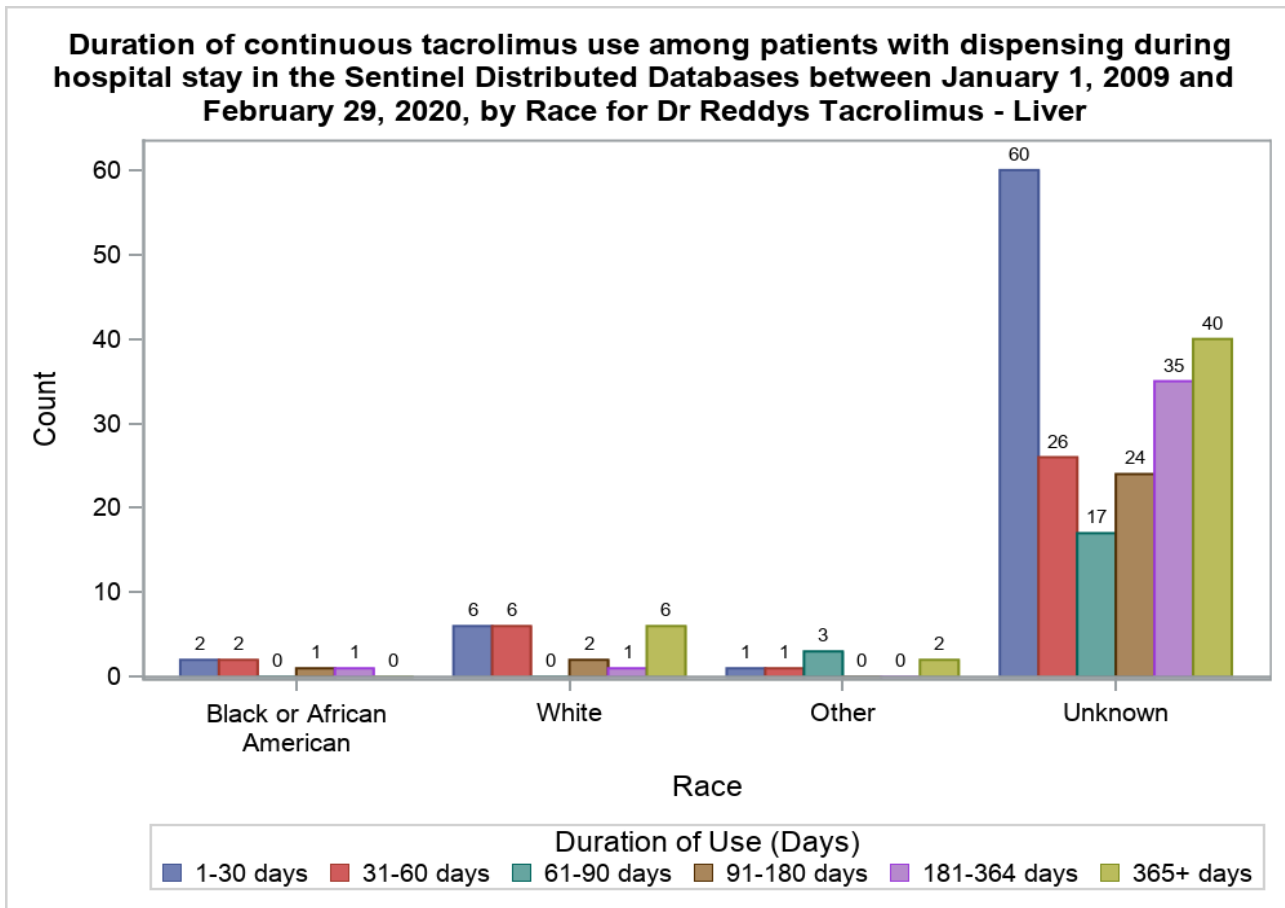


Figure 1d.

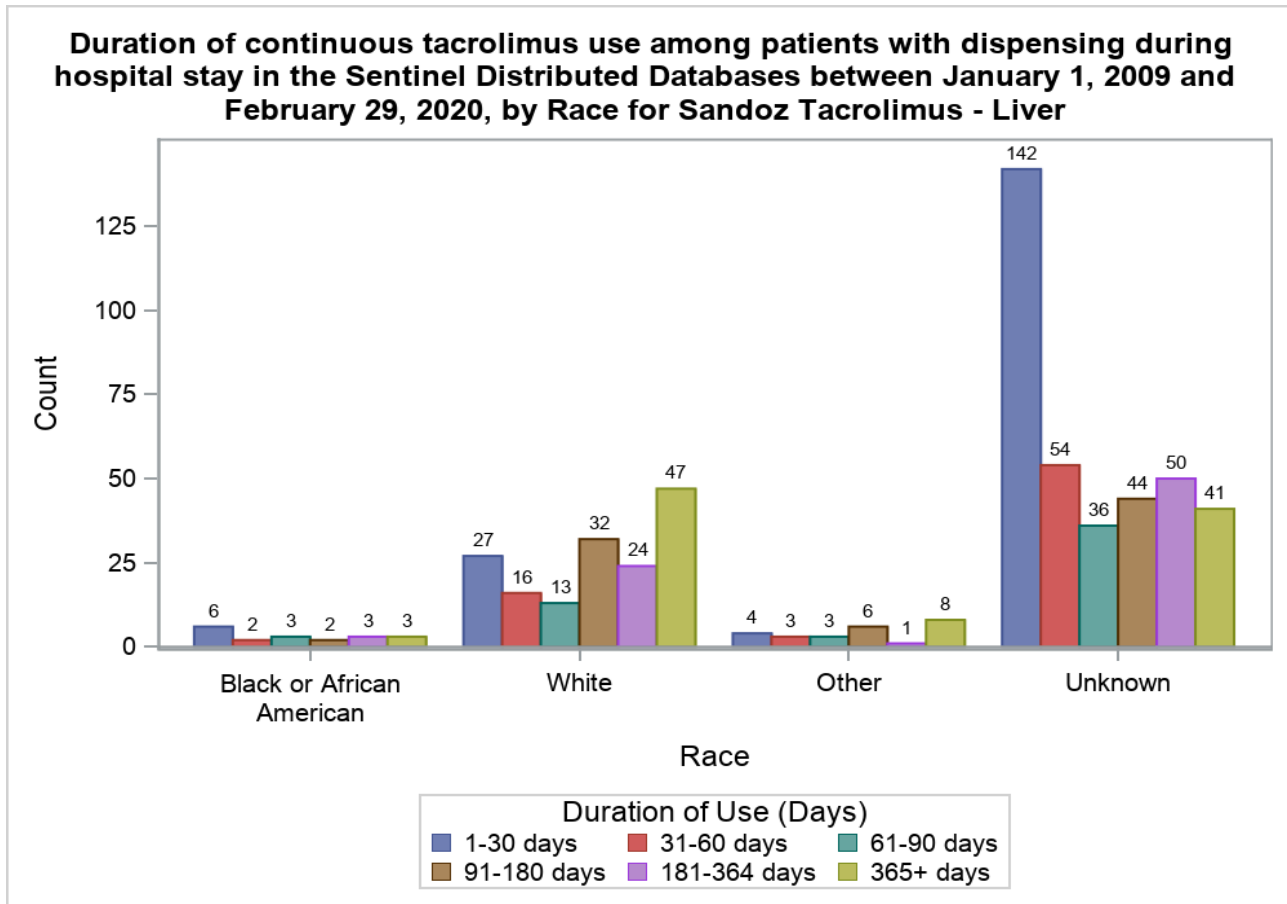


Figure 1f.

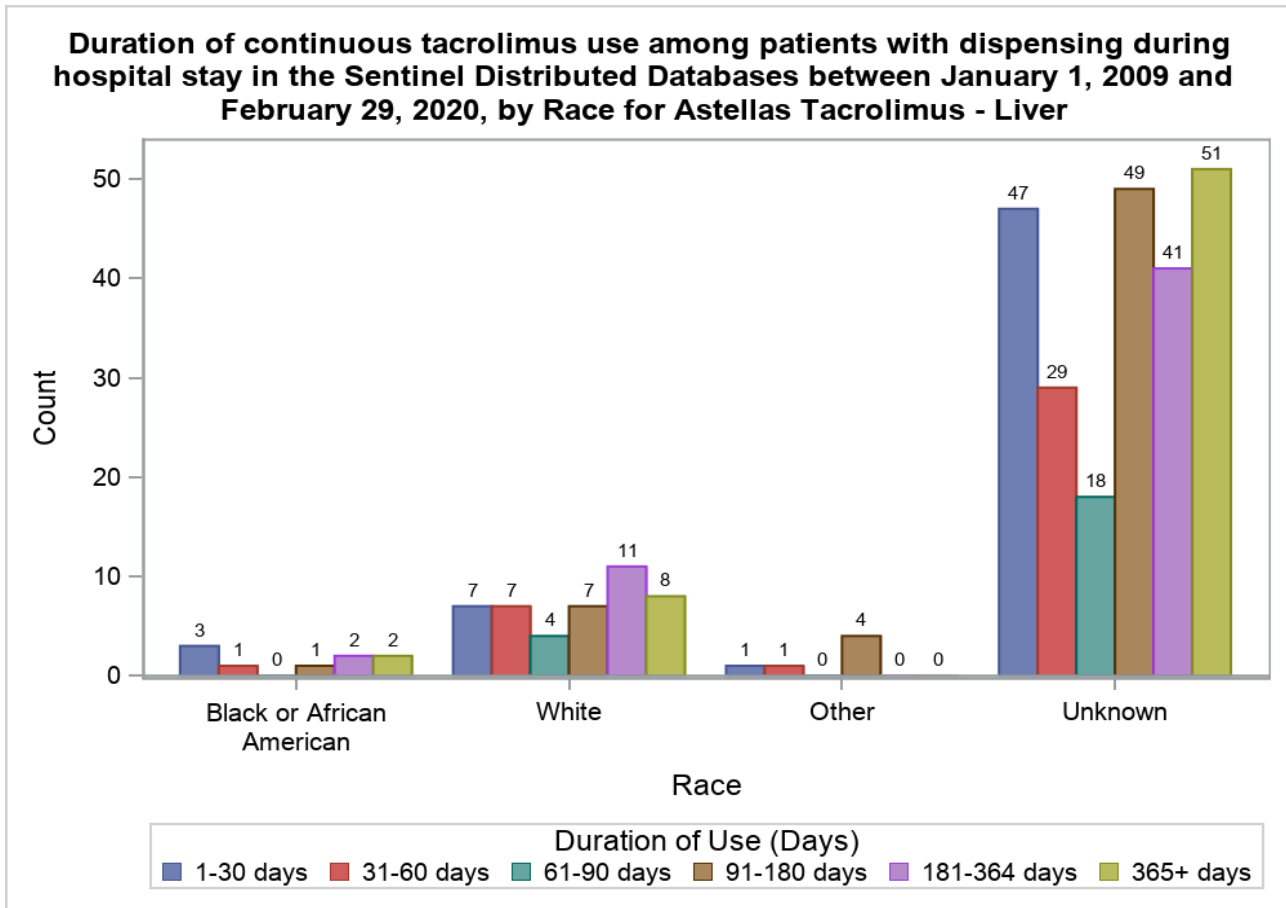




Figure 1h.

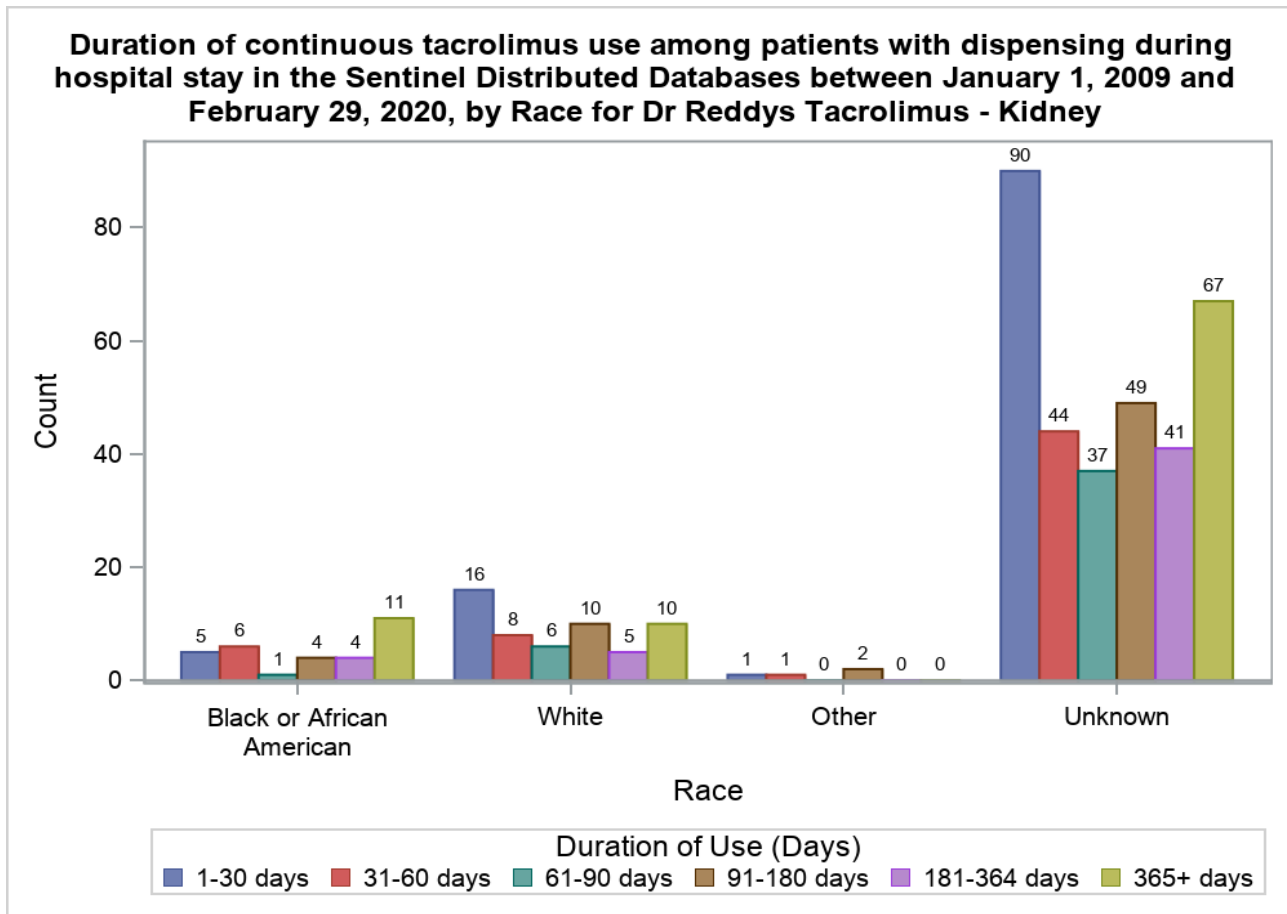


Figure 1j.

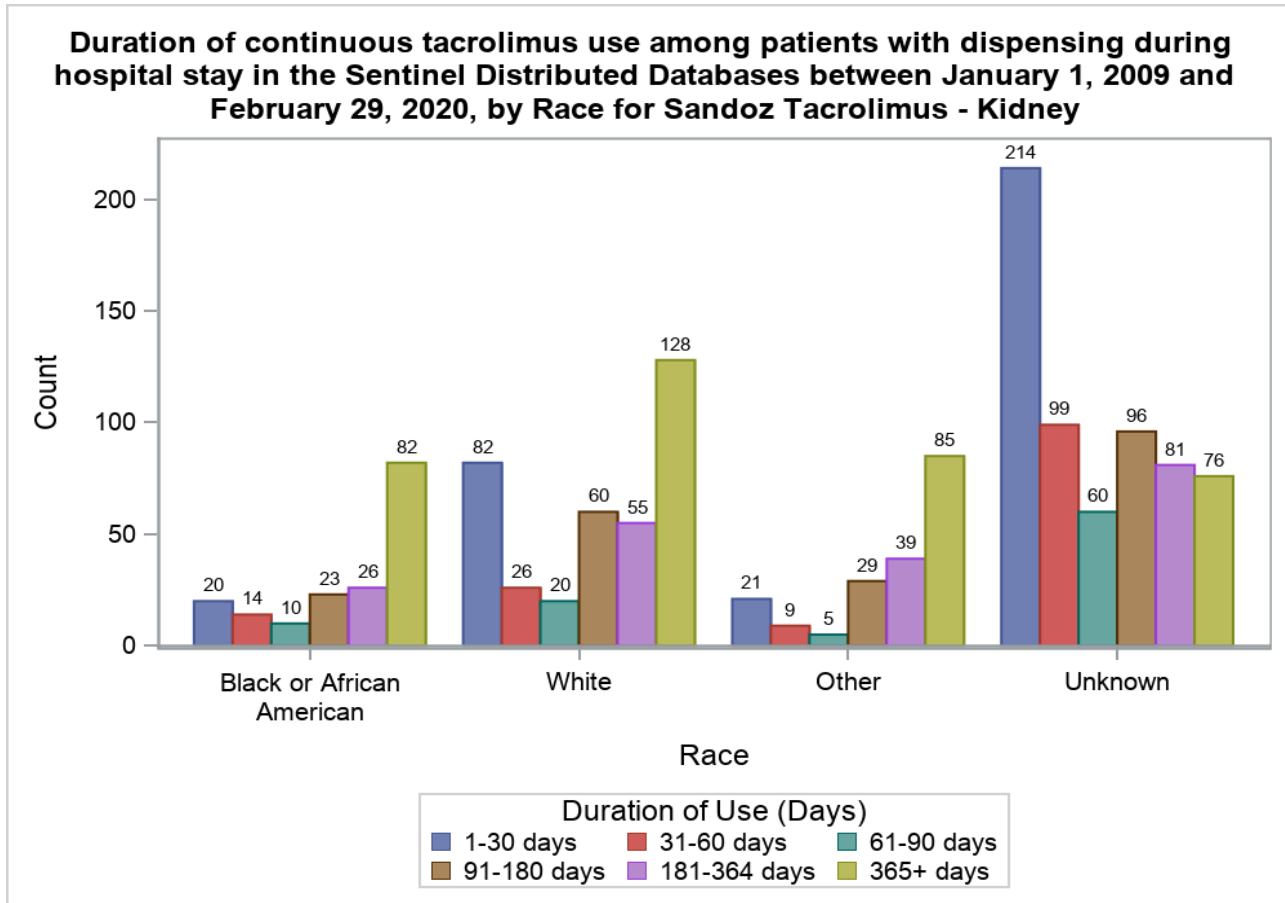


Figure 11.

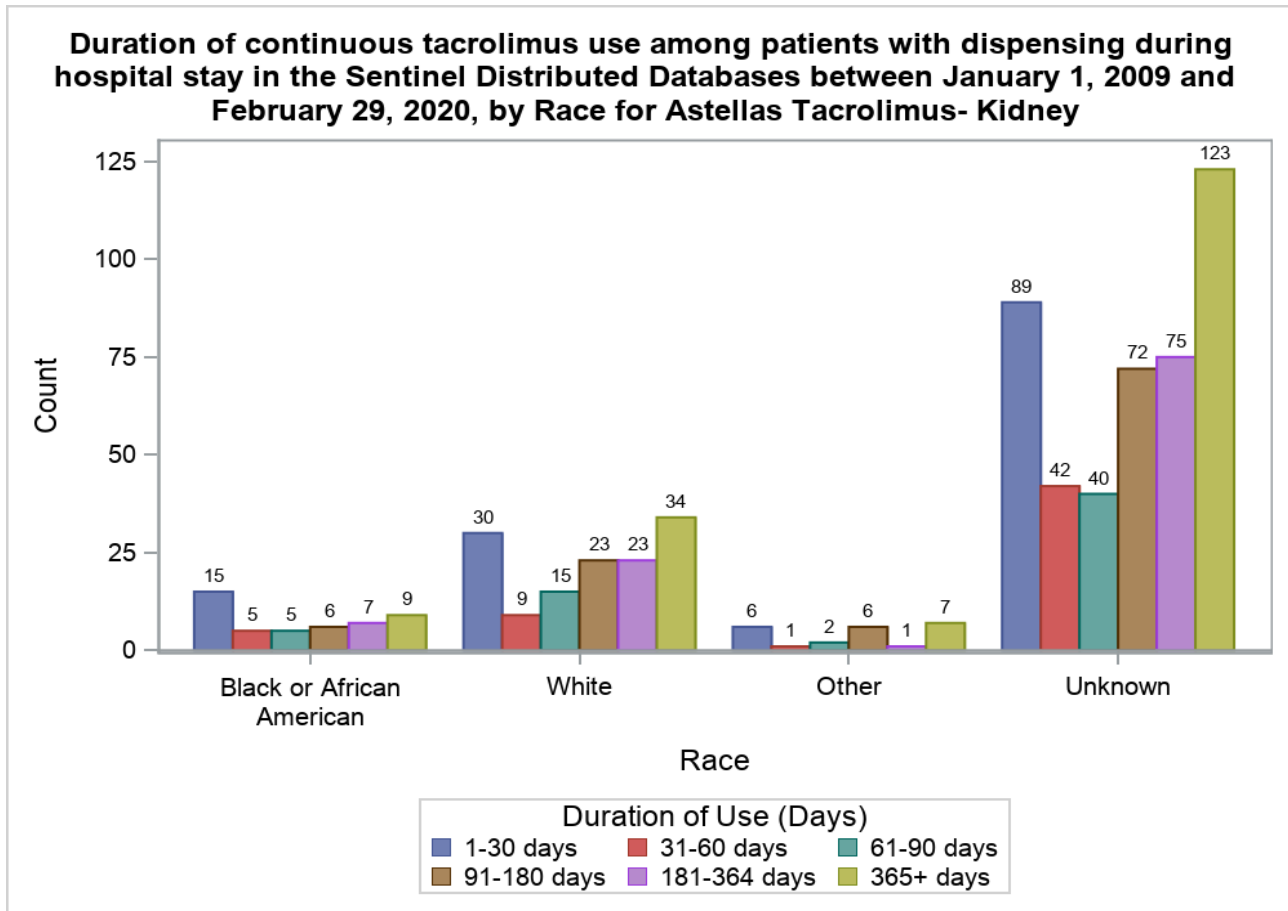


Figure 2. Duration of Continuous Tacrolimus Use among Patients with First Dispensing within 60 Days after Hospital Discharge in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Race

Figure 2a.

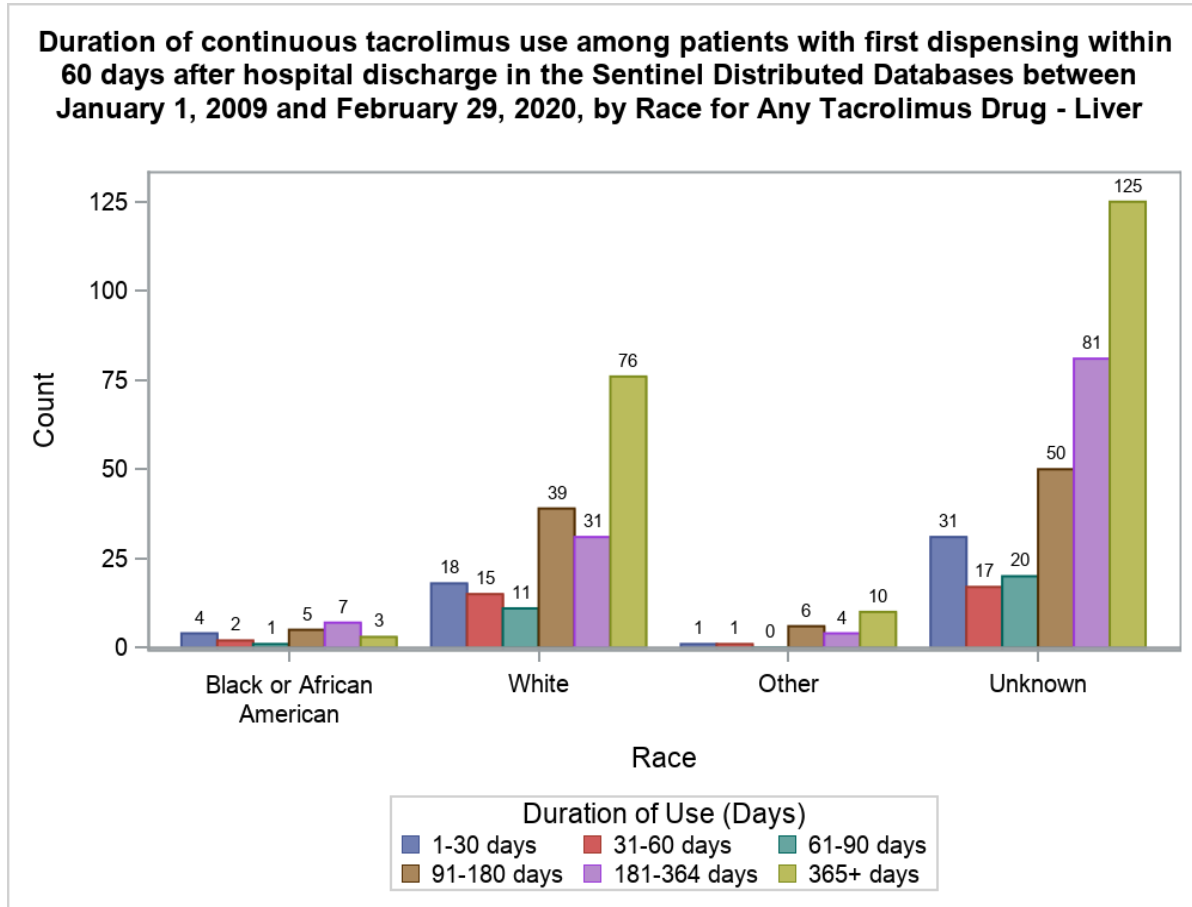


Figure 2c.

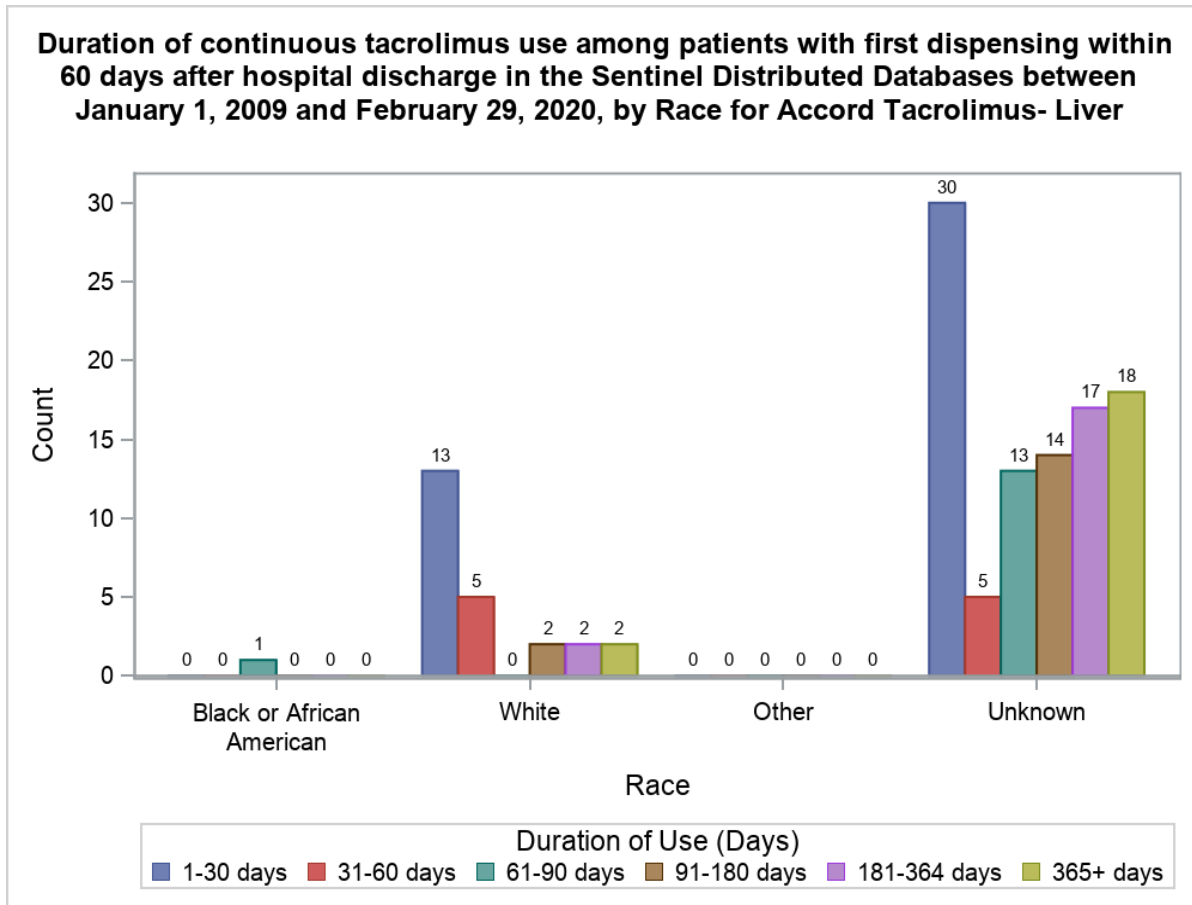


Figure 2e.

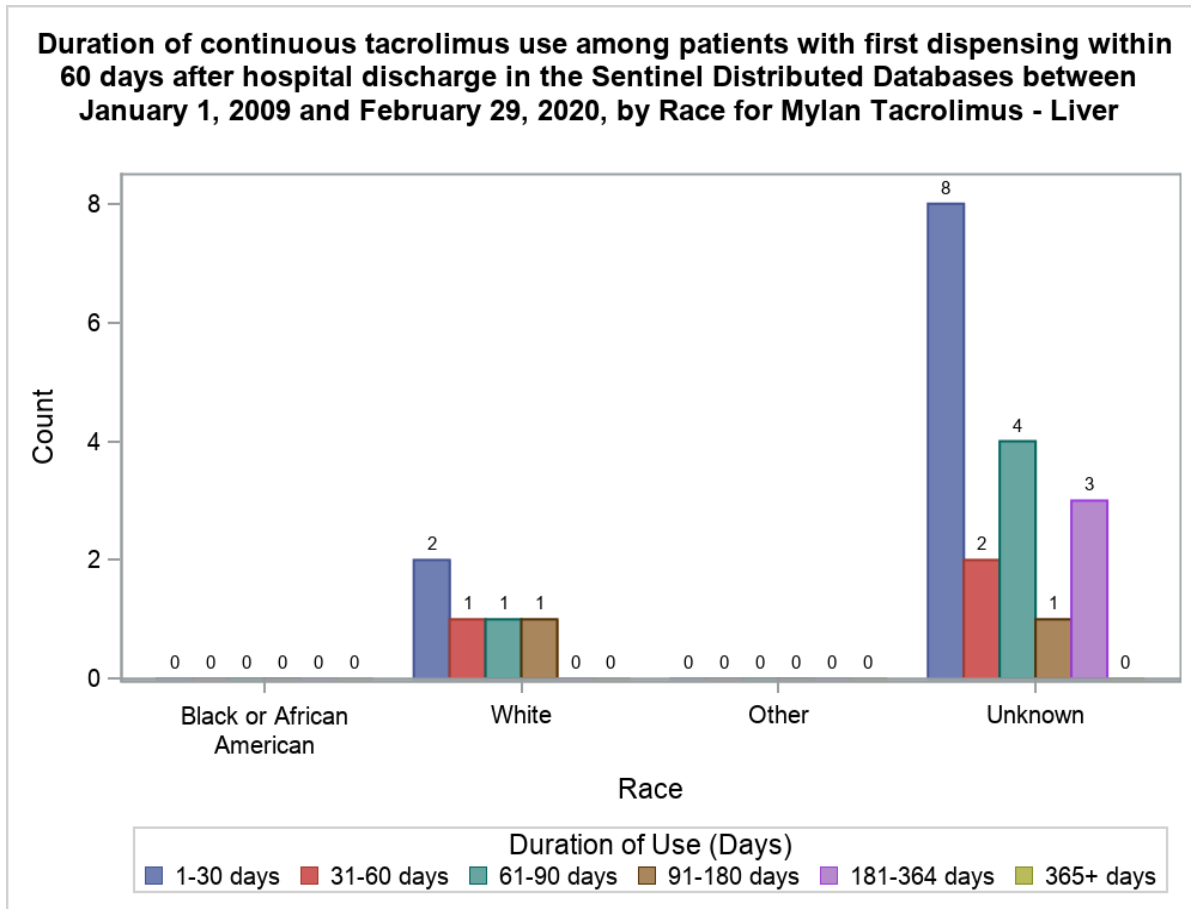


Figure 2g.

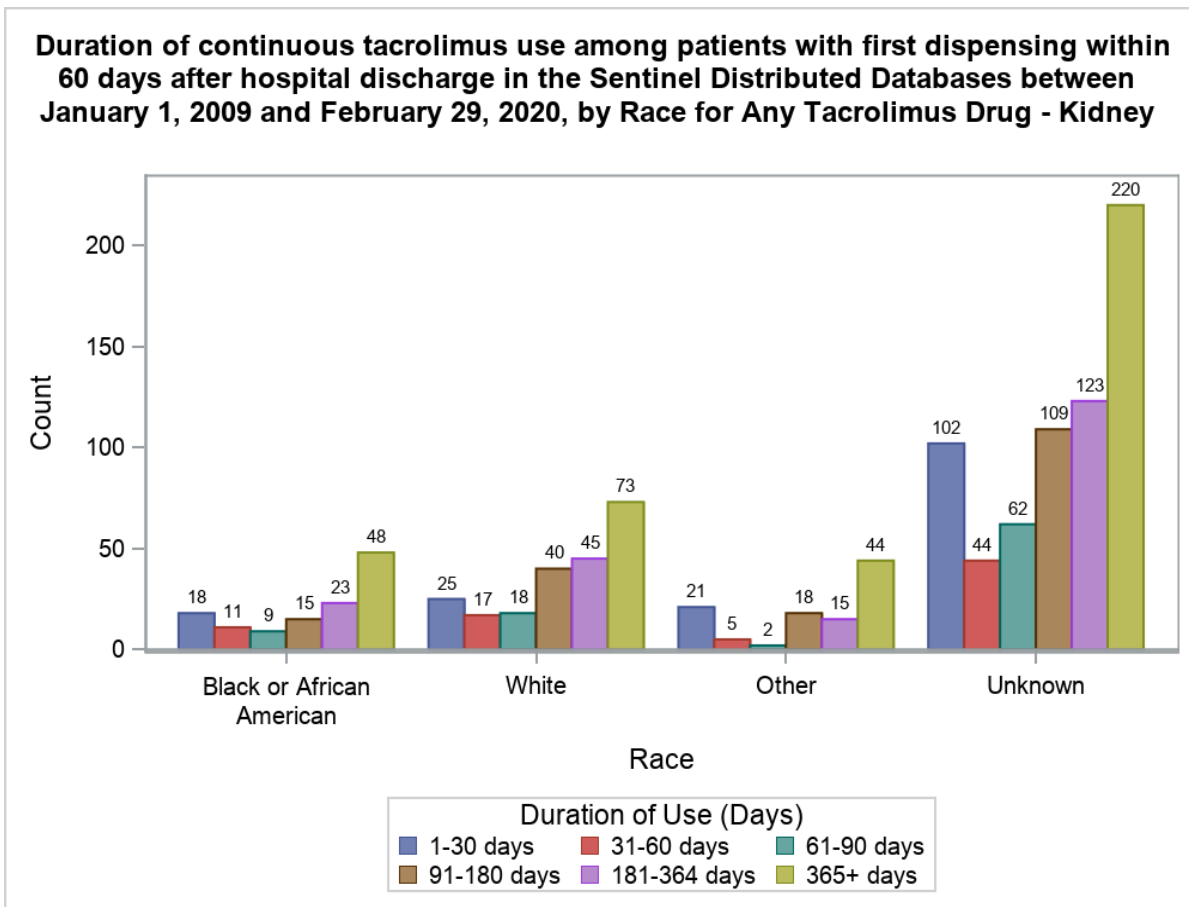


Figure 2i.

