



“Quality Improvement through Quality Data”

User Guide for the 2021  
ACS NSQIP  
Procedure Targeted  
Participant Use  
Data File (PUF)

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## **1. Introduction**

This document is designed to accompany the 2021 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.facs.org/quality-programs/acs-nsqip](http://www.facs.org/quality-programs/acs-nsqip)). The data contained in this version of the Procedure Targeted PUF covers dates of surgery from January 1, 2021 to December 31, 2021. 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 2021 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.facs.org/quality-programs/acs-nsqip](http://www.facs.org/quality-programs/acs-nsqip) and following the steps listed below:

1. From the ACS NSQIP main page ([www.facs.org/quality-programs/acs-nsqip](http://www.facs.org/quality-programs/acs-nsqip)) the requestor can scroll down to the “ACS NSQIP PUF” towards the bottom of the page. From there, you can click on the “Request PUF” link in gold font. This will take you to the PUF request page.
2. 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.

3. 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.”
4. 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.
5. 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).
6. The file will be available in three different formats (SAS, SPSS, and Text) and depending on the connection speed should take between 5 and 30 minutes to download.
7. 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 fall a PUF will be made available for the previous calendar year’s data. The Procedure Targeted PUF is available in one of three 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_2021	SAS	256 KB	22	427	44
	SPSS	124 KB	22	427	44
	TEXT	64 KB	22	427	44
PUF_TAR_AIE_2021	SAS	448 KB	21	688	33
	SPSS	275 KB	21	688	33
	TEXT	169 KB	21	688	33
PUF_TAR_AIO_2021	SAS	448 KB	21	694	38
	SPSS	275 KB	21	694	38
	TEXT	169 KB	21	694	38
PUF_TAR_CAS_2021	SAS	256 KB	31	296	21
	SPSS	196 KB	31	296	21
	TEXT	82 KB	31	296	21

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_CEA_2021	SAS	1.4 MB	29	2,551	69
	SPSS	1.5 MB	29	2,551	69
	TEXT	650 KB	29	2,551	69
PUF_TAR_EVAR_2021	SAS	768 KB	26	1,497	56
	SPSS	476 KB	26	1,497	56
	TEXT	227 KB	26	1,497	56
PUF_TAR_LEE_2021	SAS	1.6 MB	22	2,572	40
	SPSS	1.1 MB	22	2,572	40
	TEXT	676 KB	22	2,572	40
PUF_TAR_LEO_2021	SAS	1.1 MB	22	1,728	65
	SPSS	738 KB	22	1,728	65
	TEXT	455 KB	22	1,728	65

**Colectomy:**

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_COL_2021	SAS	18.2 MB	23	44,518	341
	SPSS	20.9 MB	23	44,518	341
	TEXT	7.6 MB	23	44,518	341

**Pancreatectomy:**

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_PAN_2021	SAS	9.0 MB	46	7,874	168
	SPSS	10.3 MB	46	7,874	168
	TEXT	2.5 MB	46	7,874	168

**Proctectomy:**

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_PRO_2021	SAS	1.9 MB	28	4,328	201
	SPSS	1.6 MB	28	4,328	201
	TEXT	924 KB	28	4,328	201

**Hepatectomy:**

<b>File Name</b>	<b>Type</b>	<b>File Size</b>	<b>Variables</b>	<b>Cases</b>	<b>Sites</b>
PUF_TAR_HEP_2021	SAS	5.2 MB	47	5,170	149
	SPSS	3.1 MB	47	5,170	149
	TEXT	1.6 MB	47	5,170	149

**Thyroidectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_THY_2021	SAS	5.9 MB	31	7,233	89
	SPSS	6.6 MB	31	7,233	89
	TEXT	2.4 MB	31	7,233	89

**Esophagectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_ESO_2021	SAS	512 KB	20	1,057	83
	SPSS	450 KB	20	1,057	83
	TEXT	173 KB	20	1,057	83

**Appendectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_APP_2021	SAS	7.3 MB	12	14,296	106
	SPSS	7.5 MB	12	14,296	106
	TEXT	5.2 MB	12	14,296	106

**Gynecology:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_GYNE_2021	SAS	320 KB	17	1,061	36
	SPSS	252 KB	17	1,061	36
	TEXT	86 KB	17	1,061	36

**Hysterectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_HYST_2021	SAS	25.6 MB	43	39,407	170
	SPSS	32.9 MB	43	39,407	170
	TEXT	10.7 MB	43	39,407	170

**Hip Fracture:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_HIP_2021	SAS	4.1 MB	17	12,395	119
	SPSS	4.8 MB	17	12,395	119
	TEXT	1.7 MB	17	12,395	119

**Cystectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_CYST_2021	SAS	1.6 MB	22	2,832	111
	SPSS	1.7 MB	22	2,832	111
	TEXT	586 KB	22	2,832	111

**Nephrectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_NEPH_2021	SAS	3.7 MB	22	7,536	129
	SPSS	4.3 MB	22	7,536	129
	TEXT	1.5 MB	22	7,536	129

**Prostatectomy:**

File Name	Type	File Size	Variables	Cases	Sites
PUF_TAR_PRST_2021	SAS	4.0 MB	22	7,649	115
	SPSS	4.6 MB	22	7,649	115
	TEXT	1.5 MB	22	7,649	115

## 5. Data Collection Background and Data Quality

The ACS NSQIP collects data on over 150 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 five or more preoperative risk factors and no reported mortality or morbidity or cases with two 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 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***

Larger institutions normally experience a significant volume of surgical cases. This presents the problem of managing an overwhelming workload. In order to prevent bias in choosing cases for assessment, a systematic sampling process was developed. An important tool to utilize while performing the systematic sampling process is the 8-Day Cycle Schedule. The 8-day cycle works as follows: If the first 'cycle' begins on a Monday, it continues through to include the following Monday (an 8-day period of time). The next cycle begins on Tuesday and continues through to include the following Tuesday. And so on. This process assures that over time cases have equal chances of being selected from each day of the week.

Note: There are some exceptions to the systematic sampling inclusion. Hospitals participating in the Small & Rural option will collect all ACS NSQIP-eligible cases at their hospital. Hospitals participating in Essentials or in the Procedure Targeted options are provided with sampling requirements specific to their site and may opt to collect more than the specified sampling requirements if resources allow.

***Case Exclusion Criteria***

The following exclusion criteria were applied to cases collected in 2021. 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.
- Patient for the case in question has been assigned with an ASA score of 6 (brain-death organ donors).
- Cases involving Hyperthermic Intraperitoneal Chemotherapy (HIPEC)
- Trauma cases: Any patient that meets the trauma exclusion criteria will be excluded.
- Transplant cases: For any patient who is admitted to the hospital and has a transplant procedure, that transplant procedure and any additional surgical procedure during the transplant hospitalization will be excluded.
- Cases beyond three per cycle for limited cases: For each program option (excluding Small & Rural), only a maximum of three cases from each of the below procedures should be included per 8-day cycle. Any case beyond the case limit of three for any of these procedures should be excluded.
  - Inguinal Herniorrhaphies
  - Breast Lumpectomies
  - Laparoscopic Cholecystectomies
  - TURPs and/or TURBTs

*(This limit does not apply for Procedure Targeted sites that are targeting TURPs.)*
- Cases beyond the required number per your site's contract for each cycle.
- A return to the operating room that is related to an occurrence or complication of a prior procedure
- Multiple NSQIP assessed cases within 30 days: Any patient who already has a NSQIP-assessed procedure entered within the previous 30 days at your site should be excluded. Only one NSQIP-assessed procedure can be abstracted patient, per 30 days, for each

***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:

- Sites that exhibit issues with either data quality or 30-day follow-up may be excluded in order to ensure the integrity of PUF data
- Inter-Rater Reliability Audit disagreement rate is over 5%

## 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. However, surgical Targeted PUF datasets are now available which address target-specific predictors and outcomes for many types of 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.

### ***Graft failure, Coma, and Peripheral Nerve Injury Data Update***

As first identified and reported in December of 2014, 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.

## 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 NSQIP-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: Yes, however, the NSQIP affiliated researcher must be the lead investigator on all PUF-based research projects and is responsible for the PUF dataset, even if forwarded to someone else. The non-participating collaborator must also sign the DUA.

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 risk-adjusted reports in 2021. The variable name, variable label, data definition, and other pertinent information are provided in Section 10: Data Variables and Definitions.

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.

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Q: Are other PUF data sets available?

