



“Quality Improvement through Quality Data”

User Guide for the 2013  
ACS NSQIP  
Procedure Targeted  
Participant Use  
Data File (PUF)

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American College of Surgeons  
National Surgical Quality  
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100+ years

AMERICAN COLLEGE OF SURGEONS

Inspiring Quality:  
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## **Data Update**

We have identified a problem in reported results for three outcome variables that existed in the Classic program, but did not exist in Essentials, between 2011 and 2013.

As it is mandatory to report outcome variables, we have historically converted the absence of an affirmative response (i.e., missing data) to “No Complication”. This otherwise appropriate procedure was mistakenly applied to three outcome variables which were dropped from Essentials beginning in 2011 (Graft failure, Coma, Peripheral Nerve Injury). This logic resulted in “No complication” being assigned to missing data coming from Essential sites where, in fact, no data was being collected for these three outcomes. For the 2013 SAR (when Classic no longer existed) this isn’t much of a problem as users would clearly know that something was wrong when 100% of the cases had “No complication” (for 2014 missing values were inserted for these historical outcome variables rather than “No complication”). However for 2011 and 2012, when some sites were Essentials and some Classic, a PUF user would see a strange, precipitous, drop in event rates for these outcomes.

Because of this problem, Graft failure, Coma, and Peripheral Nerve Injury should not be considered accurate for any PUF after 2010.

## **1. Introduction**

This document, along with the Procedure Targeted User Guide Table, is designed to accompany the 2013 Procedure Targeted Participant Use Data File (PUF) available for download on the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) website ([www.acsnsqip.org](http://www.acsnsqip.org)). The data contained in this version of the Procedure Targeted PUF covers dates of surgery from January 1, 2013 to December 31, 2013. The sections contained herein will provide the user with information on how to request the Procedure Targeted PUF, the contents of the data files, the data collection background, the inclusion and exclusion criteria for cases and hospitals, the data limitations, and the data point definitions and descriptions.

This user guide applies specifically to the 2013 Procedure Targeted PUF. Hospitals utilizing the PUF from a different year should refer to the user guide specifically tailored to that particular data set.

## **2. Merging Cases with the ACS NSQIP PUF**

Using the unique CASE ID variable, target-specific variables can be merged to the main ACS NSQIP adult PUF.

## **3. Data Request Process**

An individual who has an official appointment at a fully enrolled site and wants to obtain a copy of the ACS NSQIP Procedure Targeted PUF can do so by visiting [www.acsnsqip.org](http://www.acsnsqip.org) and following the steps listed below:

1. From the ACS NSQIP main page ([www.acsnsqip.org](http://www.acsnsqip.org)) the requestor can scroll over “Program Specifics” as it appears on the banner. A drop down will appear, follow the drop down and put the mouse over “Quality Support Tools.” As you are over “Quality Support Tools” you will see “Participant Use Data File” appear on the right, click on “Participant Use Data File.”
2. Following a brief introduction, the requestor can click on “Request Data Set.”
3. This will take the requestor to the Data Use Agreement. This is a 3-page document that implements the data protections of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the ACS NSQIP Hospital Participation Agreement. Delivery of the PUF is contingent on agreement to the terms and conditions specified within the Data Use Agreement. You can read the Data Use Agreement from this page or download the 3-page document. The requestor is then required to type in their first and last name

and click on “Request Data File.” By clicking on “Request Data File” the requestor agrees to the terms and conditions of the Data Use Agreement.

4. Requestors will then be required to complete a brief online form to provide ACS with basic information about themselves, including the participating hospital in which they are currently employed and in what capacity, as well as how the requestor plans on using the PUF data. Once all of the required fields are completed, the requestor clicks “Submit.”
5. ACS NSQIP staff will review the request in a timely manner. Program contacts at participating sites will be contacted at this time to confirm the requestor’s affiliation with the hospital and confirm internal approval of the PUF request.
6. Following receipt and confirmation of the information submitted, an email will be sent to the requestor containing a username and password along with the URL to download the data. The web link will be active from the time of the email for 10 full days (240 hours).
7. The file will be available in 3 different formats (SAS, SPSS, and Text) and depending on the connection speed should take between 5 and 30 minutes to download.
8. The requestor may be contacted to confirm receipt of the data file and allow for feedback on the delivery mechanism, data points contained, and data file format.

#### 4. File Description

Each summer/fall a PUF will be made available for the previous calendar year’s data. The Procedure Targeted PUF is available in 1 of 3 different formats - SAS, SPSS and Text.

A brief description of the different formats follows:

##### Vascular:

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_AAA_2013	SAS	384KB	22	692	72
	SPSS	312KB	22	692	72
	TEXT	104KB	22	692	72
PUF_TAR_AIE_2013	SAS	384KB	21	567	34
	SPSS	337KB	21	567	34
	TEXT	141KB	21	567	34
PUF_TAR_AIO_2013	SAS	640KB	21	1,014	53
	SPSS	606KB	21	1,014	53
	TEXT	221KB	21	1,014	53
PUF_TAR_CAS_2013	SAS	192KB	31	177	20
	SPSS	118KB	31	177	20
	TEXT	48KB	31	177	20

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_CEA_2013	SAS	2240KB	29	4,292	83
	SPSS	2587KB	29	4,292	83
	TEXT	1085KB	29	4,292	83
PUF_TAR_EVAR_2013	SAS	1088KB	26	2,277	76
	SPSS	1196KB	26	2,277	76
	TEXT	337KB	26	2,277	76
PUF_TAR_LEE_2013	SAS	1280KB	22	2,018	43
	SPSS	1297KB	22	2,018	43
	TEXT	520KB	22	2,018	43
PUF_TAR_LEO_2013	SAS	1664KB	22	2,646	82
	SPSS	1741KB	22	2,646	82
	TEXT	692KB	22	2,646	82

**Colectomy:**

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
puf_tar_col_2013	SAS	8704KB	22	21,505	154
	SPSS	9916KB	22	21,505	154
	TEXT	3718KB	22	21,505	154

**5. Data Collection Background and Data Quality**

The ACS NSQIP collects data on over 300 variables, including preoperative risk factors, intraoperative variables, and 30-day postoperative mortality and morbidity outcomes for patients undergoing major surgical procedures in both the inpatient and outpatient setting. A site's trained and certified Surgical Clinical Reviewer (SCR) captures these data using a variety of methods including medical chart abstraction.

