Effective July 1, 2023

CONGENITAL HEART SURGERY DATABASE TRAINING MANUAL PAGE

STS National Database™
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Data Manager Quick Links

The links included below link to documents on the STS website and/or IQVIA platform which require a login and password to access.

STS National Database Website

Main page for national database information including a link to data manager resources.

Resources for Data Managers

Links to resources including mentorship program, clinical question request (FAQ) form, support contact information, participation forms (schedule A and B), database webinars, and a link to data collection resources for the CHSD.

Data Collection Resources

Links to version specific documents and resources including data collection forms and the training manual. Also includes the following documents referred to in the Training Manual: Appendix C: STAT Categories, Rules to Determine Primary Diagnosis and Primary Procedure, and STS Combination Procedure Codes.

Public Reporting

Public reporting for the CHSD including explanation of the CHSD outcomes and a link to the CHSD mortality risk model.

Question Submission

Submit clinical questions to the CHSD Core Group.

IQVIA

Portal to upload data, perform data cleanup, and complete harvest preparation activities. Includes the analysis report overview and the analysis report calculation spreadsheet. Access to the unadjusted participant dashboard and risk adjusted dashboard reports.

Important Training Manual Contacts: (names link to email)

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CHSD Training Manual Information

The training manual is intended to clarify field definition and intent for congenital heart surgery database (CHSD) version 6.23.2 data abstraction. Do not refer to previous training manuals or field definition from prior database versions.

Please review this document prior to submitting clinical questions. Please remember individual questions will no longer be posted in the training manual. Additional updates and clarifications included in this document will be dated and denoted in red font.

Updates and clarifications are anticipated; thus, it is not advised to print the training manual. The most recent and up to date manual will be posted on the website. Major updates will be presented on a data manager webinar and/or included in STS Database News. An additional document listing the cumulative updates will be available.

When abstracting data, use the most current training manual available, closest to the surgical date.

CHSD General Information

Case Inclusion – all cases performed by a congenital cardiothoracic surgeon included on a participant's Schedule A and per the STS contract are to be included in the CHSD. Single institution contracts allow only the cases completed at the single facility to be entered. Multi-institutional contracts allow for cases completed at the listed facilities to be entered.

The current recommendation for the adult congenital patients is to continue to enter the cases as you have been in the past. For example, a free-standing children's hospital will continue to enter every procedure completed at their institution. An institution with both pediatric and adult surgical services will continue to the combined patients in the congenital or adult database or both. Institutions should have a consistent data entry strategy at the programmatic level and not make the determination based on a patient's outcome. More guidance on adult congenital case inclusion is anticipated.

Data Collection Form – a new data collection form (DCF) is generated for each case performed, including all operation types and reoperations etc. Data managers can elect to print the version specific DCF or directly enter the data into their software or direct data entry in IQVIA.

CHSD Common Terms

Procedure Location – procedures may be completed in any setting (e.g., operating room, procedure suite, cardiac catheterization lab, intensive care unit, emergency department etc.) and should be included into the database regardless of the location.

Episode of Care (EOC) – most of the time, an EOC will encompass a single hospital admission. Less commonly, an EOC may encompass a string of two or more hospital admissions when a patient is readmitted to the same surgical hospital after discharge to another acute care/chronic care facility without having been discharged to home or residing in the chronic care facility for 183 consecutive postoperative days. Each EOC will have one index operation which will be analyzed. The end of the EOC is denoted by the database discharge date.

> *EOC Example:* following a Norwood procedure, a patient transfers to a hospital closer to home for continued feeding therapy. The patient experiences respiratory distress and is readmitted to the surgical hospital for open drainage of a pericardial effusion. The patient again transfers back to the acute care hospital. The patient never discharges to home and is ultimately readmitted to the surgical hospital for their Glenn procedure and discharges to home.
>
> While the patient experienced three surgical hospital admissions, this represents one EOC given the patient never discharged to home or resided in a chronic care facility for 183 consecutive postoperative days. The index operation of the EOC is the Norwood procedure. The end of the EOC (and the end date of database tracking) for all three admissions is the date the patient discharged to home following the Glenn procedure.

Surgical Hospital – refers to the hospital where the procedure the data manager is collecting data for occurs.

Index Operation – refers to the first operation of the episode of care (EOC) of operation type CPB Cardiovascular or No CPB Cardiovascular. All the analyses including mortality calculation will be performed for the index operation. Each EOC will have one index operation.