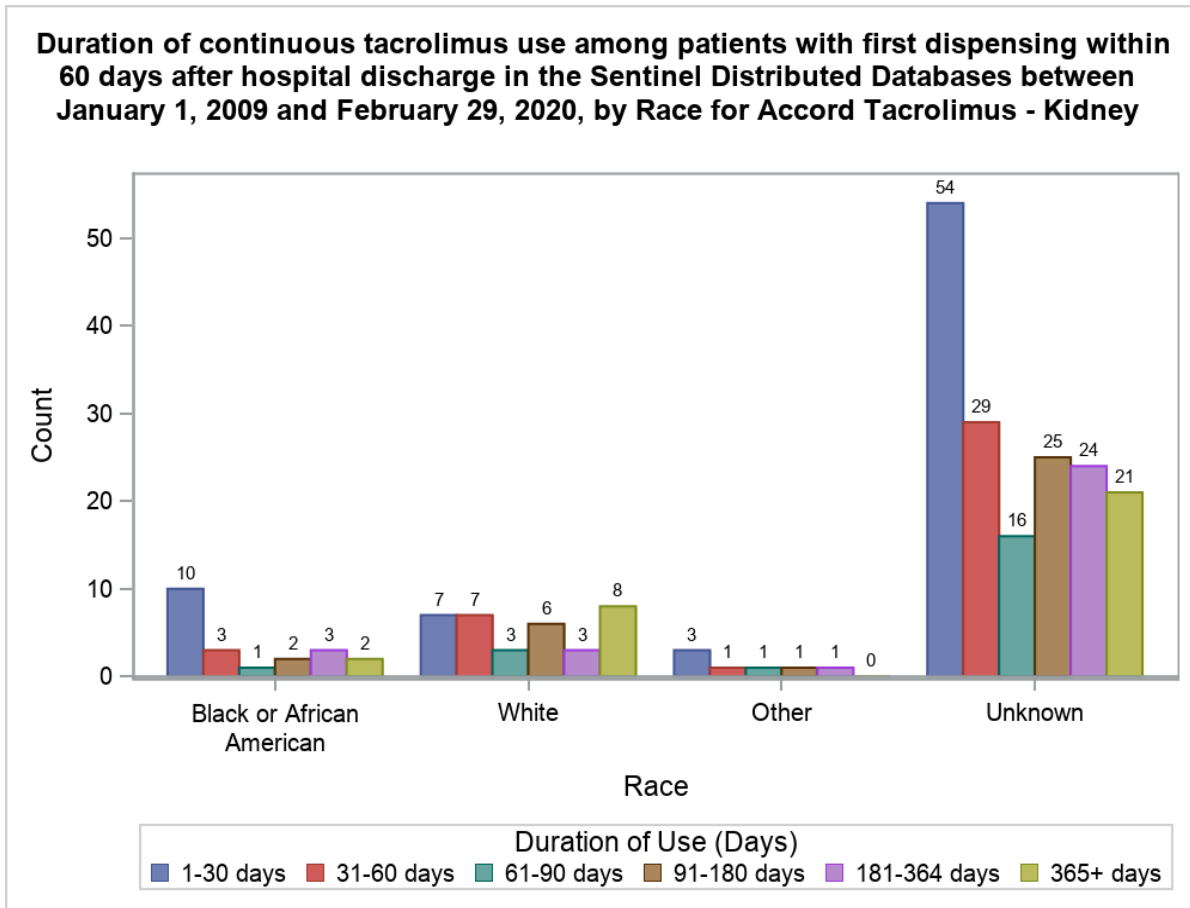




Figure 2k.

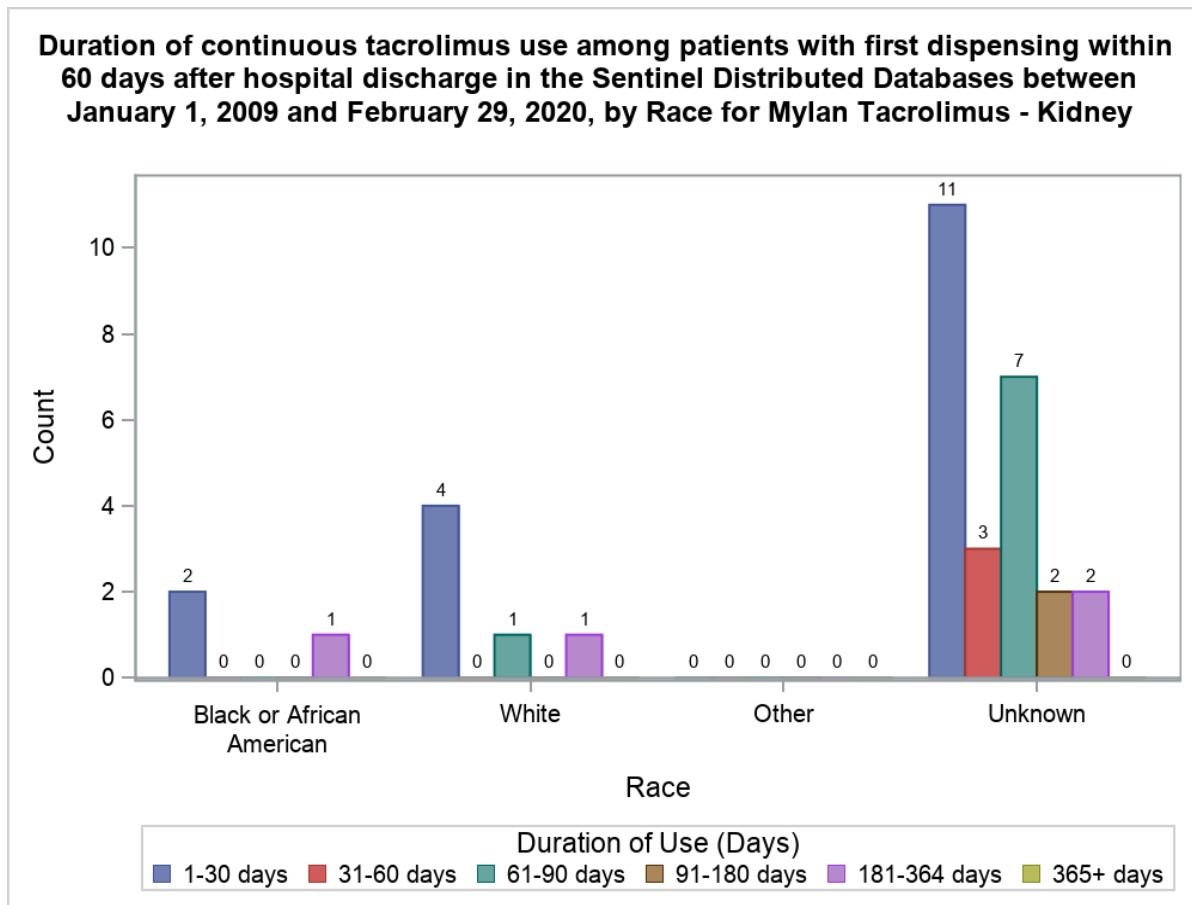


Figure 2b.

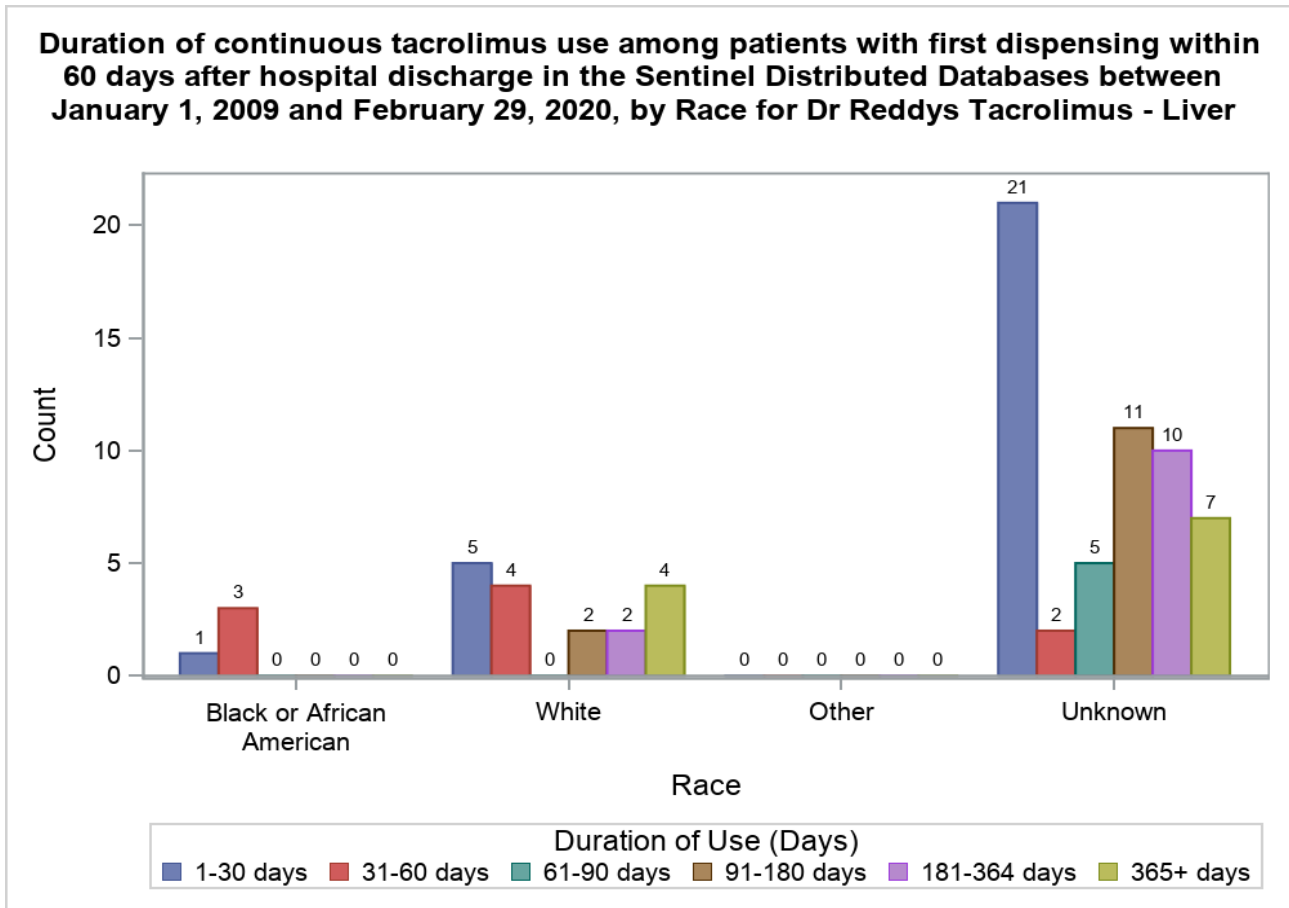


Figure 2d.

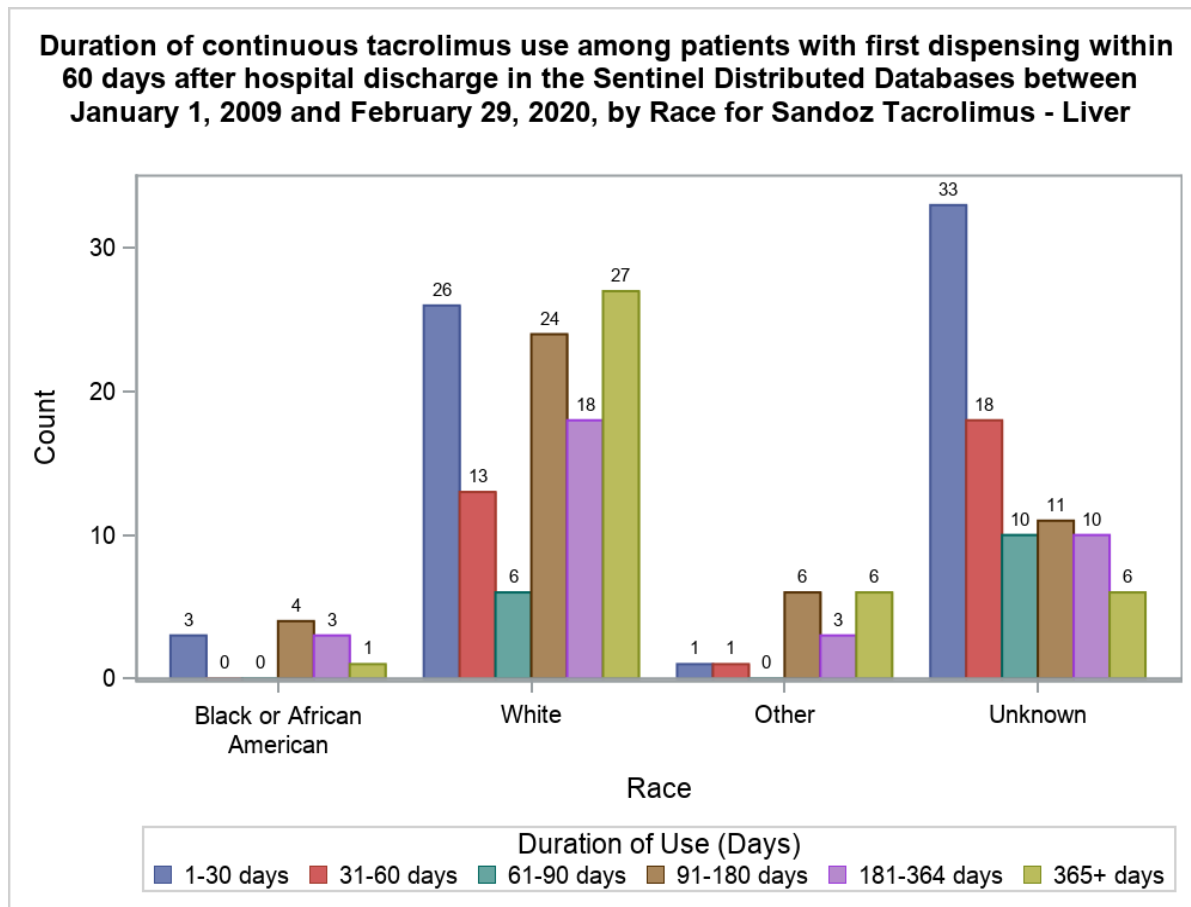


Figure 2f.

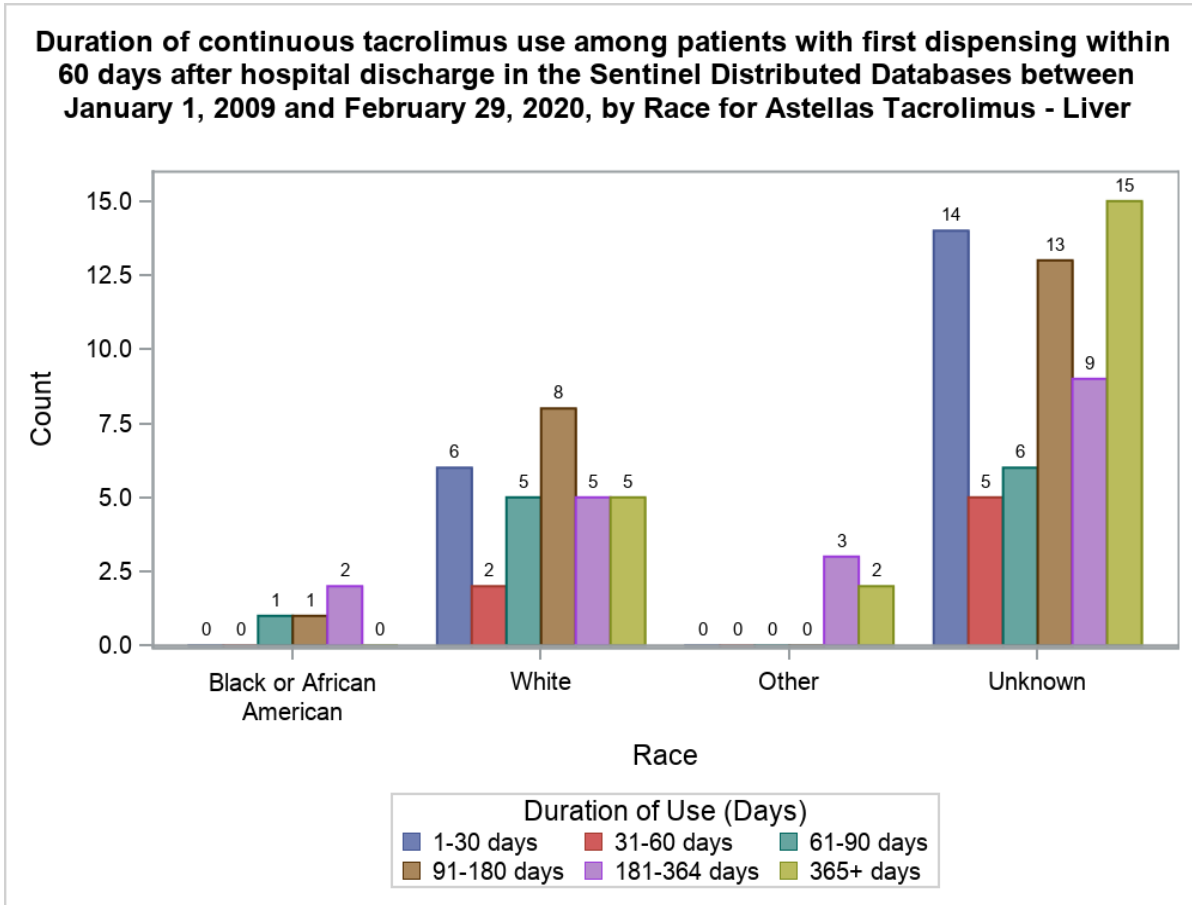


Figure 2h.

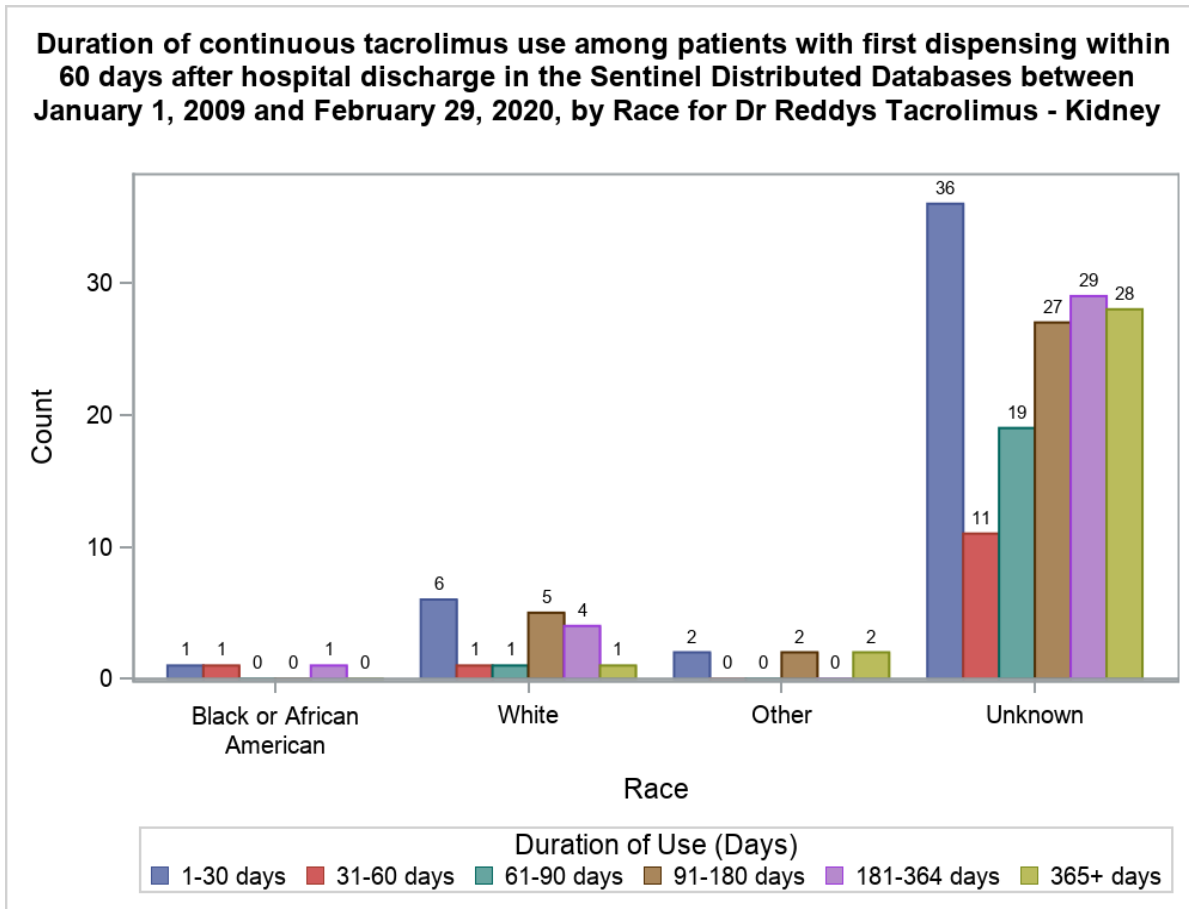


Figure 2j.

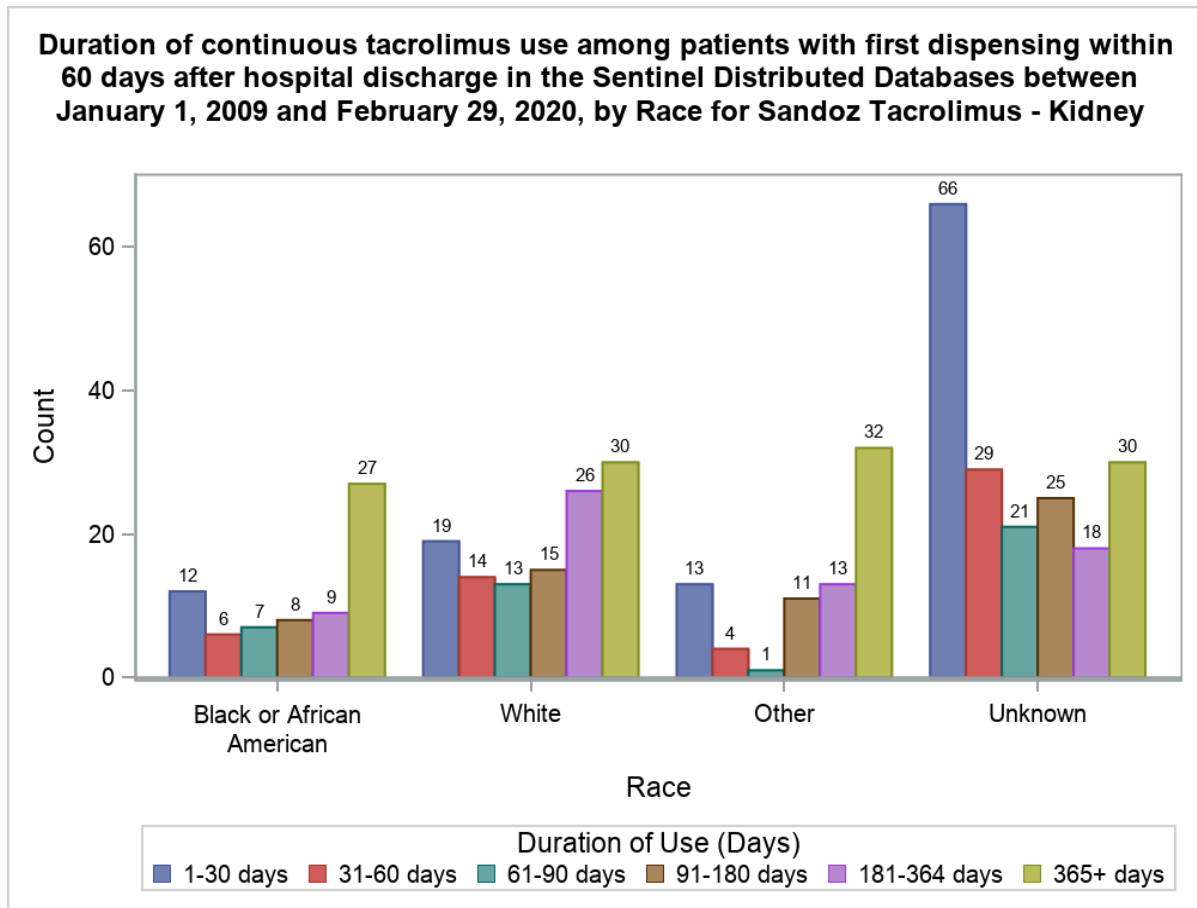


Figure 21.

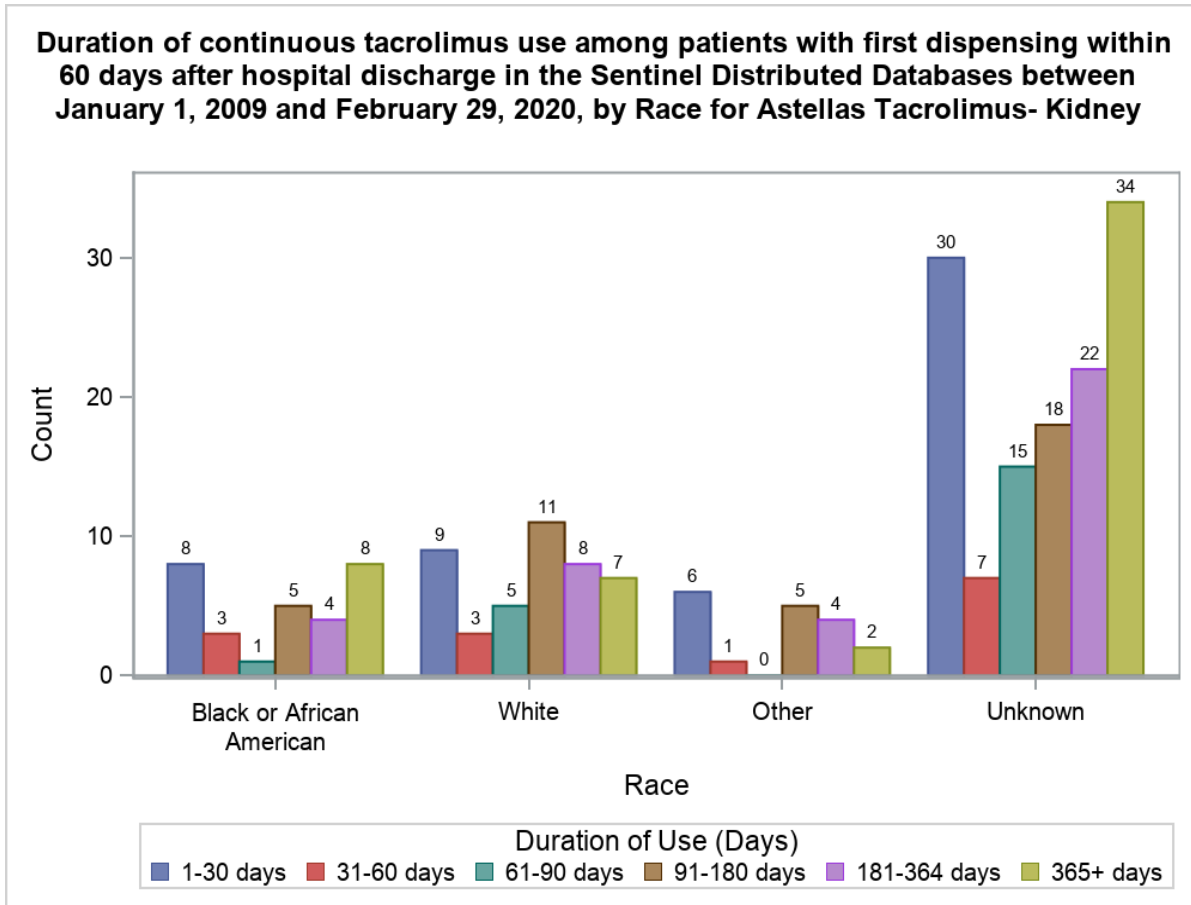


Figure 3. Duration of Continuous Tacrolimus Use among Patients with First Dispensing on 60 Hospital Discharge Date in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Race

Figure 3a.

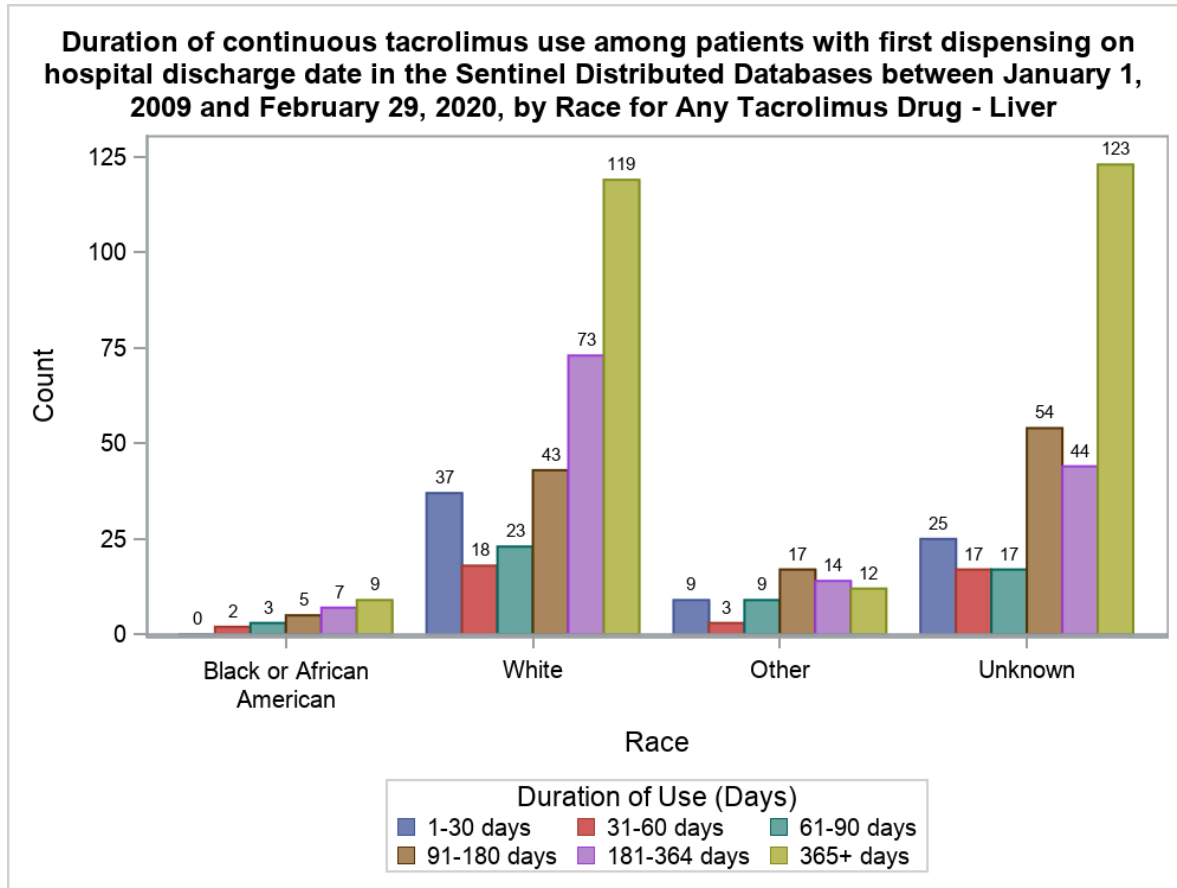




Figure 3c.

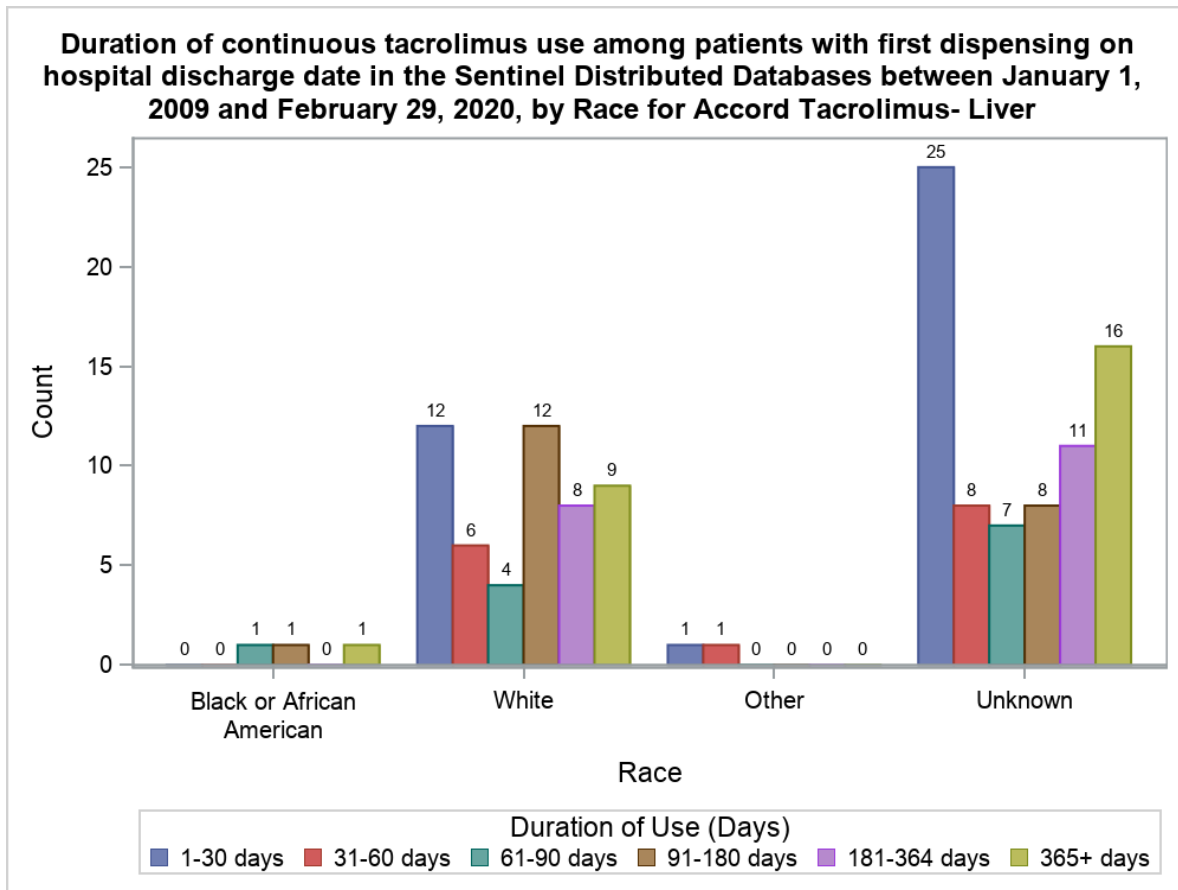


Figure 3e.