Required data variables are entered via web-based data collection to the ACS NSQIP website. Portions of the data may be automatically populated by a software program that was developed to extract data from the participating hospital's existing information systems. Requestors should contact the SCR(s) at their hospital for detailed information on how the hospital collects its ACS NSQIP data.



To ensure the data collected are of the highest quality, the ACS NSQIP has developed a host of different training mechanisms for the SCRs and conducts an Inter-Rater Reliability (IRR) Audit of selected participating sites. In addition to an initial web-based training program, the ACS NSQIP requires SCRs to complete a series of web-based training modules followed by a certification exam that must be retaken annually. The modules and certification exam focus on the program, processes, and analysis; preoperative, intraoperative, and postoperative definitions; and case studies. These modules are complemented by a growing online decision support system that ensures the SCRs have the knowledge and resources available to collect high-quality data.

The IRR Audit is a fundamental tool of ACS NSQIP to assess the quality of the data collected at participating sites. The process involves the review of multiple charts, some of which are selected randomly and others selected based on criteria designed to identify potential reporting errors. For example, cases with 5 or more preoperative risk factors and no reported mortality or morbidity or cases with 2 or fewer preoperative risk factors and reported mortality or morbidity will be selected for chart review. Operating room logs are also audited to ensure correct sampling of cases.

The combined results of the audits completed to date revealed an overall disagreement rate of approximately 2% for all assessed program variables. The ACS NSQIP has determined that an IRR Audit disagreement rate of 5% or less is acceptable. Sites that have higher than a 5% disagreement rate are not provided a hospital odds ratio in the ACS NSQIP Semiannual Report and may be required to undergo an additional audit following training and education recommendations from the ACS NSQIP.

## **6. Sampling Process and Case Inclusion/Exclusion Criteria**

Sites participating in the ACS NSQIP can do so in a variety of options that cover general/vascular surgery, multispecialty surgery, or procedure targeted (reported separately). Each participation option includes a systematic sampling process that is described below.

### ***Systematic Sampling Process***

Many hospitals are not able to capture all of the surgical cases that meet the program's inclusion criteria. Therefore, a systematic sampling system called the 8-day cycle was developed to prevent bias in choosing cases for assessment. The SCR uses the 8-day cycle to select completed cases from the hospital's operative log. The schedule works as follows: If the first cycle begins on a Monday, it continues through to the following Monday (an 8-day period of time). The next cycle begins on Tuesday and continues through to the following Tuesday, and so on. There are 46 8-day cycles in 1 year, and the program requires that data be submitted for 42 of those cycles. The process ensures that cases have an equal chance of being selected from each day of the week. Case selection and case mix are monitored by the program on a weekly basis to ensure that the sampling is appropriate.

### ***Case Inclusion Criteria***

The following inclusion criteria were applied to cases collected in 2013. For the current inclusion/exclusion criteria please contact the ACS NSQIP Clinical Support Team at [clinicalsupport@acsnsqip.org](mailto:clinicalsupport@acsnsqip.org).

The ACS NSQIP includes all Major Cases. Major Cases are defined as:

- Cases performed under the following anesthesia types:
  - General
  - Spinal
  - Epidural
  
- The following cases *regardless* of anesthesia type:
  - Carotid endarterectomy
  - Inguinal herniorrhaphy
  - Parathyroidectomy
  - Thyroidectomy
  - Breast lumpectomy
  - Endovascular AAA repair

### ***Case Exclusion Criteria***

The following exclusion criteria were applied to cases collected in 2013. For the current inclusion/exclusion criteria please contact the ACS NSQIP Clinical Support Team at [clinicalsupport@acsnsqip.org](mailto:clinicalsupport@acsnsqip.org).

- Minor Cases (all cases that are not considered Major)
- Patients under the age of 18 years
- More than 3 inguinal herniorrhaphies in an 8-day period
- More than 3 breast lumpectomies in an 8-day period
- Trauma Cases - Specifically: A patient who is admitted to the hospital with acute trauma and has a surgical procedure(s) for that trauma will be excluded. Any operation performed after the patient has been discharged from the trauma stay will be included.
- Transplant Cases - Specifically: A patient who is admitted to the hospital for a transplant and has a transplant procedure and any additional surgical procedure during the transplant hospitalization will be excluded. Any operation performed after the patient has been discharged from the transplant stay will be included.  
ASA 6 (brain-dead organ donors)

- Concurrent Cases - An additional operative procedure performed by a different surgical team under the same anesthetic (for example, coronary artery bypass graft procedure on a patient who is also undergoing a carotid endarterectomy). An assessment is not required on the concurrent procedure; however, additional procedures would be repeated as “concurrent” in the operative section for the assessed case.
- Cases with CPT codes not on the CPT Code Inclusion List
- SCR on vacation - Each site is allowed to assign 4 of the 8-day cycles as vacation cycles and therefore does not need to collect cases during those cycles.

### ***Hospital Exclusion Criteria***

In addition to the case inclusion/exclusion criteria, hospital inclusion/exclusion criteria are also imposed. To maintain the highest level of data quality, only cases included in the odds ratio analysis are included in the PUF. These cases go through an additional level of scrutiny as they are passed from data collection to statistical analysis. A site is excluded from the odds ratio calculations and the PUF if it fits any of the following criteria:

- 30-day follow-up rate is under 80%
- Inter-Rater Reliability Audit disagreement rate is over 5%

### ***Measures Sites Excluded***

Due to the small number of “Measures” sites enrolled in ACS NSQIP, cases from “Measures” sites have been removed from the PUF dataset in order to protect against possible identification of those sites and cases.