A: Between Procedure Targeted and Essentials, there are a total of 92 other PUF files available for request / download:

**Essentials**

PUF Year	PUF Type	Cases	Sites	PUF Year	PUF Type	Cases	Sites
2005/2006	Essentials	152,490	121	2014	Essentials	750,397	517
2007	Essentials	211,407	183	2015	Essentials	885,502	603
2008	Essentials	271,368	211	2016	Essentials	1,000,393	680
2009	Essentials	336,190	237	2017	Essentials	1,028,713	708
2010	Essentials	363,431	258	2018	Essentials	1,020,511	722
2011	Essentials	442,149	315	2019	Essentials	1,076,441	719
2012	Essentials	543,885	374	2020	Essentials	902,968	706
2013	Essentials	651,940	435				

**Procedure Targeted**

PUF Year	PUF Type	Cases	Sites	PUF Year	PUF Type	Cases	Sites	PUF Year	PUF Type	Cases	Sites
2011/12	Vascular	655	71	2014	Hysterectomy	19,283	91	2016	Thyroidectomy	5,871	93
2013	Vascular	4,292	83	2015	Hysterectomy	23,360	109	2017	Thyroidectomy	5,755	91
2014	Vascular	4,029	83	2016	Hysterectomy	29,964	136	2018	Thyroidectomy	6,452	112
2015	Vascular	4,199	89	2017	Hysterectomy	34,070	147	2019	Thyroidectomy	6,864	83
2016	Vascular	4,071	95	2018	Hysterectomy	39,954	192	2020	Thyroidectomy	5,593	84
2017	Vascular	4,177	95	2019	Hysterectomy	43,857	173	2016	Esophagectomy	1,034	71
2018	Vascular	3,807	98	2020	Hysterectomy	36,132	176	2017	Esophagectomy	1,066	76
2019	Vascular	3,912	85	2014	Hepatectomy	3,064	92	2018	Esophagectomy	1,179	82
2020	Vascular	2,398	78	2015	Hepatectomy	3,854	105	2019	Esophagectomy	1,290	85
2011/12	Colectomy	16,981	121	2016	Hepatectomy	4,325	116	2020	Esophagectomy	1,187	83
2013	Colectomy	21,505	154	2017	Hepatectomy	4,505	120	2016	Appendectomy	12,376	115
2014	Colectomy	25,262	203	2018	Hepatectomy	4,773	133	2017	Appendectomy	12,406	113
2015	Colectomy	31,307	239	2019	Hepatectomy	5,074	141	2018	Appendectomy	12,667	131
2016	Colectomy	35,908	274	2020	Hepatectomy	4,895	141	2019	Appendectomy	15,110	112
2017	Colectomy	38,139	285	2014	Pancreatotomy	5,187	106	2020	Appendectomy	13,210	111
2018	Colectomy	41,386	343	2015	Pancreatotomy	6,032	120	2016	Hip Fracture	9,390	117
2019	Colectomy	47,425	336	2016	Pancreatotomy	6,244	137	2017	Hip Fracture	10,506	115
2020	Colectomy	40,139	338	2017	Pancreatotomy	6,918	142	2018	Hip Fracture	11,855	152
2014	Gynecology	500	19	2018	Pancreatotomy	7,248	158	2019	Hip Fracture	14,523	140
2015	Gynecology	492	29	2019	Pancreatotomy	7,814	165	2020	Hip Fracture	13,657	141
2016	Gynecology	781	33	2020	Pancreatotomy	7,496	166	2019	Cystectomy	2,953	107
2017	Gynecology	1,250	41	2016	Proctectomy	4,217	159	2020	Cystectomy	3,150	107
2018	Gynecology	1,320	46	2017	Proctectomy	4,576	176	2019	Nephrectomy	7,818	117
2019	Gynecology	1,313	41	2018	Proctectomy	4,621	200	2020	Nephrectomy	6,585	122
2020	Gynecology	962	38	2019	Proctectomy	4,905	193	2019	Prostatectomy	8,256	125
				2020	Proctectomy	4,189	190	2020	Prostatectomy	7,133	116

- 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: 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: At this time we do not provide site identification of any cases in the PUF, even self-identification.

### **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 2021. 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 morbidity or mortality event based on pre-existing conditions. These

probabilities are calculated every six 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 2021 are provided.

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 five-digit CPT code but a CPT description set to NULL?

A: If the case has a valid five 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.



## Target AAA (Abdominal Aortic Aneurysm)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted AAA Open	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	AAA_SURGIND	CHAR	Indication for Surgery	Diameter Dissection Embolization Non-ruptured symptomatic Other indication for surgery 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 & renals Infrarenal Not documented Supraceliac
8	AAA_PAE	CHAR	Proximal Aneurysm Extent	Infrarenal Juxtarenal Not documented Pararenal Supra-renal Type IV Thoracoabdominal aneurysm

## Target AAA (Abdominal Aortic Aneurysm)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted AAA Open	Variable Options or comments
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_RENREVASC	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
				Surgical treatment
18	AAA_LEI	CHAR	Lower Extremity Ischemia Requiring Intervention	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 AIE (Aortoiliac Endo)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Endo	Variable Options or comments
1	CASEID	NUM		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 and internal iliac angioplasty/stenting Common iliac angioplasty/stenting External iliac angioplasty/stenting Internal 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 Antiplatelet Medication	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

## Targeted AIE (Aortoiliac Endo)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Endo	Variable Options or comments
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 >= 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)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Endo	Variable Options or comments
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", 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	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 (Trans tibial or Proximal)	No
				Yes

## Targeted AIO (Aortoiliac open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Open	Variable Options or comments
1	CASEID	NUM		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 Antiplatelet Medication	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 not performed; "not palpable" ABI not performed; ipsilateral pedal pulse "palpable"

## Targeted AIO (Aortoiliac open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Open	Variable Options or comments
9	AIO_PREHEMO	CHAR	Preprocedural Hemodynamics of Treated Leg	Not documented
10	AIO_ULP	CHAR	Untreated Loss of Patency of bypass graft	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	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	No
				Yes
15	AIO_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	AIO_WOUND	CHAR	Wound Infection/Complication	No
				Yes
17	AIO_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing
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"
				None/Not documented

## Targeted AIO (Aortoiliac open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Aortoiliac Open	Variable Options or comments
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
				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	No
				Yes
21	AIO_AMPUTATION	CHAR	Major Amputation (Trans tibial or Proximal)	No
				Yes



## Targeted CAS (Carotid Artery Stenting)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Endo	Variable Options or comments
1	CASEID	NUM		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 Antiplatelet Medication	No Yes
8	CAS_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No Yes

## Targeted CAS (Carotid Artery Stenting)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Endo	Variable Options or comments
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
20	CAS_RANKIN	CHAR	Rankin Scale	1-No significant disability
				4-Moderately severe disability
				5-Severe disability
				NULL=missing
				No Rankin Scale given

## Targeted CAS (Carotid Artery Stenting)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Endo	Variable Options or comments
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 CEA (Carotid Endarterectomy)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Open	Variable Options or comments
1	CASEID	NUM		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
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 Antiplatelet Medication	No
				Unknown
				Yes
8	CEA_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No
				Unknown
				Yes

## Targeted CEA (Carotid Endarterectomy)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Open	Variable Options or comments
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
18	CEA_STROKE	CHAR	Stroke	No
				Yes
19	CEA_DSTROKE	NUM	Days from operation until Stroke	-99=missing

## Targeted CEA (Carotid Endarterectomy)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Carotid Open	Variable Options or comments
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 EVAR (Endovascular Aneurysm Repair)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted AAA Endo	Variable Options or comments
1	CASEID	NUM		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 Other indication for surgery 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	Aneurysm Diameter 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 LeMaitre Unifit Lombard Aorfix Medtronic Endurant Medtronic TALENT Not documented Other

## Targeted EVAR (Endovascular Aneurysm Repair)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted AAA Endo	Variable Options or comments
7	EVAR_MBD	CHAR	Main Body Device	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_HYPOREVASC	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
17	EVAR_CP_AORTICSTENT	CHAR	Aortic Stent	No
				Yes
18	EVAR_CP_ILIACSTENT	CHAR	Iliac Stent	No
				Yes



## Targeted EVAR (Endovascular Aneurysm Repair)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted AAA Endo	Variable Options or comments
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
				Surgical treatment
22	EVAR_LEI	CHAR	Lower Extremity Ischemia Requiring Intervention	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 LEE (Lower Extremity endo)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Endo	Variable Options or comments
1	CASEID	NUM		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 Antiplatelet Medication	No
				Unknown
				Yes
7	LEE_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No
				Unknown
				Yes
8	LEE_PREMED_BETAB	CHAR	Pre-procedural Medication-Beta Blocker	No
				Unknown
				Yes

## Targeted LEE (Lower Extremity endo)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Endo	Variable Options or comments
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)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Endo	Variable Options or comments
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 LEO (Lower Extremity open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Open	Variable Options or comments
1	CASEID	NUM		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
				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 Antiplatelet Medication	No
				Unknown
				Yes
7	LEO_PREMED_STATIN	CHAR	Pre-procedural Medication-Statin	No
				Unknown
				Yes

## Targeted LEO (Lower Extremity open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Open	Variable Options or comments
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	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	No
				Yes
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	No
				Yes
15	LEO_DMI_STROKE	NUM	Days from operation until Myocardial Infarction or Stroke	-99=missing
16	LEO_WOUND	CHAR	Wound Infection/Complication	No
				Yes
17	LEO_DWOUND	NUM	Days from operation until Wound Infection/Complication	-99=missing

## Targeted LEO (Lower Extremity open)

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Lower Extremity Open	Variable Options or comments
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"
				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
				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