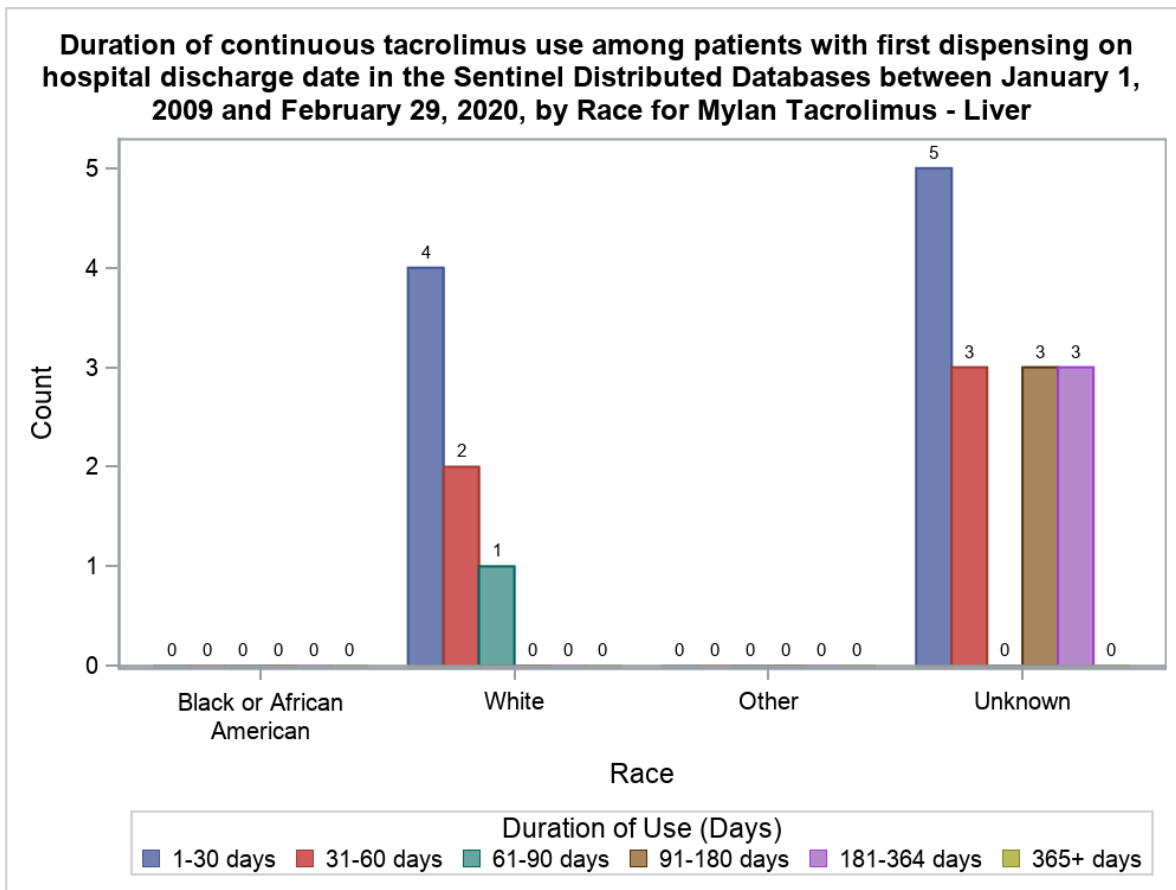


Figure 3g.

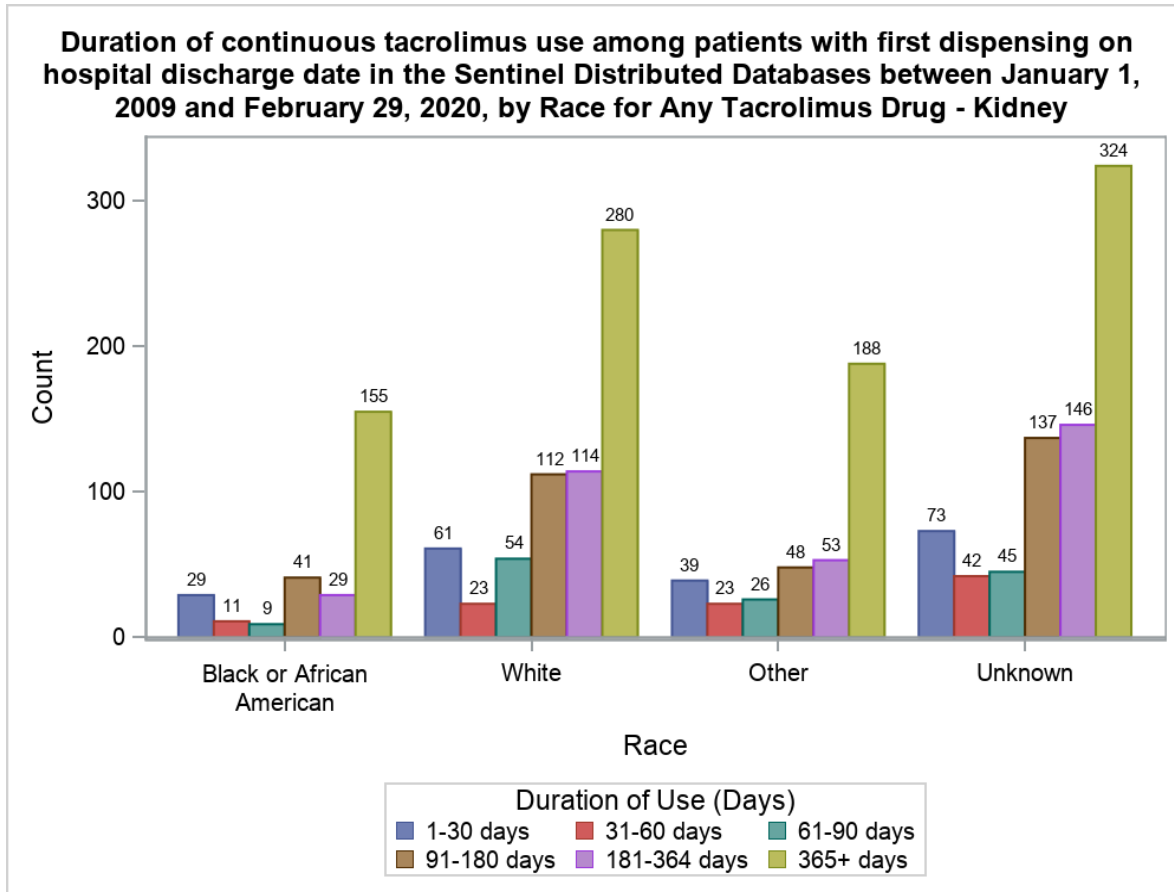


Figure 3i.

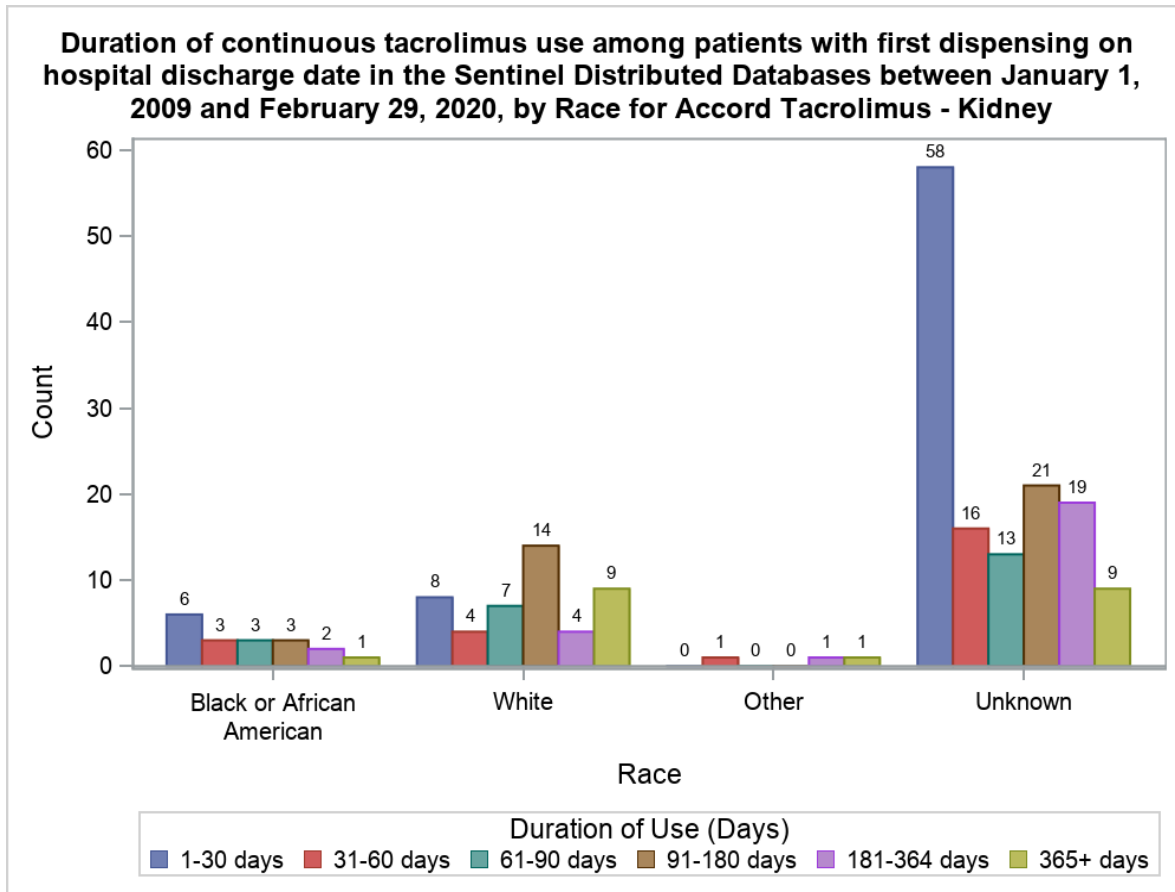


Figure 3k.

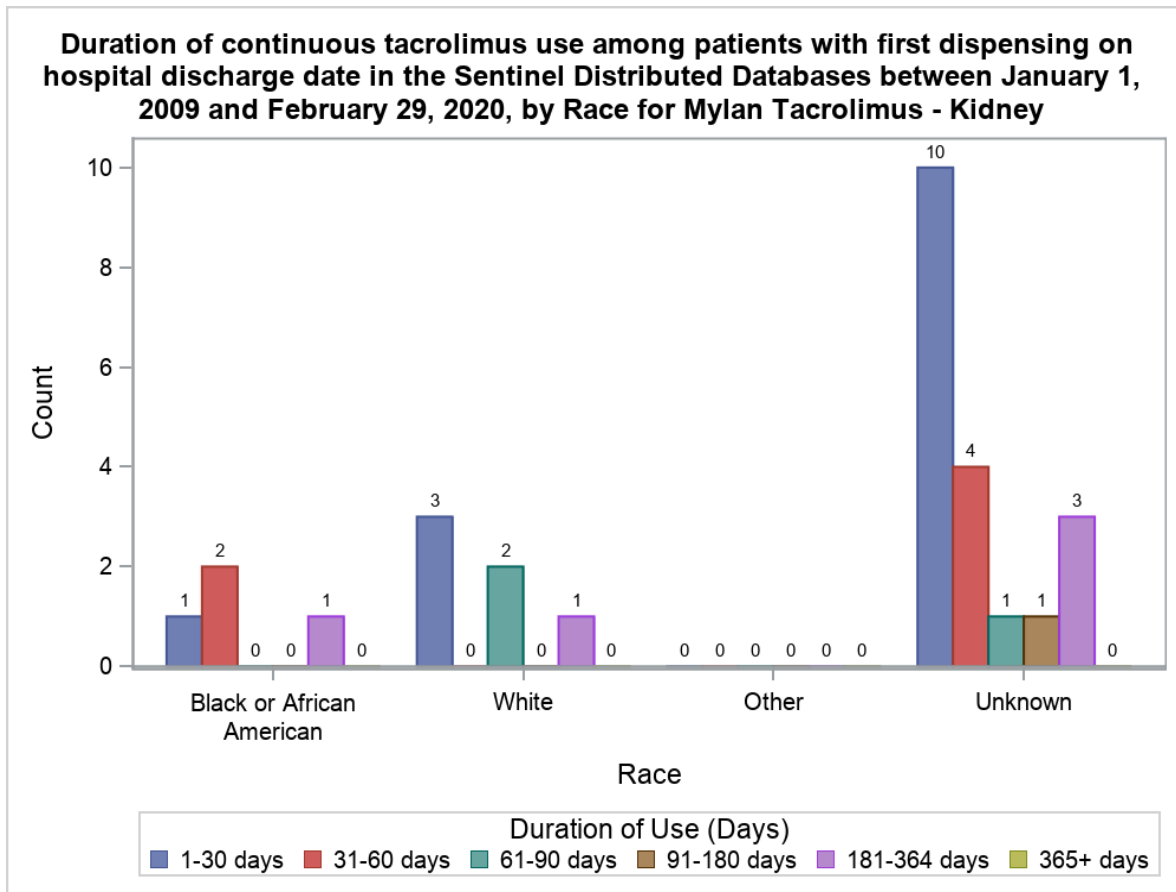


Figure 3b.

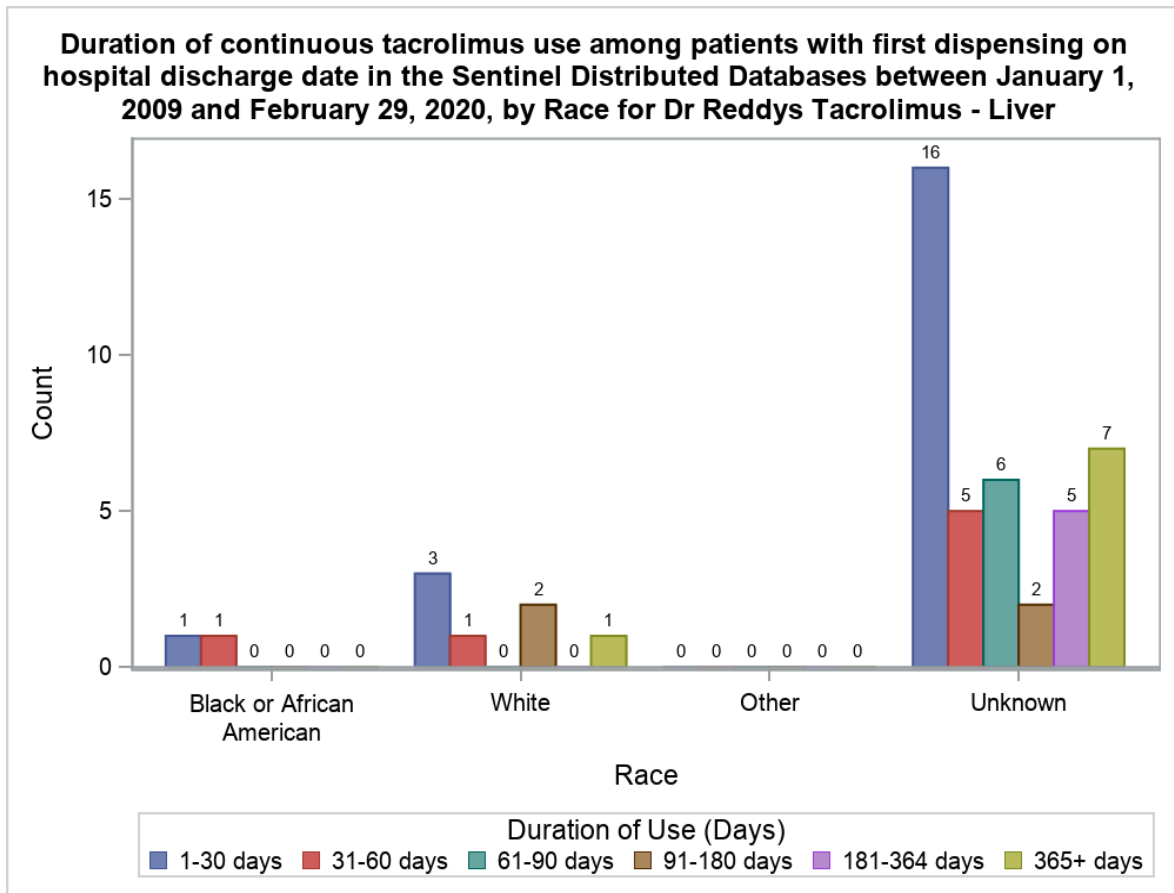


Figure 3d.

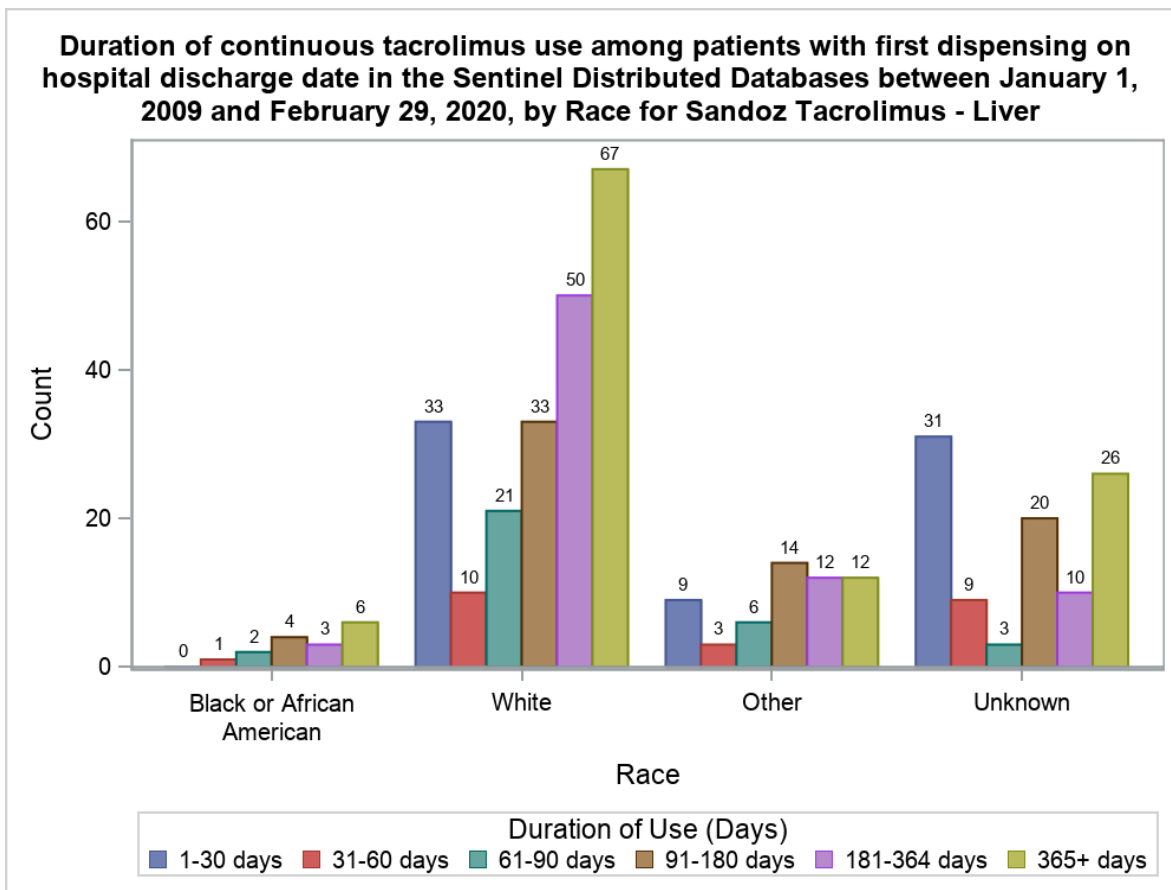


Figure 3f.

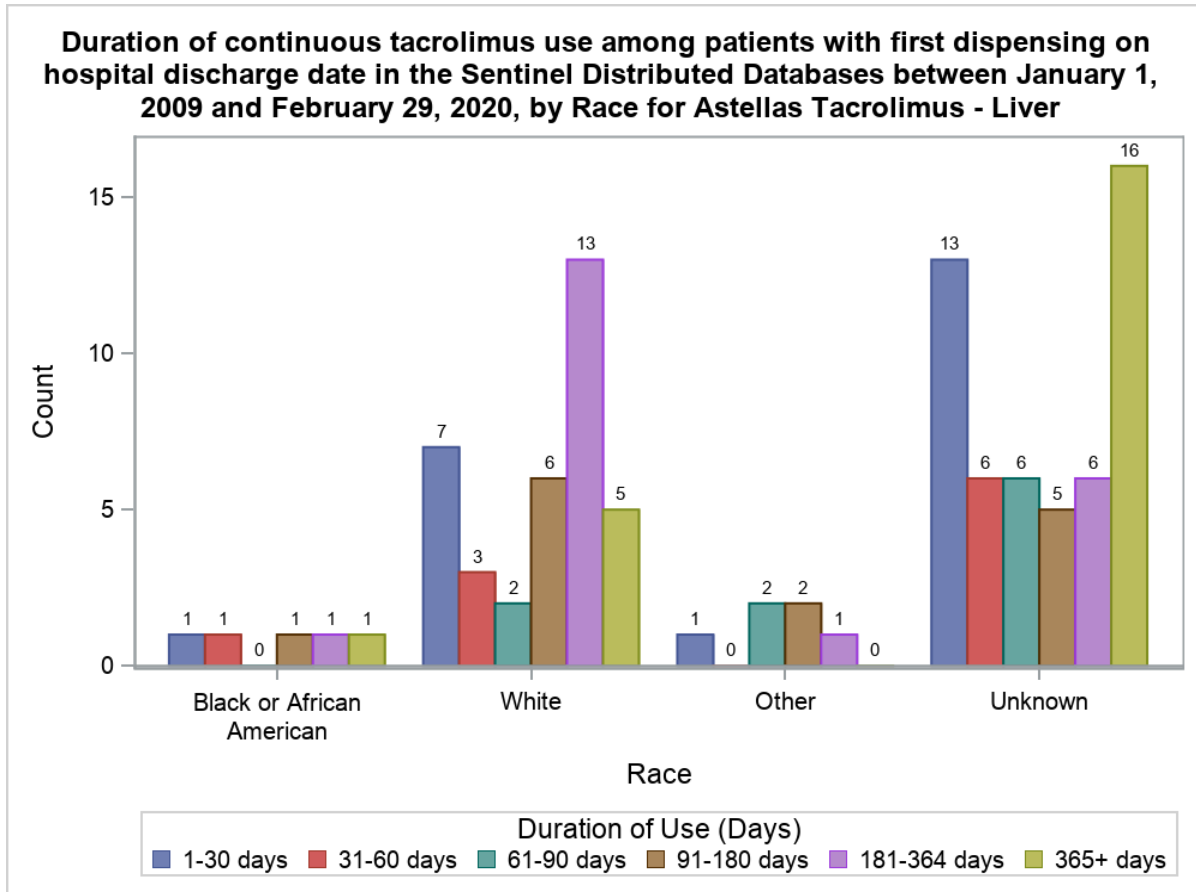




Figure 3h.

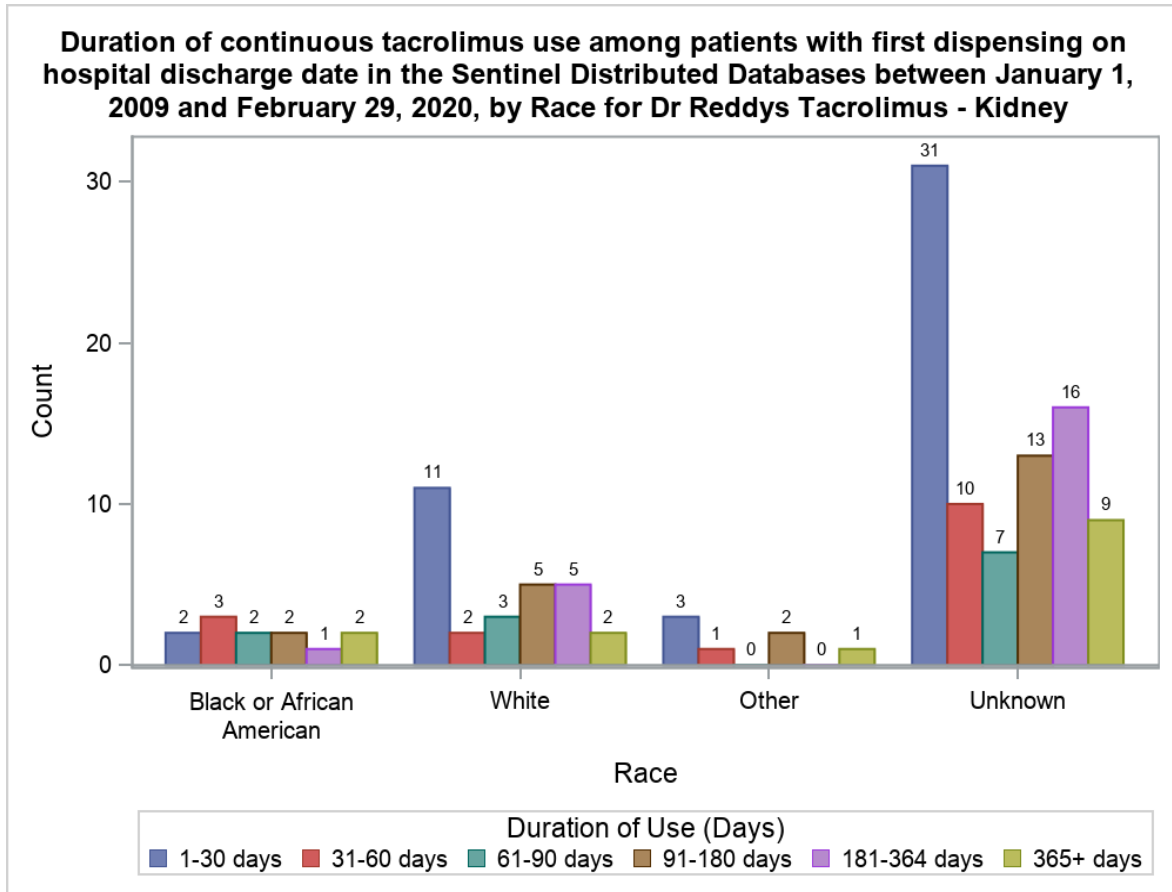


Figure 3j.

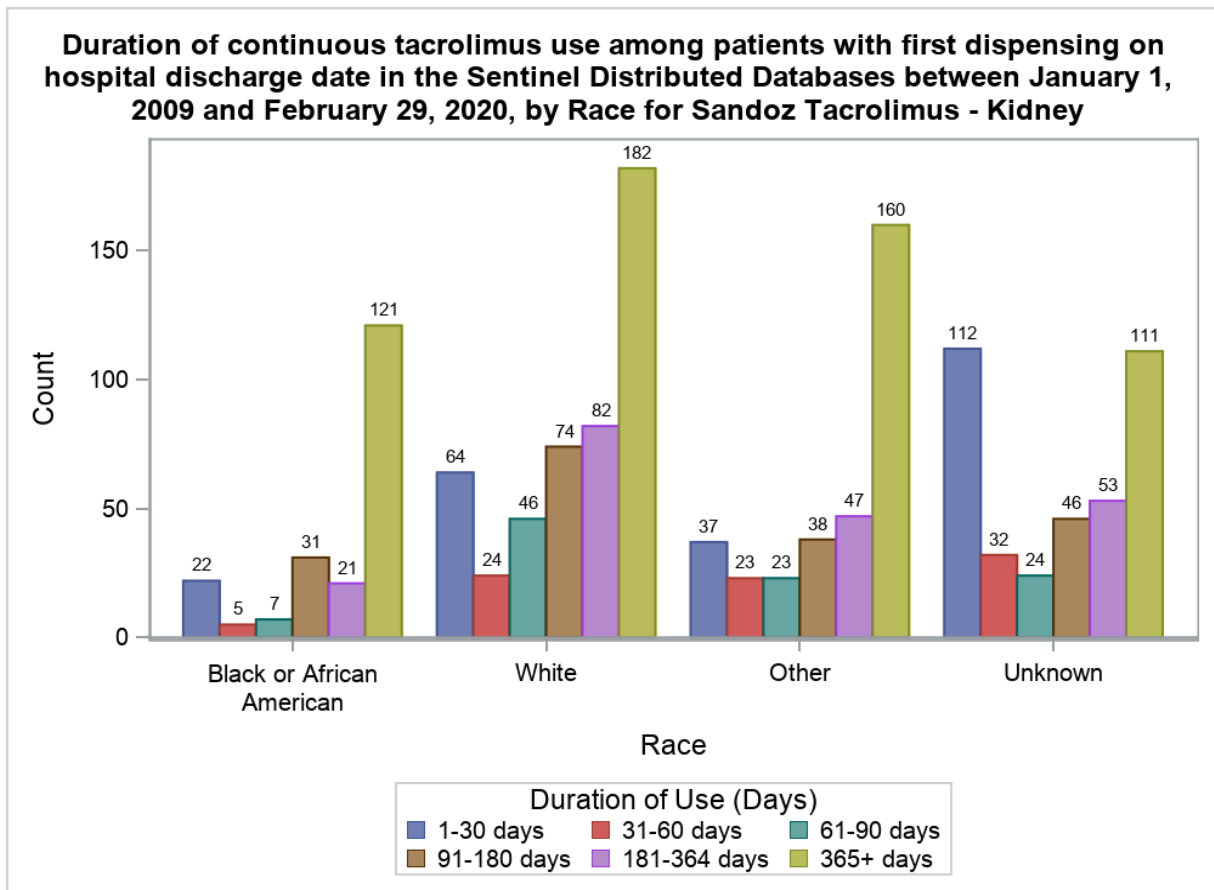


Figure 31.

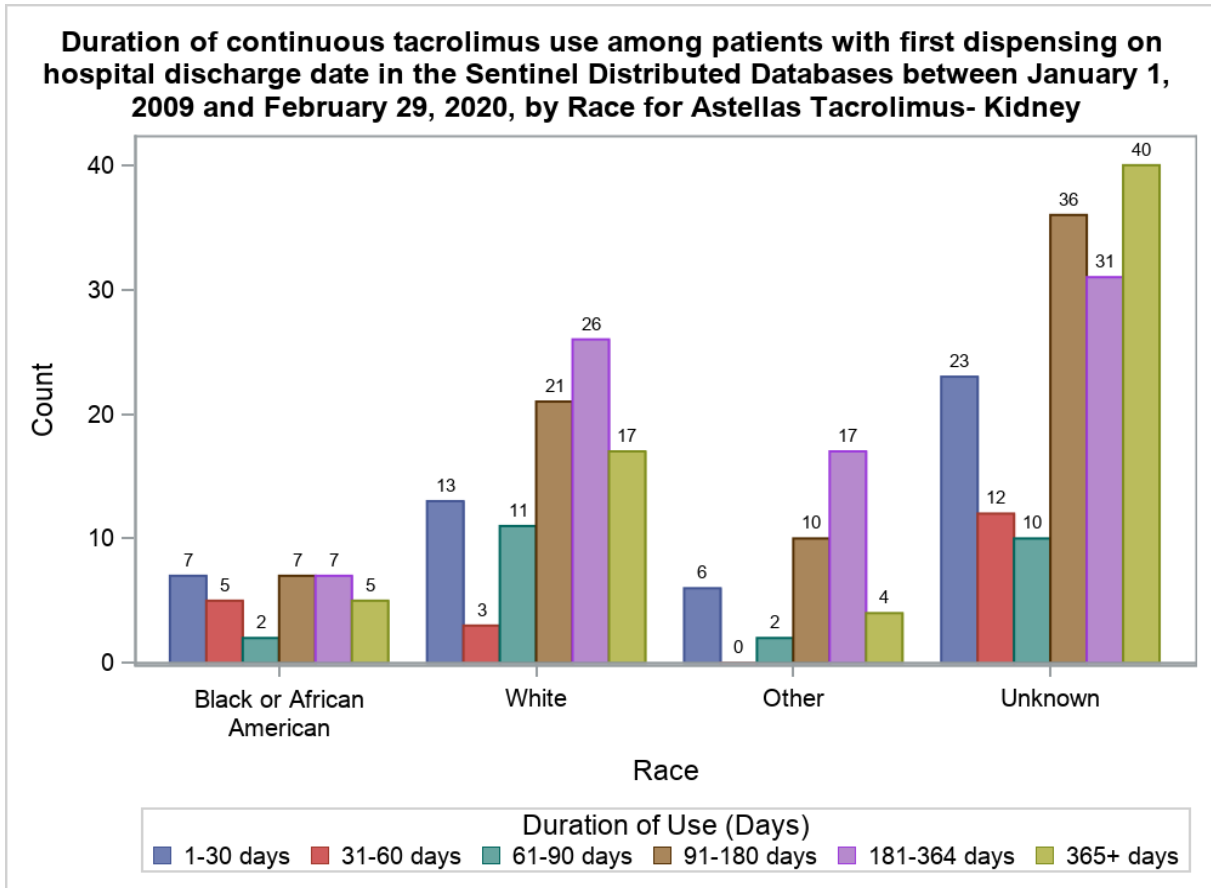


Figure 4. Duration of Continuous Tacrolimus Use among Patients with Dispensing During Hospital Stay in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Region

Figure 4a.