## 7. Data Limitations

While every effort has been made to make the PUF as complete as possible, the data do have certain limitations. Some of these limitations have been deliberately introduced to safeguard the privacy of patients (such as removal of absolute dates). Other limitations are due to resource constraints (such as the collection of generic surgical variables only, except for the procedure targeted option, which is reported separately). The following items represent the most salient limitations of the data:

- Because such a wide variety of operations are tracked, the variables are necessarily generic in nature. This limitation may pose difficulties for researchers attempting in-depth research on specific conditions or operations.
- While the sex and race distributions are reasonably representative of the national surgery patient population, only patients over the age of 18 are available for assessment, so the age distribution is somewhat truncated. Patients over the age of 90 are also grouped into a 90+ category to prevent cases from being identifiable due to unique data.
- Patients are followed after surgery for a maximum of 30 days. Complications or death after that period are not included. Hospitals may follow patients longer than 30 days, but this data is not reported by NSQIP.
- In order to comply with HIPAA requirements, all absolute dates have been removed. The most critical of these is the date of surgery, which has been reduced to year of surgery only. Some dates (hospital entry, dates of laboratory tests, and so on) have been recoded into durations e.g. Date of Admission and Date of Discharge is recoded into Hospital Length of Stay.
- In order to comply with the Hospital Participation Agreement (HPA) that is agreed to between the ACS and participating sites, facility identifiers as well as geographic information regarding the case have been removed. The HPA stipulates that the ACS does not identify participating sites. Site identification could be possible even with blinded identifiers through advanced statistics. A stipulation of access to the PUF is completion of the Data Use Agreement that strictly prohibits attempts to identify hospitals, health care providers, or patients.
- While many risk factors are tracked, preventative measures are not recorded which can lead to an underestimation of the risk of certain conditions when such measures are routinely taken before surgery.

- The data are submitted from hospitals that are participating in the ACS NSQIP and do not represent a statistically valid nationally representative sample.
- Most patients do not receive all possible preoperative laboratory tests, so some of these variables have a high percentage of missing values (15% to 45%, depending on the tests). This high percentage of missing data can make it problematic to use these variables in a traditional logistic regression model as well as in many other types of analysis.

This list may not include all data limitations and additional limitations may apply in future versions of the data.

## **8. Contact Information**

All questions about the Procedure Targeted User Guide or PUF, as well as comments and suggestions for improvements are welcome and may be directed to Brian Matel, ACS NSQIP Statistical Report Manager, via email at [bmatel@facs.org](mailto:bmatel@facs.org).

## **9. Frequently Asked Questions**

### **Request Process**

Q: Who has access to this file?

A: Any individual with an official appointment at a fully participating site will be given access to the file following completion of the Data Use Agreement and a short set of questions that are available on the website.

Q: Is the file available to individuals from nonparticipating sites?

A: At this time the data files are only available to individuals with official appointments at fully participating sites.

Q: I am at a participating site and would like to work on a research project with others from a different site that is not participating. Will I be allowed to do that?

A: No. At this time use of the file is restricted to individuals at fully participating sites.

Q: How do I obtain a copy of this file?

A: Please see the “Data Request Process” on page 1 of this document for a step-by-step approach on how to do so.

## Contents of the Files

Q: What is in this file?

A: The file contains Health Insurance Portability and Accountability Act (HIPAA) de-identified data from sites participating in the ACS NSQIP that received odds ratios in 2013. Each record includes 305 variables. The variable name, variable label, data definition, and other pertinent information are provided in Section 10: Data Variables and Definitions.

Q: Are other Procedure Targeted PUF data sets available?

A: Two earlier versions of the Procedure Targeted PUF files are available for download:  
2011-2012 Vascular PUF – 655 cases from 71 sites  
2011-2012 Colectomy PUF – 16,981 cases from 121 sites

Q: Where can I find the Procedure Targeted variables and definitions?

A: You can contact your site's SCR for the Procedure Targeted Variables and Definitions.

Q: What other reference materials are available?

A: Other PUF reference materials include the ACS NSQIP Targeted Procedure Materialized Views, also available through your site's SCR.

Q: Are site identifiers included in the database?

A: At this time we do not provide any geographic or site-specific identification. We took this approach to ensure the privacy of both the participating sites and surgeons.

Q: Are there surgeon-specific identifiers included in the database?

A: At this time we do not provide any surgeon-specific information. We took this approach to ensure the privacy of both the participating sites and surgeons.

Q: Why does the PUF exclude specific dates?

A: In order to release the PUF, certain adjustments to the data are required to ensure proper protection of patient information. To meet these requirements, we remove all elements of dates (except quarter of admission and year) for dates directly related to an individual. For more information on the 18 data elements that are required for removal, please visit: <http://privacyruleandresearch.nih.gov/>  
[http://privacyruleandresearch.nih.gov/pdf/HIPAA\\_Booklet\\_4-14-2003.pdf](http://privacyruleandresearch.nih.gov/pdf/HIPAA_Booklet_4-14-2003.pdf).

- Q: The ACS NSQIP program collects over 150 variables, but the database contains 305 variables. What are the additional variables?
- A: The additional variables contained in the PUF relate to computed durations. For example, the admission and discharge dates are used to calculate hospital length of stay. In addition, each complication in the ACS NSQIP requires the use of 3 different variables in the database. There are a few other data elements collected in the ACS NSQIP that require multiple variables in the database. In 2008, we've removed RACE variable but added RACE\_NEW and ETHNICITY\_HISPANIC variables to comply with the CMS standard.
- Q: I am the Surgeon Champion or Surgical Clinical Reviewer from a site that has records in the PUF and would like to know which specific records are ours.
- A: You may contact Brett Beemer, ACS NSQIP Application Support Specialist, via email at [bbeemer@facs.org](mailto:bbeemer@facs.org) to request a file that will contain the Case IDs from your facility.