## Target Colectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Colectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	COL_STEROID	CHAR	Steroid/Immunosuppressant Use for Inflammatory Bowel Disease	No
				Unknown
				Yes
3	COL_STEROID_UNK	NUM	Steroid/Immunosuppressant Use Unknown	-99=missing
4	COL_MECH_BOWEL_PREP	CHAR	Preoperative Mechanical Bowel Prep	No
				Unknown
				Yes
5	COL_MECH_BOWEL_PREP_UNK	NUM	Preoperative Mechanical Bowel Prep Unknown	-99=missing
6	COL_ORAL_ANTIBIOTIC	CHAR	Preoperative Oral Antibiotic Prep	No
				Unknown
				Yes
7	COL_ORAL_ANTIBIOTIC_UNK	NUM	Preoperative Oral Antibiotic Prep Unknown	-99=missing
8	COL_CHEMO	CHAR	Chemotherapy within 90 Days	No
				Unknown
				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-10 for diagnosis
				Ulcerative colitis
				Unknown
Volvulus				
11	COL_ICD9_INDICATION	CHAR	ICD9 for Indication	NULL=missing



# Target Colectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Colectomy	Variable Options or comments
12	COL_EMERGENT	CHAR	Indication for Surgery if Emergent	Bleeding NULL=missing Obstruction Other (enter ICD-10 code) Perforation Toxic colitis (Toxic Megacolon, C. diff w/out perforation, Ischemic Colitis) Unknown
13	COL_ICD9_EMERGENT	CHAR	ICD9 for Emergent Surgery	NULL=missing
14	COL_APPROACH	CHAR	Operative Approach	Endoscopic 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 NOTES w/ open assist NOTES w/ unplanned conversion to open NULL=missing 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

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Colectomy	Variable Options or comments
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
				M1c
				N/A
				Unknown

## Target Colectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Colectomy	Variable Options or comments
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 NPO or NGT Use	No
				Unknown
				Yes
22	COL_ILEUS_UNK	NUM	Prolonged Postoperative NPO or NGT Use Unknown	-99=missing
23	COL_NODESEVAL	NUM	Number of Nodes Evaluated	-99=missing

# Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	PAN_LAPTHOR	CHAR	Laparoscopic/MIS Code	NULL=missing
3	PAN_BILIARYSTENT	CHAR	Preoperative Biliary Stent	Endoscopic stent N/A No stent at time of surgery Percutaneous stent Stent of other or unknown type
4	PAN_CHEMO	CHAR	Chemotherapy within 90 days	No Unknown Yes
5	PAN_CHEMO_UNK	CHAR	Chemotherapy within 90 days Unknown	NULL=missing Yes
6	PAN_RADIO	CHAR	Radiation Therapy within 90 Days	No Unknown Yes
7	PAN_RADIO_UNK	CHAR	Radiation Therapy within 90 Days Unknown	NULL=missing Yes
8	PAN_INTRA_ANTIBIOTICS	CHAR	Intra/Preoperative Antibiotics	1st generation cephalosporin 2nd or 3rd generation cephalosporin Broad spectrum None Other Unknown
9	PAN_APPROACH	CHAR	Operative Approach	Hybrid Hybrid w/ unplanned conversion to open Laparoscopic Laparoscopic w/ open assist Laparoscopic w/ unplanned conversion to open NULL=missing Open (planned) Other Robotic

# Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
9	PAN_APPROACH	CHAR	Operative Approach	Robotic w/ open assist
				Robotic w/ unplanned conversion to open
				Unknown
10	PAN_OINCIS_TYPE	CHAR	Open Incision Type	NULL=missing
11	PAN_WOUNDPROT	CHAR	Wound Protector Used	NULL=missing
				No
				Yes
12	PAN_DUCTSIZE	CHAR	Pancreatic Duct Size	3-6 mm
				<3 mm
				>6 mm
				Unknown
13	PAN_GLANDTEXT	CHAR	Pancreatic Gland Texture	Hard
				Intermediate
				Soft
				Unknown
14	PAN_GASTDUO	CHAR	Gastrojejunostomy or Duodenojejunostomy	NULL=missing
15	PAN_DRAINS	CHAR	Drains	No
				Unknown
				Yes
16	PAN_DRAINS_UNK	CHAR	Drains Unknown	NULL=missing
				Yes
17	PAN_DRAINS_TYPE	CHAR	Drain Type	NULL=missing
18	PAN_DRAINSYS_TYPE	CHAR	Type of Drain System Placed	NULL=missing
19	PAN_DRAINSYS_SUCTN	CHAR	Drain System Placed on Suction	NULL=missing
20	PAN_RESECTION	CHAR	Vascular Resection	Artery
				Not performed
				Unknown
				Vein
				Vein and artery
21	PAN_AMYLASE_POD1	NUM	Postoperative Day 1 Highest Drain Amylase	-99=missing

# Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
22	PAN_AMYLASE_POD1_UNK	CHAR	Postoperative Day 1 Highest Drain Amylase Unknown	NULL=missing
				Yes
23	PAN_AMYLASE_POD230	NUM	Highest Drain Amylase POD#2-POD#30	-99=missing
24	PAN_AMYLASE_POD230_UNK	CHAR	Highest Drain Amylase POD#2-POD#30 Unknown	NULL=missing
				Yes
25	DAMYLASE	NUM	Number of Days with Highest Amylase Level after Surgery	-99=missing
26	PAN_AMYLASE_UNK	CHAR	Number of Days with Highest Amylase Level after Surgery Unknown	NULL=missing
				Yes
27	DDRAINREMOVAL	NUM	Number of Days for Last Pancreatic Drain Removal after Surgery	-99=missing
28	PAN_DRAIN_REMOVAL_UNK	CHAR	Number of Days for Last Pancreatic Drain Removal after Surgery Unknown	NULL=missing
				Yes
29	PAN_DRAIN_POD30	CHAR	Operative Drain Still Present at POD #30	NULL=missing
				Yes
30	PAN_FISTULA	CHAR	Pancreatic Fistula	Biochemical Leak only
				No evidence of Biochemical Leak or POPF
				Unknown
				Yes, Grade B POPF present
				Yes, Grade C POPF present
31	PAN_DELGASTRIC_20140315	CHAR	Delayed Gastric Emptying	No
				Unknown
				Yes-no oral intake by POD 14
				Yes-tube to external drainage/NG tube present/reinserted
32	PAN_PERCDRAIN_20140315	CHAR	Percutaneous Drain	No
				Yes

# Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
33	PAN_PERCDRAINAGE	CHAR	Percutaneous Drain	NULL=missing
				Yes-amylase-rich fluid
				Yes-bile
				Yes-other
				Yes-pus
34	PAN_MALIG_HISTOLOGIC	CHAR	If Malignant Disease, Indicate Histologic Subtype	Adenosquamous carcinoma
				Ampullary carcinoma
				Cystadenocarcinoma
				Distal cholangiocarcinoma
				Duodenal carcinoma
				IPMN-invasive
				N/A
				Neuroendocrine-functioning
				Neuroendocrine-nonfunctioning
				Other type
				Pancreatic adenocarcinoma
Unknown				
35	PAN_TSTAGE	CHAR	T Stage	N/A
				T0
				T1
				T2
				T3
				T4
				Tis
				Tx
				Unknown
36	PAN_NSTAGE	CHAR	N Stage	N/A
				N0
				N1
				N2
				Nx
				Unknown

## Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
37	PAN_MSTAGE	CHAR	M Stage	M0/Mx
				M1
				N/A
				Unknown
38	PAN_BENIGN_HISTOLOGIC	CHAR	If Benign Disease, Indicate Histologic Subtype	Chronic pancreatitis
				IPMN-noninvasive
				Mucinous cystic neoplasm
				N/A
				Neuroendocrine w/ no metastases
				Other
				Serous cystadenoma
				Solid pseudopapillary neoplasm
				Unknown
39	PAN_BENIGN_TUMORSIZE	CHAR	If Benign, Tumor Size	2-5 cm
				<2 cm
				>5 cm
				N/A
				Unknown
40	PAN_NPWT	CHAR	Negative Pressure Wound Therapy (NPWT)	No
				Not applicable
				Unknown
				Yes
41	PAN_HEMORRHAGE	CHAR	Post-Pancreatectomy Hemorrhage	No
				Unknown
				Yes - Grade A
				Yes - Grade B
				Yes - Grade C
				Yes - Indeterminable grade



# Target Pancreatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Pancreatectomy	Variable Options or comments
42	PAN_MARGIN_STATUS	CHAR	Positive Surgical Margin	NULL=missing
				No
				Unknown - Malignant pathology, but surgical margins not documented
				Yes
43	PAN_MARGIN_DUOD	CHAR	Pancreaticoduodenectomy Margin	Bile duct margin
				Distal (duodenal or jejunal) margin
				Location of positive margin not specified
				NULL=missing
				Other
				Pancreatic neck/parenchymal margin
				Proximal (gastric or duodenal) margin
				Uncinate (Superior mesenteric artery/retroperitoneal) margin
44	PAN_MARGIN_DISTAL	CHAR	Distal Pancreatectomy Margin	Distal pancreatic margin
				Location of positive margin not specified
				NULL=missing
				Other
				Proximal pancreatic margin
45	PAN_MARGIN_TOTAL	CHAR	Total Pancreatectomy Margin	Bile duct margin
				Distal (duodenal or jejunal) margin
				NULL=missing
				Other
				Proximal (gastric or duodenal) margin
				Uncinate (Superior mesenteric artery/retroperitoneal) margin
46	PAN_ICU_LOS	CHAR	Intensive Care Unit Length of Stay	