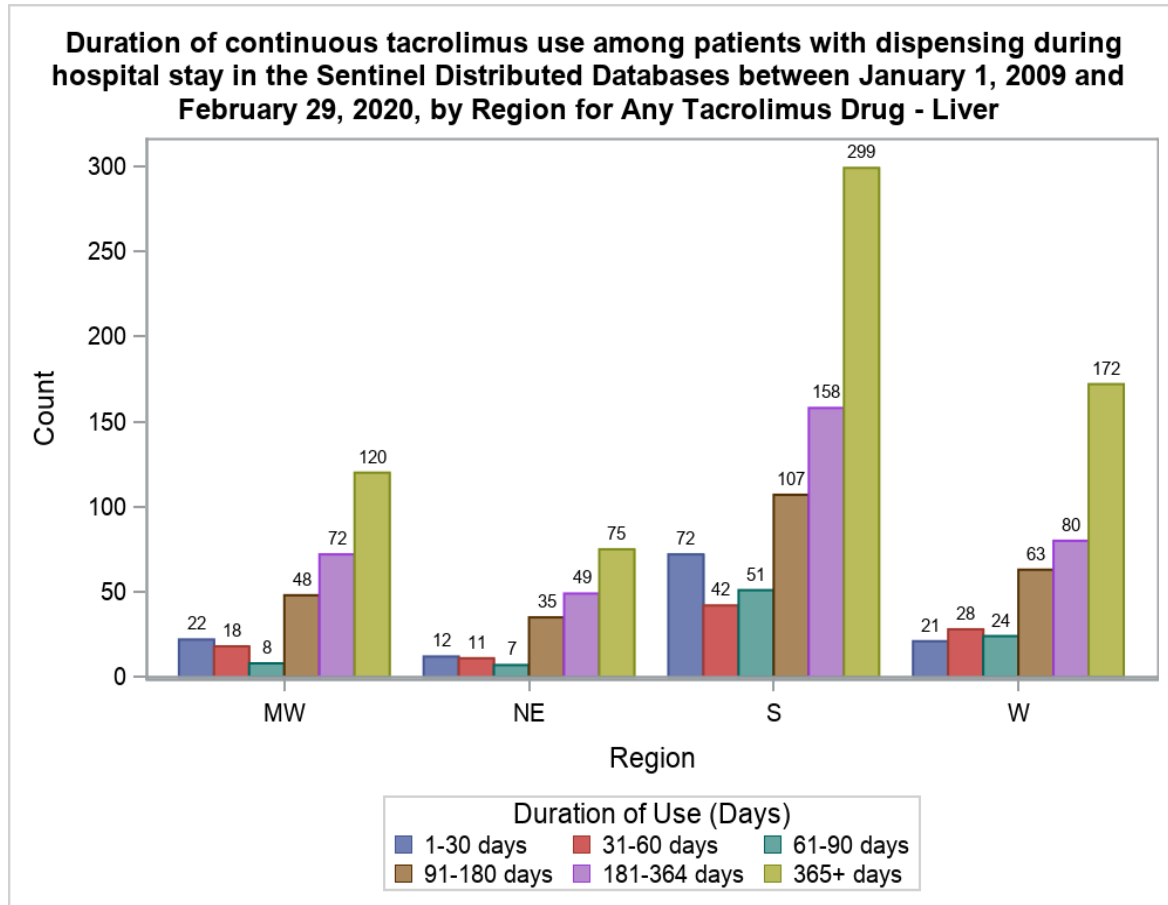


Figure 4c.

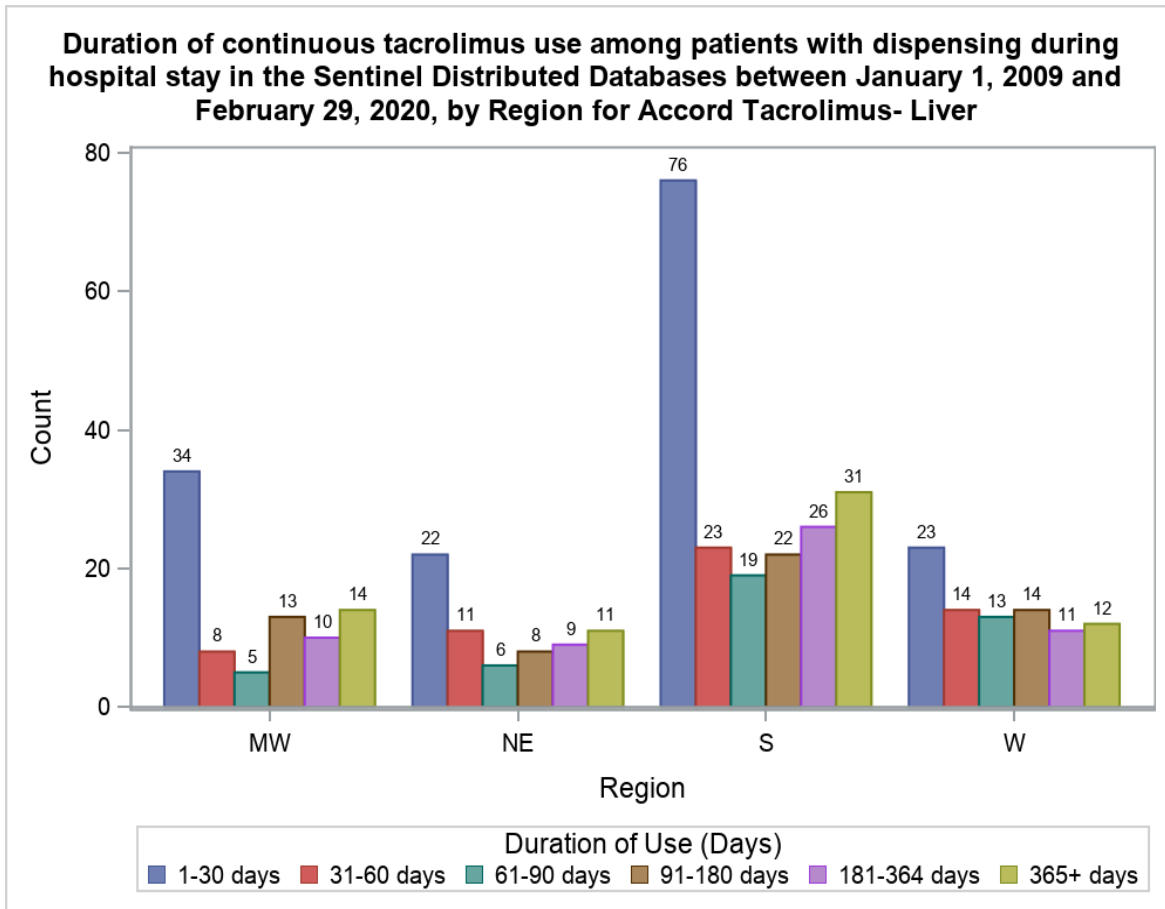


Figure 4e.

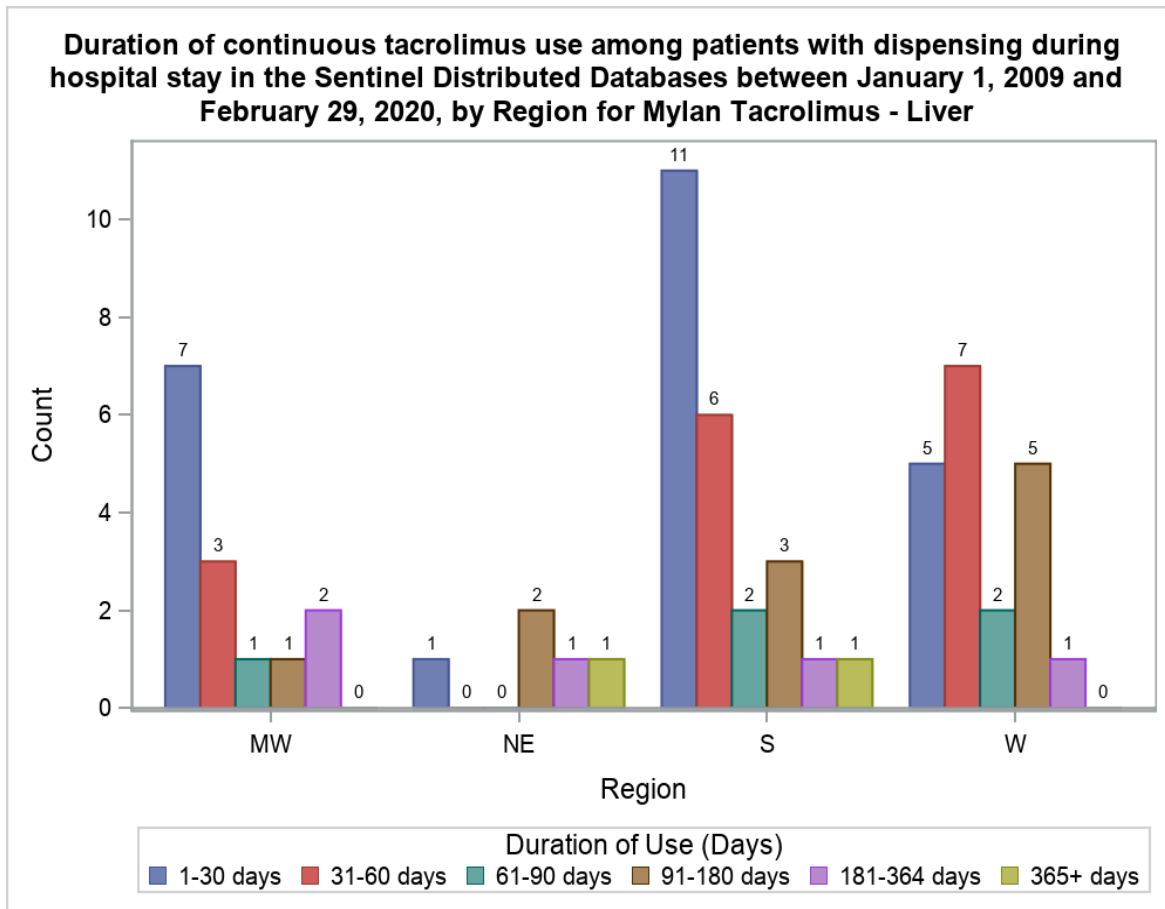


Figure 4g.

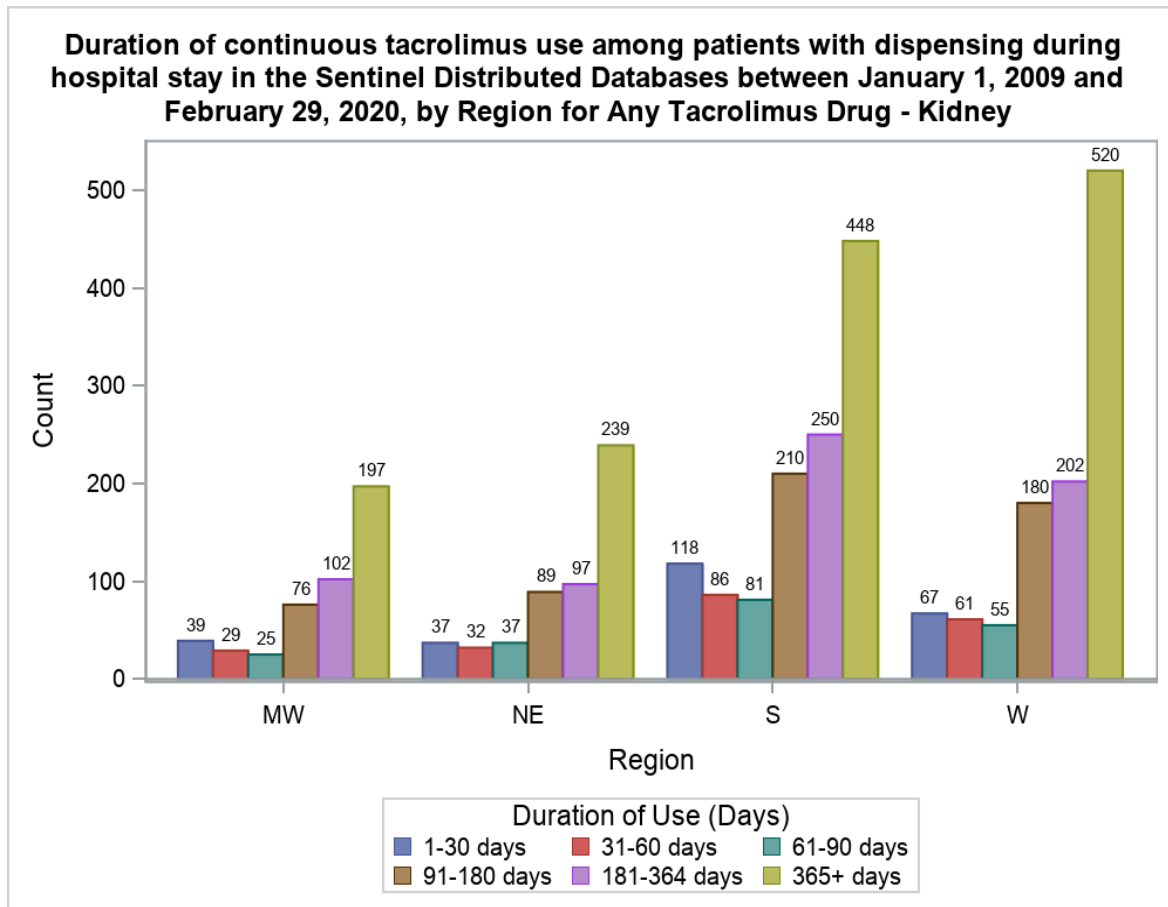


Figure 4i.

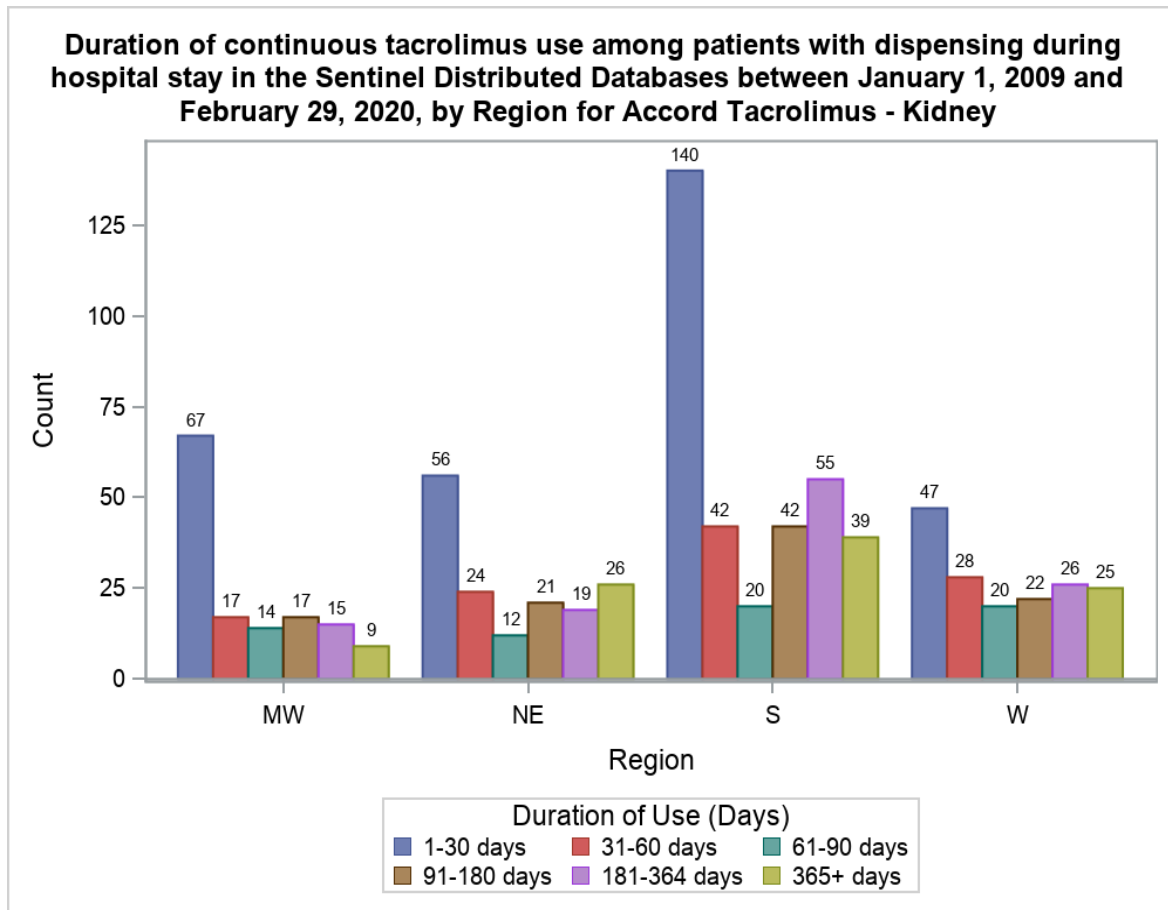




Figure 4k.

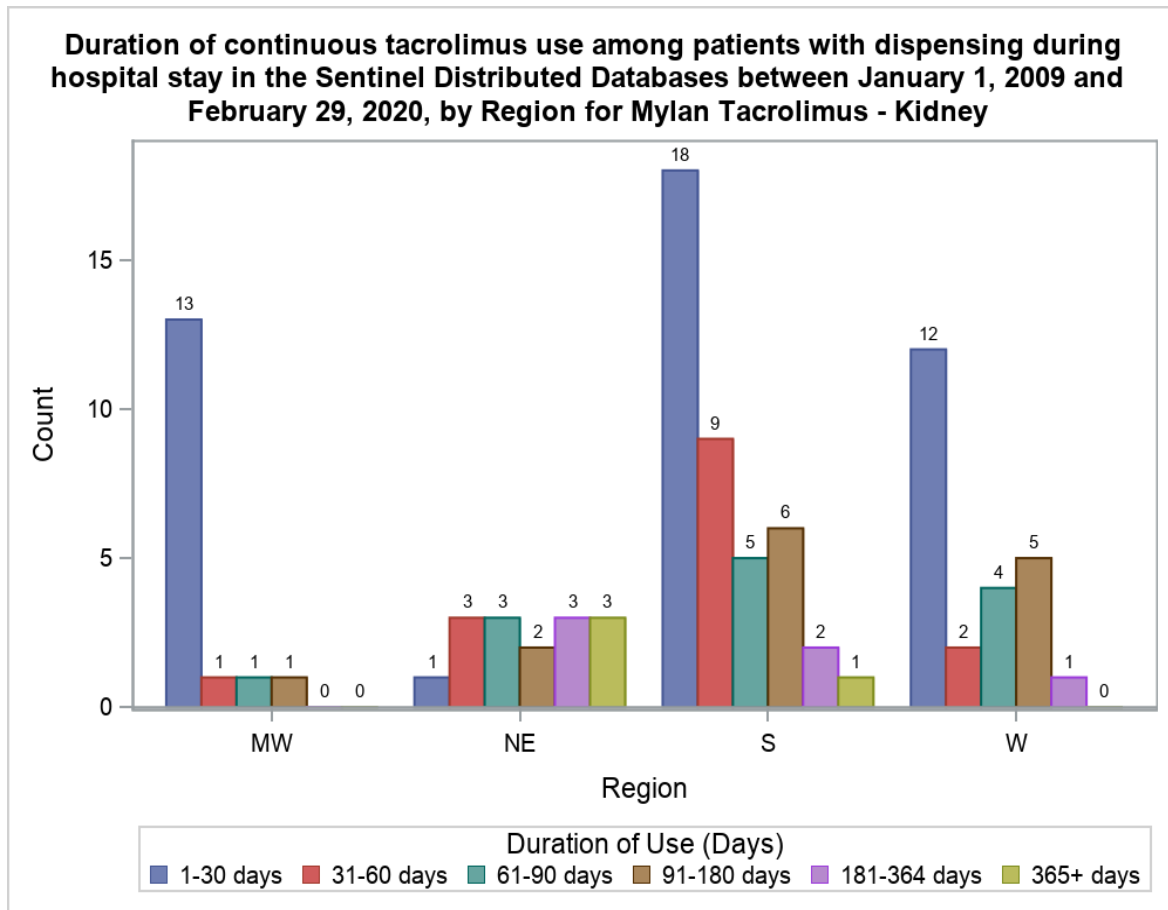


Figure 4b.

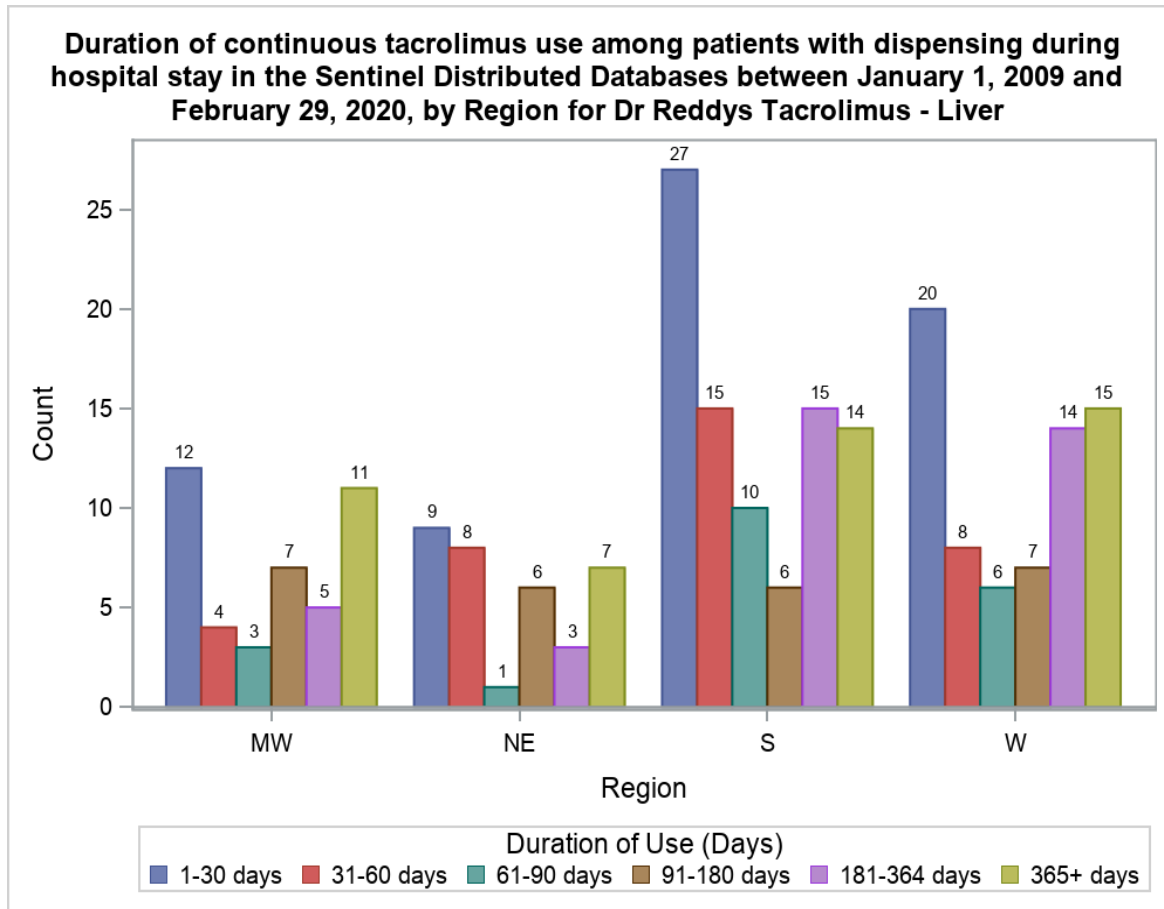


Figure 4d.

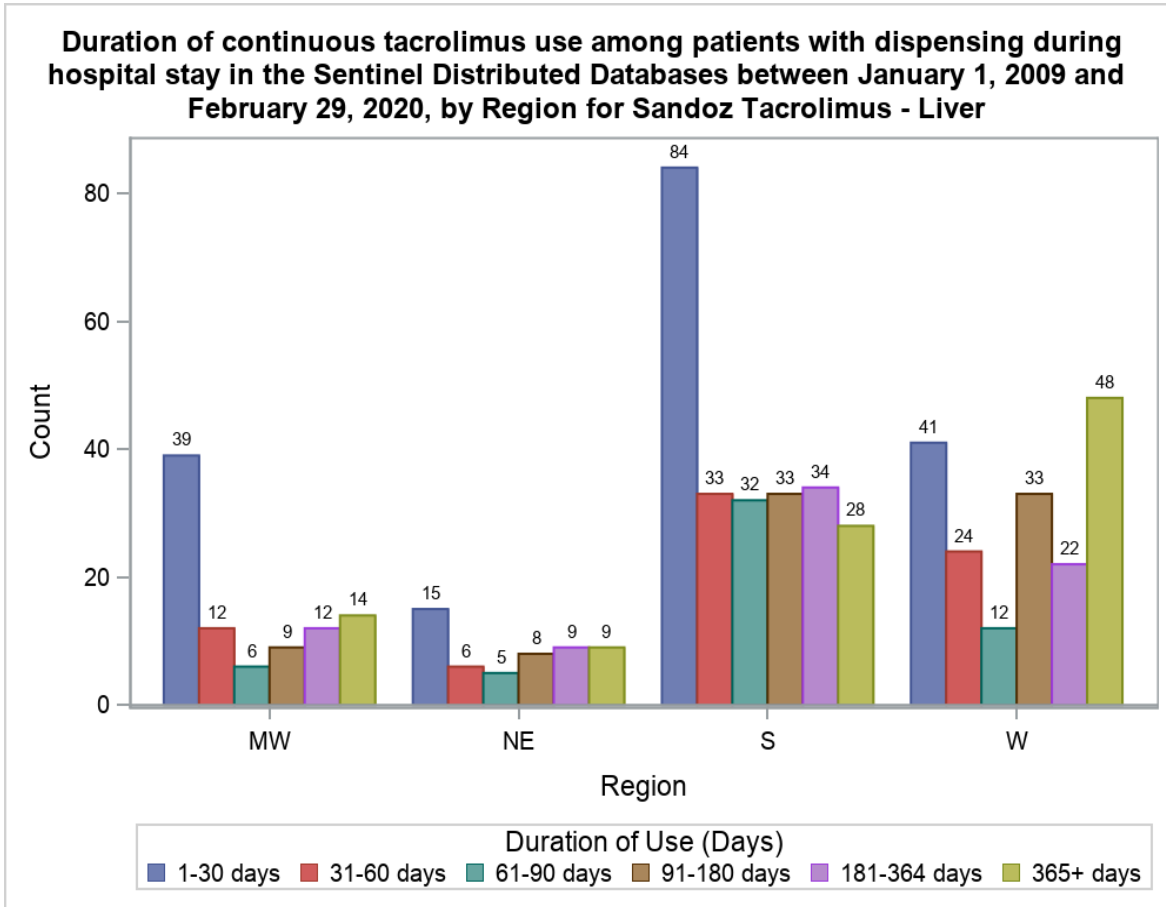


Figure 4f.

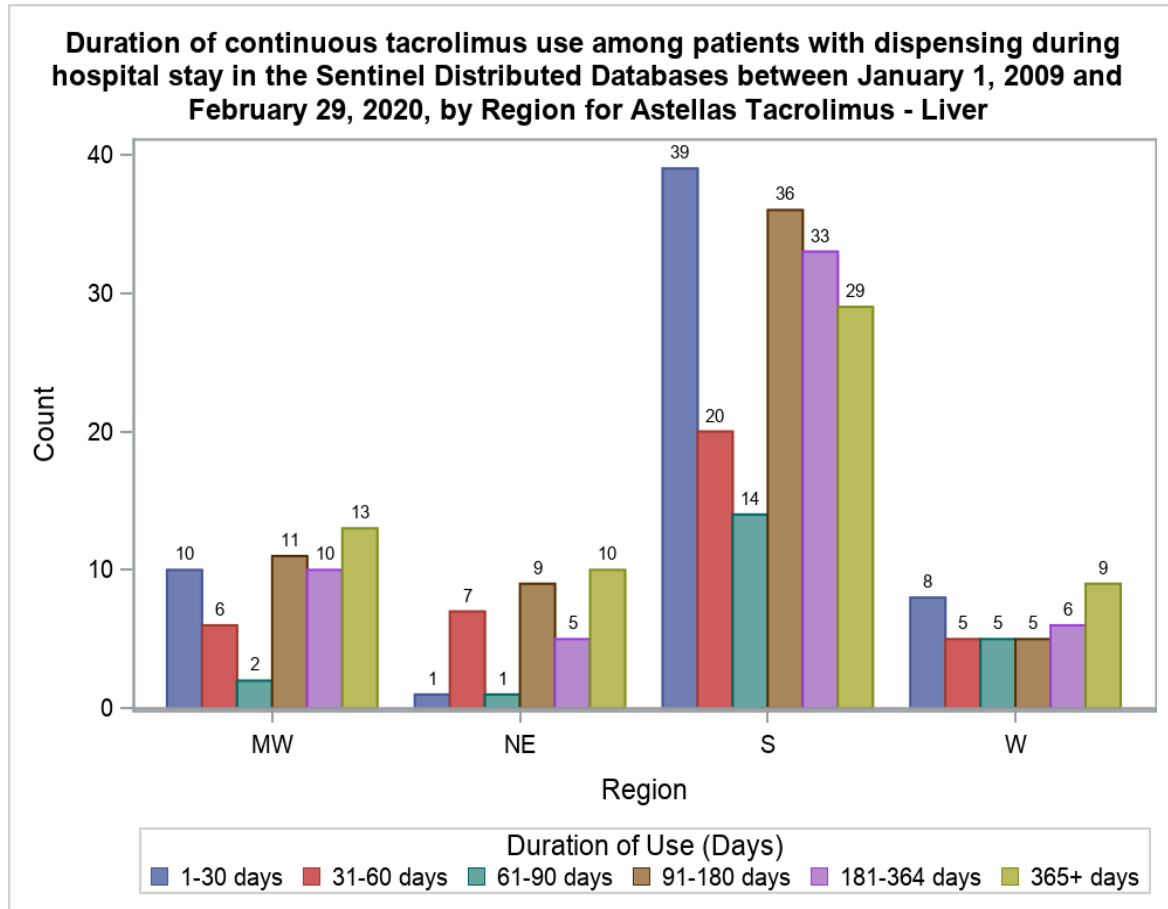


Figure 4h.

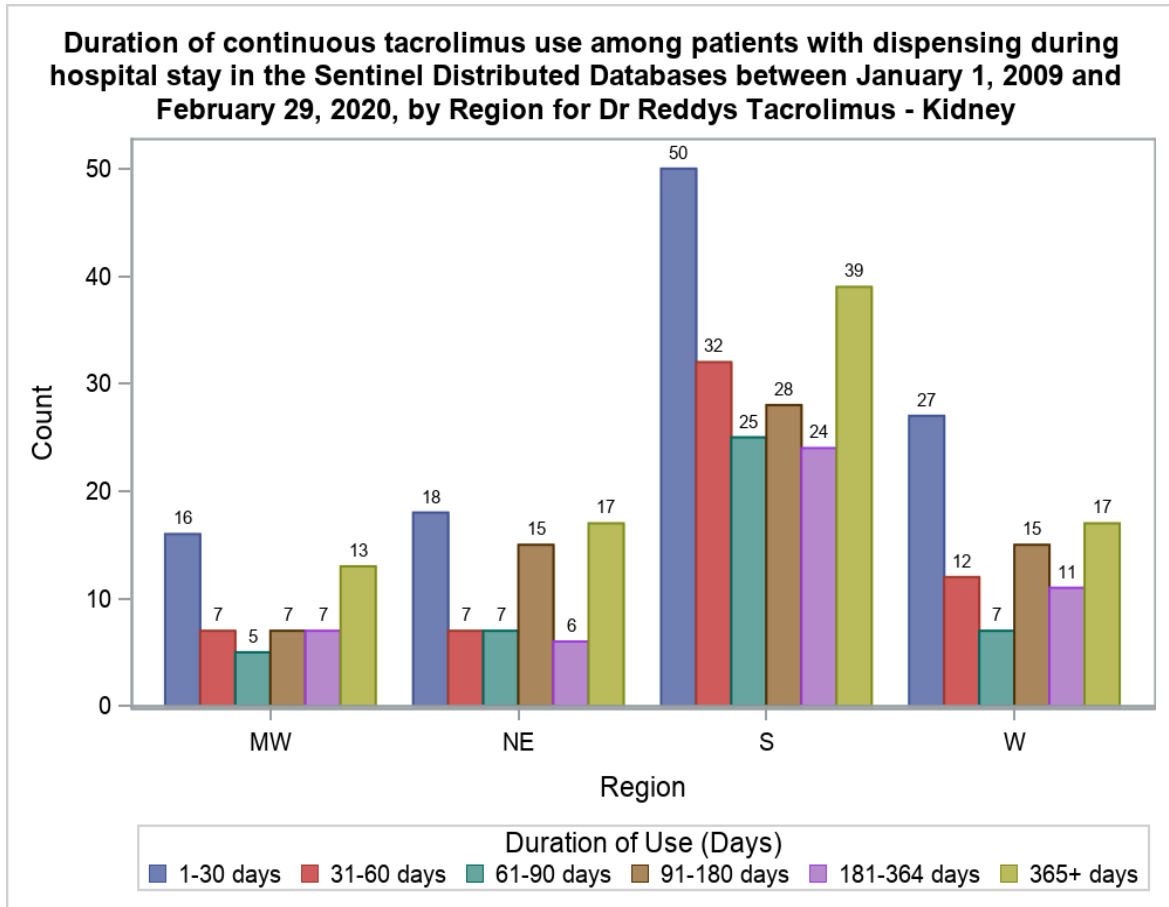


Figure 4j.

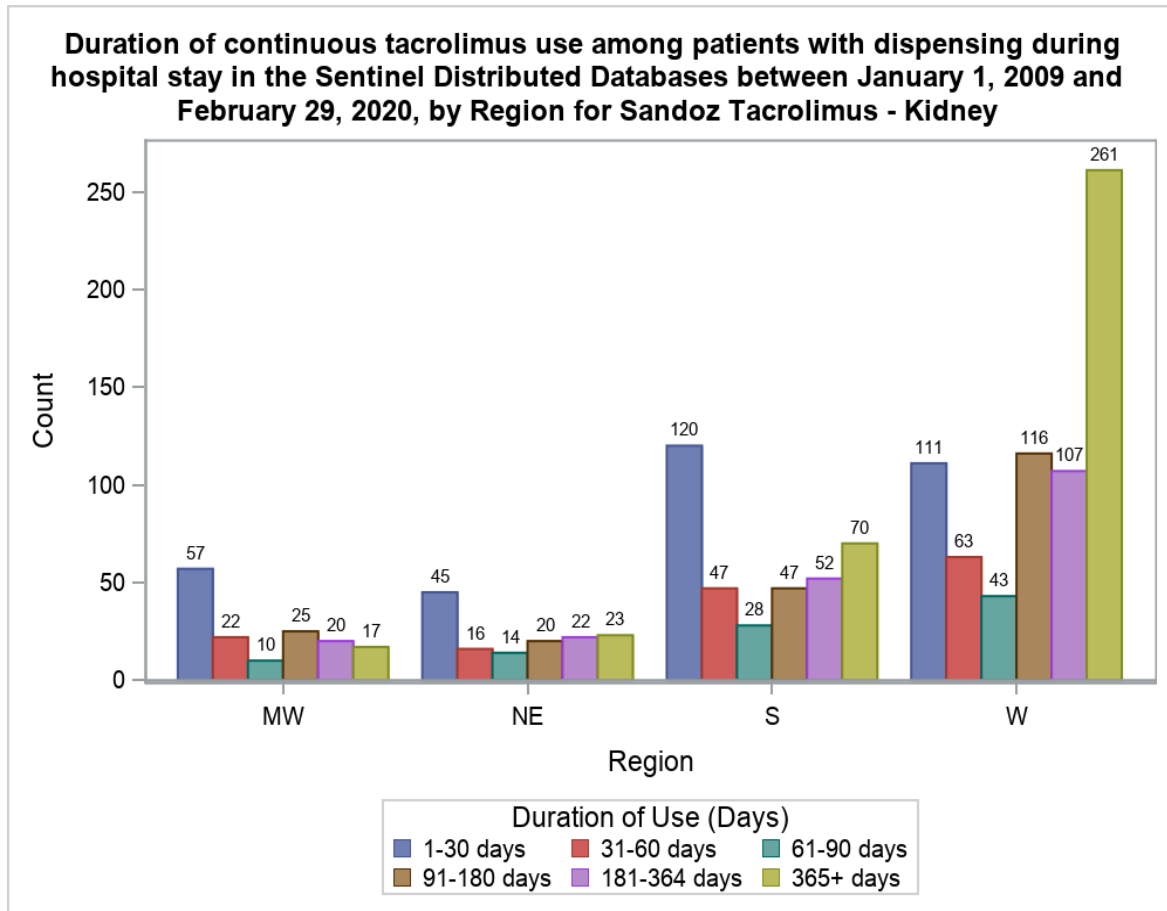


Figure 41.