### Values in the Data

- Q: For each of the following complications, Pneumonia, On Ventilator > 48 hours, Urinary Tract Infection, and Bleeding Transfusion, one case did not have a known duration from operation to complication. Why is that?
- A: In each of these complications the case had an invalid date which inhibited the calculation of duration. The number of days from operation to complication variable is coded as -99 for these cases.
- Q: What are the probability scores for mortality and morbidity and how often are they calculated?
- A: The probabilities of mortality and morbidity are provided in this database for all surgery cases in 2013. These probabilities are derived using hierarchical regression analysis, but based only on patient-level effects. They represent the probability (0 to 1) that a case will experience a morbid or mortal event based on the pre-existing conditions. These probabilities are calculated every 6 months for the previous 12 months of data so the algorithm used to generate the predicted values changes over time as does the data used to create the algorithm.
- Q: Which calculated probabilities of mortality and morbidity are supplied in this data set?
- A: The probabilities of mortality and morbidity for all surgical cases used in the risk-adjusted analysis in 2013 are provided. Future versions of the PUF may contain a more complete set of predictive values.

- Q: Why do some of the preoperative lab values have duration from lab to operation, but a value of -99 for the lab value?
- A: The results of the lab tests can be entered manually and thus are susceptible to data entry error. Depending on the preoperative lab variable roughly 1% of the cases had invalid values and these invalid values were set to -99 to simplify analysis. It is also possible that some cases have valid lab values, but are missing duration from lab to operation variable. This discrepancy is also related to a data entry error and the program continues to improve the data collection software to minimize the potential for data entry errors.
- Q: When performing analysis on the five digit CPT codes in the Other and Concurrent variables, how should I interpret those cases with a valid 5 digit CPT code but a CPT description set to NULL?
- A: If the case has a valid 5 digit CPT code that procedure occurred and should be evaluated as such. The CPT description is a secondary variable and provided for convenience. In the processing of large amounts of data some descriptions are purposefully or inadvertently removed.

### **File Formats**

- Q: In what file formats are the data available?
- A: The data files are made available in a tab delimited TXT file, an SPSS file, and a SAS file.



**Targeted Vascular****Target AAA (Abdominal Aortic Aneurysm)**

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	AAA_SURGIND	CHAR	Indication for Surgery	Diameter Dissection Embolization Non-ruptured symptomatic Not documented Prior endovascular intervention w/ unsatisfactory result Prior open intervention w/ unsatisfactory result Rupture w/ hypotension or use of pressors Rupture w/out hypotension Thrombosis
3	AAA_ANDIAM	NUM	Aneurysm Diameter	-99=missing
4	AAA_ANDIAM_UNK	NUM	Aneurysm Diameter Unknown	-99=missing
5	AAA_PAAS	CHAR	Prior Open Abdominal Surgery	No Unknown Yes
6	AAA_SURGAP	CHAR	Surgical Approach	Not documented Retroperitoneal Transperitoneal-midline Transperitoneal-transverse
7	AAA_PCL	CHAR	Proximal Clamp Location	Above one renal Between SMA CHR(38) renals Infrarenal Not documented Supraceliac
8	AAA_PAE	CHAR	Proximal Aneurysm Extent	Infrarenal Juxtarenal Not documented Pararenal Supra-renal Type IV Thoracoabdominal aneurysm
9	AAA_DISTEXT	CHAR	Distal Extent	Aortic Common iliac External iliac Internal iliac Not documented
10	AAA_MIMA	CHAR	Management of Inferior Mesenteric Artery	Chronically occluded Implanted Ligated Not documented
11	AAA_CP_RENVASC	CHAR	Renal Revascularization	No Yes
12	AAA_CP_VISCREVASC	CHAR	Visceral (SMA & celiac) Revascularization	No Yes
13	AAA_CP_LER	CHAR	Lower Extremity Revascularization (LER)	No Yes
14	AAA_CP_ARE	CHAR	Abdominal, non-arterial repair or excision	No Yes
15	AAA_COLITIS	CHAR	Ischemic Colitis	No Yes
16	AAA_DCOLITIS	NUM	Days from operation to Ischemic Colitis	-99=missing
17	AAA_COLITIIS_TREAT	CHAR	Ischemic Colitis Treatment	Medical treatment NULL=missing Not documented Surgical treatment
18	AAA_LEI	CHAR	Lower Extremity Ischemia	No Yes
19	AAA_DLEI	NUM	Days from operation to Lower Extremity Ischemia	-99=missing
20	AAA_ROA	CHAR	Rupture of Aneurysm	No Yes
21	AAA_DROA	NUM	Days from operation to Rupture of Aneurysm	-99=missing
22	AAA_ICULOS	CHAR	Intensive Care Unit LOS	

## Targeted Vascular

## Targeted AIE (Aortoiliac Endo)

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	AIE_PROC	CHAR	Procedure	Aortic angioplasty/stenting Bilateral common iliac (kissing) angioplasty/stenting Common and external iliac angioplasty/stenting Common iliac angioplasty/stenting External iliac angioplasty/stenting Not documented
3	AIE_SYMPT	CHAR	Symptomatology	Asymptomatic Claudication Critical limb ischemia: rest pain Critical limb ischemia: tissue loss Not documented
4	AIE_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
5	AIE_HRF_ANAT	CHAR	High Risk Factors, Anatomic	None/Not documented Prior ipsilateral bypass involving currently treated segment Prior ipsilateral percutaneous intervention involving currently treated segment
6	AIE_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Unknown Yes
7	AIE_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No Unknown Yes
8	AIE_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Unknown Yes
9	AIE_PREHEMO	CHAR	Preprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" Not documented
10	AIE_ULP	CHAR	Untreated Loss of Patency	No Yes
11	AIE_DULP	NUM	Days from operation until Untreated Loss of Patency	-99=missing
12	AIE_BLEEDING	CHAR	Bleeding Requiring Transfusion or Secondary Procedure	No Yes
13	AIE_DBLEEDING	NUM	Days from operation until Bleeding Requiring Transfusion or Secondary Procedure	-99=missing
14	AIE_MI_STROKE	CHAR	Myocardial Infarction or Stroke	No Yes
15	AIE_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	AIE_WOUND	CHAR	Wound Infection/Complication	No Yes
17	AIE_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing

## Targeted AIE (Aortoiliac Endo), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
18	AIE_POSTHEMO	CHAR	Postprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI not performed w/in 30 days; evidence of patient clinically well ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" None/Not documented
19	AIE_MOSTSEVOUTCOME	CHAR	Most Severe Procedural Outcome	Death Major Amputation New bypass in the treated arterial segment Not documented Patent treated arterial segment with stenosis Patent treated arterial segment, no stenosis Reintervened treated arterial segment with no stenosis Reintervened treated arterial segment with stenosis Thrombosis with no planned intervention
20	AIE_MRTAS	CHAR	Major Reintervention of Treated Arterial Segment	No Yes
21	AIE_AMPUTATION	CHAR	Major Amputation (Transtibial or Proximal)	No Yes

## Targeted Vascular

## Targeted AIO (Aortoiliac open)

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	AIO_PROC	CHAR	Procedure	NULL=missing
3	AIO_SYMPT	CHAR	Symptomatology	Asymptomatic Claudication Critical limb ischemia: rest pain Critical limb ischemia: tissue loss Not documented
4	AIO_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
5	AIO_HRF_ANAT	CHAR	High Risk Factors, Anatomic	None/Not documented Prior abdominal surgery Prior ipsilateral bypass involving currently treated segment  Prior ipsilateral percutaneous intervention involving currently treated segment
6	AIO_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Unknown Yes
7	AIO_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No Unknown Yes
8	AIO_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Unknown Yes
9	AIO_PREHEMO	CHAR	Preprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure < 30 mm Hg ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" Not documented
10	AIO_ULP	CHAR	Untreated Loss of Patency	NULL=missing No Yes
11	AIO_DULP	NUM	Days from operation until Untreated Loss of Patency	-99=missing
12	AIO_BLEEDING	CHAR	Bleeding Requiring Transfusion or Secondary Procedure	NULL=missing No Yes
13	AIO_DBLEEDING	NUM	Days from operation until Bleeding Requiring Transfusion or Secondary Procedure	-99=missing
14	AIO_MI_STROKE	CHAR	Myocardial Infarction or Stroke	NULL=missing No Yes
15	AIO_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	AIO_WOUND	CHAR	Wound Infection/Complication	NULL=missing No Yes
17	AIO_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing

## Targeted AIO (Aortoiliac open), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
18	AIO_POSTHEMO	CHAR	Postprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed w/in 30 days; evidence of patient clinically well ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" NULL=missing None/Not documented
19	AIO_MOSTSEVOUTCOME	CHAR	Most Severe Procedural Outcome	Death Image-proven treated arterial segment thrombosis or clinically evident thrombosis with no planned intervention Major Amputation NULL=missing New bypass in the treated arterial segment Not documented Patent treated arterial segment with stenosis Patent treated arterial segment, no stenosis Reintervened treated arterial segment with no stenosis Reintervened treated arterial segment with stenosis
20	AIO_MRTAS	CHAR	Major Reintervention of Treated Arterial Segment	NULL=missing No Yes
21	AIO_AMPUTATION	CHAR	Major Amputation (Transtibial or Proximal)	NULL=missing No Yes

**Targeted Vascular****Targeted CAS (Carotid Artery Stenting)**

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	CAS_PROC	CHAR	Procedure	Multiple stents Multiple stents with CPD Not documented Single straight stent Single straight stent with cerebral protection device (CPD) Single tapered stent Single tapered stent with CPD
3	CAS_SYMPT	CHAR	Symptomatology	Amaurosis fugax or TMB, ipsilateral Asymptomatic Not documented Stroke, ipsilateral Transient ischemic attack, ipsilateral
4	CAS_MODRANKIN	CHAR	Modified Rankin Scale	0-No symptoms 1-No significant disability 2-Slight disability 3-Moderate disability 4-Moderately severe disability 5-Severe disability NULL=missing No Rankin Scale given
5	CAS_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
6	CAS_HRF_ANAT	CHAR	High Risk Factors, Anatomic	No Unknown Yes
7	CAS_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Yes
8	CAS_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No Yes
9	CAS_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Yes
10	CAS_BS_IPSICA	CHAR	Baseline Doppler Ultrasound or Angiogram, ipsilateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
11	CAS_BS_CONICA	CHAR	Baseline Doppler Ultrasound or Angiogram, contralateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
12	CAS_EMBOLIZ	CHAR	Embolization	No Yes
13	CAS_DEMBOLIZ	NUM	Days from operation until Embolization	-99=missing
14	CAS_THROMB	CHAR	Thrombosis/Occlusive dissection/Vessel Closure	No Yes
15	CAS_DTHROMB	NUM	Days from operation until Thrombosis/Occlusive dissection/Vessel Closure	-99=missing
16	CAS_MIA	CHAR	MI / Arrhythmia	No Yes
17	CAS_DMIA	NUM	Days from operation until MI/Arrhythmia	-99=missing
18	CAS_STROKE	CHAR	Stroke	No Yes
19	CAS_DSTROKE	NUM	Days from operation until Stroke	-99=missing

## Targeted CAS (Carotid Artery Stenting), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
20	CAS_RANKIN	CHAR	Rankin Scale	2-Slight disability 4-Moderately severe disability NULL=missing No Rankin Scale given
21	CAS_TIA	CHAR	TIA/Amaurosis Fugax/TMB	No Yes
22	CAS_DTIA	NUM	Days from operation until TIA/Amaurosis Fugax/TMB	-99=missing
23	CAS_PUNCTURE	CHAR	Puncture Site	No Yes
24	CAS_DPUNCTURE	NUM	Days from operation until Puncture Site	-99=missing
25	CAS_RESTENOSIS	CHAR	Restenosis	No Yes
26	CAS_DRESTENOSIS	NUM	Days from operation until Restenosis	-99=missing
27	CAS_DISTEMB	CHAR	Distal Embolization	No Yes
28	CAS_DDISTEMB	NUM	Days from operation until Distal Embolization	-99=missing
29	CAS_MOSTSEVOUTCOME	CHAR	Most Severe Clinical Outcome	NULL=missing
30	CAS_FUP_IPSICA	CHAR	Follow-up Doppler Ultrasound or Angiogram, ipsilateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
31	CAS_LESREVASC	CHAR	Target Lesion Revascularization	No Yes