# Target Proctectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Proctectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	PRO_TUMORLOC	CHAR	Tumor Location in the Rectum	Lower third (<5 cm from anal verge)
				Middle third (5-10 cm from anal verge)
				N/A
				Unknown
				Upper third (>10 cm from anal verge)
3	PRO_CHEMO	CHAR	Chemotherapy Within 90 Days	No
				Unknown
				Yes
4	PRO_CHEMO_UNK	NUM	Chemotherapy Within 90 Days Unknown	-99=missing
5	PRO_RADIO	CHAR	Radiation Therapy Within 90 Days	No
				Unknown
				Yes
6	PRO_RADIO_UNK	NUM	Radiation Therapy Within 90 Days Unknown	-99=missing
7	PRO_PRESTAGE_T	CHAR	Pretreatment Clinical Staging- Primary Tumor "T"	N/A
				T0
				T1
				T2
				T3
				T4
				T4a
				T4b
				Tx
				Unknown
8	PRO_PRELYMPH_N	CHAR	Pretreatment Clinical Staging- Regional Lymph Nodes "N"	N/A
				N0
				N1
				N1a
				N1b
				N1c
				N2
N2a				

# Target Proctectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Proctectomy	Variable Options or comments
8	PRO_PRELYMPH_N	CHAR	Pretreatment Clinical Staging- Regional Lymph Nodes "N"	N2b
				Nx
				Unknown
9	PRO_PREDISTANTM_M	CHAR	Pretreatment Clinical Staging- Distant Metastasis "M"	M0/Mx
				M1
				M1a
				M1b
				M1c
				N/A
				Unknown
10	PRO_COLON	CHAR	Complete Evaluation of the Colon Preoperatively	No-no study identified
				No-study incomplete, entire colon could not be visualized
				No-study incomplete, obstructing lesion
				No-study was incomplete, inadequate prep
				Unknown
				Yes-complete evaluation of colon w/ adequate prep
11	PRO_STOMA	CHAR	Patient Marked for Stoma Preoperatively	No
				Yes
12	PRO_PATHSTAGE_T	CHAR	Pathologic Staging- Primary Tumor "T"	N/A
				T0
				T1
				T2
				T3
				T4
				T4a
				T4b
				Tis
				Tx
				Unknown

## Target Proctectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Proctectomy	Variable Options or comments
13	PRO_PATHLYMPH_N	CHAR	Pathologic Staging- Regional Lymph Nodes "N"	N/A
				N0
				N1
				N1a
				N1b
				N1c
				N2
				N2a
				N2b
				Nx
	Unknown			
14	PRO_NUMNODES	NUM	Number of Nodes Evaluated	-99=missing
15	PRO_NUMNODES_UNK	NUM	Number of Nodes Evaluated Unknown	-99=missing
16	PRO_NUMNODES_NA	NUM	Number of Nodes Evaluated N/A	-99=missing
17	PRO_PATHDISTANTM_M	CHAR	Pathologic Staging- Distant Metastasis "M"	M0/Mx
				M1
				M1a
				M1b
				M1c
				N/A
	Unknown			
18	PRO_MARG_RADIAL	CHAR	Margins-Radial	N/A
				No
				Unknown
				Yes
19	PRO_CLEAR_RADIAL	NUM	Clear Radial Margin cm	-99=missing
20	PRO_CLEAR_RADIAL_UNK	NUM	Clear Radial Margin Unknown	-99=missing

# Target Proctectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Proctectomy	Variable Options or comments
21	PRO_MARG_DISTAL	CHAR	Margins-Distal	N/A
				No
				Unknown
				Yes
22	PRO_MARG_DISTAL_UNK	NUM	Margins-Distal Unknown	-99=missing
23	PRO_CLEAR_DISTAL	NUM	Clear Distal Margin cm	-99=missing
24	PRO_CLEAR_DISTAL_UNK	NUM	Clear Distal Margin Unknown	-99=missing
25	PRO_APPROACH	CHAR	Operative Approach	Endoscopic
				Hybrid
				Hybrid w/ open assist
				Hybrid w/ unplanned conversion to open
				Laparoscopic
				Laparoscopic w/ open assist
				Laparoscopic w/ unplanned conversion to open
				NOTES
				NOTES w/ open assist
				NULL=missing
				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				
Unknown				

## Target Proctectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Proctectomy	Variable Options or comments
26	PRO_ANASTOMIC	CHAR	Anastomotic Leak	Leak, no treatment intervention documented
				Leak, treated w/ interventional means
				Leak, treated w/ non-interventional means
				Leak, treated w/ reoperation
				No definitive diagnosis of leak/leak related abscess
				Unknown
27	PRO_ILEUS	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Unknown
				Yes
28	PRO_ILEUS_UNK	NUM	Prolonged Postoperative NPO or NGT Use Unknown	-99=missing

# Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	HEP_LAPTHOR	CHAR	Laparoscopic/MIS Code	NULL=missing
3	HEP_BILIARYSTENT	CHAR	Biliary Stent	No
				Unknown
				Yes-endoscopic
				Yes-percutaneous
				Yes-stent of unknown or other type
4	HEP_NEOADJ	CHAR	Neoadjuvant Therapy	No
				Unknown
				Yes
5	HEP_NEOADJ_UNK	CHAR	Neoadjuvant Therapy Unknown	NULL=missing
				Yes
6	HEP_NEOTHERAPY_140101	CHAR	Neoadjuvant Therapy Types	Locoregional interarterial infusion
				Locoregional liver ablation
				NULL=missing
				Other type
				Portal vein embolization
				Preoperative systemic chemotherapy
7	HEP_VIRAL	CHAR	Viral Hepatitis	Hepatitis B
				Hepatitis B and C
				Hepatitis C
				None
				Other
				Unknown
8	HEP_APPROACH	CHAR	Operative Approach	Laparoscopic
				Laparoscopic w/ open assist
				Laparoscopic w/ unplanned conversion to open
				NULL=missing
				Open (planned)
				Other
				Other MIS approach
				Robotic
				Robotic w/ open assist
				Robotic w/ unplanned conversion to open

# Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
8	HEP_APPROACH	CHAR	Operative Approach	SILS
9	HEP_LIVERTEXT	CHAR	Liver Texture	Cirrhotic
				Congested
				Fatty
				Fibrosis
				Normal
				Not documented
10	HEP_CON_PARTRES	CHAR	Number of Additional Partial Resections	0
				1
				10 or more
				2
				3
				4
				5
				6
				7
				8
				9
				Unknown
11	HEP_CON_ABLATION_140101	CHAR	Concurrent Intra-Operative Ablation Type	Alcohol ablation
				Cryoablation
				Microwave ablation
				NULL=missing
				Other ablation
				RFA ablation
12	HEP_CON_OP_ABLATION	CHAR	Concurrent Intra-Operative Ablation	No
				Unknown
				Yes
13	HEP_CON_OP_ABLATION_UNK	CHAR	Concurrent Intra-Operative Ablation Unknown	NULL=missing
				Yes



## Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
14	HEP_PRINGLE	CHAR	Inflow Occlusion (Pringle Maneuver) During Resection	No
				Yes
15	HEP_RECON	CHAR	Biliary Reconstruction	No
				Unknown
				Yes-hepaticojejunostomy
16	HEP_RECON_UNK	CHAR	Biliary Reconstruction Unknown	NULL=missing
				Yes
17	HEP_DRAINS	CHAR	Drain(s)	No
				Unknown
				Yes
18	HEP_DRAINS_UNK	CHAR	Drain(s) Unknown	NULL=missing
				Yes
19	DDRAINSREMOVAL	NUM	Last Drain Removal Day	-99=missing
20	HEP_DRAINS_REMOVAL_UNK	CHAR	Drain Removal Day Unknown	NULL=missing
				Yes
21	HEP_INVASIVE	CHAR	Need for Invasive Intervention Postoperatively (excluding reoperation)	No
				Unknown
				Yes
22	HEP_INVASIVE_UNK	CHAR	Need for Invasive Intervention Postoperatively (excluding reoperation) Unknown	NULL=missing
				Yes
23	HEP_INVASIVE_TYPE	CHAR	Types of Required Invasive Intervention	Biliary stent for biliary obstruction/leak
				Bilirubin-rich fluid from drain or aspirate
				Intervention other than transfusion for bleeding/hematoma
				NULL=missing
				Other intervention
				Pus from drain or aspirate
24	HEP_PEAKINR	NUM	Peak Postoperative INR (on or after POD #5)	-99=missing

## Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
25	HEP_PEAKINR_UNK	CHAR	Peak Postoperative INR (on or after POD #5) Unknown	NULL=missing
				Yes
26	HEP_PEAKBILI	NUM	Peak Postoperative Serum Total Bilirubin (on or after POD #5)	-99=missing
27	HEP_PEAKBILI_UNK	CHAR	Peak Postoperative Serum Total Bilirubin (on or after POD #5) Unknown	NULL=missing
				Yes
28	HEP_BILELEAKAGE	CHAR	Bile Leakage	No
				Unknown
				Yes-clinical diagnosis, drain continued on or after POD3
				Yes-clinical diagnosis, percutaneous drainage performed
				Yes-clinical diagnosis, reoperation performed
				Yes-clinical diagnosis, spontaneous wound drainage
				Yes-persistent drainage, drain continued on or after POD3
				Yes-persistent drainage, percutaneous drainage performed
				Yes-persistent drainage, reoperation performed
29	HEP_LIVERFAIL	CHAR	Post Hepatectomy Liver Failure	No-does not meet criteria for PHLF
				Yes-PHLF (receiving clotting factors to maintain INR)
				Yes-meets criteria for PHLF
30	HEP_LIVERFAIL_GRADE	CHAR	Post Hepatectomy Liver Failure Grade	Grade A
				Grade B
				Grade C
				NULL=missing
31	HEP_PATHRES	CHAR	Pathology Results	Benign
				N/A
				Primary hepatobiliary cancer
				Secondary (metastatic) tumor
				Unknown

# Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
32	HEP_HISTOLOGIC	CHAR	If Primary Hepatobiliary Cancer, Indicate Histologic Subtype	Gallbladder cancer
				Hepatocellular carcinoma
				Hilar cholangiocarcinoma
				Intrahepatic cholangiocarcinoma
				NULL=missing
				Other type
				Unknown
33	HEP_TSTAGE	CHAR	T Stage	N/A
				NULL=missing
				T0
				T1
				T2
				T3
				T4
				Tis
				Tx
				Unknown
34	HEP_NSTAGE	CHAR	N Stage	N/A
				N0
				N1
				N2
				NULL=missing
				Nx
				Unknown
35	HEP_MSTAGE	CHAR	M Stage	M0/Mx
				M1
				N/A
				NULL=missing
				Unknown

## Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
36	HEP_SEC_HISTOLOGIC	CHAR	If Secondary (Metastatic) Tumor, Indicate Histologic Subtype	Breast cancer metastasis
				Colorectal metastasis
				N/A
				NULL=missing
				Neuroendocrine metastasis
				Other type
				Sarcoma metastases
				Unknown
37	HEP_SEC_NUMTUMORS	CHAR	If Secondary (Metastatic) Tumor, Indicate Number of Tumors Treated	1
				2
				3
				4
				5
				6
				7
				8
				More than 8
				N/A
				NULL=missing
				Unknown
				38
<2 cm				
>5 cm				
N/A				
NULL=missing				
Unknown				

## Target Hepatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hepatectomy	Variable Options or comments
39	HEP_BENIGN_HISTOLOGIC	CHAR	If Benign Disease, Indicate Histologic Subtype	Biliary cyst
				Focal nodular hyperplasia
				Hemangioma
				Hepatic abscess
				Hepatic adenoma
				Hepatic cyst
				N/A
				NULL=missing
				Other
				Unknown
40	HEP_BENIGN_LESION	CHAR	If Benign, Lesion Size	2-5 cm
				<2 cm
				>5 cm
				N/A
				NULL=missing
				Unknown
41	HEP_DRAINS_BILI	NUM	Highest Drain Bilirubin POD #3 – POD #30	-99=missing
42	HEP_DRAINS_BILI_UNK	CHAR	Highest Drain Bilirubin POD #3 – POD #30 Unknown	NULL=missing
				Yes
43	HEP_DRAINS_BILI_POD1	NUM	Postoperative Day 1 Highest Drain Bilirubin	-99=missing
44	HEP_DRAINS_BILI_POD1_UNK	CHAR	Postoperative Day 1 Highest Drain Bilirubin Unknown	NULL=missing
				Yes
45	HEP_DRAINS_30D	CHAR	Operative Drain Still Present at POD #30	NULL=missing
				No
				Yes
46	HEP_PEAKCREAT	NUM	Peak Postoperative Serum Creatinine	-99=missing
47	HEP_PEAKCREAT_UNK	CHAR	Peak Postoperative Serum Creatinine Unknown	NULL=missing
				Yes

## Target Thyroidectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Thyroidectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	THY_INDICATION	CHAR	Primary Indication for Surgery	Any goiter and Graves Disease Goiter, multinodular Goiter, severe Goiter, with substernal component Graves Disease Known differentiated malignancy Known poorly or undifferentiated malignancy Other malignancy (lymphoma, sarcoma) Other specified indication Single Nodule or Neoplasm / Single Nodule Goiter Unknown
3	THY_CLINTOX	CHAR	If Nodule, Goiter, or Graves- Clinical Toxicity	Clinically "toxic" N/A Not clinically "toxic" Unknown
4	THY_NECKSURG	CHAR	Prior Neck Surgery	No-no specific evidence of such prior surgery Yes-midline in the neck only, not extending to either side Yes-on both sides of the neck previously, "bilateral" Yes-on one side of the neck only, "contralateral" Yes-on one side of the neck only, "ipsilateral" Yes-other, not specifically described
5	THY_NEEDLEBIOP	CHAR	Preoperative Needle Biopsy Result	Follicular neoplasm Hürthle cell neoplasm Indeterminate result No evidence of preoperative needle biopsy Other result not specifically described above Suspicious for papillary thyroid cancer

## Target Thyroidectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Thyroidectomy	Variable Options or comments
6	THY_OPER_APPR	CHAR	Operative Approach	Hybrid
				NULL=missing
				Open (planned)
				Other
				Other MIS approach
				Robotic
				Unknown
7	THY_NECKDISSECT	CHAR	Central Neck Dissection Performed	No
				Unknown
				Yes
8	THY_NECKDISSECT_UNK	NUM	Central Neck Dissection Performed Unknown	-99=missing
9	THY_SCALPEL	CHAR	Use of Harmonic Scalpel or LigaSure or Other Vessel Sealant Device	No
				Unknown
				Yes
10	THY_SCALPEL_UNK	NUM	Use of Harmonic Scalpel or LigaSure or Other Vessel Sealant Device Unknown	-99=missing
11	THY_ELECTRO	CHAR	Intra-operative Electrophysiologic or Electromyographic Recurrent Laryngeal Nerve (RLN) Monitoring	No
				Unknown
				Yes
12	THY_ELECTRO_UNK	NUM	Intra-operative Electrophysiologic or Electromyographic Recurrent Laryngeal Nerve (RLN) Monitoring Unknown	-99=missing
13	THY_DRAINUSE	CHAR	Drain Usage	No
				Yes
14	THY_NEOPLASM	CHAR	Neoplasm	No
				Yes
15	THY_NEOPLASM_TYPE	CHAR	If Neoplasm, Type of Neoplasm	Anaplastic cancer / poorly differentiated cancer
				Follicular adenoma
				Follicular cancer
				Hurthle cell adenoma
				Hurthle cell cancer
				Medullary cancer
				NULL=missing

## Target Thyroidectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Thyroidectomy	Variable Options or comments
15	THY_NEOPLASM_TYPE	CHAR	If Neoplasm, Type of Neoplasm	Other benign (ie- hyperplastic nodule, colloid nodule, hashimoto's thyroiditis, pseudonodule, trabecular adenoma)
				Other malignant
				Papillary cancer
16	THY_TUMOR_T	CHAR	If Cancer, Tumor T Classification	N/A
				T0
				T1
				T1a
				T1b
				T2
				T3
				T3a
				T3b
				T4
				T4a
				T4b
				Tx
Unknown				
17	THY_MULTIFOCAL	CHAR	Multifocal Cancer	More than one spot of cancer-"multifocal", bilateral
				More than one spot of cancer-"multifocal", unilateral
				N/A
				Only one spot of cancer-"unifocal"
18	THY_LYMPH_N	CHAR	If Cancer, Lymph Node N Classification	N/A
				N0
				N0a
				N0b
				N1
				N1a
				N1b
				Nx
Unknown				
19	THY_NUMNODES	NUM	If Cancer, Number of Nodes Removed (if any)	



## Target Thyroidectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Thyroidectomy	Variable Options or comments
20	THY_DISTANTM_M	CHAR	If Cancer, Distant Metastasis M Classification	M0/Mx
				M1
				N/A
				Unknown
21	THY_CALCIIUM	CHAR	Postoperative Calcium Level Checked	No/unknown
				Yes
22	THY_PARA	CHAR	Postoperative Parathyroid (PTH) Level Checked	No/unknown
				Yes
23	THY_CALCIIUMD_REP	CHAR	Postoperative Calcium and Vitamin D Replacement	No-no calcium or vitamin D pills
				Unknown
				Yes-both oral calcium and oral vitamin D pills
				Yes-oral calcium pills
				Yes-oral vitamin D pills
24	THY_HYPOCALC	CHAR	Significant Postoperative Hypocalcemia Prior to Discharge	No
				Unknown
				Yes
25	THY_HYPOCALC_UNK	NUM	Significant Postoperative Hypocalcemia Prior to Discharge Unknown	-99=missing
26	THY_HYPOCALC30	CHAR	Significant Postoperative Hypocalcemia Within 30 days	No
				Unknown
				Yes
27	THY_HYPOCALC30_UNK	NUM	Significant Postoperative Hypocalcemia Within 30 days Unknown	-99=missing
28	THY_HYPOCALC_EVENT	CHAR	Clinically Severe Hypocalcemia-related Event	No
				Yes
29	THY_HYPOCALC_EVENTTYPE	CHAR	Clinically Severe Hypocalcemia-related Event, Type of Event	Emergent evaluation in clinical office/emergency dept
				IV calcium supplementation
				NULL=missing
				Readmitted for low calcium