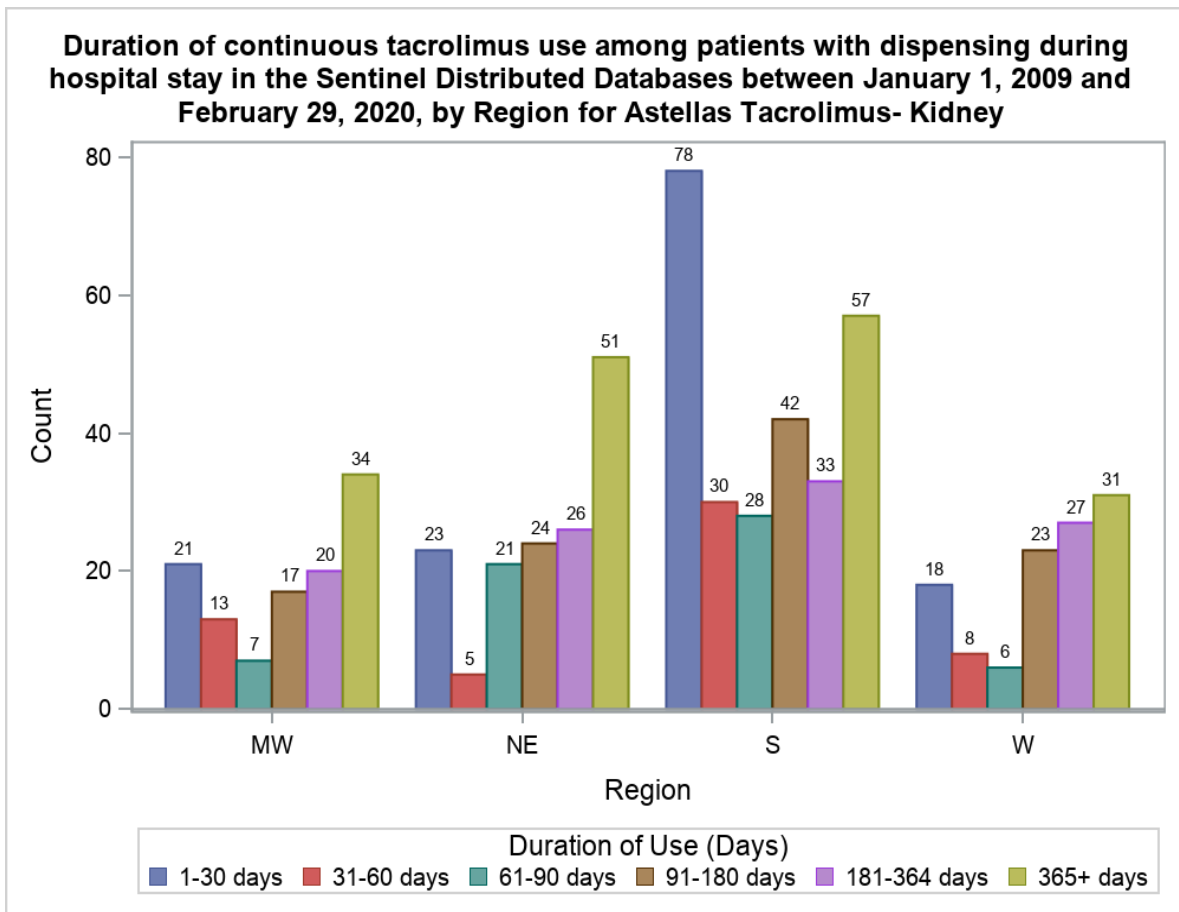


Figure 5. Duration of Continuous Tacrolimus Use among Patients with First Dispensing within 60 Days after Hospital Discharge in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Region

Figure 5a.

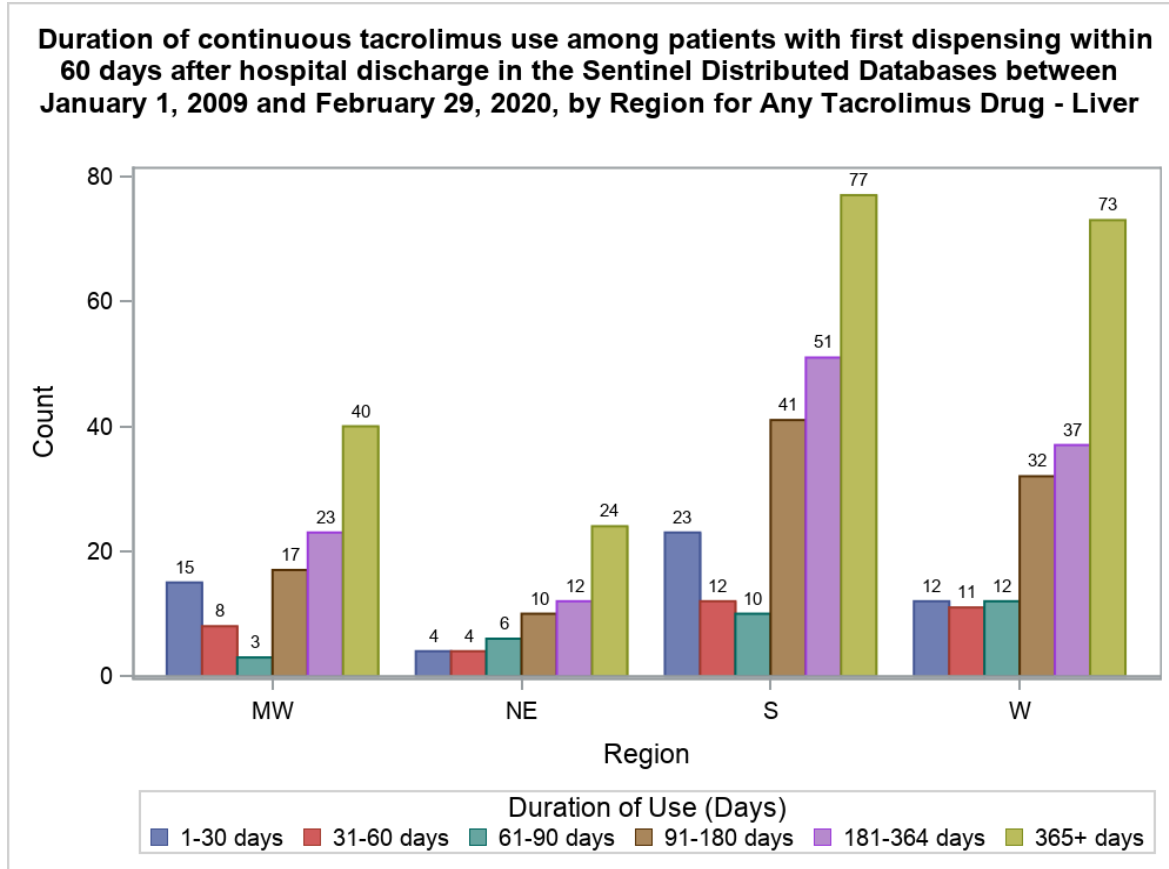




Figure 5c.

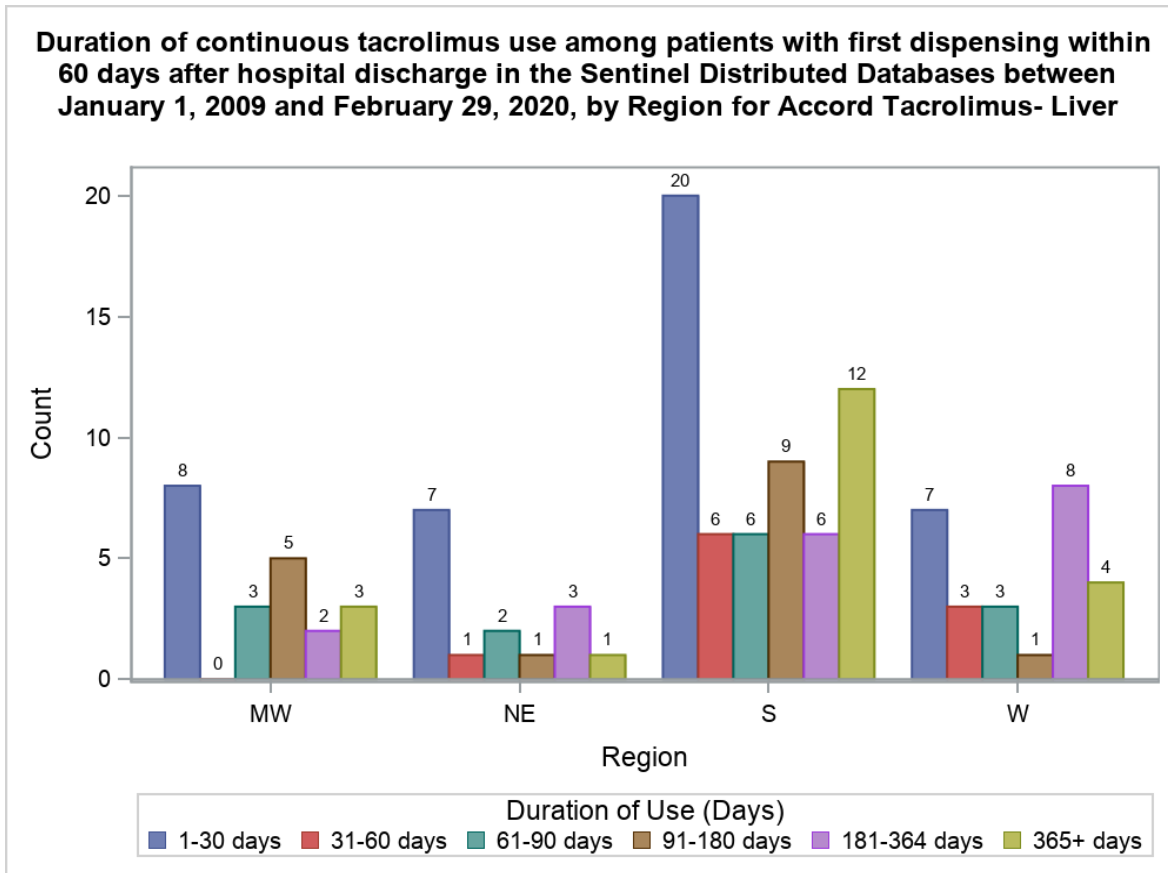


Figure 5e.

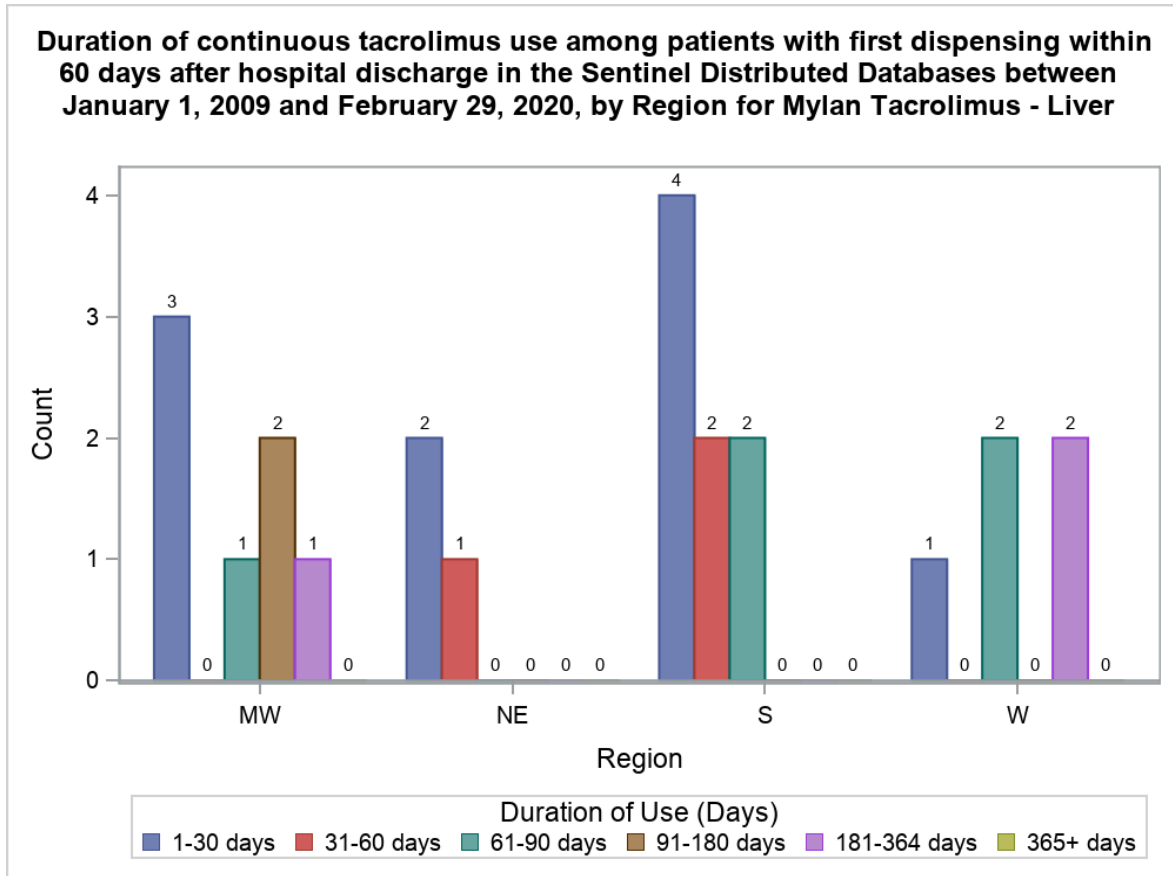


Figure 5g.

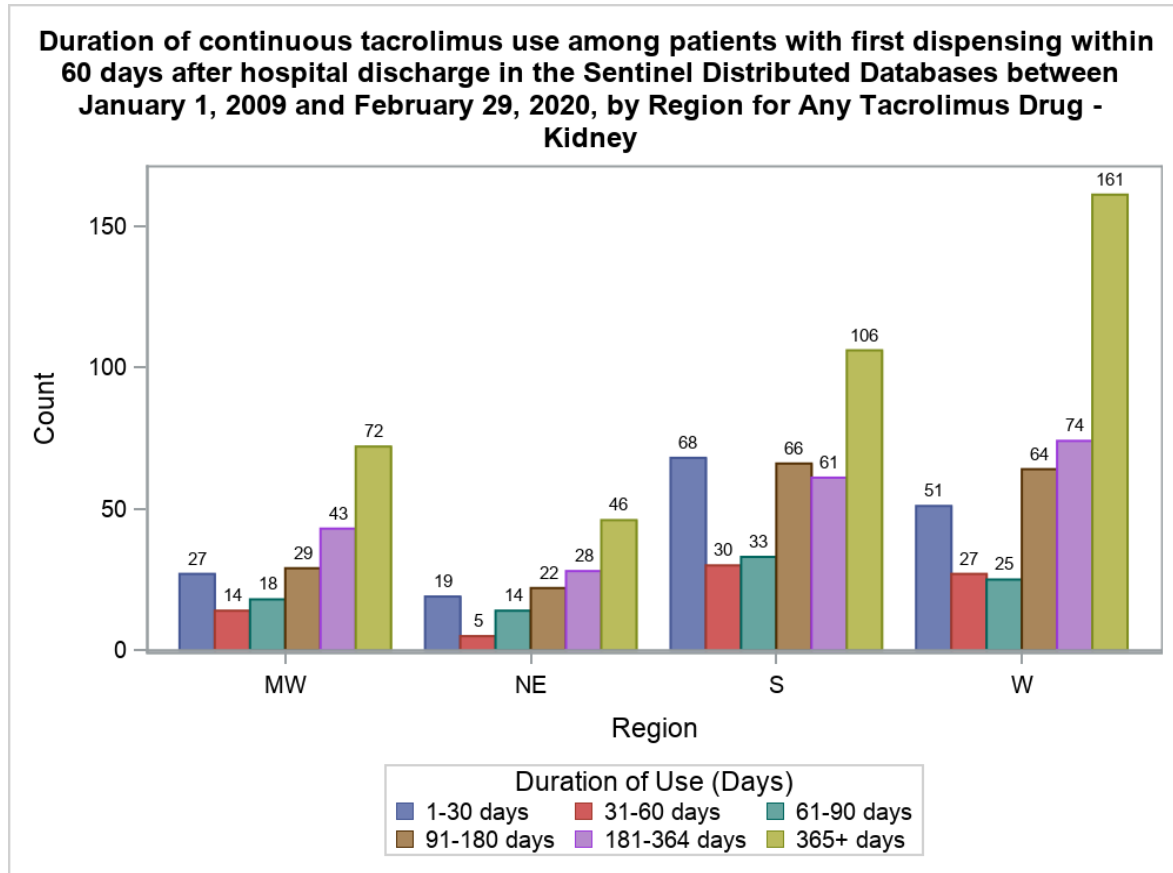


Figure 5i.

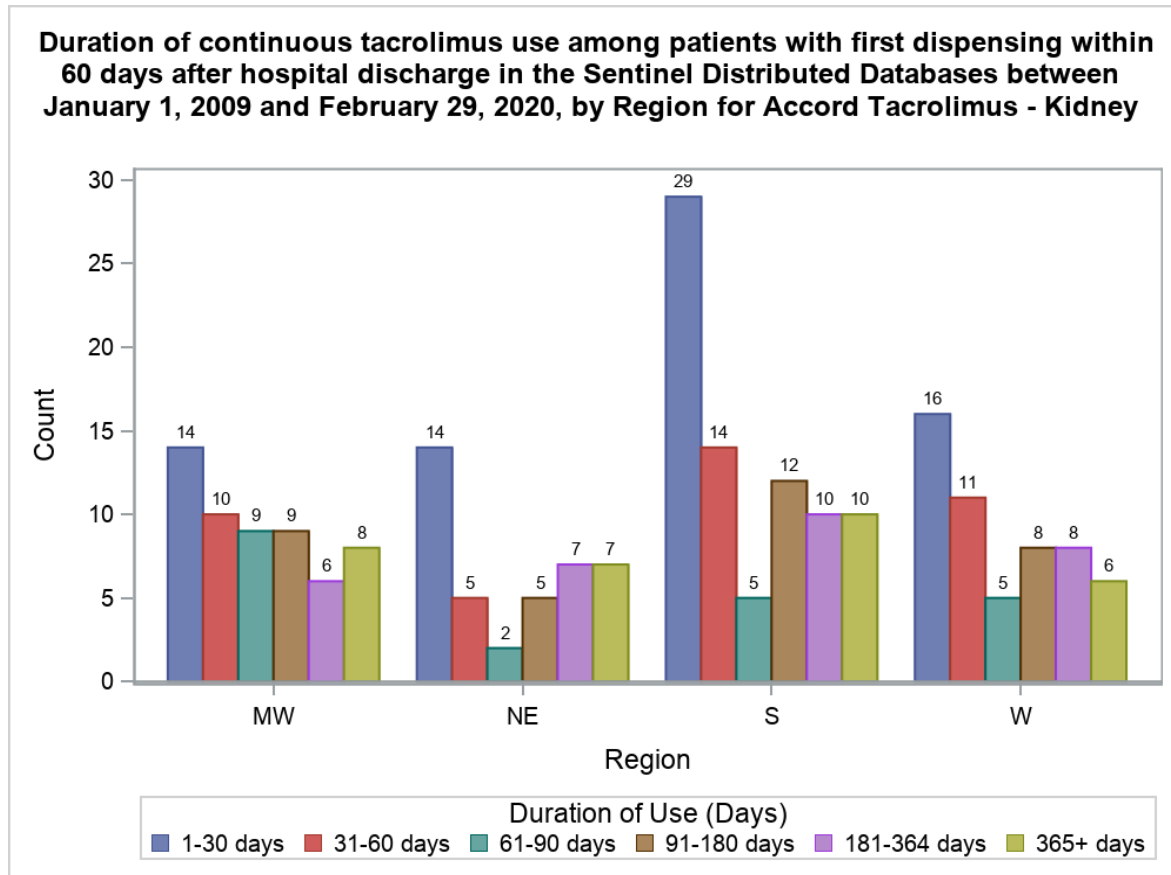


Figure 5k.

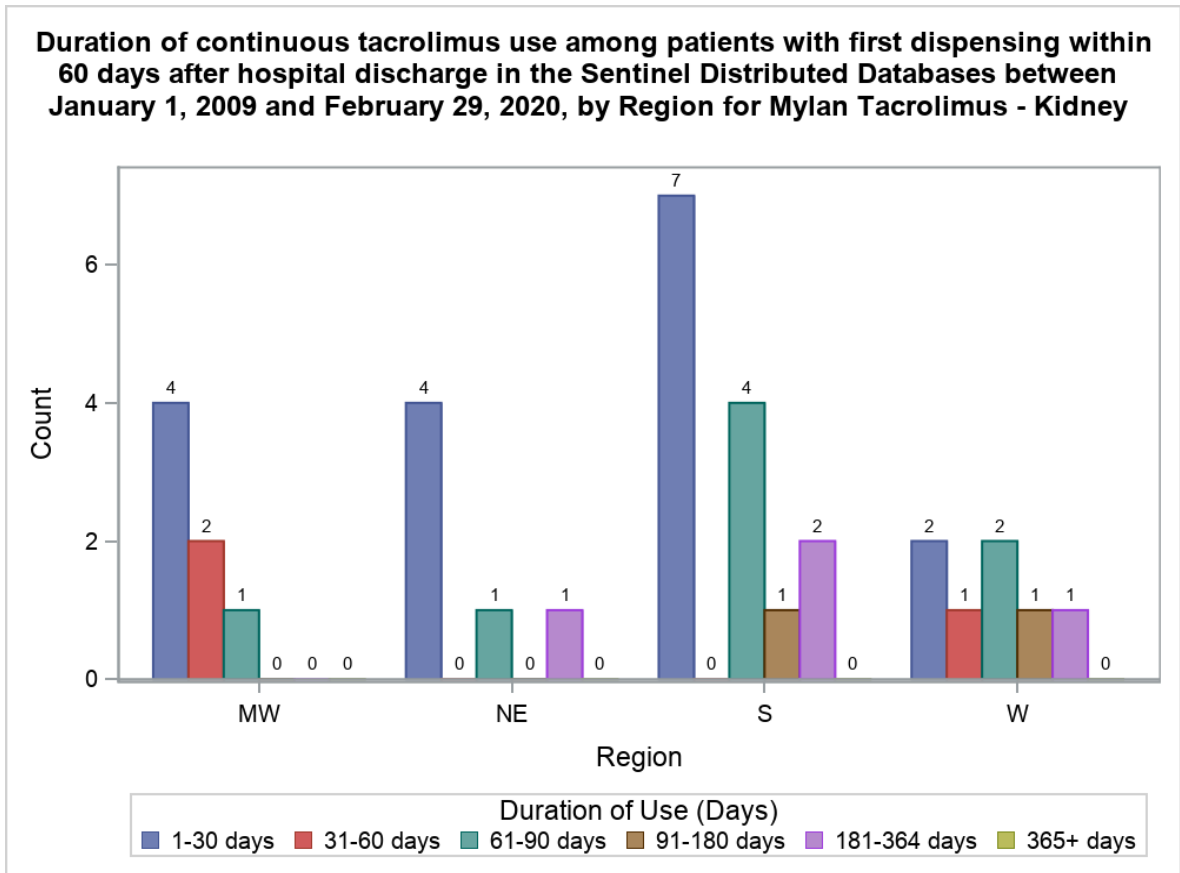


Figure 5b.

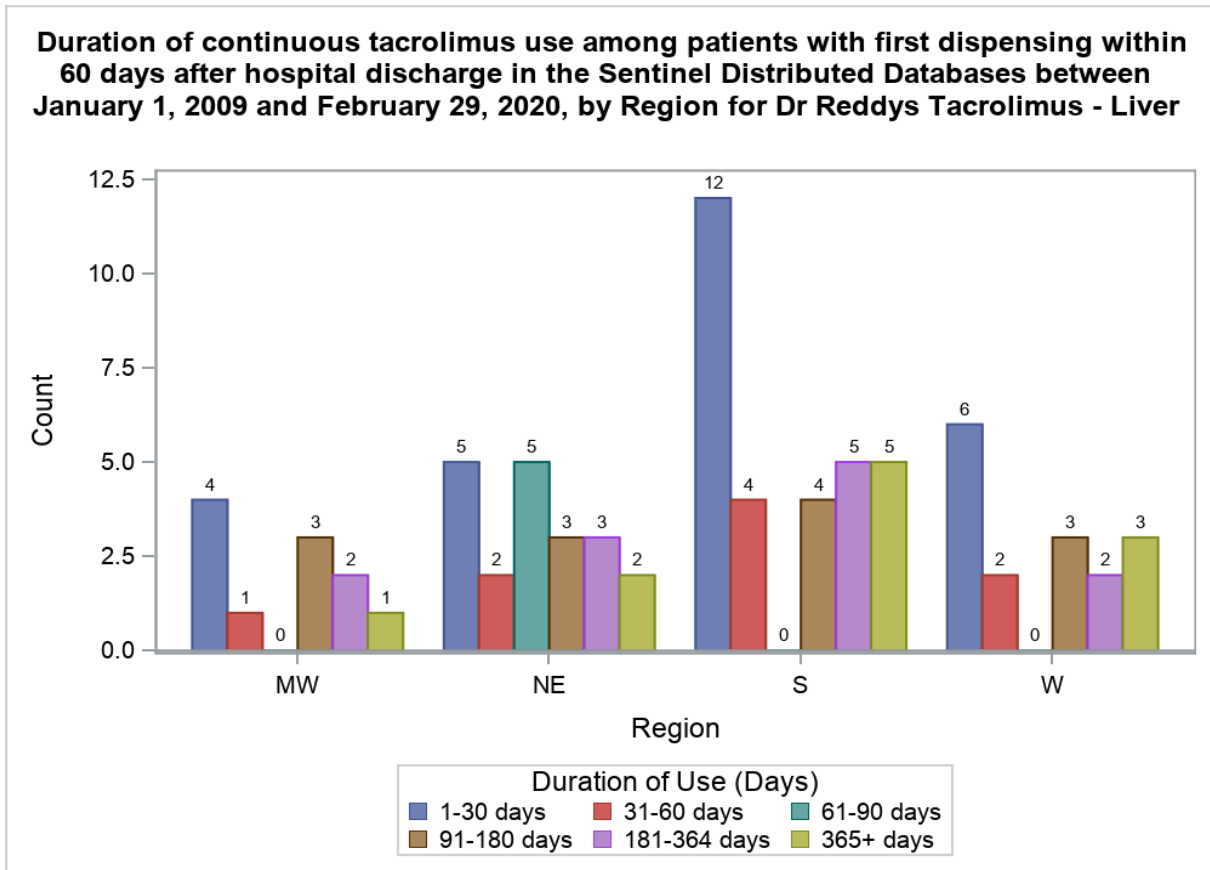


Figure 5d.

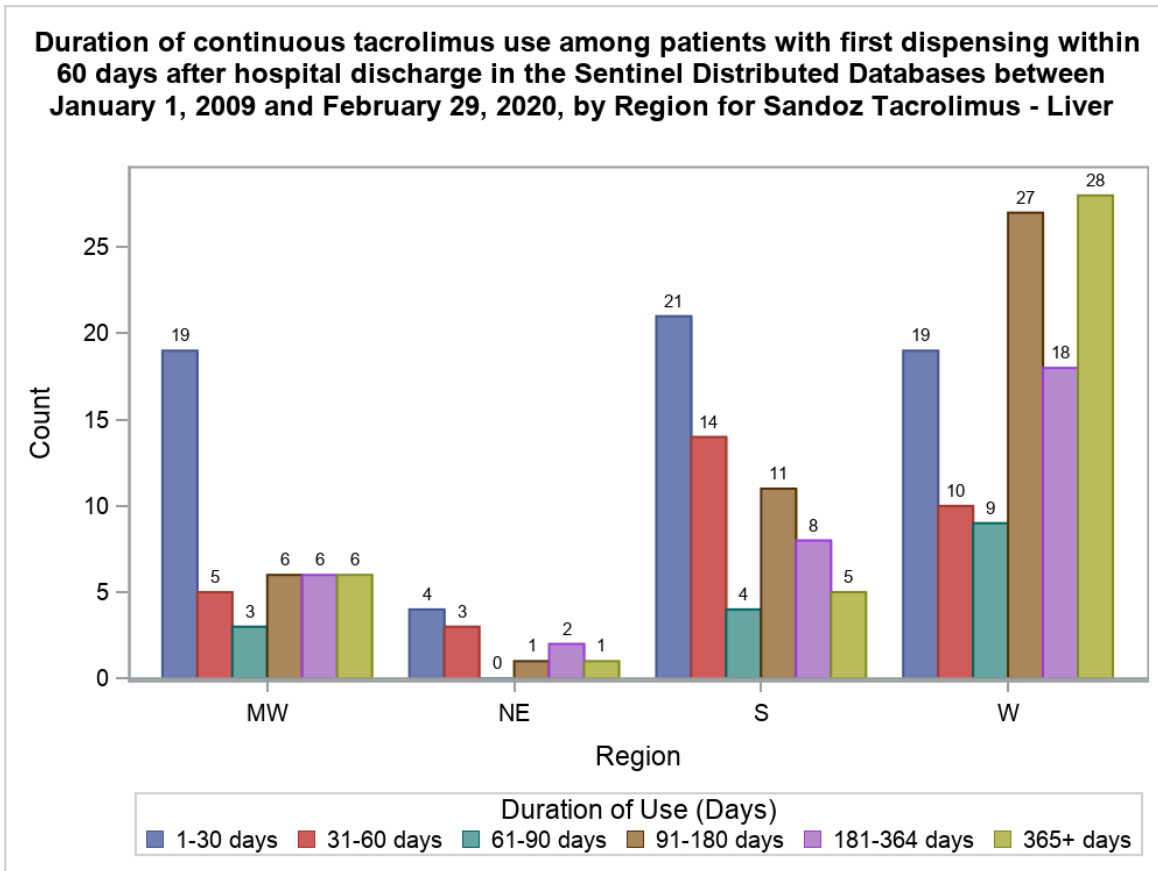


Figure 5f.

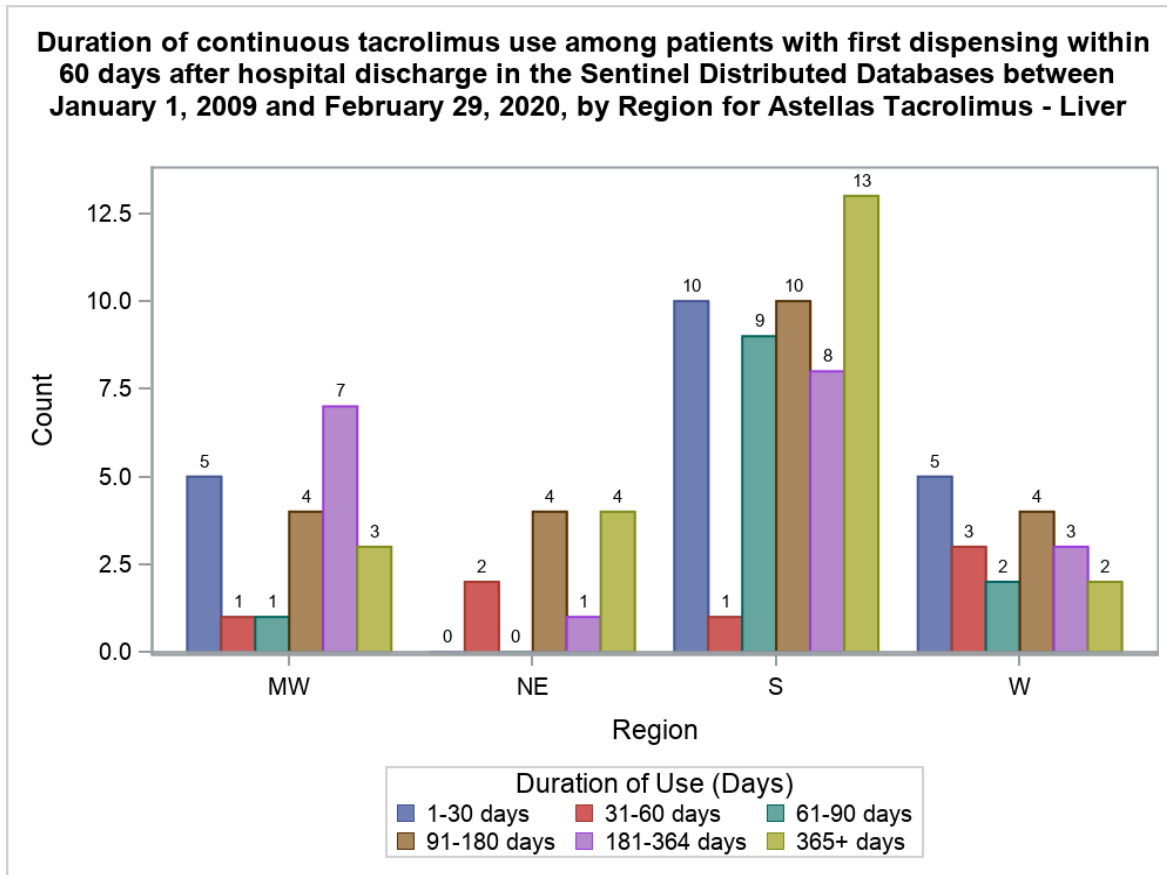




Figure 5h.