A. ADMINISTRATIVE

Long Name: Participant ID

SeqNo:	5
Short Name:	ParticID
Database Table Name:	Operations
Data Source:	User or Automatic
Format:	Text
Definition:	Participant ID is a unique number assigned to each database participant by the STS. A database participant is defined as one entity that signs a Participation Agreement with the STS, submits one data file to the harvest, and gets back one report on their data. The participant ID must be entered into each record. Each participant's data, if submitted to harvest, must be in one data file. If one participant keeps their data in more than one file (e.g., at two sites), then the participant must combine them back into one file for harvest submission. If two or more participants share a single purchased software, and enter cases into one database, then the data must be extracted into two different files, one for each participant ID, with each record having the correct participant ID number.

Intent/Clarification:

Automatically generated by STS for each participant.

Long Name: STS Data Version

SeqNo: 10

Short Name:	DataVrsn
Database Table Name:	Operations
Data Source:	Automatic
Format:	Text
Definition:	Version number of the STS Data Specifications/Dictionary, to which each record conforms. It will identify which fields should have data, and what are the valid data for each field. This must be entered into the record automatically by the software at the time the record is created.

Intent/Clarification:

Automatically generated by the software based on the date of surgery.

Long Name: Software Vendor Identifier

SeqNo:	15
Short Name:	VendorID
Database Table Name:	Operations
Data Source:	Automatic
Format:	Text
Definition:	Identifying code (assigned by STS) given to identify software vendor. Vendors should use standard name identification across sites. Changes to Software Vendor Identifier must be reported to the STS.

Intent/Clarification:

Automatically generated by the institution's software.

Long Name: Operation Table Record Identifier

SeqNo:	25
Short Name:	OperationID
Database Table Name:	Operations
Data Source:	Automatic
Format:	Text
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. The value of the identifier is a combination of a code assigned to the software developer by the STS, and a value generated by the software to create a unique value. Once assigned to a record, this number can never be changed or reused. The data warehouse will use this value to communicate issues about individual records with the participant. This field is the primary key that links this record with the associated records in the Diagnosis, Risk Factors, Preoperative Factors, Procedures, Complications, Anesthesia Adverse Events, Preoperative Medications, Intraoperative Pharmacology, and ICU Pharmacology tables.

Intent/Clarification:

Automatically generated by the institution's software.

Long Name: Operations Link to Demographics Table

SeqNo:	30
Short Name:	PatID
Database Table Name:	Operations
Data Source:	Automatic
Format:	Text
Definition:	An arbitrary, unique value generated by the software that permanently identifies each patient demographic record in the participant's database. This field is the foreign key that links this record with the associated record in the Demographics table.

Intent/Clarification:

Automatically generated by the institution's software.

Long Name: Patient Participating In STS-Related Clinical Trial

SeqNo:	35
Short Name:	ClinTrial
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate which, if any, STS-related clinical trial in which the patient is participating. The STS will assign a code to each clinical trial as they begin collecting data.

Harvest Codes:

Code:	Value:
1	None
2	Trial 1
3	Trial 2
4	Trial 3
5	Trial 4
6	Trial 5
7	Trial 6

Intent/Clarification:

STS will assign when a site is participating.

Long Name: Patient Participating In STS-Related Clinical Trial - Patient ID

SeqNo:	40
Short Name:	ClinTrialPatID
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the patient identifier used to identify the patient in the clinical trial.
ParentLongName:	Patient Participating In STS-Related Clinical Trial
ParentShortName:	ClinTrial
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "None" And Is Not Missing

Intent/Clarification:

Participating site to enter the trial/study specific patient ID.

B. DEMOGRAPHICS

Long Name: Demographics Table Patient Identifier

SeqNo:	45
Short Name:	PatID
Database Table Name:	Demographics
Data Source:	Automatic
Format:	Text
Definition:	An arbitrary value (not a recognizable ID like Social Security Number or Medical Record Number) that uniquely and permanently identifies each patient. The value of the identifier is a combination of a code assigned to the software developer by the STS, and a value generated by the software to create a unique value. Once assigned to a patient, this can never be changed or reused. This field is the primary key that links this demographic record with the associated records in the Non-Cardiac Abnormalities, Noncardiac Congenital Anatomic Abnormalities, Chromosomal Abnormalities, and Syndromes tables.