**Targeted Vascular****Targeted CEA (Carotid Endarterectomy)**

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	CEA_PROC	CHAR	Procedure	Carotid Endarterectomy Carotid Endarterectomy w/ patch angioplasty Carotid Endarterectomy w/ patch angioplasty & shunt Carotid Endarterectomy w/ shunt Eversion Carotid Endarterectomy Not documented
3	CEA_SYMPT	CHAR	Symptomatology	Amaurosis fugax or TMB, ipsilateral Asymptomatic Not documented Stroke, ipsilateral Transient ischemic attack, ipsilateral
4	CEA_MODRANKIN	CHAR	Modified Rankin Scale	0-No symptoms 1-No significant disability 2-Slight disability 3-Moderate disability 4-Moderately severe disability 5-Severe disability NULL=missing No Rankin Scale given
5	CEA_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
6	CEA_HRF_ANAT	CHAR	High Risk Factors, Anatomic	No Unknown Yes
7	CEA_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Unknown Yes
8	CEA_PREMED_STATIN	CHAR	Pre-procedural Medication-Statins	No Unknown Yes
9	CEA_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Unknown Yes
10	CEA_BS_IPSICA	CHAR	Baseline Doppler Ultrasound or Angiogram, ipsilateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
11	CEA_BS_CONICA	CHAR	Baseline Doppler Ultrasound or Angiogram, contralateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
12	CEA_ACUTEREV	CHAR	Acute Occlusion/Technical Defects Requiring Revision	No Yes
13	CEA_DACUTEREV	NUM	Days from operation until Acute Occlusion/Technical Defects Requiring Revision	-99=missing
14	CEA_CNI	CHAR	Cranial Nerve Injury	No Yes
15	CEA_DCNI	NUM	Days from operation until Cranial Nerve Injury	-99=missing
16	CEA_MIA	CHAR	MI / Arrhythmia	No Yes
17	CEA_DMIA	NUM	Days from operation until MI/Arrhythmia	-99=missing



## Targeted CEA (Carotid Endarterectomy), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
18	CEA_STROKE	CHAR	Stroke	No Yes
19	CEA_DSTROKE	NUM	Days from operation until Stroke	-99=missing
20	CEA_RANKIN	CHAR	Rankin Scale	0-No symptoms 1-No significant disability 2-Slight disability 3-Moderate disability 4-Moderately severe disability 5-Severe disability 6-Dead NULL=missing No Rankin Scale given
21	CEA_TIA	CHAR	TIA/Amaurosis Fugax/TMB	No Yes
22	CEA_DTIA	NUM	Days from operation until TIA/Amaurosis Fugax/TMB	-99=missing
23	CEA_RESTENOSIS	CHAR	Restenosis	No Yes
24	CEA_DRESTENOSIS	NUM	Days from operation until Restenosis	-99=missing
25	CEA_DISTEMB	CHAR	Distal Embolization	No Yes
26	CEA_DDISTEMB	NUM	Days from operation until Distal Embolization	-99=missing
27	CEA_MOSTSEVOUTCOME	CHAR	Most Severe Clinical Outcome	NULL=missing
28	CEA_FUP_IPSICA	CHAR	Follow-up Doppler Ultrasound or Angiogram, ipsilateral ICA stenosis	Mild or no stenosis (estimate of <50%) Moderate stenosis (estimate of 50%-79%) Not performed Severe stenosis (estimate of 80% to 99%) Total occlusion (estimate of 100%)
29	CEA_LESREVASC	CHAR	Target Lesion Revascularization	No Yes

## Targeted Vascular

## Targeted EVAR (Endovascular Aneurysm Repair)

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	EVAR_SURGIND	CHAR	Indication for Surgery	Diameter Dissection Embolization Non-ruptured symptomatic Not documented Prior endovascular intervention w/ unsatisfactory result Prior open intervention w/ unsatisfactory result Rupture w/ hypotension or use of pressors Rupture w/out hypotension Thrombosis
3	EVAR_ANDIAM	NUM	Aneurysm Diameter ("cm")	-99=missing
4	EVAR_ANDIAM_UNK	NUM	Unknown	-99=missing
5	EVAR_PAAS	CHAR	Prior Abdominal Aortic Surgery	No Unknown Yes
6	EVAR_ACCESS	CHAR	Access	Attempted percutaneous access converted to open cutdown Bilateral groin cutdown Not documented One groin cutdown Percutaneous bilateral
7	EVAR_MBD	CHAR	Main Body Device	Cook Zenith Cook Zenith Fenestrated Cook Zenith Renu Endologix Powerlink Gore Excluder Lombard Aorfix Medtronic AneuRx Medtronic Endurant Medtronic TALENT Not documented Other TriVascular Ovation
8	EVAR_ACOP	CHAR	Acute Conversion to Open Procedure	No Unknown Yes
9	EVAR_PAE	CHAR	Proximal Aneurysm Extent	Infrarenal Juxtarenal Not documented Pararenal Supra-renal Type IV Thoracoabdominal aneurysm
10	EVAR_DISTEXT	CHAR	Distal Extent	Aortic Common iliac External iliac Internal iliac Not documented
11	EVAR_CP_ACCESS	CHAR	Access Vessels (Conduit, Repair)	No Yes
12	EVAR_CP_RENALSTENT	CHAR	Renal Stent	No Yes
13	EVAR_CP_HYOEMB	CHAR	Hypogastric Embolization	No Yes
14	EVAR_CP_HYOEVASC	CHAR	Hypogastric Revascularization	No Yes
15	EVAR_CP_LEREVASC	CHAR	Lower Extremity Revascularization	No Yes
16	EVAR_CP_ILIACBD	CHAR	Iliac Branched Device	No Yes