# Target Thyroidectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Thyroidectomy	Variable Options or comments
30	THY_LARYNGEAL	CHAR	Recurrent Laryngeal Nerve (RLN) Injury or Dysfunction	No
				Unknown
				Yes-hoarseness/vocal cord
				Yes-severe hoarseness/voc
31	THY_NECK_HEMATOMA	CHAR	Neck Hematoma/Bleeding	No
				Unknown
				Yes-hematoma noted, addit
				Yes-hematoma noted, no ob
				Yes-hematoma noted, trach
				Yes-other intervention no

# Target Esophagectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Esophagectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	ESO_PET	CHAR	Preoperative PET Scan within 90 Days	No
				Unknown
				Yes
3	ESO_PET_UNK	NUM	Preoperative PET Scan within 90 Days Unknown	-99=missing
4	ESO_CHEMO	CHAR	Chemotherapy within 90 Days	No
				Unknown
				Yes
5	ESO_CHEMO_UNK	NUM	Chemotherapy within 90 Days Unknown	-99=missing
6	ESO_RADIO	CHAR	Radiation Therapy within 90 Days	No
				Unknown
				Yes
7	ESO_RADIO_UNK	NUM	Radiation Therapy within 90 Days Unknown	-99=missing
8	ESO_CLINPRE_T	CHAR	If Malignancy, Clinical Pretreatment T Stage	N/A
				T0
				T1
				T1a
				T1b
				T2
				T3
				T4
				T4a
				Tis
				Tx
				Unknown

## Target Esophagectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Esophagectomy	Variable Options or comments
9	ESO_CLINPRE_N	CHAR	If Malignancy, Clinical Pretreatment N Stage	N/A
				N0
				N1
				N2
				N3
				Nx
				Unknown
10	ESO_CLINPRE_M	CHAR	If Malignancy, Clinical Pretreatment M Stage	M0/Mx
				M1
				N/A
				Unknown
11	ESO_MIN_INVADE	CHAR	Minimally Invasive Approach	NULL=missing
				No
				Unknown/Other
				Yes-abdominal portion only
				Yes-both abdominal and thoracic components
				Yes-thoracic portion only
12	ESO_CONV_OPEN	CHAR	Conversion to Open Procedure	NULL=missing
				No
				Unknown
				Yes
13	ESO_CONV_OPEN_UNK	NUM	Conversion to Open Procedure Unknown	-99=missing
14	ESO_APPROACH	CHAR	Operative Approach	Endoscopic w/ open assist
				Hybrid
				Hybrid w/ open assist
				Hybrid w/ unplanned conversion to open
				Laparoscopic
				Laparoscopic w/ open assist
				Laparoscopic w/ unplanned conversion to open
				NULL=missing
				Open (planned)
				Other

# Target Esophagectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Esophagectomy	Variable Options or comments
14	ESO_APPROACH	CHAR	Operative Approach	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
				Thoracoscopic
				Thoracoscopic w/ open assist
				Thoracoscopic w/ unplanned conversion to open
15	ESO_PATHDIAG	CHAR	Pathologic Diagnosis	Adenocarcinoma
				Dysplasia
				No malignancy
				Other-benign
				Other-malignant
				Squamous cell carcinoma
				Unknown
16	ESO_PATH_T	CHAR	If Malignancy, Pathologic T Stage	N/A
				T0
				T1
				T1a
				T1b
				T2
				T3
				T4
				T4a
				T4b
				Tis
				Tx
				Unknown

# Target Esophagectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Esophagectomy	Variable Options or comments
17	ESO_PATH_N	CHAR	If Malignancy, Pathologic N Stage	N/A
				N0
				N1
				N2
				N3
				Nx
				Unknown
18	ESO_PATH_M	CHAR	If Malignancy, Pathologic M Stage	M0/Mx
				M1
				N/A
				Unknown
19	ESO_MARGINS_POS	CHAR	Positive Margins	N/A
				No
				Unknown
				Yes-distal/gastric
				Yes-other description/combination
				Yes-proximal esophagus
				Yes-radial
20	ESO_ANASTOMIC	CHAR	Anastomotic Leak	Leak, no treatment intervention documented
				Leak, treated w/ interventional means
				Leak, treated w/ non-interventional means
				Leak, treated w/ reoperation
				No definitive diagnosis of leak/leak related abscess

# Target Appendectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Appendectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	APP_IMG_ULTRA	CHAR	Ultrasound Imaging Prior to Appendectomy	US done-consistent with appendicitis
				US done-indeterminate; result uncertain
				US done-not consistent with appendicitis
				US not performed/not documented
3	APP_SETTING_ULTRA	CHAR	Setting of Ultrasound	No US performed
				US at outside facility
				US in operating hospital
4	APP_IMG_CT	CHAR	CT (cross sectional) Imaging Prior to Appendectomy	CT done-result consistent with diagnosis of appendicitis
				CT done-result indeterminate; result uncertain
				CT done-result not consistent with appendicitis
				CT not performed/not documented
5	APP_SETTING_CT	CHAR	Setting of CT (cross sectional) Scan	CT at outside facility
				CT in operating hospital
				No CT performed
6	APP_MRI	CHAR	MRI or Other Definitive Imaging Modality Prior to Appendectomy	MRI / Other Definitive Imaging Modality Not Performed / Not Documented
				Result Indeterminate / Uncertain
				Result Not Consistent w/ Appendicitis; Appendix "Normal"
				Result consistent w/ diagnosis of Appendicitis
7	APP_SETTING_MRI	CHAR	Setting of MRI or Other Definitive Imaging Modality	No MRI/Other Definitive Imaging Modality Performed
				Performed at Outside Facility
				Performed in Operating Hospital
8	APP_PATHRES	CHAR	Pathology Results Indicates Appendicitis	Consistent with appendicitis
				Not consistent with appendicitis
				Other appendiceal pathology
				Pathology report not available
				Result is indeterminate or uncertain
				Tumor/malignancy involving appendix
				Unknown

# Target Appendectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Appendectomy	Variable Options or comments
9	APP_PERFABSCESS	CHAR	Perforation/Abscess of the Appendix	Abscess only
				No mention of perforation or abscess
				Perforation and abscess
				Perforation only
10	APP_APPROACH	CHAR	Operative Approach	Laparoscopic
				Laparoscopic w/ open assist
				Laparoscopic w/ unplanned conversion to open
				NULL=missing
				Open (planned)
				Other
				Other MIS approach w/ unplanned conversion to open
				Robotic
				Robotic w/ unplanned conversion to open
				SILS
11	APP_APPENDIX	CHAR	If Laparoscopic/MIS Procedure, Appendix Placed in a Specimen Bag Prior to Removal	N/A
				No
				Yes
12	APP_INTRAABSCESS	CHAR	Postoperative Intra-abdominal Abscess	No diagnosis of postoperative abscess
				Unknown
				Yes-IV antibiotics w/out procedural intervention
				Yes-no treatment or intervention
				Yes-oral/IM antibiotics w/out procedural intervention
				Yes-percutaneous drainage
				Yes-reoperation for surgical drainage, minimally invasive
				Yes-reoperation for surgical drainage, open
				Yes-transrectal/other endoscopic drainage



## Target Gyne-Reconstruction

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Reconstruction	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	GYNE_SUBSPEC	CHAR	Subspecialty	Gynecologic Oncologist
				Obstetrician-Gynecologist
				Other
				Urogynecologist
3	GYNE_PARITY	NUM	Parity	0
				1
				2
				3
				4
				5
				6
				7
				8
				9
				10
				13
4	GYNE_PRIORABD	CHAR	Prior Abdominal Operations	No
				Yes
5	GYNE_PRIORPEL	CHAR	Prior Pelvic Operations	No
				Yes
6	GYNE_ENDMET	CHAR	Endometriosis	No
				Yes
7	GYNE_ENDLOC	CHAR	Endometriosis Location	
				Genital Tract
				NULL=missing
				Pelvis
8	GYNE_PELDISEASE	CHAR	Pelvic Inflammatory Disease	Inflammation Only
				None
9	GYNE_PROPOSTOP	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Yes

## Target Gyne-Reconstruction

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Reconstruction	Variable Options or comments
10	GYNE_PROURIN	CHAR	Prolonged Urinary Retention	No
				Yes
11	DPROURIN	NUM	Number of Days of Prolonged Urinary Retention since surgery	-99=missing
12	GYNE_URETOBST	CHAR	Ureteral Obstruction	No
				Yes
13	DURETOBST	NUM	Number of Days of Ureteral Obstruction since surgery	-99=missing
14	GYNE_URETFISTULA	CHAR	Ureteral Fistula	No
15	DURETFISTULA	NUM	Number of Days of Ureteral Fistula since surgery	-99=missing
16	GYNE_BLADFISTULA	CHAR	Bladder Fistula	No
17	DBLADFISTULA	NUM	Number of Days of Bladder Fistula since surgery	-99=missing