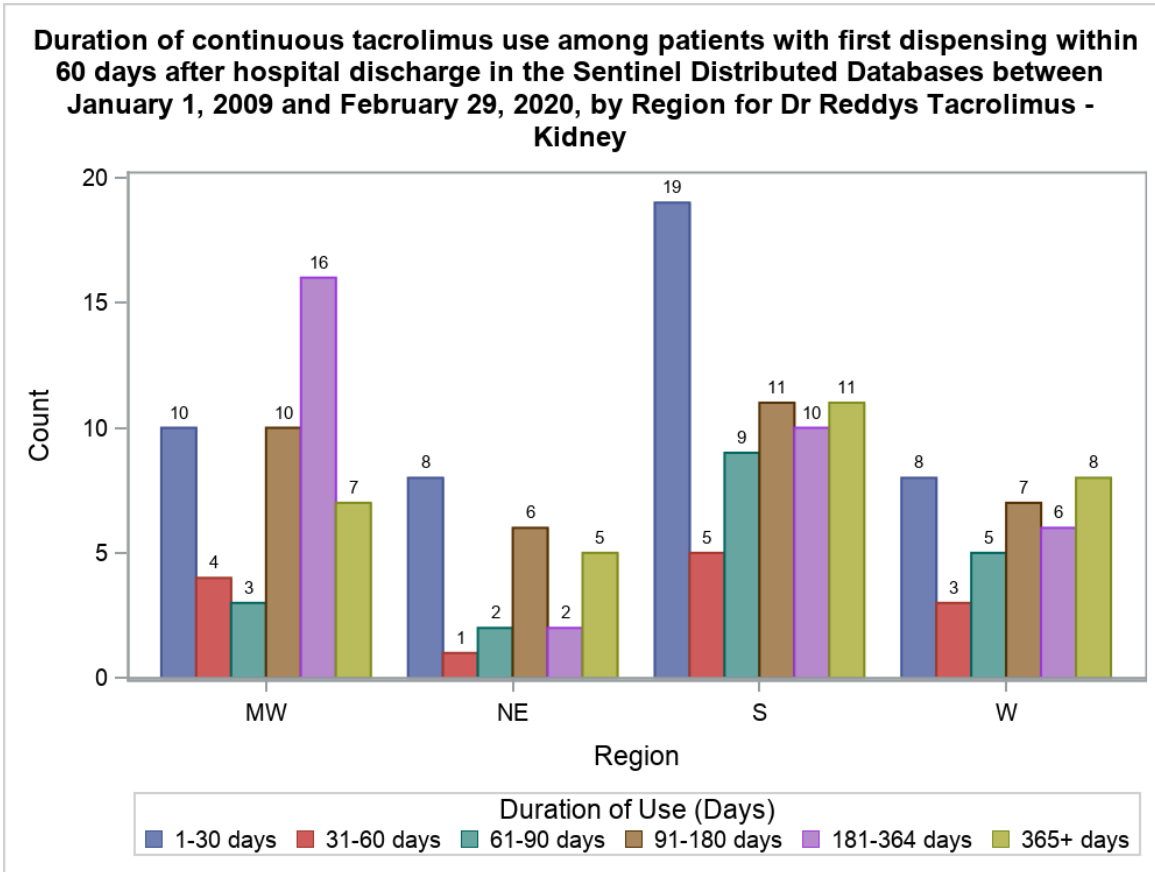


Figure 5j.

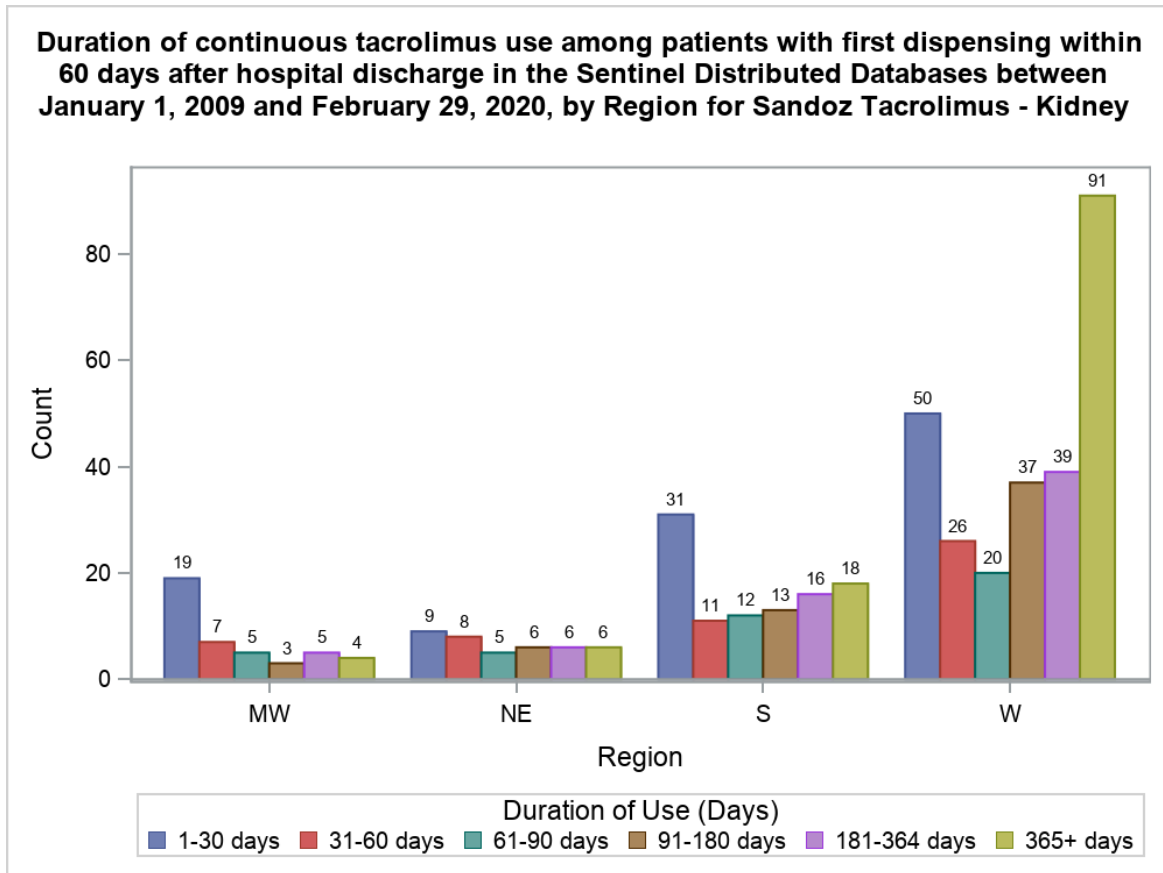


Figure 5I.

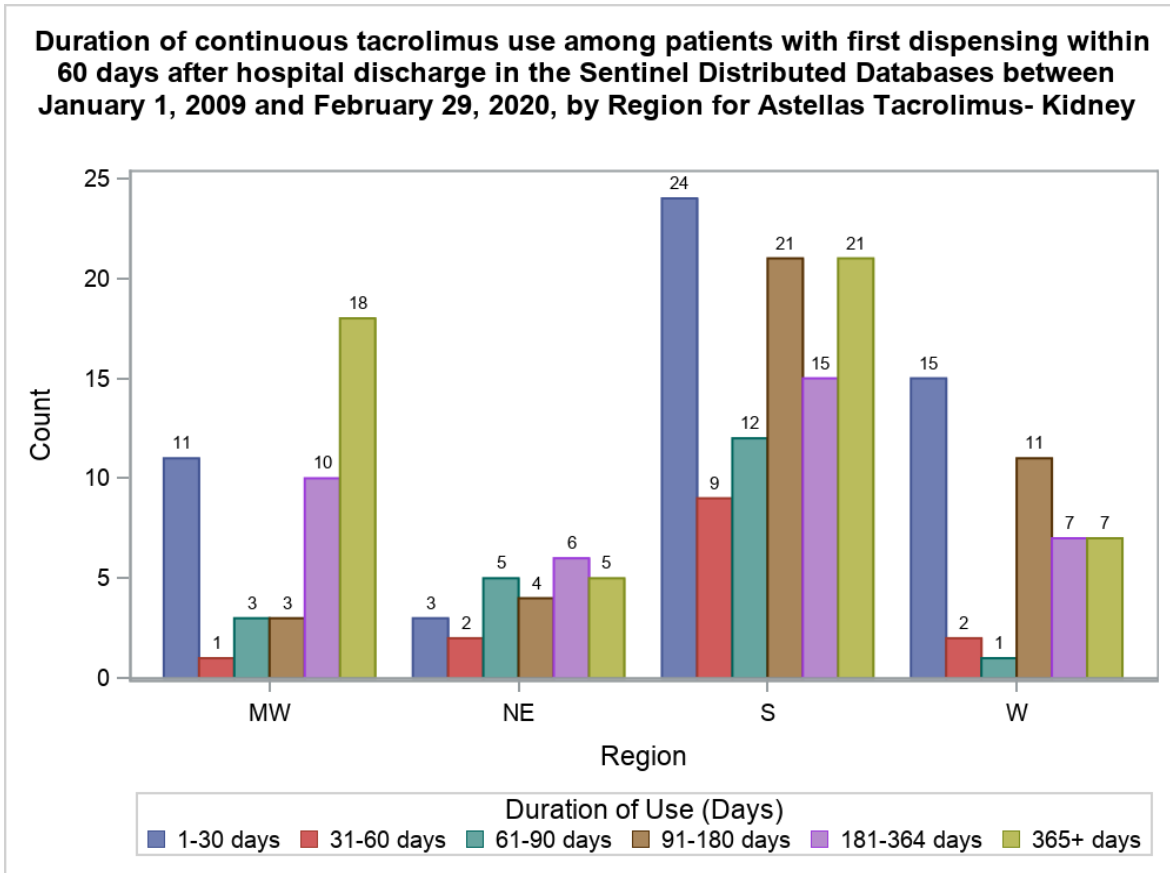


Figure 6. Duration of Continuous Tacrolimus Use among Patients with First Dispensing on Hospital Discharge in the Sentinel Distributed Database (SDD) between January 1, 2009 and February 29, 2020, by Region

Figure 6a.

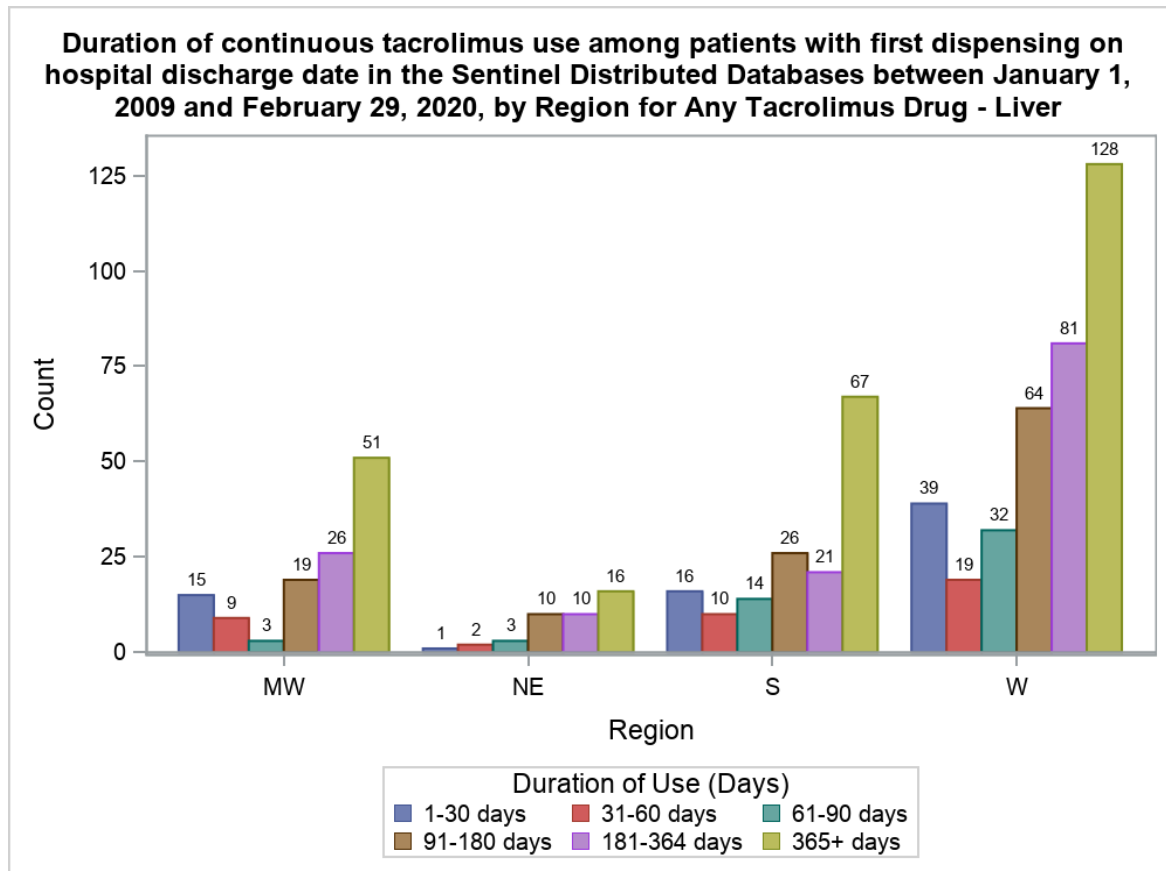


Figure 6c.

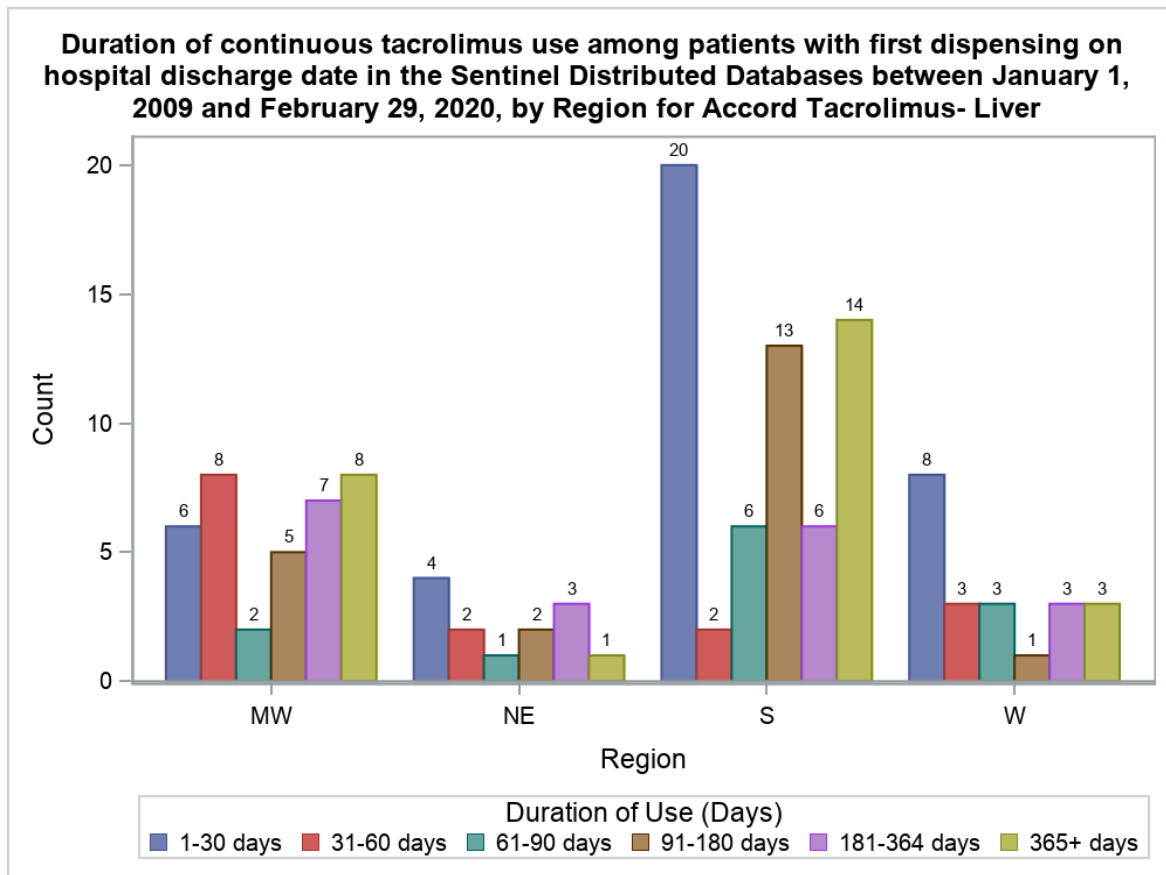


Figure 6e.

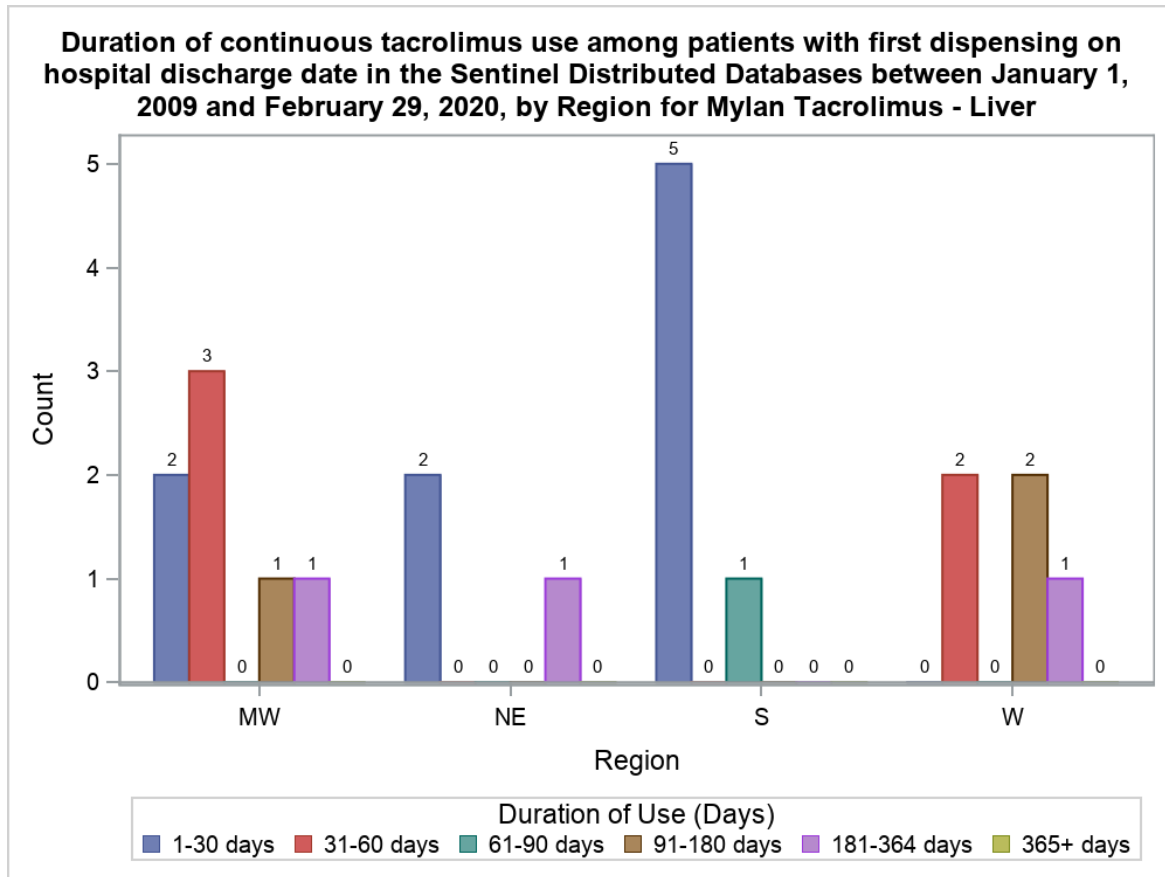


Figure 6g.

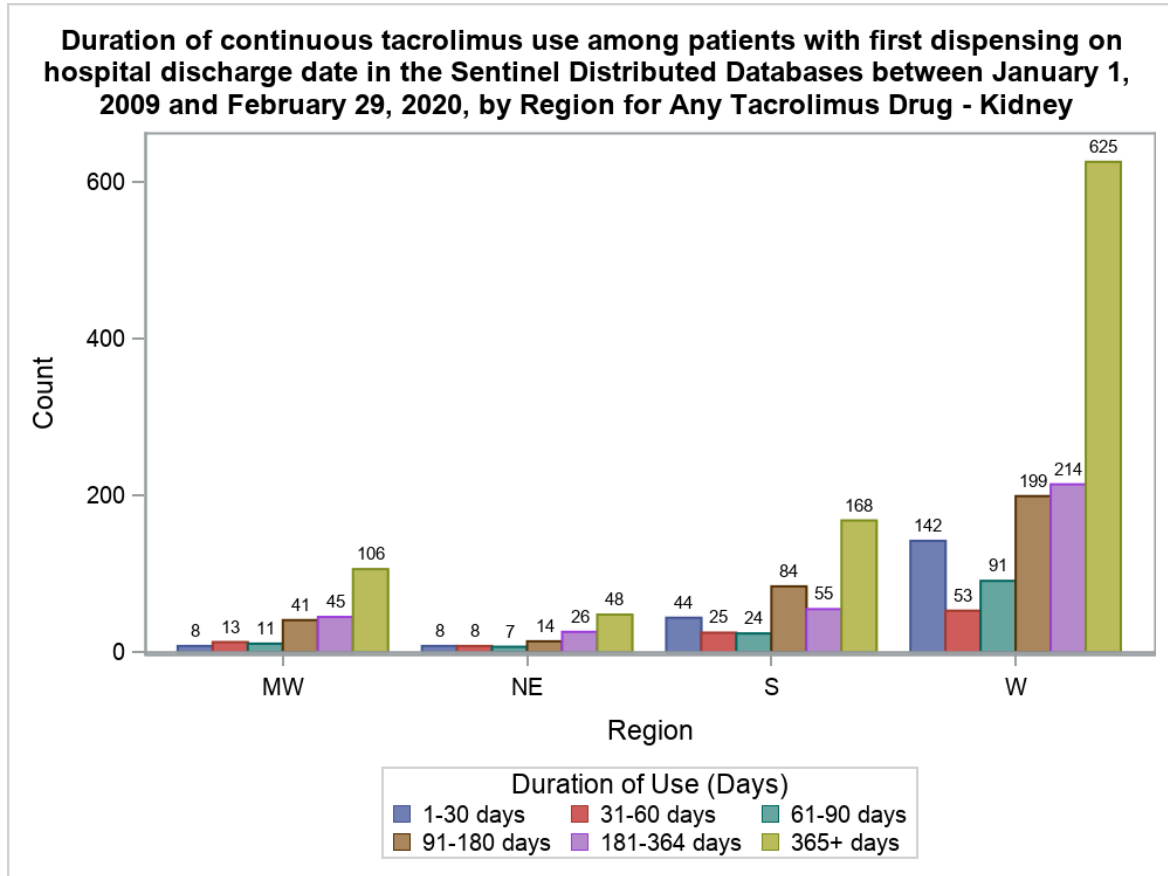


Figure 6i.

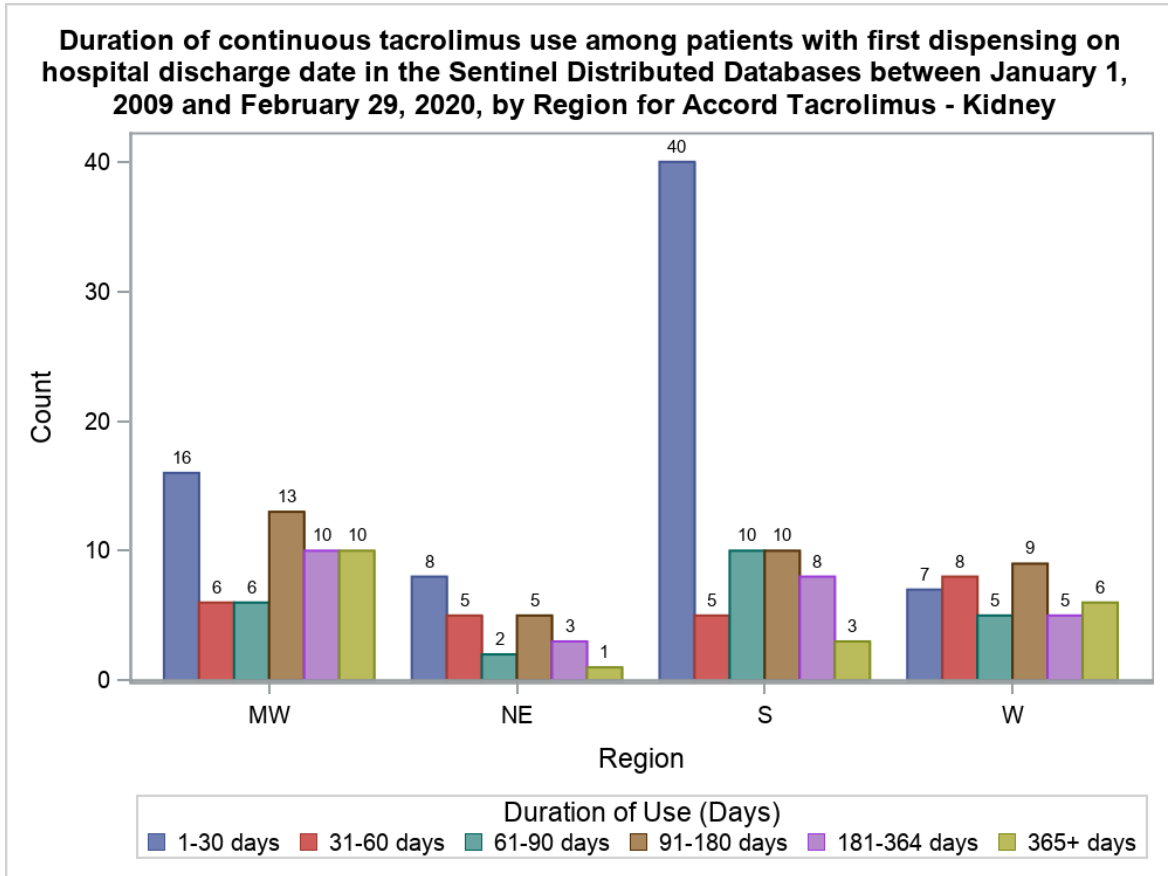




Figure 6k.

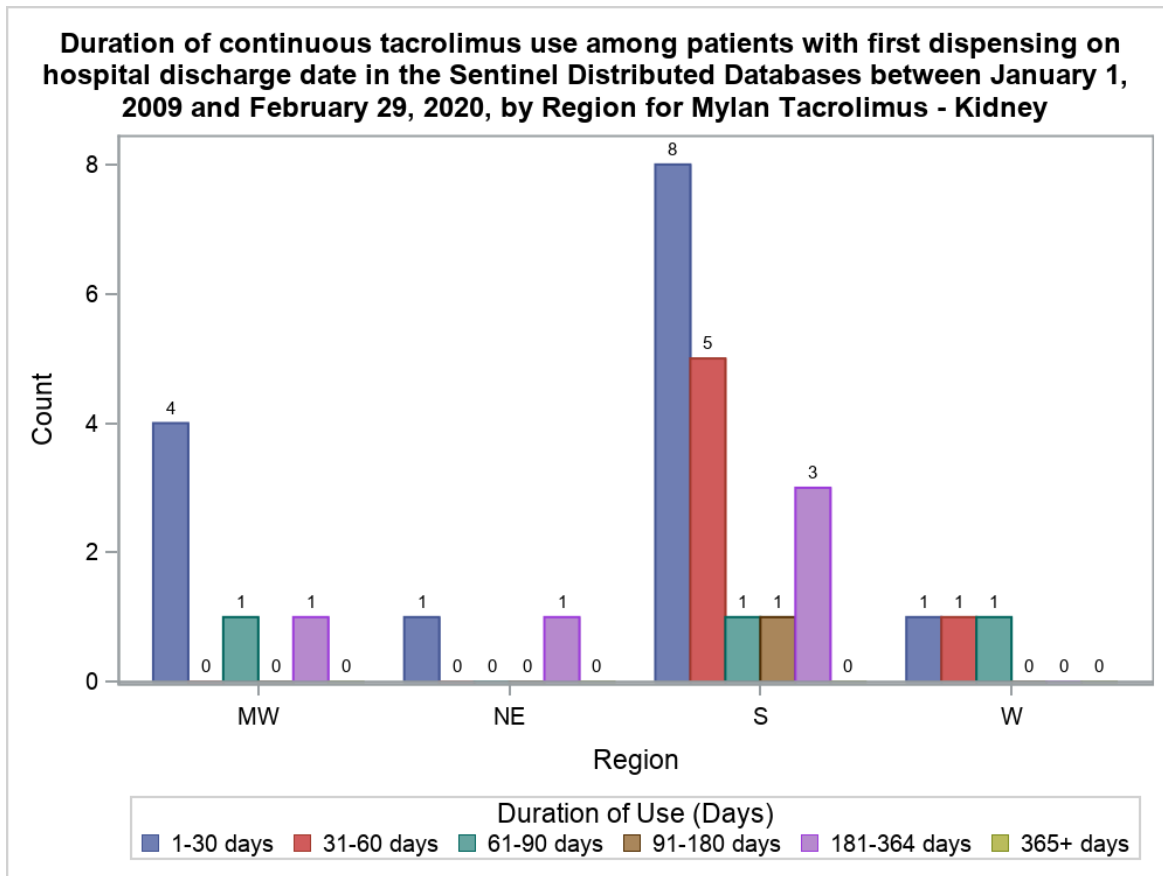


Figure 6b.

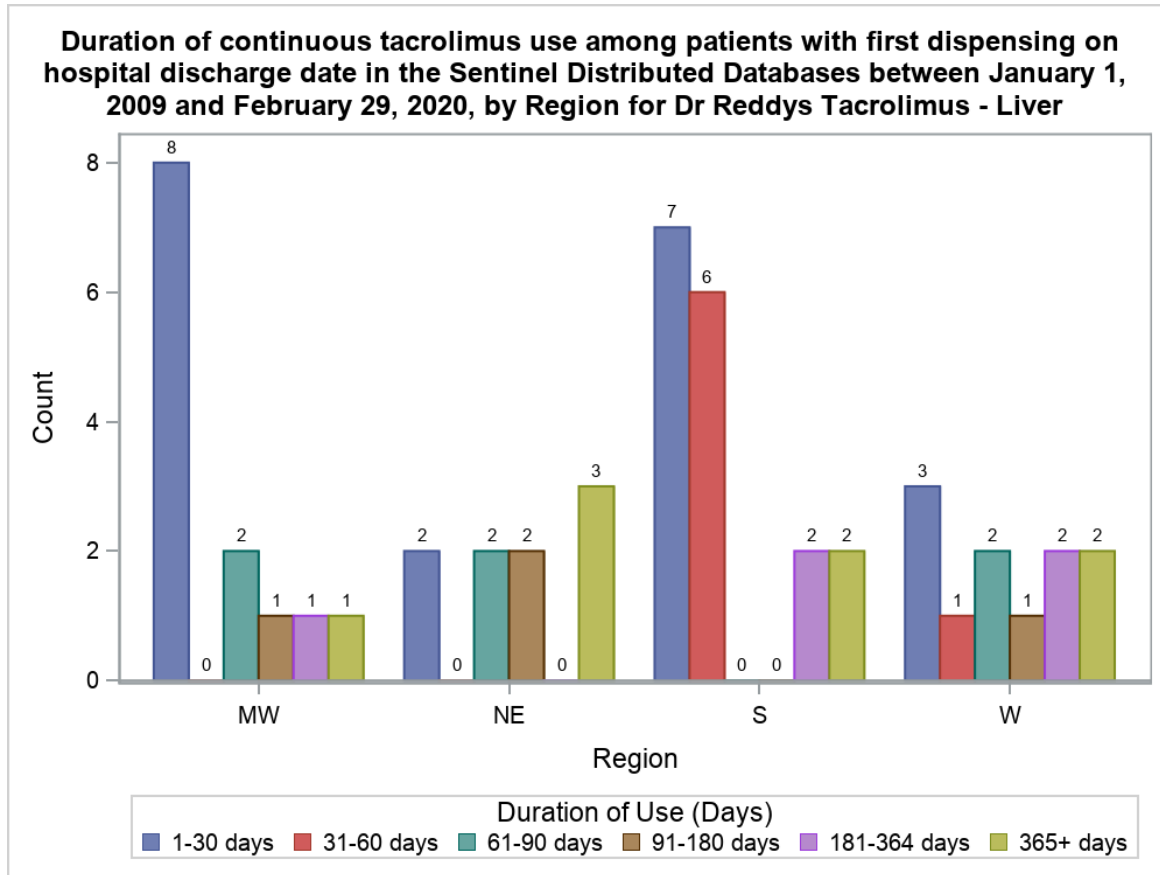


Figure 6d.

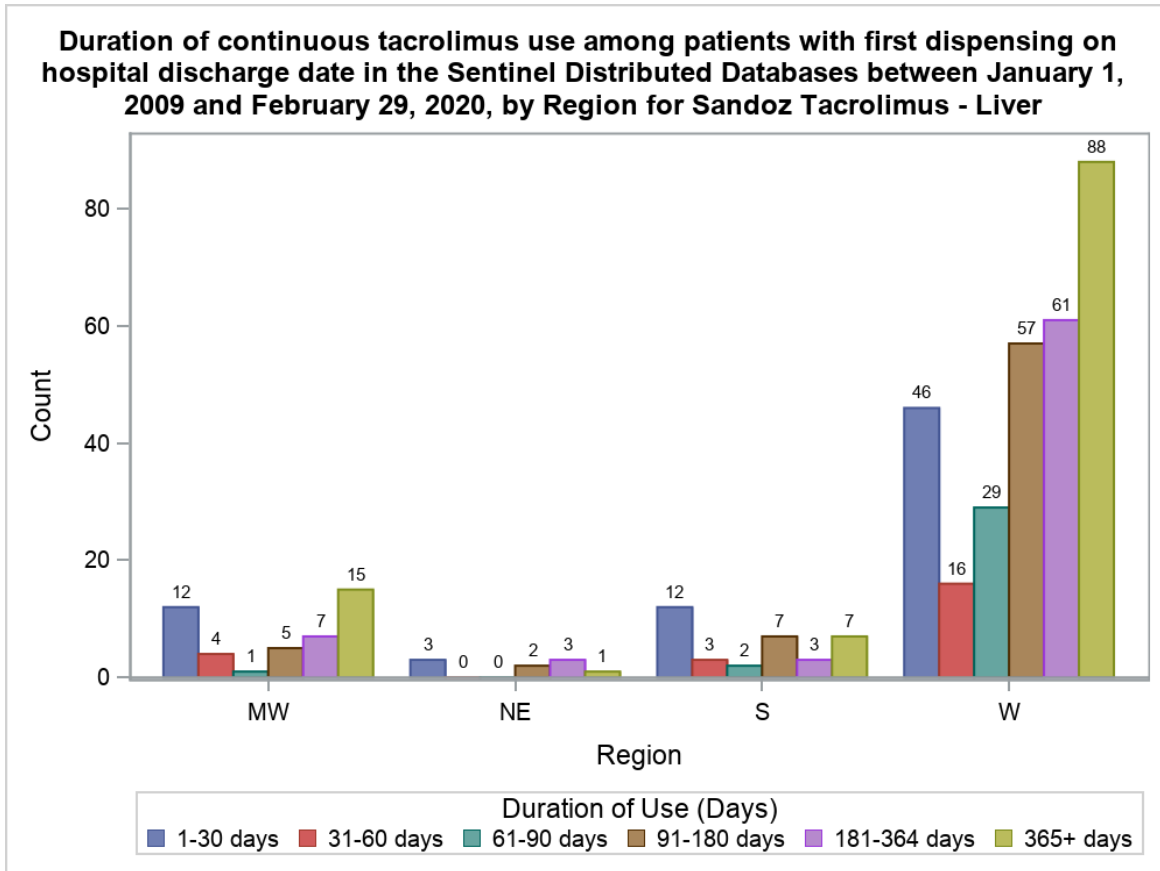


Figure 6f.