## Targeted EVAR (Endovascular Aneurysm Repair), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
17	EVAR_CP_AORTICSTENT	CHAR	Aortic (Bare Metal) Stent	No Yes
18	EVAR_CP_ILIACSTENT	CHAR	Iliac (Bare Metal) Stent	No Yes
19	EVAR_COLITIS	CHAR	Ischemic Colitis	No Yes
20	EVAR_DCOLITIS	NUM	Days from operation until Ischemic Colitis	-99=missing
21	EVAR_COLITIIS_TREAT	CHAR	Ischemic Colitis Treatment	Medical treatment NULL=missing Not documented Surgical treatment
22	EVAR_LEI	CHAR	Lower Extremity Ischemia	No Yes
23	EVAR_DLEI	NUM	Days from operation until Low Extremity Ischemic	-99=missing
24	EVAR_ROA	CHAR	Rupture of Aneurysm	No Yes
25	EVAR_DROA	NUM	Days from operation until Rupture of Aneurysm	-99=missing
26	EVAR_ICULOS	CHAR	Intensive Care Unit LOS	

**Targeted Vascular**

## Targeted LEE (Lower Extremity endo)

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	LEE_PROC	CHAR	Procedure	Femoropopliteal angioplasty/stenting/atherectomy Not documented Tibial angioplasty/stenting
3	LEE_SYMPT	CHAR	Symptomatology	Asymptomatic Claudication Critical limb ischemia: rest pain Critical limb ischemia: tissue loss Not documented
4	LEE_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
5	LEE_HRF_ANAT	CHAR	High Risk Factors, Anatomic	None/Not documented Prior ipsilateral bypass involving currently treated segment Prior ipsilateral percutaneous intervention involving currently treated segment
6	LEE_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Unknown Yes
7	LEE_PREMED_STATIN	CHAR	Pre-procedural Medication-Statins	No Unknown Yes
8	LEE_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Unknown Yes
9	LEE_PREHEMO	CHAR	Preprocedural Hemodynamics of Treated Leg	ABI 0.90 - 1.29 ABI 0.40 - 0.89 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure < 30 mm Hg ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" None/Not documented
10	LEE_ULP	CHAR	Untreated Loss of Patency	No Yes
11	LEE_DULP	NUM	Days from operation until Untreated Loss of Patency	-99=missing
12	LEE_BLEEDING	CHAR	Bleeding Requiring Transfusion or Secondary Procedure	No Yes
13	LEE_DBLEEDING	NUM	Days from operation until Bleeding Requiring Transfusion or Secondary Procedure	-99=missing
14	LEE_MI_STROKE	CHAR	Myocardial Infarction or Stroke	No Yes
15	LEE_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	LEE_WOUND	CHAR	Wound Infection/Complication	No Yes
17	LEE_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing

Targeted LEE (Lower Extremity endo), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
18	LEE_POSTHEMO	CHAR	Postprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89
				ABI 0.90 - 1.29
				ABI <= 0.39
				ABI >= 1.30; arteries "noncompressible", no toe pressure taken
				ABI >= 1.30; arteries "noncompressible", toe pressure < 30 mm Hg
				ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg
				ABI not performed w/in 30 days; evidence of patient clinically well
				ABI not performed; "not palpable"
				ABI not performed; ipsilateral pedal pulse "palpable"
				None/Not documented
19	LEE_MOSTSEVOUTCOME	CHAR	Most Severe Procedural Outcome	Clinically Patent Graft
				Death
				Image-proven treated arterial segment thrombosis or clinically evident thrombosis with no planned intervention
				Major Amputation
				New bypass in the treated arterial segment
				Not documented
				Other
				Patent treated arterial segment with stenosis
				Patent treated arterial segment, no stenosis
				Reintervened treated arterial segment with no current stenosis
Reintervened treated arterial segment with stenosis				
20	LEE_DMOSTSEVOUTCOME	NUM	Days from operation until Most Severe Procedural Outcome	-99=missing
21	LEE_MRTAS	CHAR	Major Reintervention of Treated Arterial Segment	No
				Yes
22	LEE_AMPUTATION	CHAR	Major Amputation (Transtibial or Proximal)	No
				Yes

**Targeted Vascular**

## Targeted LEO (Lower Extremity open)

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	LEO_PROC	CHAR	Procedure	Femoral distal bypass w/ prosthetic/spliced vein/composite Femoral distal bypass w/ single segment saphenous vein Femoral endarterectomy Femoropopliteal bypass w/ single segment saphenous vein Femoropopliteal bypass w/prosthetic/spliced vein/composite NULL=missing Not documented or Other) Popliteal distal bypass w/ prosthetic/spliced vein/composite or non-saphenous conduit Popliteal distal w/ single segment saphenous vein Profundoplasty
3	LEO_SYMPT	CHAR	Symptomatology	Asymptomatic Claudication Critical limb ischemia: rest pain Critical limb ischemia: tissue loss Not documented
4	LEO_HRF_PHYS	CHAR	High Risk Factors, Physiologic	No Unknown Yes
5	LEO_HRF_ANAT	CHAR	High Risk Factors, Anatomic	None/Not documented Prior ipsilateral bypass involving currently treated segment Prior ipsilateral percutaneous intervention involving currently treated segment
6	LEO_PREMED_ASPIRIN	CHAR	Pre-procedural Medication-Aspirin/Clopidogrel	No Unknown Yes
7	LEO_PREMED_STATIN	CHAR	Pre-procedural Medication-Statins	No Unknown Yes
8	LEO_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No Unknown Yes
9	LEO_PREHEMO	CHAR	Preprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure < 30 mm Hg ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" None/Not documented
10	LEO_ULP	CHAR	Untreated Loss of Patency	NULL=missing No Yes
11	LEO_DULP	NUM	Days from operation until Untreated Loss of Patency	-99=missing
12	LEO_BLEEDING	CHAR	Bleeding Requiring Transfusion or Secondary Procedure	NULL=missing No Yes