Intent/Clarification:

Automatically generated by the institution's software.

Long Name: Demographics Table Data Version

SeqNo:	50
Short Name:	DemogDataVrsn
Database Table Name:	Demographics
Data Source:	Automatic
Format:	Text
Definition:	Version number of the STS Data Specifications/Dictionary, to which this Demographics record conforms as assigned by the software. This value will determine which fields should have data and what are the valid data for each field. This must be entered into the record automatically by the software at the time the record is created. See Software Specifications document for description of how this value can be modified after the record was created.

Intent/Clarification:

Automatically generated by the institution's software.

Long Name: Patient National Identification (Social Security Number)

SeqNo:	55
Short Name:	PatNationalID
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the patient's Social Security Number (SSN). Although this is the Social Security Number in the USA, other countries may have a different National Patient Identifier Number. For example, in Canada, this would be the Social Insurance Number. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s Social Security Number (SSN). Although this is the SSN in the USA, other countries may have a different national identifier number, for example, in Canada, enter the Social Insurance Number.

This field should be collected in compliance with state/local privacy laws.

Long Name: Medical Record Number

SeqNo:	60
Short Name:	MedRecN
Database Table Name:	Demographics Data
Source:	User
Format:	Text
Definition:	Indicate the patient's medical record number at the hospital where surgery occurred. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s medical record number (MRN) documented at the surgical hospital.

Long Name: Patient Last Name

SeqNo:	65
Short Name:	PatLName
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the patient's last name documented in the medical record. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s last name documented at the surgical hospital.

Long Name: Patient First Name

SeqNo:	70

Short Name:	PatFName
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the patient's first name documented in the medical record. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s first name documented at the surgical hospital.

Long Name: Patient Middle Name

SeqNo:	75
Short Name:	PatMName
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the patient's middle name or middle initial as documented in the medical record. Leave "blank" if no middle name. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s middle name documented at the surgical hospital.

Long Name: Patient’s Postal Code

SeqNo:	80
Long Name:	Patient's Postal Code
Short Name:	PatPostalCode
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the ZIP Code of the patient's residence. Outside the USA, this data may be known by other names such as Postal Code.

This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient's postal code (zip code if the patient resides in the United States) documented at the surgical hospital.

Long Name: Patient's Permanent Street Address

SeqNo:	85
Short Name:	PatAddr
Database Table Name:	Demographics
Data Source:	User
Format:	Text
Definition:	Indicate the patient's permanent address. This should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient's permanent street address documented at the surgical hospital.

If the medical record does not document if the address is permanent or not, then use the street address at which the patient resides at time of admission. If patient is homeless, enter "Homeless" as text. A post office box may be used if no other address is available. If the patient has multiple addresses, choose the address where they spend most of their time.

The intent is to identify patients who travel outside their local area for treatment. CMS is tracking disparities in health care delivery and looking at underserved areas. This also assists with long term follow up locally.

Long Name: Patient's Permanent City

SeqNo:	90
Short Name:	PatCity
Database Table Name:	Demographics
Data Source:	Lookup
Format:	Text
Definition:	Indicate the patient's permanent city. This should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient's city of residence documented at the surgical hospital.

If the medical record does not document whether the city is permanent or not, use the city in which the patient resides at time of admission.

Long Name: Patient's Region

SeqNo:	95
Short Name:	PatRegion
Database Table Name:	Demographics
Data Source:	Lookup
Format:	Text
Definition:	Indicate the region of the country (i.e., state or province) in which the patient permanently resides at time of admission.

Intent/Clarification:

Indicate the patient's region (state or province) documented at the surgical hospital.

If the medical record does not document whether the state/province is permanent or not, use the state/province in which the patient resides at time of admission.

Long Name: Patient's Country

SeqNo:	100
Short Name:	PatientCountry
Database Table Name:	Demographics
Data Source:	User or Lookup
Format:	Text
Definition:	Indicate the patient's country of residence at time of admission. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient's country of residence documented at the surgical hospital.

If the medical record does not document whether the country of residence is permanent or not, use the country in which the patient resides at time of admission.

Long Name: Race Documented

SeqNo: 105
Short Name: RaceDocumented
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether race is documented.
Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Patient declined to disclose

Intent/Clarification:

Indicate if the patient's race is documented at the surgical hospital.