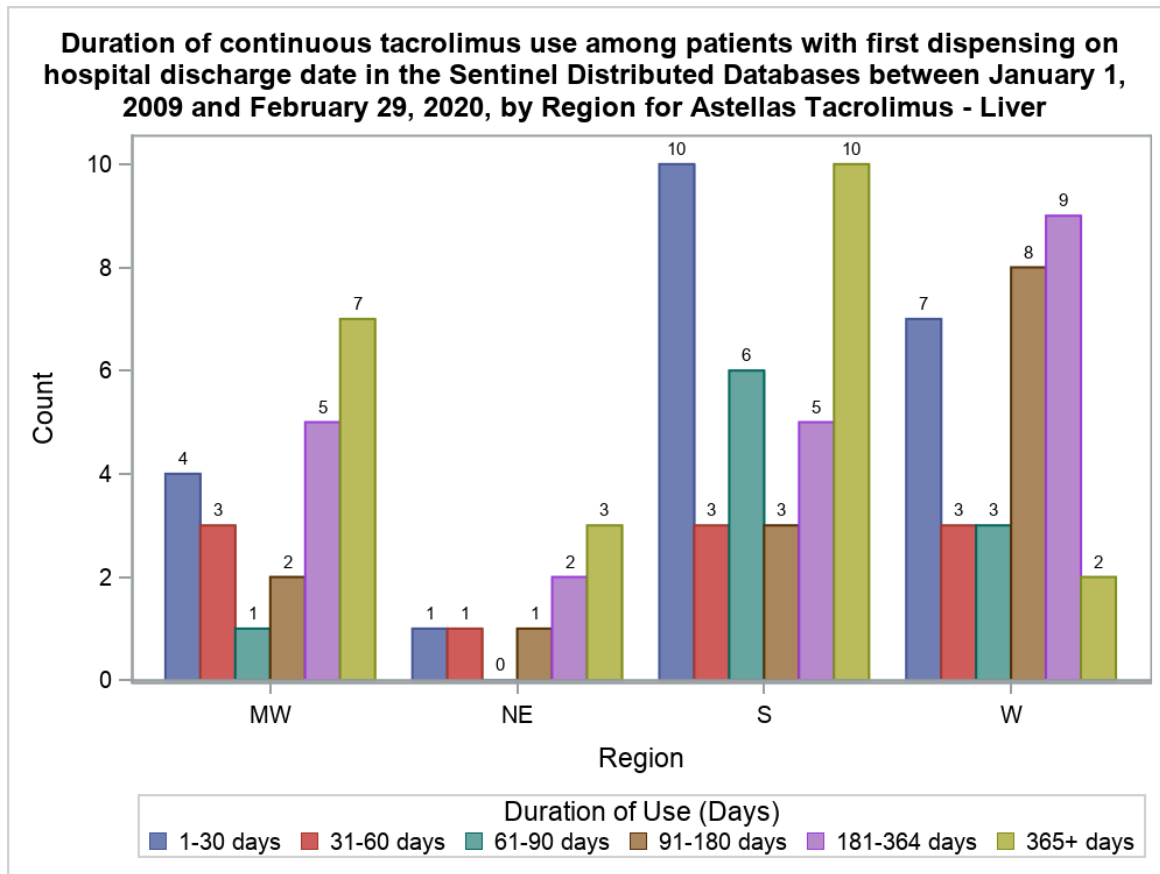


Figure 6h.

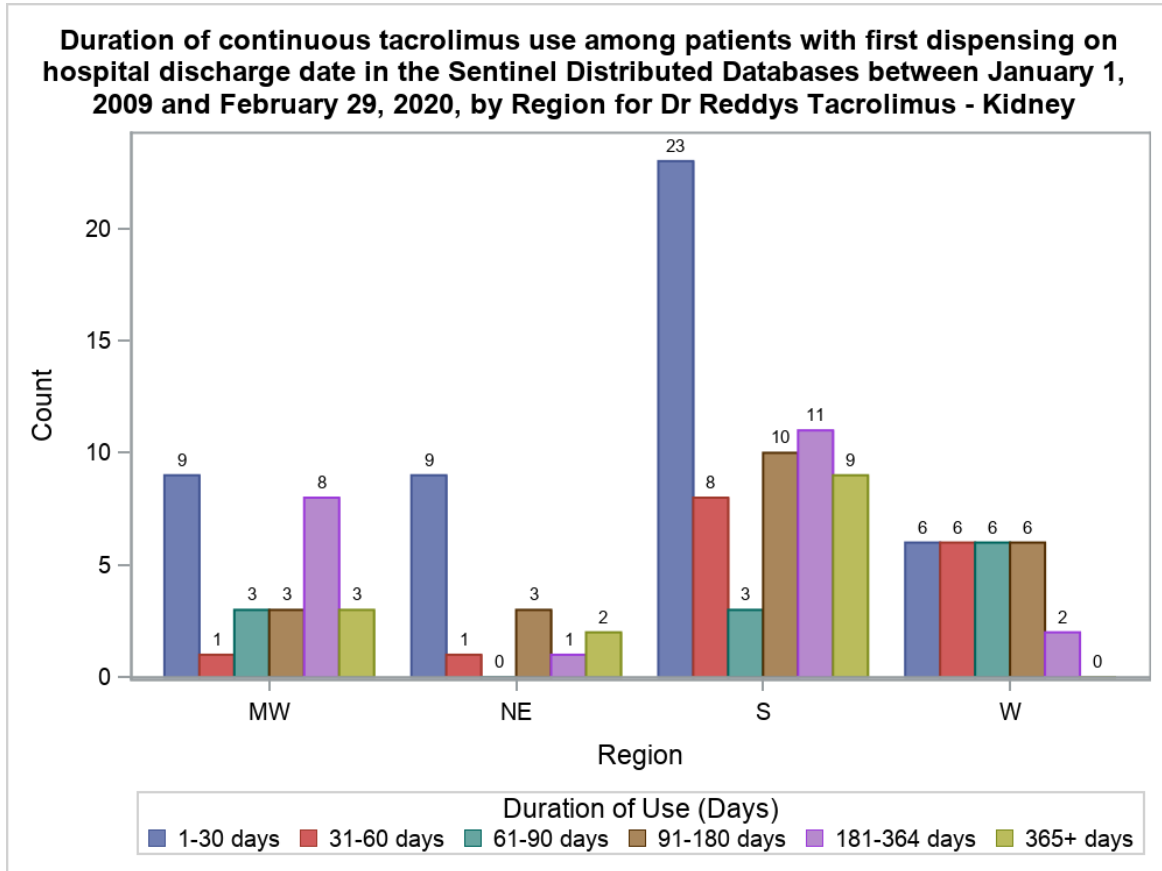


Figure 6j.

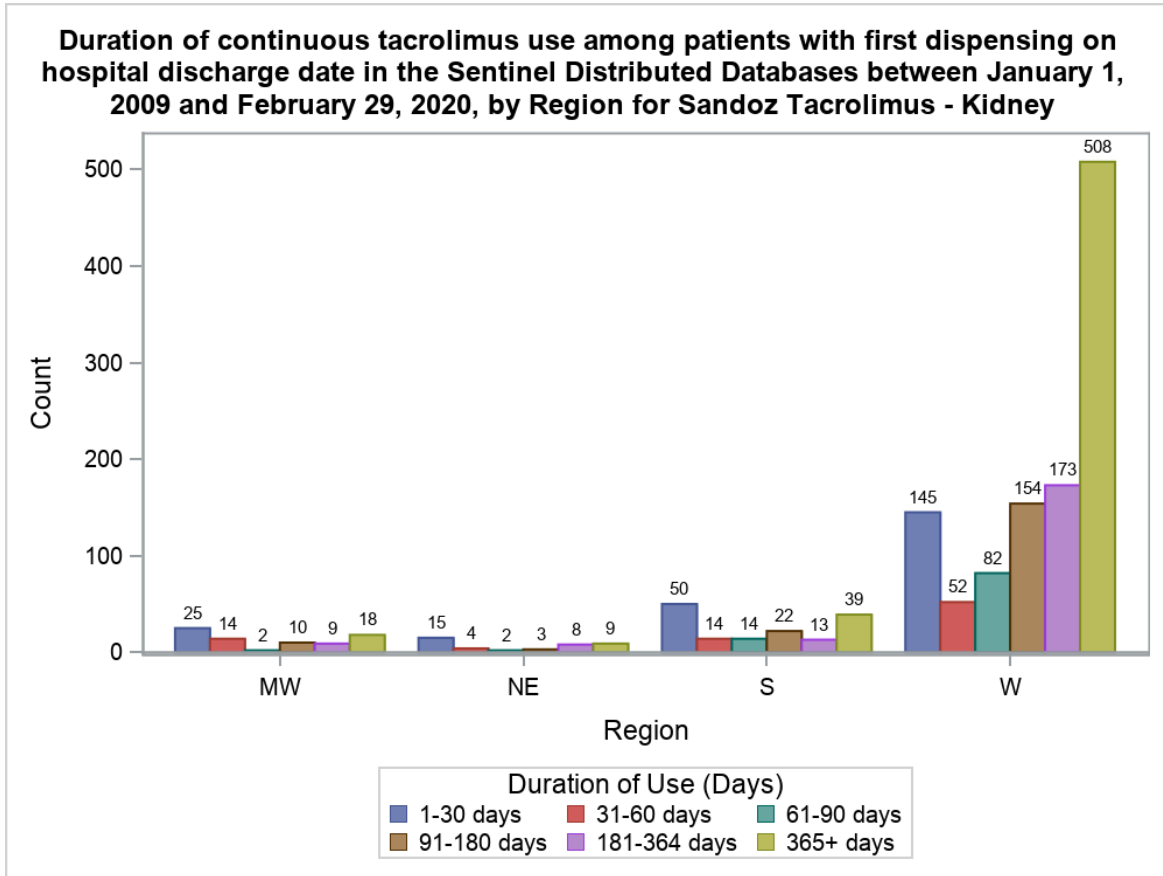
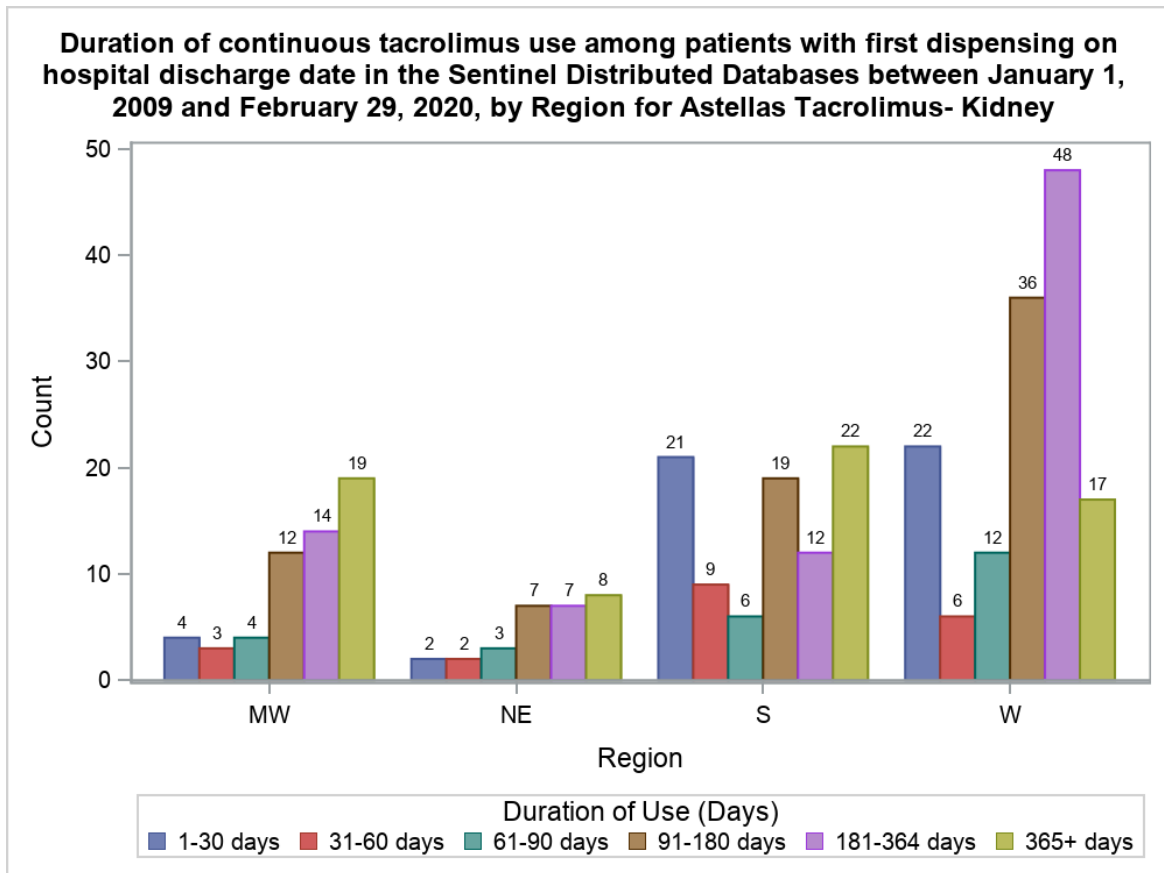


Figure 6I.



**Appendix A. Dates of Available Data for Each Data Partner (DP) as of Request Distribution Date (January 12, 2021)**

DP ID	Start Date <sup>1</sup>	End Date <sup>1</sup>
DP01	6/1/2007	10/31/2019
DP03	1/1/2000	2/28/2019
DP04	1/1/2000	3/31/2019
DP05	1/1/2000	6/30/2019
DP06	1/1/2000	4/30/2018
DP07	1/1/2000	4/30/2019
DP08	1/1/2006	1/31/2020
DP09	1/1/2000	1/31/2019
DP10	1/1/2005	1/31/2018
DP11	1/1/2004	8/31/2019
DP12	1/1/2008	12/31/2019
DP13	1/1/2000	12/31/2017
DP14	1/1/2008	2/29/2020

<sup>1</sup>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 International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Procedure Codes Used to Define Liver and Kidney Transplants in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
<b>Liver Transplant</b>			
50.51	Auxiliary liver transplant	Procedure	ICD-9-CM
50.59	Other transplant of liver	Procedure	ICD-9-CM
47135	Liver allotransplantation; orthotopic, partial or whole, from cadaver or living donor, any age	Procedure	CPT-4
0FY0	Transplantation / Liver	Procedure	ICD-10-PCS
0FY00Z0	Transplantation of Liver, Allogeneic, Open Approach	Procedure	ICD-10-PCS
<b>Kidney Transplant</b>			
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy	Procedure	CPT-4
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy	Procedure	CPT-4
55.69	Other kidney transplantation	Procedure	ICD-9-CM
55.6	Transplant of kidney	Procedure	ICD-9-CM
0TY1	Transplantation / Kidney, Left	Procedure	ICD-10-PCS
0TY0	Transplantation / Kidney, Right	Procedure	ICD-10-PCS
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

Code	Description	Code Category	Code Type
<b>Liver and Kidney Transplant Incidence</b>			
00.91	Transplant from live related donor	Procedure	ICD-9-CM
00.92	Transplant from live non-related donor	Procedure	ICD-9-CM
00.93	Transplant from cadaver	Procedure	ICD-9-CM
07.94	Transplantation of thymus	Procedure	ICD-9-CM
33.5	Lung transplant	Procedure	ICD-9-CM
33.50	Lung transplantation, NOS	Procedure	ICD-9-CM
33.51	Unilateral lung transplantation	Procedure	ICD-9-CM
33.52	Bilateral lung transplantation	Procedure	ICD-9-CM
33.6	Combined heart-lung transplantation	Procedure	ICD-9-CM
37.51	Heart transplantation	Procedure	ICD-9-CM
41.0	Bone marrow transplant	Procedure	ICD-9-CM
41.00	Bone marrow transplant, not otherwise specified	Procedure	ICD-9-CM
41.02	Allogeneic bone marrow transplant with purging	Procedure	ICD-9-CM
41.03	Allogeneic bone marrow transplant without purging	Procedure	ICD-9-CM
41.05	Allogeneic hematopoietic stem cell transplant without purging	Procedure	ICD-9-CM
41.06	Cord blood stem cell transplant	Procedure	ICD-9-CM
41.08	Allogeneic hematopoietic stem cell transplant with purging	Procedure	ICD-9-CM
41.94	Transplantation of spleen	Procedure	ICD-9-CM
46.97	Transplant of intestine	Procedure	ICD-9-CM
49.74	Gracilis muscle transplant for anal incontinence	Procedure	ICD-9-CM
50.5	Liver transplant	Procedure	ICD-9-CM
50.51	Auxiliary liver transplant	Procedure	ICD-9-CM
50.59	Other transplant of liver	Procedure	ICD-9-CM
52.8	Transplant of pancreas	Procedure	ICD-9-CM
52.80	Pancreatic transplant, not otherwise specified	Procedure	ICD-9-CM
52.82	Homotransplant of pancreas	Procedure	ICD-9-CM
52.83	Heterotransplant of pancreas	Procedure	ICD-9-CM
52.85	Allotransplantation of cells of islets of Langerhans	Procedure	ICD-9-CM
52.86	Transplantation of cells of islets of Langerhans, not otherwise specified	Procedure	ICD-9-CM
55.53	Removal of transplanted or rejected kidney	Procedure	ICD-9-CM
55.6	Transplant of kidney	Procedure	ICD-9-CM
55.69	Other kidney transplantation	Procedure	ICD-9-CM
63.53	Transplantation of spermatic cord	Procedure	ICD-9-CM
65.92	Transplantation of ovary	Procedure	ICD-9-CM
82.5	Transplantation of muscle and tendon of hand	Procedure	ICD-9-CM
82.56	Other hand tendon transfer or transplantation	Procedure	ICD-9-CM
82.58	Other hand muscle transfer or transplantation	Procedure	ICD-9-CM
83.75	Tendon transfer or transplantation	Procedure	ICD-9-CM
83.77	Muscle transfer or transplantation	Procedure	ICD-9-CM
199.2	Malignant neoplasm associated with transplanted organ	Diagnosis	ICD-9-CM
238.77	Post-transplant lymphoproliferative disorder [PTLD]	Diagnosis	ICD-9-CM
414.06	Coronary atherosclerosis, of native coronary artery of transplanted	Diagnosis	ICD-9-CM
414.07	Coronary atherosclerosis, of bypass graft (artery) (vein) of transplanted heart	Diagnosis	ICD-9-CM
996.80	Complications of transplanted organ, unspecified site	Diagnosis	ICD-9-CM
996.8	Complications of transplanted organ	Diagnosis	ICD-9-CM

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

Code	Description	Code Category	Code Type
996.81	Complications of transplanted kidney	Diagnosis	ICD-9-CM
996.82	Complications of transplanted liver	Diagnosis	ICD-9-CM
996.83	Complications of transplanted heart	Diagnosis	ICD-9-CM
996.84	Complications of transplanted lung	Diagnosis	ICD-9-CM
996.85	Complications of bone marrow transplant	Diagnosis	ICD-9-CM
996.86	Complications of transplanted pancreas	Diagnosis	ICD-9-CM
996.87	Complications of transplanted organ, intestine	Diagnosis	ICD-9-CM
996.88	Complications of transplanted organ, stem cell	Diagnosis	ICD-9-CM
996.89	Complications of other transplanted organ	Diagnosis	ICD-9-CM
33935	Heart-lung transplant with recipient cardiectomy-pneumonectomy	Procedure	CPT-4
33945	Heart transplant, with or without recipient cardiectomy	Procedure	CPT-4
47135	Liver allotransplantation; orthotopic, partial or whole, from cadaver or living donor, any age	Procedure	CPT-4
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy	Procedure	CPT-4
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy	Procedure	CPT-4
50370	Removal of transplanted renal allograft	Procedure	CPT-4
50380	Renal autotransplantation, reimplantation of kidney	Procedure	CPT-4
02Y	Heart and Great Vessels, Transplantation	Procedure	ICD-10-PCS
02YA	Transplantation / Heart	Procedure	ICD-10-PCS
02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z1	Transplantation of Heart, Syngeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z2	Transplantation of Heart, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YM0Z0	Transplantation of Thymus, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YM0Z1	Transplantation of Thymus, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YM0Z2	Transplantation of Thymus, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YP0Z0	Transplantation of Spleen, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z1	Transplantation of Spleen, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z2	Transplantation of Spleen, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z0	Transplantation of Right Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z1	Transplantation of Right Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z2	Transplantation of Right Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z0	Transplantation of Right Middle Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z1	Transplantation of Right Middle Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z2	Transplantation of Right Middle Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z0	Transplantation of Right Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z1	Transplantation of Right Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z2	Transplantation of Right Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z0	Transplantation of Left Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z1	Transplantation of Left Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z2	Transplantation of Left Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z0	Transplantation of Lung Lingula, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z1	Transplantation of Lung Lingula, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z2	Transplantation of Lung Lingula, Zooplastic, Open Approach	Procedure	ICD-10-PCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0BYJ0Z0	Transplantation of Left Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z1	Transplantation of Left Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z2	Transplantation of Left Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z0	Transplantation of Right Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z1	Transplantation of Right Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z2	Transplantation of Right Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z0	Transplantation of Left Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z1	Transplantation of Left Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z2	Transplantation of Left Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z0	Transplantation of Bilateral Lungs, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z1	Transplantation of Bilateral Lungs, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z2	Transplantation of Bilateral Lungs, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY80Z0	Transplantation of Small Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z1	Transplantation of Small Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z2	Transplantation of Small Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z0	Transplantation of Large Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z1	Transplantation of Large Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z2	Transplantation of Large Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FY0	Transplantation / Liver	Procedure	ICD-10-PCS
0FY00Z0	Transplantation of Liver, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z1	Transplantation of Liver, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z2	Transplantation of Liver, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z0	Transplantation of Pancreas, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z1	Transplantation of Pancreas, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z2	Transplantation of Pancreas, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY0	Transplantation / Kidney, Right	Procedure	ICD-10-PCS
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z1	Transplantation of Right Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z2	Transplantation of Right Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY1	Transplantation / Kidney, Left	Procedure	ICD-10-PCS
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z1	Transplantation of Left Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z2	Transplantation of Left Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY00Z0	Transplantation of Right Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY00Z1	Transplantation of Right Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0UY00Z2	Transplantation of Right Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY10Z0	Transplantation of Left Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z1	Transplantation of Left Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z2	Transplantation of Left Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
30230G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
30233G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30240G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30243G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30250G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
30253G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30260G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Open Approach	Procedure	ICD-10-PCS
30263G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E030U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E033O5	Introduction of Other Antineoplastic into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E033U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J3U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J7U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0J8U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
BT29	Computerized Tomography (CT Scan) / Kidney Transplant	Procedure	ICD-10-PCS
BT2900Z	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT290ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar Contrast	Procedure	ICD-10-PCS
BT2910Z	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
BT291ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast	Procedure	ICD-10-PCS
BT29Y0Z	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT29YZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT29ZZZ	Computerized Tomography (CT Scan) of Kidney Transplant	Procedure	ICD-10-PCS
BT39	Magnetic Resonance Imaging (MRI) / Kidney Transplant	Procedure	ICD-10-PCS
BT39Y0Z	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT39YZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT39ZZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant	Procedure	ICD-10-PCS
BT49	Ultrasonography / Kidney Transplant	Procedure	ICD-10-PCS
BT49ZZZ	Ultrasonography of Kidney Transplant	Procedure	ICD-10-PCS
C80.2	Malignant neoplasm associated with transplanted organ	Diagnosis	ICD-10-CM
D47.Z1	Post-transplant lymphoproliferative disorder (PTLD)	Diagnosis	ICD-10-CM
I25.7	Atherosclerosis of coronary artery bypass graft(s) and coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.75	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.76	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
T86	Complications of transplanted organs and tissue	Diagnosis	ICD-10-CM
T86.0	Complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.00	Unspecified complication of bone marrow transplant	Diagnosis	ICD-10-CM

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
T86.01	Bone marrow transplant rejection	Diagnosis	ICD-10-CM
T86.02	Bone marrow transplant failure	Diagnosis	ICD-10-CM
T86.03	Bone marrow transplant infection	Diagnosis	ICD-10-CM
T86.09	Other complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.1	Complications of kidney transplant	Diagnosis	ICD-10-CM
T86.10	Unspecified complication of kidney transplant	Diagnosis	ICD-10-CM
T86.11	Kidney transplant rejection	Diagnosis	ICD-10-CM
T86.12	Kidney transplant failure	Diagnosis	ICD-10-CM
T86.13	Kidney transplant infection	Diagnosis	ICD-10-CM
T86.19	Other complication of kidney transplant	Diagnosis	ICD-10-CM
T86.2	Complications of heart transplant	Diagnosis	ICD-10-CM
T86.20	Unspecified complication of heart transplant	Diagnosis	ICD-10-CM
T86.21	Heart transplant rejection	Diagnosis	ICD-10-CM
T86.22	Heart transplant failure	Diagnosis	ICD-10-CM
T86.23	Heart transplant infection	Diagnosis	ICD-10-CM
T86.29	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.290	Cardiac allograft vasculopathy	Diagnosis	ICD-10-CM
T86.298	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.3	Complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.30	Unspecified complication of heart-lung transplant	Diagnosis	ICD-10-CM
T86.31	Heart-lung transplant rejection	Diagnosis	ICD-10-CM
T86.32	Heart-lung transplant failure	Diagnosis	ICD-10-CM
T86.33	Heart-lung transplant infection	Diagnosis	ICD-10-CM
T86.39	Other complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.4	Complications of liver transplant	Diagnosis	ICD-10-CM
T86.40	Unspecified complication of liver transplant	Diagnosis	ICD-10-CM
T86.41	Liver transplant rejection	Diagnosis	ICD-10-CM
T86.42	Liver transplant failure	Diagnosis	ICD-10-CM
T86.43	Liver transplant infection	Diagnosis	ICD-10-CM
T86.49	Other complications of liver transplant	Diagnosis	ICD-10-CM
T86.5	Complications of stem cell transplant	Diagnosis	ICD-10-CM
T86.8	Complications of other transplanted organs and tissues	Diagnosis	ICD-10-CM
T86.81	Complications of lung transplant	Diagnosis	ICD-10-CM
T86.810	Lung transplant rejection	Diagnosis	ICD-10-CM
T86.811	Lung transplant failure	Diagnosis	ICD-10-CM
T86.812	Lung transplant infection	Diagnosis	ICD-10-CM
T86.818	Other complications of lung transplant	Diagnosis	ICD-10-CM
T86.819	Unspecified complication of lung transplant	Diagnosis	ICD-10-CM
T86.830	Bone graft rejection	Diagnosis	ICD-10-CM
T86.831	Bone graft failure	Diagnosis	ICD-10-CM
T86.832	Bone graft infection	Diagnosis	ICD-10-CM
T86.838	Other complications of bone graft	Diagnosis	ICD-10-CM
T86.839	Unspecified complication of bone graft	Diagnosis	ICD-10-CM
T86.85	Complication of intestine transplant	Diagnosis	ICD-10-CM
T86.850	Intestine transplant rejection	Diagnosis	ICD-10-CM
T86.851	Intestine transplant failure	Diagnosis	ICD-10-CM
T86.852	Intestine transplant infection	Diagnosis	ICD-10-CM

**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
T86.858	Other complications of intestine transplant	Diagnosis	ICD-10-CM
T86.859	Unspecified complication of intestine transplant	Diagnosis	ICD-10-CM
T86.89	Complications of other transplanted tissue	Diagnosis	ICD-10-CM
T86.890	Other transplanted tissue rejection	Diagnosis	ICD-10-CM
T86.891	Other transplanted tissue failure	Diagnosis	ICD-10-CM
T86.892	Other transplanted tissue infection	Diagnosis	ICD-10-CM
T86.898	Other complications of other transplanted tissue	Diagnosis	ICD-10-CM
T86.899	Unspecified complication of other transplanted tissue	Diagnosis	ICD-10-CM
T86.9	Complication of unspecified transplanted organ and tissue	Diagnosis	ICD-10-CM
T86.90	Unspecified complication of unspecified transplanted organ and tissue	Diagnosis	ICD-10-CM
T86.91	Unspecified transplanted organ and tissue rejection	Diagnosis	ICD-10-CM
T86.92	Unspecified transplanted organ and tissue failure	Diagnosis	ICD-10-CM
T86.93	Unspecified transplanted organ and tissue infection	Diagnosis	ICD-10-CM
T86.99	Other complications of unspecified transplanted organ and tissue	Diagnosis	ICD-10-CM
V42	Organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V42.0	Kidney replaced by transplant	Diagnosis	ICD-9-CM
V42.1	Heart replaced by transplant	Diagnosis	ICD-9-CM
V42.2	Heart valve replaced by transplant	Diagnosis	ICD-9-CM
V42.3	Skin replaced by transplant	Diagnosis	ICD-9-CM
V42.4	Bone replaced by transplant	Diagnosis	ICD-9-CM
V42.6	Lung replaced by transplant	Diagnosis	ICD-9-CM
V42.7	Liver replaced by transplant	Diagnosis	ICD-9-CM
V42.8	Other specified organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V42.81	Bone marrow replaced by transplant	Diagnosis	ICD-9-CM
V42.82	Peripheral stem cells replaced by transplant	Diagnosis	ICD-9-CM
V42.83	Pancreas replaced by transplant	Diagnosis	ICD-9-CM
V42.84	Organ or tissue replaced by transplant, intestines	Diagnosis	ICD-9-CM
V42.89	Other organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V42.9	Unspecified organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V45.87	Transplanted organ removal status	Diagnosis	ICD-9-CM
V58.44	Aftercare following organ transplant	Diagnosis	ICD-9-CM
Y83.0	Surgical operation with transplant of whole organ as the cause of abnormal reaction of the patient, or of later complication, without mention of misadventure at the time of the procedure	Diagnosis	ICD-10-CM
Z48.2	Encounter for aftercare following organ transplant	Diagnosis	ICD-10-CM
Z48.21	Encounter for aftercare following heart transplant	Diagnosis	ICD-10-CM
Z48.22	Encounter for aftercare following kidney transplant	Diagnosis	ICD-10-CM
Z48.23	Encounter for aftercare following liver transplant	Diagnosis	ICD-10-CM
Z48.24	Encounter for aftercare following lung transplant	Diagnosis	ICD-10-CM
Z48.28	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.280	Encounter for aftercare following heart-lung transplant	Diagnosis	ICD-10-CM
Z48.288	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.29	Encounter for aftercare following other organ transplant	Diagnosis	ICD-10-CM
Z48.290	Encounter for aftercare following bone marrow transplant	Diagnosis	ICD-10-CM
Z48.298	Encounter for aftercare following other other organ transplant	Diagnosis	ICD-10-CM
Z94	Transplanted organ and tissue status	Diagnosis	ICD-10-CM



**Appendix C. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), Healthcare Common Procedure Coding System (HCPCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Incidence Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
Z94.0	Kidney transplant status	Diagnosis	ICD-10-CM
Z94.1	Heart transplant status	Diagnosis	ICD-10-CM
Z94.2	Lung transplant status	Diagnosis	ICD-10-CM
Z94.3	Heart and lungs transplant status	Diagnosis	ICD-10-CM
Z94.4	Liver transplant status	Diagnosis	ICD-10-CM
Z94.5	Skin transplant status	Diagnosis	ICD-10-CM
Z94.6	Bone transplant status	Diagnosis	ICD-10-CM
Z94.8	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z94.81	Bone marrow transplant status	Diagnosis	ICD-10-CM
Z94.82	Intestine transplant status	Diagnosis	ICD-10-CM
Z94.83	Pancreas transplant status	Diagnosis	ICD-10-CM
Z94.84	Stem cells transplant status	Diagnosis	ICD-10-CM
Z94.89	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z94.9	Transplanted organ and tissue status, unspecified	Diagnosis	ICD-10-CM
Z95.3	Presence of xenogenic heart valve	Diagnosis	ICD-10-CM
Z95.4	Presence of other heart-valve replacement	Diagnosis	ICD-10-CM
Z98.85	Transplanted organ removal status	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

Code	Description	Code Category	Code Type
<b>Liver Transplant Exclusions</b>			
33.5	Lung transplant	Procedure	ICD-9-CM
33.50	Lung transplantation, NOS	Procedure	ICD-9-CM
33.51	Unilateral lung transplantation	Procedure	ICD-9-CM
33.52	Bilateral lung transplantation	Procedure	ICD-9-CM
33.6	Combined heart-lung transplantation	Procedure	ICD-9-CM
37.51	Heart transplantation	Procedure	ICD-9-CM
41.0	Bone marrow transplant	Procedure	ICD-9-CM
41.00	Bone marrow transplant, not otherwise specified	Procedure	ICD-9-CM
41.02	Allogeneic bone marrow transplant with purging	Procedure	ICD-9-CM
41.03	Allogeneic bone marrow transplant without purging	Procedure	ICD-9-CM
41.05	Allogeneic hematopoietic stem cell transplant without purging	Procedure	ICD-9-CM
41.06	Cord blood stem cell transplant	Procedure	ICD-9-CM
41.08	Allogeneic hematopoietic stem cell transplant with purging	Procedure	ICD-9-CM
41.94	Transplantation of spleen	Procedure	ICD-9-CM
46.97	Transplant of intestine	Procedure	ICD-9-CM
49.74	Gracilis muscle transplant for anal incontinence	Procedure	ICD-9-CM
52.8	Transplant of pancreas	Procedure	ICD-9-CM
52.80	Pancreatic transplant, not otherwise specified	Procedure	ICD-9-CM
52.82	Homotransplant of pancreas	Procedure	ICD-9-CM
52.83	Heterotransplant of pancreas	Procedure	ICD-9-CM
52.85	Allotransplantation of cells of islets of Langerhans	Procedure	ICD-9-CM
52.86	Transplantation of cells of islets of Langerhans, not otherwise specified	Procedure	ICD-9-CM
55.53	Removal of transplanted or rejected kidney	Procedure	ICD-9-CM
55.6	Transplant of kidney	Procedure	ICD-9-CM
55.69	Other kidney transplantation	Procedure	ICD-9-CM
63.53	Transplantation of spermatic cord	Procedure	ICD-9-CM
65.92	Transplantation of ovary	Procedure	ICD-9-CM
82.5	Transplantation of muscle and tendon of hand	Procedure	ICD-9-CM
82.56	Other hand tendon transfer or transplantation	Procedure	ICD-9-CM
82.58	Other hand muscle transfer or transplantation	Procedure	ICD-9-CM
83.75	Tendon transfer or transplantation	Procedure	ICD-9-CM
83.77	Muscle transfer or transplantation	Procedure	ICD-9-CM
414.06	Coronary atherosclerosis, of native coronary artery of transplanted heart	Diagnosis	ICD-9-CM
414.07	Coronary atherosclerosis, of bypass graft (artery) (vein) of transplanted heart	Diagnosis	ICD-9-CM
996.81	Complications of transplanted kidney	Diagnosis	ICD-9-CM
996.83	Complications of transplanted heart	Diagnosis	ICD-9-CM
996.84	Complications of transplanted lung	Diagnosis	ICD-9-CM
996.85	Complications of bone marrow transplant	Diagnosis	ICD-9-CM
996.86	Complications of transplanted pancreas	Diagnosis	ICD-9-CM
996.87	Complications of transplanted organ, intestine	Diagnosis	ICD-9-CM
996.88	Complications of transplanted organ, stem cell	Diagnosis	ICD-9-CM
33935	Heart-lung transplant with recipient cardiectomy-pneumonectomy	Procedure	CPT-4
33945	Heart transplant, with or without recipient cardiectomy	Procedure	CPT-4
50360	Renal allotransplantation, implantation of graft; without recipient nephrectomy	Procedure	CPT-4
50365	Renal allotransplantation, implantation of graft; with recipient nephrectomy	Procedure	CPT-4