## Target Hysterectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hysterectomy Myomectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	HYST_SUBSPEC	CHAR	Subspecialty	Gynecologic Oncologist
				Maternal Fetal Medicine
				Obstetrician-Gynecologist
				Other
				Reproductive Endocrinology
				Urogynecologist
3	HYST_PARITY	NUM	Parity	0
				1
				2
				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				18
4	HYST_PRIORABD	CHAR	Prior Abdominal Operations	No
				Yes
5	HYST_PRIORPEL	CHAR	Prior Pelvic Operations	No
				Yes
6	HYST_ENDMET	CHAR	Endometriosis	No
				Yes

## Target Hysterectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hysterectomy Myomectomy	Variable Options or comments
7	HYST_ENDLOC	CHAR	Endometriosis Location	Bowel
				Genital Tract
				NULL=missing
				Other
				Pelvis
				Urinary
8	HYST_PELDISEASE	CHAR	Pelvic Inflammatory Disease	Inflammation Only
				None
				Tubo-ovarian abscess
9	HYST_WGT	NUM	Uterine Weight (g)	-99=missing
10	HYST_WGT_UNK	CHAR	Uterine Weight Unknown	NULL=missing
				Yes
11	HYST_WGT_NA	CHAR	Uterine Weight N/A	NULL=missing
				Yes
12	HYST_GYNECANCER	CHAR	Gynecologic Cancer Case	No
				Yes
13	HYST_GROSSABDDISEASE	CHAR	Presence of Gross Abdominal Disease	NULL=missing
				No
				Yes
14	HYST_TUMORSIZE	CHAR	Size of Grossly Visible Tumor	1-2 cm
				Greater than 2 cm
				Less than 1 cm
				NULL=missing
				Visible tumor, NOS
15	HYST_ABDLYMP	CHAR	Gross Abdominal Disease-Lymph Nodes	NULL=missing
				No
				Yes
16	HYST_ABDDBOWELSER	CHAR	Gross Abdominal Disease-Bowel Serosa	NULL=missing
				No
				Yes

## Target Hysterectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hysterectomy Myomectomy	Variable Options or comments
17	HYST_ABD BOWELMES	CHAR	Gross Abdominal Disease-Bowel Mesentery (Omentum)	NULL=missing
				No
				Yes
18	HYST_ABD LIVER	CHAR	Gross Abdominal Disease-Liver	NULL=missing
				No
				Yes
19	HYST_ABD SPLEEN	CHAR	Gross Abdominal Disease-Spleen	NULL=missing
				No
				Yes
20	HYST_ABD DIAPH	CHAR	Gross Abdominal Disease-Diaphragm	NULL=missing
				No
				Yes
21	HYST_ABD PELVIS	CHAR	Gross Abdominal Disease-Pelvis	NULL=missing
				No
				Yes
22	HYST_GROSS RES DISEASE	CHAR	Presence of Gross Residual Disease	NULL=missing
				No
				Yes
23	HYST_REAMINTUMOR SIZE	CHAR	Size of Remaining Tumor	1-2 cm
				Greater than 2 cm
				Less than 1 cm
				NULL=missing
				Visible tumor, NOS
24	HYST_RES LYMP	CHAR	Gross Residual Disease-Lymph Nodes	NULL=missing
				No
				Yes
25	HYST_RES BOWEL SER	CHAR	Gross Residual Disease-Bowel Serosa	NULL=missing
				No
				Yes
26	HYST_RES BOWELMES	CHAR	Gross Residual Disease-Bowel Mesentery (Omentum)	NULL=missing
				No
				Yes

## Target Hysterectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hysterectomy Myomectomy	Variable Options or comments
27	HYST_RESLIVER	CHAR	Gross Residual Disease-Liver	NULL=missing
				No
				Yes
28	HYST_RESSPLEEN	CHAR	Gross Residual Disease-Spleen	NULL=missing
				No
				Yes
29	HYST_RESDIAPH	CHAR	Gross Residual Disease-Diaphragm	NULL=missing
				No
				Yes
30	HYST_RESPELVIS	CHAR	Gross Residual Disease-Pelvis	NULL=missing
				No
				Yes
31	HYST_CERCANCERSTAGE	CHAR	Cervical Cancer FIGO Stage	NULL=missing
32	HYST_CORCANCERSTAGE	CHAR	Corpus Uteri Cancer Stage	0
				I
				IA
				IB
				II
				III
				IIIA
				IIIB
				IIIC
				IIIC1
				IIIC2
				IV
				IVA
				IVB
				N/A - Not a corpus uteri cancer case
NOS				
NULL=missing				
33	HYST_OVARCANCERSTAGE	CHAR	Ovarian Cancer Stage	NULL=missing

## Target Hysterectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hysterectomy Myomectomy	Variable Options or comments
34	HYST_INTESTOBS	CHAR	Intestinal Obstruction	No
				Yes
35	DINTESTOBST	NUM	Number of Days of Intestinal Obstruction since surgery	-99=missing
36	HYST_PROPOSTOP	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Yes
37	HYST_ANASTLEAK	CHAR	Anastomotic Leak	No definitive diagnosis of leak or leak related abscess
				Yes-Leak, no treatment intervention
				Yes-Leak, reoperation
				Yes-Leak, treated with NPO, Antibiotics, TPN
				Yes-Leak, treated with percutaneous/radiological/endoscopic means
38	HYST_URETOBS	CHAR	Ureteral Obstruction	No
				Yes
39	DURETOBST	NUM	Number of Days of Ureteral Obstruction since surgery	-99=missing
40	HYST_URETFISTULA	CHAR	Ureteral Fistula	No
				Yes
41	DURETFISTULA	NUM	Number of Days of Ureteral Fistula since surgery	-99=missing
42	HYST_BLADFISTULA	CHAR	Bladder Fistula	No
				Yes
43	DBLADFISTULA	NUM	Number of Days of Bladder Fistula since surgery	-99=missing

# Target Hip Fracture

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hip Fracture	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	HIP_PREOP_DEMENTIA	CHAR	Pre-operative dementia	No
				Yes
3	HIP_PREOP_DELIRIUM	CHAR	Pre-operative delirium	No
				Yes
4	HIP_PREOP_BONEMEDS	CHAR	Pre-fracture bone protection medication prescription	No
				Yes
5	HIP_PREOP_MOBAID	CHAR	Use of Mobility Aid	No
				Unknown
				Yes
6	HIP_PREOP_PRESSORE	CHAR	Pre-operative pressure sore	No
				Yes
7	HIP_MED_COMGMT	CHAR	Medical co-management	No
				Yes-co-management throughout stay
				Yes-partial co-management during stay
8	HIP_STDCARE	CHAR	Standardized hip fracture care program	No
				Yes
9	HIP_WBAT_POD1	CHAR	Weight bearing as tolerated (WBAT) on POD #1	N/A (bed-ridden or other medical issues)
				No
				Yes
10	HIP_DVT_28D	CHAR	Medical DVT prophylaxis continued 28 days post-op	NULL=missing
				No
				Yes
11	HIP_FRACTYPE	CHAR	Type/location of fracture	Femoral neck fracture (subcapital, Garden types 1 and 2)-undisplaced
				Femoral neck fracture (subcapital, Garden types 3 and 4)-displaced
				Intertrochanteric
				Other/cannot be determined
				Subtrochanteric



# Target Hip Fracture

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Hip Fracture	Variable Options or comments
12	HIP_PATHFRAC	CHAR	Pathological fracture	Atypical
				None
				Tumor
13	HIP_POST_PRESSORE	CHAR	New post-operative pressure sore	No
				Yes
14	HIP_POST_DELIRIUM	CHAR	Post-operative delirium	NULL=missing
				No
				Yes
15	HIP_POST_MOBAID	CHAR	Postoperative use of mobility aid	N/A
				No
				Unknown
				Yes
16	HIP_POST_BONEMEDS	CHAR	Prescription of post-op bone protection medication	No
				Yes
17	HIP_RES30D	CHAR	Place of residence at 30 days post-op	Expired
				Facility which was home
				Home
				Separate acute care
				Skilled care
				Still in hospital
				Unknown
				Unskilled facility

# Target Cystectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Cystectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	CYST_ANASTLEAK	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
3	CYST_APPROACH	CHAR	Operative Approach	Hybrid Hybrid w/ open assist Laparoscopic Laparoscopic w/ open assist Laparoscopic w/ unplanned conversion to open NULL=missing Open (planned) Robotic Robotic w/ open assist (i.e. hand assist) Robotic w/ unplanned conversion to open
4	CYST_CHEMO	CHAR	Chemotherapy Within 90 Days	No Yes
5	CYST_DRAINS	CHAR	Drains	No Yes
6	CYST_LYMPH_OTHFLUID	CHAR	Lymphocele, Lymphatic Leak, or Other Fluid Collection	No Yes, intervention required Yes, no treatment intervention documented Yes, reoperation required
7	CYST_MALIGNANCYM	CHAR	If Malignancy, Pathologic M Stage	M0 M1 M1a M1b N/A Unknown