## Targeted LEO (Lower Extremity open), Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
13	LEO_DBLEEDING	NUM	Days from operation until Bleeding Requiring Transfusion or Secondary Procedure	-99=missing
14	LEO_MI_STROKE	CHAR	Myocardial Infarction or Stroke	NULL=missing No Yes
15	LEO_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	LEO_WOUND	CHAR	Wound Infection/Complication	NULL=missing No Yes
17	LEO_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing
18	LEO_POSTHEMO	CHAR	Postprocedural Hemodynamics of Treated Leg	ABI 0.40 - 0.89 ABI 0.90 - 1.29 ABI <= 0.39 ABI >= 1.30; arteries "noncompressible", no toe pressure taken ABI >= 1.30; arteries "noncompressible", toe pressure < 30 mm Hg ABI >= 1.30; arteries "noncompressible", toe pressure >= 30 mm Hg ABI not performed w/in 30 days; evidence of patient clinically well ABI not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable" NULL=missing None/Not documented
19	LEO_MOSTSEVOUTCOME	CHAR	Most Severe Procedural Outcome	Clinically Patent Graft Death Image-proven graft thrombosis or clinically evident thrombosis with no planned intervention Major Amputation NULL=missing New bypass in the treated arterial segment Not documented Other Patent graft with stenosis Patent graft, no stenosis Revised graft with stenosis Revised graft, no current stenosis
20	LEO_DMOSTSEVOUTCOME	NUM	Days from operation until Most Severe Procedural Outcome	-99=missing
21	LEO_MRB	CHAR	Major reintervention on the bypass	No Yes
22	LEO_AMPUTATION	CHAR	Major Amputation (Transtibial or Proximal)	No Yes

**Targeted Colectomy**

**Target Colectomy**

Position #	Variable Name	Data Type	Variable Label	Variable Options
1	CASEID	NUM	CASEID	You need this unique CASEID to merge with regular PUF dataset.
2	COL_STEROID	CHAR	Steroid/Immunosuppressant Use for Inflammatory Bowel Disease	NULL=missing No Yes
3	COL_STEROID_UNK	NUM	Steroid/Immunosuppressant Use Unknown	-99=missing
4	COL_MECH_BOWEL_PREP	CHAR	Preoperative Mechanical Bowel Prep	NULL=missing No Yes
5	COL_MECH_BOWEL_PREP_UNK	NUM	Preoperative Mechanical Bowel Prep Unknown	-99=missing
6	COL_ORAL_ANTIANTIBIOTIC	CHAR	Preoperative Oral Antibiotic Prep	NULL=missing No Yes
7	COL_ORAL_ANTIANTIBIOTIC_UNK	NUM	Preoperative Oral Antibiotic Prep Unknown	-99=missing
8	COL_CHEMO	CHAR	Chemotherapy within 90 Days	NULL=missing No Yes
9	COL_CHEMO_UNK	NUM	Chemotherapy within 90 Days Unknown	-99=missing
10	COL_INDICATION	CHAR	Primary Indication for Surgery	Acute diverticulitis Bleeding Chronic diverticular disease Colon cancer Colon cancer w/ obstruction Crohn's Disease Enterocolitis (e.g. C. Difficile) Non-malignant polyp Other-Enter ICD-9 for diagnosis Ulcerative colitis Unknown Volvulus
11	COL_ICD9_INDICATION	CHAR	ICD9 for Indication	
12	COL_EMERGENT	CHAR	Indication for Surgery if Emergent	Bleeding NULL=missing Obstruction Other (enter ICD-9 code) Perforation Toxic colitis (Toxic Megacolon, C. diff w/out perforation, Ischemic Colitis) Unknown
13	COL_ICD9_EMERGENT	CHAR	ICD9 for Emergent Surgery	
14	COL_APPROACH	CHAR	Operative Approach	Endoscopic w/ open assist Endoscopic w/ unplanned conversion to open Hybrid Hybrid w/ open assist Hybrid w/ unplanned conversion to open Laparoscopic Laparoscopic w/ open assist Laparoscopic w/ unplanned conversion to open NOTES w/ open assist Open (planned) Other Other MIS approach Other MIS approach w/ open assist Other MIS approach w/ unplanned conversion to open Robotic Robotic w/ open assist Robotic w/ unplanned conversion to open SILS SILS w/ open assist SILS w/ unplanned conversion to open Unknown



## Target Colectomy, Continued

Position #	Variable Name	Data Type	Variable Label	Variable Options
15	COL_MARGINS	CHAR	Positive Margins	NULL=missing
16	COL_MARGINS_UNK	NUM	Positive Margins Unknown	-99=missing
17	COL_MALIGNANCYT	CHAR	If Malignancy, Pathologic T Stage	N/A T0 T1 T2 T3 T4 T4a T4b Tis Tx Unknown
18	COL_MALIGNANCYN	CHAR	If Malignancy, Pathologic N Stage	N/A N0 N1 N1a N1b N1c N2 N2a N2b Nx Unknown
19	COL_MALIGNANCYM	CHAR	If Malignancy, Pathologic M Stage	M0/Mx M1 M1a M1b N/A Unknown
20	COL_ANASTOMOTIC	CHAR	Anastomotic Leak	Leak, no treatment intervention documented Leak, treated w/ interventional means Leak, treated w/ non-interventional/non-operative means  Leak, treated w/ reoperation No definitive diagnosis of leak/leak related abscess Unknown
21	COL_ILEUS	CHAR	Prolonged Postoperative Ileus	NULL=missing No Yes
22	COL_ILEUS_UNK	NUM	Prolonged Postoperative Ileus Unknown	-99=missing

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