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
50370	Removal of transplanted renal allograft	Procedure	CPT-4
50380	Renal autotransplantation, reimplantation of kidney	Procedure	CPT-4
02Y	Heart and Great Vessels, Transplantation	Procedure	ICD-10-PCS
02YA	Transplantation / Heart	Procedure	ICD-10-PCS
02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z1	Transplantation of Heart, Syngeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z2	Transplantation of Heart, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YM0Z0	Transplantation of Thymus, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YM0Z1	Transplantation of Thymus, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YM0Z2	Transplantation of Thymus, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YP0Z0	Transplantation of Spleen, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z1	Transplantation of Spleen, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z2	Transplantation of Spleen, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z0	Transplantation of Right Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z1	Transplantation of Right Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z2	Transplantation of Right Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z0	Transplantation of Right Middle Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z1	Transplantation of Right Middle Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z2	Transplantation of Right Middle Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z0	Transplantation of Right Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z1	Transplantation of Right Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z2	Transplantation of Right Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z0	Transplantation of Left Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z1	Transplantation of Left Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z2	Transplantation of Left Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
		Procedure	
0BYH0Z0	Transplantation of Lung Lingula, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z1	Transplantation of Lung Lingula, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z2	Transplantation of Lung Lingula, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z0	Transplantation of Left Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z1	Transplantation of Left Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z2	Transplantation of Left Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z0	Transplantation of Right Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z1	Transplantation of Right Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z2	Transplantation of Right Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z0	Transplantation of Left Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z1	Transplantation of Left Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z2	Transplantation of Left Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z0	Transplantation of Bilateral Lungs, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z1	Transplantation of Bilateral Lungs, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z2	Transplantation of Bilateral Lungs, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY80Z0	Transplantation of Small Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z1	Transplantation of Small Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z2	Transplantation of Small Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z0	Transplantation of Large Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z1	Transplantation of Large Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z2	Transplantation of Large Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0FYG0Z0	Transplantation of Pancreas, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z1	Transplantation of Pancreas, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z2	Transplantation of Pancreas, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY0	Transplantation / Kidney, Right	Procedure	ICD-10-PCS
0TY00Z0	Transplantation of Right Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z1	Transplantation of Right Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY00Z2	Transplantation of Right Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0TY1	Transplantation / Kidney, Left	Procedure	ICD-10-PCS
0TY10Z0	Transplantation of Left Kidney, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z1	Transplantation of Left Kidney, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0TY10Z2	Transplantation of Left Kidney, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY00Z0	Transplantation of Right Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY00Z1	Transplantation of Right Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0UY00Z2	Transplantation of Right Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY10Z0	Transplantation of Left Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z1	Transplantation of Left Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z2	Transplantation of Left Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
30230G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30233G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30240G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30243G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30250G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
30253G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30260G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Open Approach	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
30263G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E030U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E033U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J3U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J7U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0J8U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
BT29	Computerized Tomography (CT Scan) / Kidney Transplant	Procedure	ICD-10-PCS
BT2900Z	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT290ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using High Osmolar Contrast	Procedure	ICD-10-PCS
BT2910Z	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT291ZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Low Osmolar Contrast	Procedure	ICD-10-PCS
BT29Y0Z	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT29YZZ	Computerized Tomography (CT Scan) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT29ZZZ	Computerized Tomography (CT Scan) of Kidney Transplant	Procedure	ICD-10-PCS
BT39	Magnetic Resonance Imaging (MRI) / Kidney Transplant	Procedure	ICD-10-PCS
BT39Y0Z	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast, Unenhanced and Enhanced	Procedure	ICD-10-PCS
BT39YZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant using Other Contrast	Procedure	ICD-10-PCS
BT39ZZZ	Magnetic Resonance Imaging (MRI) of Kidney Transplant	Procedure	ICD-10-PCS
BT49	Ultrasonography / Kidney Transplant	Procedure	ICD-10-PCS
BT49ZZZ	Ultrasonography of Kidney Transplant	Procedure	ICD-10-PCS
I25.7	Atherosclerosis of coronary artery bypass graft(s) and coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.75	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.76	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
T86.0	Complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.00	Unspecified complication of bone marrow transplant	Diagnosis	ICD-10-CM
T86.01	Bone marrow transplant rejection	Diagnosis	ICD-10-CM
T86.02	Bone marrow transplant failure	Diagnosis	ICD-10-CM
T86.03	Bone marrow transplant infection	Diagnosis	ICD-10-CM
T86.09	Other complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.1	Complications of kidney transplant	Diagnosis	ICD-10-CM
T86.10	Unspecified complication of kidney transplant	Diagnosis	ICD-10-CM
T86.11	Kidney transplant rejection	Diagnosis	ICD-10-CM
T86.12	Kidney transplant failure	Diagnosis	ICD-10-CM
T86.13	Kidney transplant infection	Diagnosis	ICD-10-CM
T86.19	Other complication of kidney transplant	Diagnosis	ICD-10-CM
T86.2	Complications of heart transplant	Diagnosis	ICD-10-CM
T86.20	Unspecified complication of heart transplant	Diagnosis	ICD-10-CM
T86.21	Heart transplant rejection	Diagnosis	ICD-10-CM
T86.22	Heart transplant failure	Diagnosis	ICD-10-CM
T86.23	Heart transplant infection	Diagnosis	ICD-10-CM
T86.29	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.290	Cardiac allograft vasculopathy	Diagnosis	ICD-10-CM
T86.298	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.3	Complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.30	Unspecified complication of heart-lung transplant	Diagnosis	ICD-10-CM
T86.31	Heart-lung transplant rejection	Diagnosis	ICD-10-CM
T86.32	Heart-lung transplant failure	Diagnosis	ICD-10-CM
T86.33	Heart-lung transplant infection	Diagnosis	ICD-10-CM
T86.39	Other complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.5	Complications of stem cell transplant	Diagnosis	ICD-10-CM
T86.81	Complications of lung transplant	Diagnosis	ICD-10-CM
T86.810	Lung transplant rejection	Diagnosis	ICD-10-CM
T86.811	Lung transplant failure	Diagnosis	ICD-10-CM
T86.812	Lung transplant infection	Diagnosis	ICD-10-CM
T86.818	Other complications of lung transplant	Diagnosis	ICD-10-CM
T86.819	Unspecified complication of lung transplant	Diagnosis	ICD-10-CM
T86.830	Bone graft rejection	Diagnosis	ICD-10-CM
T86.831	Bone graft failure	Diagnosis	ICD-10-CM
T86.832	Bone graft infection	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
T86.838	Other complications of bone graft	Diagnosis	ICD-10-CM
T86.839	Unspecified complication of bone graft	Diagnosis	ICD-10-CM
T86.85	Complication of intestine transplant	Diagnosis	ICD-10-CM
T86.850	Intestine transplant rejection	Diagnosis	ICD-10-CM
T86.851	Intestine transplant failure	Diagnosis	ICD-10-CM
T86.852	Intestine transplant infection	Diagnosis	ICD-10-CM
T86.858	Other complications of intestine transplant	Diagnosis	ICD-10-CM
T86.859	Unspecified complication of intestine transplant	Diagnosis	ICD-10-CM
V42.0	Kidney replaced by transplant	Diagnosis	ICD-9-CM
V42.1	Heart replaced by transplant	Diagnosis	ICD-9-CM
V42.2	Heart valve replaced by transplant	Diagnosis	ICD-9-CM
V42.3	Skin replaced by transplant	Diagnosis	ICD-9-CM
V42.4	Bone replaced by transplant	Diagnosis	ICD-9-CM
V42.6	Lung replaced by transplant	Diagnosis	ICD-9-CM
V42.8	Other specified organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V42.81	Bone marrow replaced by transplant	Diagnosis	ICD-9-CM
V42.82	Peripheral stem cells replaced by transplant	Diagnosis	ICD-9-CM
V42.83	Pancreas replaced by transplant	Diagnosis	ICD-9-CM
V42.84	Organ or tissue replaced by transplant, intestines	Diagnosis	ICD-9-CM
Z48.21	Encounter for aftercare following heart transplant	Diagnosis	ICD-10-CM
Z48.22	Encounter for aftercare following kidney transplant	Diagnosis	ICD-10-CM
Z48.24	Encounter for aftercare following lung transplant	Diagnosis	ICD-10-CM
Z48.28	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.280	Encounter for aftercare following heart-lung transplant	Diagnosis	ICD-10-CM
Z48.288	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.29	Encounter for aftercare following other organ transplant	Diagnosis	ICD-10-CM
Z48.290	Encounter for aftercare following bone marrow transplant	Diagnosis	ICD-10-CM
Z94.0	Kidney transplant status	Diagnosis	ICD-10-CM
Z94.1	Heart transplant status	Diagnosis	ICD-10-CM
Z94.2	Lung transplant status	Diagnosis	ICD-10-CM
Z94.3	Heart and lungs transplant status	Diagnosis	ICD-10-CM
Z94.5	Skin transplant status	Diagnosis	ICD-10-CM
Z94.6	Bone transplant status	Diagnosis	ICD-10-CM
Z94.8	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z94.81	Bone marrow transplant status	Diagnosis	ICD-10-CM
Z94.82	Intestine transplant status	Diagnosis	ICD-10-CM
Z94.83	Pancreas transplant status	Diagnosis	ICD-10-CM
Z94.84	Stem cells transplant status	Diagnosis	ICD-10-CM
Z94.89	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z95.3	Presence of xenogenic heart valve	Diagnosis	ICD-10-CM
Z95.4	Presence of other heart-valve replacement	Diagnosis	ICD-10-CM
<b>Kidney Transplant Exclusions</b>			
07.94	Transplantation of thymus	Procedure	ICD-9-CM
33.5	Lung transplant	Procedure	ICD-9-CM
33.50	Lung transplantation, NOS	Procedure	ICD-9-CM
33.51	Unilateral lung transplantation	Procedure	ICD-9-CM
33.52	Bilateral lung transplantation	Procedure	ICD-9-CM
33.6	Combined heart-lung transplantation	Procedure	ICD-9-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
37.51	Heart transplantation	Procedure	ICD-9-CM
41.0	Bone marrow transplant	Procedure	ICD-9-CM
41.00	Bone marrow transplant, not otherwise specified	Procedure	ICD-9-CM
41.02	Allogeneic bone marrow transplant with purging	Procedure	ICD-9-CM
41.03	Allogeneic bone marrow transplant without purging	Procedure	ICD-9-CM
41.05	Allogeneic hematopoietic stem cell transplant without purging	Procedure	ICD-9-CM
41.06	Cord blood stem cell transplant	Procedure	ICD-9-CM
41.08	Allogeneic hematopoietic stem cell transplant with purging	Procedure	ICD-9-CM
41.94	Transplantation of spleen	Procedure	ICD-9-CM
46.97	Transplant of intestine	Procedure	ICD-9-CM
49.74	Gracilis muscle transplant for anal incontinence	Procedure	ICD-9-CM
50.5	Liver transplant	Procedure	ICD-9-CM
50.51	Auxiliary liver transplant	Procedure	ICD-9-CM
50.59	Other transplant of liver	Procedure	ICD-9-CM
52.8	Transplant of pancreas	Procedure	ICD-9-CM
52.80	Pancreatic transplant, not otherwise specified	Procedure	ICD-9-CM
52.82	Homotransplant of pancreas	Procedure	ICD-9-CM
52.83	Heterotransplant of pancreas	Procedure	ICD-9-CM
52.85	Allotransplantation of cells of islets of Langerhans	Procedure	ICD-9-CM
52.86	Transplantation of cells of islets of Langerhans, not otherwise specified	Procedure	ICD-9-CM
63.53	Transplantation of spermatic cord	Procedure	ICD-9-CM
65.92	Transplantation of ovary	Procedure	ICD-9-CM
82.5	Transplantation of muscle and tendon of hand	Procedure	ICD-9-CM
82.56	Other hand tendon transfer or transplantation	Procedure	ICD-9-CM
82.58	Other hand muscle transfer or transplantation	Procedure	ICD-9-CM
83.75	Tendon transfer or transplantation	Procedure	ICD-9-CM
83.77	Muscle transfer or transplantation	Procedure	ICD-9-CM
414.06	Coronary atherosclerosis, of native coronary artery of transplanted heart	Diagnosis	ICD-9-CM
414.07	Coronary atherosclerosis, of bypass graft (artery) (vein) of transplanted heart	Diagnosis	ICD-9-CM
996.82	Complications of transplanted liver	Diagnosis	ICD-9-CM
996.83	Complications of transplanted heart	Diagnosis	ICD-9-CM
996.84	Complications of transplanted lung	Diagnosis	ICD-9-CM
996.85	Complications of bone marrow transplant	Diagnosis	ICD-9-CM
996.86	Complications of transplanted pancreas	Diagnosis	ICD-9-CM
996.87	Complications of transplanted organ, intestine	Diagnosis	ICD-9-CM
996.88	Complications of transplanted organ, stem cell	Diagnosis	ICD-9-CM
33935	Heart-lung transplant with recipient cardiectomy-pneumonectomy	Procedure	CPT-4
33945	Heart transplant, with or without recipient cardiectomy	Procedure	CPT-4
47135	Liver allotransplantation; orthotopic, partial or whole, from cadaver or living donor, any age	Procedure	CPT-4
02Y	Heart and Great Vessels, Transplantation	Procedure	ICD-10-PCS
02YA	Transplantation / Heart	Procedure	ICD-10-PCS
02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z1	Transplantation of Heart, Syngeneic, Open Approach	Procedure	ICD-10-PCS
02YA0Z2	Transplantation of Heart, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YM0Z0	Transplantation of Thymus, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YM0Z1	Transplantation of Thymus, Syngeneic, Open Approach	Procedure	ICD-10-PCS



**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
07YM0Z2	Transplantation of Thymus, Zooplastic, Open Approach	Procedure	ICD-10-PCS
07YP0Z0	Transplantation of Spleen, Allogeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z1	Transplantation of Spleen, Syngeneic, Open Approach	Procedure	ICD-10-PCS
07YP0Z2	Transplantation of Spleen, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z0	Transplantation of Right Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z1	Transplantation of Right Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYC0Z2	Transplantation of Right Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z0	Transplantation of Right Middle Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z1	Transplantation of Right Middle Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYD0Z2	Transplantation of Right Middle Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z0	Transplantation of Right Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z1	Transplantation of Right Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYF0Z2	Transplantation of Right Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z0	Transplantation of Left Upper Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z1	Transplantation of Left Upper Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYG0Z2	Transplantation of Left Upper Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z0	Transplantation of Lung Lingula, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z1	Transplantation of Lung Lingula, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYH0Z2	Transplantation of Lung Lingula, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z0	Transplantation of Left Lower Lung Lobe, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z1	Transplantation of Left Lower Lung Lobe, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYJ0Z2	Transplantation of Left Lower Lung Lobe, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z0	Transplantation of Right Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z1	Transplantation of Right Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYK0Z2	Transplantation of Right Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z0	Transplantation of Left Lung, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z1	Transplantation of Left Lung, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYL0Z2	Transplantation of Left Lung, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z0	Transplantation of Bilateral Lungs, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z1	Transplantation of Bilateral Lungs, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0BYM0Z2	Transplantation of Bilateral Lungs, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DY80Z0	Transplantation of Small Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z1	Transplantation of Small Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DY80Z2	Transplantation of Small Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z0	Transplantation of Large Intestine, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z1	Transplantation of Large Intestine, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0DYE0Z2	Transplantation of Large Intestine, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FY0	Transplantation / Liver	Procedure	ICD-10-PCS
0FY00Z0	Transplantation of Liver, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z1	Transplantation of Liver, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FY00Z2	Transplantation of Liver, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z0	Transplantation of Pancreas, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z1	Transplantation of Pancreas, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0FYG0Z2	Transplantation of Pancreas, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY00Z0	Transplantation of Right Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY00Z1	Transplantation of Right Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
0UY00Z2	Transplantation of Right Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
0UY10Z0	Transplantation of Left Ovary, Allogeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z1	Transplantation of Left Ovary, Syngeneic, Open Approach	Procedure	ICD-10-PCS
0UY10Z2	Transplantation of Left Ovary, Zooplastic, Open Approach	Procedure	ICD-10-PCS
30230G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30230G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
30233G2	Transfusion of Allogeneic Related Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G3	Transfusion of Allogeneic Unrelated Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30233G4	Transfusion of Allogeneic Unspecified Bone Marrow into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30240G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30240G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Open Approach	Procedure	ICD-10-PCS
30243G2	Transfusion of Allogeneic Related Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G3	Transfusion of Allogeneic Unrelated Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30243G4	Transfusion of Allogeneic Unspecified Bone Marrow into Central Vein, Percutaneous Approach	Procedure	ICD-10-PCS
30250G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Open Approach	Procedure	ICD-10-PCS
30253G1	Transfusion of Nonautologous Bone Marrow into Peripheral Artery, Percutaneous Approach	Procedure	ICD-10-PCS
30260G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Open Approach	Procedure	ICD-10-PCS
30263G1	Transfusion of Nonautologous Bone Marrow into Central Artery, Percutaneous Approach	Procedure	ICD-10-PCS
3E030U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Open Approach	Procedure	ICD-10-PCS
3E033U1	Introduction of Nonautologous Pancreatic Islet Cells into Peripheral Vein, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J3U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Percutaneous Approach	Procedure	ICD-10-PCS
3E0J7U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening	Procedure	ICD-10-PCS
3E0J8U1	Introduction of Nonautologous Pancreatic Islet Cells into Biliary and Pancreatic Tract, Via Natural or Artificial Opening Endoscopic	Procedure	ICD-10-PCS
I25.7	Atherosclerosis of coronary artery bypass graft(s) and coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
I25.75	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.750	Atherosclerosis of native coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.751	Atherosclerosis of native coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.758	Atherosclerosis of native coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.759	Atherosclerosis of native coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.76	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris	Diagnosis	ICD-10-CM
I25.760	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unstable angina	Diagnosis	ICD-10-CM
I25.761	Atherosclerosis of bypass graft of coronary artery of transplanted heart with angina pectoris with documented spasm	Diagnosis	ICD-10-CM
I25.768	Atherosclerosis of bypass graft of coronary artery of transplanted heart with other forms of angina pectoris	Diagnosis	ICD-10-CM
I25.769	Atherosclerosis of bypass graft of coronary artery of transplanted heart with unspecified angina pectoris	Diagnosis	ICD-10-CM
I25.811	Atherosclerosis of native coronary artery of transplanted heart without angina pectoris	Diagnosis	ICD-10-CM
I25.812	Atherosclerosis of bypass graft of coronary artery of transplanted heart with	Diagnosis	ICD-10-CM
T86.0	Complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.00	Unspecified complication of bone marrow transplant	Diagnosis	ICD-10-CM
T86.01	Bone marrow transplant rejection	Diagnosis	ICD-10-CM
T86.02	Bone marrow transplant failure	Diagnosis	ICD-10-CM
T86.03	Bone marrow transplant infection	Diagnosis	ICD-10-CM
T86.09	Other complications of bone marrow transplant	Diagnosis	ICD-10-CM
T86.2	Complications of heart transplant	Diagnosis	ICD-10-CM
T86.20	Unspecified complication of heart transplant	Diagnosis	ICD-10-CM
T86.21	Heart transplant rejection	Diagnosis	ICD-10-CM
T86.22	Heart transplant failure	Diagnosis	ICD-10-CM
T86.23	Heart transplant infection	Diagnosis	ICD-10-CM
T86.29	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.290	Cardiac allograft vasculopathy	Diagnosis	ICD-10-CM
T86.298	Other complications of heart transplant	Diagnosis	ICD-10-CM
T86.3	Complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.30	Unspecified complication of heart-lung transplant	Diagnosis	ICD-10-CM
T86.31	Heart-lung transplant rejection	Diagnosis	ICD-10-CM
T86.32	Heart-lung transplant failure	Diagnosis	ICD-10-CM
T86.33	Heart-lung transplant infection	Diagnosis	ICD-10-CM
T86.39	Other complications of heart-lung transplant	Diagnosis	ICD-10-CM
T86.4	Complications of liver transplant	Diagnosis	ICD-10-CM
T86.40	Unspecified complication of liver transplant	Diagnosis	ICD-10-CM
T86.41	Liver transplant rejection	Diagnosis	ICD-10-CM
T86.42	Liver transplant failure	Diagnosis	ICD-10-CM
T86.43	Liver transplant infection	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
T86.49	Other complications of liver transplant	Diagnosis	ICD-10-CM
T86.5	Complications of stem cell transplant	Diagnosis	ICD-10-CM
T86.81	Complications of lung transplant	Diagnosis	ICD-10-CM
T86.810	Lung transplant rejection	Diagnosis	ICD-10-CM
T86.811	Lung transplant failure	Diagnosis	ICD-10-CM
T86.812	Lung transplant infection	Diagnosis	ICD-10-CM
T86.818	Other complications of lung transplant	Diagnosis	ICD-10-CM
T86.819	Unspecified complication of lung transplant	Diagnosis	ICD-10-CM
T86.830	Bone graft rejection	Diagnosis	ICD-10-CM
T86.831	Bone graft failure	Diagnosis	ICD-10-CM
T86.832	Bone graft infection	Diagnosis	ICD-10-CM
T86.838	Other complications of bone graft	Diagnosis	ICD-10-CM
T86.839	Unspecified complication of bone graft	Diagnosis	ICD-10-CM
T86.85	Complication of intestine transplant	Diagnosis	ICD-10-CM
T86.850	Intestine transplant rejection	Diagnosis	ICD-10-CM
T86.851	Intestine transplant failure	Diagnosis	ICD-10-CM
T86.852	Intestine transplant infection	Diagnosis	ICD-10-CM
T86.858	Other complications of intestine transplant	Diagnosis	ICD-10-CM
T86.859	Unspecified complication of intestine transplant	Diagnosis	ICD-10-CM
V42.1	Heart replaced by transplant	Diagnosis	ICD-9-CM
V42.2	Heart valve replaced by transplant	Diagnosis	ICD-9-CM
V42.3	Skin replaced by transplant	Diagnosis	ICD-9-CM
V42.4	Bone replaced by transplant	Diagnosis	ICD-9-CM
V42.6	Lung replaced by transplant	Diagnosis	ICD-9-CM
V42.7	Liver replaced by transplant	Diagnosis	ICD-9-CM
V42.8	Other specified organ or tissue replaced by transplant	Diagnosis	ICD-9-CM
V42.81	Bone marrow replaced by transplant	Diagnosis	ICD-9-CM
V42.82	Peripheral stem cells replaced by transplant	Diagnosis	ICD-9-CM
V42.83	Pancreas replaced by transplant	Diagnosis	ICD-9-CM
V42.84	Organ or tissue replaced by transplant, intestines	Diagnosis	ICD-9-CM
Z48.21	Encounter for aftercare following heart transplant	Diagnosis	ICD-10-CM
Z48.23	Encounter for aftercare following liver transplant	Diagnosis	ICD-10-CM
Z48.24	Encounter for aftercare following lung transplant	Diagnosis	ICD-10-CM
Z48.28	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.280	Encounter for aftercare following heart-lung transplant	Diagnosis	ICD-10-CM
Z48.288	Encounter for aftercare following multiple organ transplant	Diagnosis	ICD-10-CM
Z48.29	Encounter for aftercare following other organ transplant	Diagnosis	ICD-10-CM
Z48.290	Encounter for aftercare following bone marrow transplant	Diagnosis	ICD-10-CM
Z94.1	Heart transplant status	Diagnosis	ICD-10-CM
Z94.2	Lung transplant status	Diagnosis	ICD-10-CM
Z94.3	Heart and lungs transplant status	Diagnosis	ICD-10-CM
Z94.4	Liver transplant status	Diagnosis	ICD-10-CM
Z94.5	Skin transplant status	Diagnosis	ICD-10-CM
Z94.6	Bone transplant status	Diagnosis	ICD-10-CM
Z94.8	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z94.81	Bone marrow transplant status	Diagnosis	ICD-10-CM
Z94.82	Intestine transplant status	Diagnosis	ICD-10-CM
Z94.83	Pancreas transplant status	Diagnosis	ICD-10-CM

**Appendix D. List of International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM), International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS), and Current Procedural Terminology, Fourth Edition (CPT-4) Diagnosis and Procedure Codes Used to Define Exclusion Criteria in this Request**

<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>
Z94.84	Stem cells transplant status	Diagnosis	ICD-10-CM
Z94.89	Other transplanted organ and tissue status	Diagnosis	ICD-10-CM
Z95.3	Presence of xenogenic heart valve	Diagnosis	ICD-10-CM
Z95.4	Presence of other heart-valve replacement	Diagnosis	ICD-10-CM

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

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<b>Code</b>	<b>Description</b>	<b>Code Category</b>	<b>Code Type</b>	<b>Covariate</b>
J7507	Tacrolimus, immediate release, oral, 1 mg	Procedure	HCPCS	Procedure code J7507

**Appendix F. List of Generic and Brand Names and Manufacturer Group for Tacrolimus Products Used to Define the Incidence Criteria and Covariates in this Request**

<b>Generic Name</b>	<b>Brand Name</b>	<b>Manufacturer Group</b>
tacrolimus	Prograf (capsules)	Brand - Astellas
tacrolimus	tacrolimus	Brand - Astellas
tacrolimus	tacrolimus	Generic - Accord
tacrolimus	tacrolimus	Generic - Dr. Reddys
tacrolimus	tacrolimus	Generic - Mylan
tacrolimus	Hecoria	Generic - Sandoz
tacrolimus	tacrolimus	Generic - Sandoz
tacrolimus	Prograf (granules)	Other tacrolimus (other)
tacrolimus	tacrolimus	Other tacrolimus (Panacea)
tacrolimus	tacrolimus	Other tacrolimus (Strides)
tacrolimus	tacrolimus	Other tacrolimus (Watson)

### Appendix G. Specifications Defining Parameters in this Request

In this report we evaluated patterns of initiation of tacrolimus, an immunosuppressant used to prevent allograft rejection subsequent to organ transplant. In particular, we assessed the number of patients in the Sentinel Distributed Database (SDD) receiving inpatient kidney or liver transplants, duration of SDD follow-up time for these transplant recipients, how many of these patients initiated tacrolimus during their inpatient transplant stay, on the discharge date, and after hospital discharge, and, among these initiators, duration of tacrolimus use and reason for censoring.

Purpose	Scenario	Exposure						
		Exposure <sup>1</sup>	Care Setting	Incident with Respect to <sup>2</sup>	Incidence Care Setting	Washout Period	Censor at Death	Cohort Definition
Counts of Liver Transplant Patients with baseline demographic information, (Table 1a) Total follow-up time (Table 3)	1	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from liver transplant until any oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	2	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from liver transplant until Dr Reddy's oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	3	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from liver transplant until Accord oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	4	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from liver transplant until Sandoz oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	5	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure



**Appendix F. Specifications Defining Parameters in this Request**

Scenario	Inclusions/Exclusions				Baseline Characteristics	Outcome (assessed with the baseline table)		
	Conditions	Inclusion/Exclusion	Evaluation Start	Evaluation End	Conditions	Outcome	Care setting	Washout
1	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	See Appendix G	Dummy	N/A	N/A
2	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	See Appendix G	Any Oral Tacrolimus	Any	Entire patient history before admit date
3	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Dr Reddy's Oral Tacrolimus	Any	Entire patient history before admit date
4	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Accord Oral Tacrolimus	Any	Entire patient history before admit date
5	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Sandoz Oral Tacrolimus	Any	Entire patient history before admit date

**Appendix G. Specifications Defining Parameters in this Request**

Purpose	Scenario	Exposure						
		Exposure <sup>1</sup>	Care Setting	Incident with Respect to <sup>2</sup>	Incidence Care Setting	Washout Period	Censor at Death	Cohort Definition
Time from liver transplant until Mylan oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	6	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from liver transplant until Astellas oral tacrolimus initiation (Tables 1b-1e, 2, 4, 5, 6)	7	Liver transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Counts of Kidney Transplant Patients with baseline demographic information, (Table 1f) Total follow-up time (Table 3)	8	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history from admit date	Yes	First valid incident exposure
Time from Kidney transplant until any oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	9	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from Kidney transplant until Dr Reddy's oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	10	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from Kidney transplant until Accord oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	11	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure

**Appendix F. Specifications Defining Parameters in this Request**

Scenario	Inclusions/Exclusions				Baseline Characteristics	Outcome (assessed with the baseline table)		
	Conditions	Inclusion/Exclusion	Evaluation Start	Evaluation End	Conditions	Outcome	Care setting	Washout
6	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Mylan Oral Tacrolimus	Any	Entire patient history before admit date
7	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Astellas Oral Tacrolimus	Any	Entire patient history before admit date
8	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	See Appendix G	Dummy	N/A	N/A
9	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	See Appendix G	Any Oral Tacrolimus	Any	Entire patient history before admit date
10	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Dr Reddy's Oral Tacrolimus	Any	Entire patient history before admit date
11	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Accord Oral Tacrolimus	Any	Entire patient history before admit date

**Appendix G. Specifications Defining Parameters in this Request**

Purpose	Scenario	Exposure <sup>1</sup>	Care Setting	Incident with Respect to <sup>2</sup>	Incidence Care Setting	Washout Period	Censor at Death	Cohort Definition
Time from Kidney transplant until Sandoz oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	12	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from Kidney transplant until Mylan oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	13	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure
Time from Kidney transplant until Astellas oral tacrolimus initiation (Tables 1g-1j, 2, 4, 5, 6)	14	Kidney transplant	Inpatient	Any transplant, any tacrolimus	Any	Entire patient history before admit date	Yes	First valid incident exposure

**Appendix F. Specifications Defining Parameters in this Request**

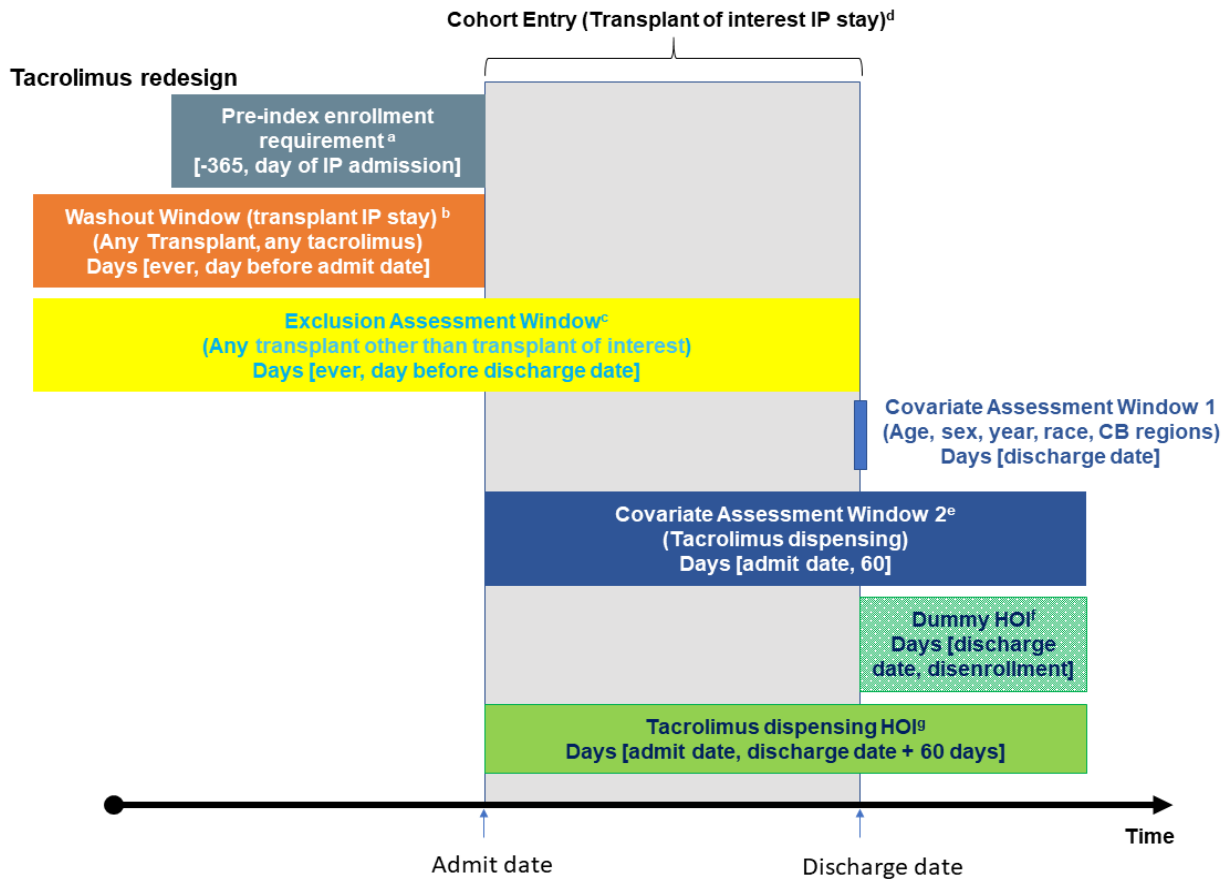
Scenario	Conditions	Inclusion/ Exclusion	Evaluation Start	Evaluation End	Conditions	Outcome	Care setting	Washout
12	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Sandoz Oral Tacrolimus	Any	Entire patient history before admit date
13	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Mylan Oral Tacrolimus	Any	Entire patient history before admit date
14	Any transplant except index transplant (and index-associated codes)	Exclusion	Entire patient history	Day before discharge date	None	Astellas Oral Tacrolimus	Any	Entire patient history before admit date

**Appendix H. Specifications Defining Baseline Characteristics in this Request**

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<b>Covariate</b>	<b>Care Setting</b>	<b>Look Start</b>	<b>Look End</b>
First any oral tacrolimus	N/A	admit date	60 days post-discharge
Generic - Accord	N/A	admit date	60 days post-discharge
Generic - Sandoz	N/A	admit date	60 days post-discharge
Generic - Mylan	N/A	admit date	60 days post-discharge
Brand - Astellas	N/A	admit date	60 days post-discharge
HCPCS code J7507	N/A	admit date	60 days post-discharge
Other	N/A	admit date	60 days post-discharge

**Appendix I. Design Diagram of Cohort Entry Requirements and Assessment Windows**



- a. Up to 45 day gaps in medical or pharmacy enrollment allowed
- b. Washout window is prior to admission date
- c. Exclusion window is prior to discharge date
- d. 2 transplants of interest as separate cohorts: liver and kidney
- e. 6 tacrolimus exposure groups: any tacro, Dr Reddys, Accord, Sandoz, Mylan, Astellas
- f. Dummy outcome (HOI) for transplant cohorts characteristics (tables 1a/b), and follow-up time (table 3)
- g. Tacrolimus outcome for tables 2,4,5,6