## Target Cystectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Cystectomy	Variable Options or comments
8	CYST_MALIGNANCYN	CHAR	If Malignancy, Pathologic N stage	N/A
				N0
				N1
				N2
				N3
				Nx
				Unknown
9	CYST_MALIGNANCYT	CHAR	If Malignancy, Pathologic T Stage	N/A
				T0
				T1
				T2
				T3
				T4
				T4a
				T4b
				Ta
				Tis
				Tx
				Unknown
				pT2a
				pT2b
				pT3a
pT3b				
10	CYST_MECH_BOWEL_PREP	CHAR	Preoperative Mechanical Bowel Prep	No
				Unknown
				Yes
11	CYST_NODESEVAL	NUM	Number of Nodes Evaluated	-99=missing
12	CYST_NODESEVAL_ND	NUM	Number of Nodes Evaluated (Unknown)	-99=missing
13	CYST_ORAL_ANTIBIOTIC	CHAR	Preoperative Oral Antibiotic Prep	No
				Unknown
				Yes

## Target Cystectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Cystectomy	Variable Options or comments
14	CYST_PERI_ANTIBIOTICS	CHAR	Perioperative Antibiotic Use (<72 hours)	No, >72 hrs
				No, no antibiotics used/documented
				Yes, 24-72 hrs
				Yes, <24 hrs or intraop use only
15	CYST_POSTVTE_METHOD	CHAR	Method of Postoperative VTE Prophylaxis	Mechanical and pharmacologic
				Mechanical only
				None
				Pharmacologic only
16	CYST_PRIOR_PRADIO	CHAR	Prior Pelvic Radiotherapy	No
				Yes
17	CYST_PRIORPEL	CHAR	Prior Pelvic Operations	No
				Yes
18	CYST_PROPOSTOP	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Yes
19	CYST_RECTINJ	CHAR	Rectal Injury	No definitive diagnosis
				Yes, intraop detection repaired primarily, no resection
				Yes, intraop detection requiring diversion
				Yes, intraop detection requiring resection
				Yes, postop injury treated w/ NPO, antibiotics, TPN, other non-interventional means
				Yes, postop injury treated w/ percutaneous/radiologic/endoscopic interventional means; no reop
				Yes, postop injury w/ reoperation
20	CYST_STENTS	CHAR	Stents	No
				Yes
21	CYST_URETFISTULA	CHAR	Urinary Leak/Fistula	No
				Yes

# Target Cystectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Cystectomy	Variable Options or comments
22	CYST_URETOBS	CHAR	Ureteral Obstruction	No
				Yes, requiring intervention
				Yes, unchanged from preop
				Yes, without intervention
				Yes, worsened from preop but without intervention
				Yes, worsened from preop requiring intervention

## Target Nephrectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Nephrectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	NEPH_ANASTLEAK	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
3	NEPH_APPROACH	CHAR	Operative Approach	Endoscopic w/ open assist
				Hybrid
				Hybrid w/ open assist
				Hybrid w/ unplanned conversion to open
				Laparoscopic
				Laparoscopic w/ open assist
				Laparoscopic w/ unplanned conversion to open
				NULL=missing
				Open (planned)
				Robotic
				Robotic w/ open assist (i.e. hand assist)
				Robotic w/ unplanned conversion to open
				Unknown
4	NEPH_CHEMO	CHAR	Chemotherapy Within 90 Days	No
				Yes
5	NEPH_DRAINS	CHAR	Drains	No
				Yes
6	NEPH_LYMPH_OTHFLUID	CHAR	Lymphocele, Lymphatic Leak, or Other Fluid Collection	No
				Yes, intervention required
				Yes, no treatment intervention documented
				Yes, reoperation required

## Target Nephrectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Nephrectomy	Variable Options or comments
7	NEPH_MALIGNANCYM	CHAR	If Malignancy, Pathologic M Stage	M0
				M1
				N/A
				Unknown
8	NEPH_MALIGNANCYN	CHAR	If Malignancy, Pathologic N stage	N/A
				N0
				N1
				Nx
				Unknown
9	NEPH_MALIGNANCYT	CHAR	If Malignancy, Pathologic T Stage	N/A
				T0
				T1
				T1a
				T1b
				T2
				T2a
				T2b
				T3
				T3a
				T3b
				T3c
				T4
				Tx
Unknown				
10	NEPH_MECH_BOWEL_PREP	CHAR	Preoperative Mechanical Bowel Prep	No
				Unknown
				Yes
11	NEPH_NODESEVAL	NUM	Number of Nodes Evaluated	-99=missing
12	NEPH_NODESEVAL_ND	NUM	Number of Nodes Evaluated (Unknown)	-99=missing
13	NEPH_ORAL_ANTIBIOTIC	CHAR	Preoperative Oral Antibiotic Prep	No
				Unknown
				Yes

## Target Nephrectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Nephrectomy	Variable Options or comments
14	NEPH_PERI_ANTIBIOTICS	CHAR	Perioperative Antibiotic Use (<72 hours)	No, >72 hrs
				No, no antibiotics used/documented
				Yes, 24-72 hrs
				Yes, <24 hrs or intraop use only
15	NEPH_POSTVTE_METHOD	CHAR	Method of Postoperative VTE Prophylaxis	Mechanical and pharmacologic
				Mechanical only
				None
				Pharmacologic only
16	NEPH_PRIOR_PRADIO	CHAR	Prior Pelvic Radiotherapy	No
				Yes
17	NEPH_PRIORPEL	CHAR	Prior Pelvic Operations	No
				Yes
18	NEPH_PROPOSTOP	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Yes
19	NEPH_RECTINJ	CHAR	Rectal Injury	No definitive diagnosis
				Yes, intraop detection repaired primarily, no resection
				Yes, intraop detection requiring resection
				Yes, postop injury w/ reoperation
20	NEPH_STENTS	CHAR	Stents	No
				Yes
21	NEPH_URETFISTULA	CHAR	Urinary Leak/Fistula	No
				Yes
22	NEPH_URETOBS	CHAR	Ureteral Obstruction	No
				Yes, requiring intervention
				Yes, unchanged from preop
				Yes, without intervention
				Yes, worsened from preop requiring intervention



# Target Prostatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Prostatectomy	Variable Options or comments
1	CASEID	NUM		You need this unique CASEID to merge with regular PUF dataset.
2	PRST_ANASTLEAK	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
3	PRST_APPROACH	CHAR	Operative Approach	Hybrid Hybrid w/ open assist Laparoscopic Laparoscopic w/ open assist Laparoscopic w/ unplanned conversion to open NULL=missing Open (planned) Other Robotic Robotic w/ open assist (i.e. hand assist)
4	PRST_CHEMO	CHAR	Chemotherapy Within 90 Days	No Yes
5	PRST_DRAINS	CHAR	Drains	No Yes
6	PRST_LYMPH_OTHFLUID	CHAR	Lymphocele, Lymphatic Leak, or Other Fluid Collection	No Yes, intervention required Yes, no treatment intervention documented Yes, reoperation required
7	PRST_MALIGNANCYM	CHAR	If Malignancy, Pathologic M Stage	M0 M1 M1a M1c N/A Unknown

# Target Prostatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Prostatectomy	Variable Options or comments
8	PRST_MALIGNANCYN	CHAR	If Malignancy, Pathologic N stage	N/A
				N0
				N1
				Nx
				Unknown
9	PRST_MALIGNANCYT	CHAR	If Malignancy, Pathologic T Stage	N/A
				T0
				T1
				T1a
				T1b
				T1c
				T2
				T2a
				T2b
				T2c
				T3
				T3a
				T3b
				T4
				Tx
Unknown				
10	PRST_MECH_BOWEL_PREP	CHAR	Preoperative Mechanical Bowel Prep	No
				Unknown
				Yes
11	PRST_NODESEVAL	NUM	Number of Nodes Evaluated	-99=missing
12	PRST_NODESEVAL_ND	NUM	Number of Nodes Evaluated (Unknown)	-99=missing
13	PRST_ORAL_ANTIBIOTIC	CHAR	Preoperative Oral Antibiotic Prep	No
				Unknown
				Yes

# Target Prostatectomy

Position #	Variable Name	Data Type	Searching term in Chap 4 for Targeted Prostatectomy	Variable Options or comments
14	PRST_PERI_ANTIBIOTICS	CHAR	Perioperative Antibiotic Use (<72 hours)	No, >72 hrs
				No, no antibiotics used/documented
				Yes, 24-72 hrs
				Yes, <24 hrs or intraop use only
15	PRST_POSTVTE_METHOD	CHAR	Method of Postoperative VTE Prophylaxis	Mechanical and pharmacologic
				Mechanical only
				None
				Pharmacologic only
16	PRST_PRIOR_PRADIO	CHAR	Prior Pelvic Radiotherapy	No
				Yes
17	PRST_PRIORPEL	CHAR	Prior Pelvic Operations	No
				Yes
18	PRST_PROPOSTOP	CHAR	Prolonged Postoperative NPO or NGT Use	No
				Yes
19	PRST_RECTINJ	CHAR	Rectal Injury	No definitive diagnosis
				Yes, intraop detection repaired primarily, no resection
				Yes, intraop detection requiring diversion
				Yes, postop injury treated w/ NPO, antibiotics, TPN, other non-interventional means
20	PRST_STENTS	CHAR	Stents	No
				Yes
21	PRST_URETFISTULA	CHAR	Urinary Leak/Fistula	No
				Yes
22	PRST_URETOBS	CHAR	Ureteral Obstruction	No
				Yes, requiring intervention
				Yes, without intervention
				Yes, worsened from preop but without intervention
				Yes, worsened from preop requiring intervention

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