Race should be self-reported by the patient/family. Do not assign race or make assumptions if race is not documented.

Coding Info:

- If the medical record documents "two or more races" as the race selection, code (2) No (race is not documented).
- If Hispanic/Latino ethnicity is listed in the medical record as the patient's race, code (2) No (race is not documented).

Long Name: Race - Multi-Select

SeqNo: 110
Short Name: RaceMulti
Database Table Name: Demographics
Data Source: User
Format: Multi-Select
Definition: Indicate the patient's race(s). Select all that apply.
ParentLongName: Race Documented
ParentShortName: RaceDocumented
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:

1 White/Caucasian
2 Black/African American
3 Asian
4 American Indian/Alaskan Native
5 Native Hawaiian/Pacific Islander
6 Other

Intent/Clarification:

If race documented, indicate the patient's race.

The U.S. Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget and these data are based on self-identification. The racial categories included in the census form generally reflect a social definition of race recognized in this country and are not an attempt to define race biologically, anthropologically, or genetically. In addition, it is recognized that categories of the race item include racial and national origin or socio-cultural groups.

People may choose to report more than one race to indicate their racial mixture, such as American Indian and White.

People who identify their origin (ethnicity) as Hispanic/Latino may be of any race. If a race is not specified for Hispanic/Latino patients, code race (SeqNo 105) as No (race is not documented).

Race Descriptions

White - "White" refers to a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicated their race(s) as "White" or reported entries such as Irish, German, Italian, Lebanese, Arab, Moroccan, or Caucasian. [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]

Black / African American - "Black or African American" refers to a person having origins in any of the Black racial groups of Africa. It includes people who indicated their race(s) as "Black, African Am., or Negro" or reported entries such as African American, Kenyan, Nigerian, or Haitian. This includes a person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American." [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]. Definition source: Standards for Maintaining, Collecting and Presenting Federal Data on Race and Ethnicity: The minimum categories for data on race and ethnicity for Federal statistics, program administrative reporting and civil rights compliance reporting.

Asian - "Asian" refers to a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. It includes people who indicated their race(s) as "Asian" or reported entries such as "Asian Indian", "Chinese", "Filipino", "Korean", "Japanese", "Vietnamese", and "Other Asian" or provided other

detailed Asian responses. [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]. Definition source: Standards for Maintaining, Collecting and Presenting Federal Data on Race and Ethnicity: The minimum categories for data on race and ethnicity for Federal statistics, program administrative reporting and civil rights compliance reporting.

American Indian / Alaskan - "American Indian or Alaska Native" refers to a person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment. This category includes people who indicated their race(s) as "American Indian or Alaska Native" or reported their enrolled or principal tribe, such as Navajo, Blackfeet, Inupiat, Yupik, or Central American Indian groups or South American Indian groups. This includes all in North American native peoples such as American Indian/Alaskan Native, Inuit. [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]

Native Hawaiian / Pacific Islander - "Native Hawaiian or Other Pacific Islander" refers to a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. It includes people who indicated their race(s) as "Pacific Islander" or reported entries such as "Native Hawaiian", "Guamanian or Chamorro", "Samoan", and "Other Pacific Islander" or provided other detailed Pacific Islander responses. [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]. Definition source: Standards for Maintaining, Collecting and Presenting Federal Data on Race and Ethnicity. The minimum categories for data on race and ethnicity for Federal statistics, program administrative reporting and civil rights compliance reporting.

Other - "Some Other Race" includes all other responses not included in the White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander race categories described above. [The 2010 Census Redistricting Data (Public Law 94-171) Summary File]

Long Name: Hispanic Or Latino Ethnicity

SeqNo:	145
Short Name:	Ethnicity
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if the patient is of Hispanic or Latino ethnicity as determined by the patient / family. Hispanic or Latino ethnicity includes patient report of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Not documented

Intent/Clarification:

People who identify their origin as Hispanic, Latino or Spanish may be of any race**.** Do not make assumptions about ethnicity if it is not documented in the medical record.

C. BIRTH INFORMATION

Long Name: Date of Birth

SeqNo:	160
Short Name:	DOB
Database Table Name:	Demographics
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the patient's date of birth using 4-digit format for year. This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Indicate the patient’s date of birth.

Long Name: Sex At Birth

SeqNo:	165
Short Name:	Gender
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the patient's gender at birth.

Harvest Codes:

Code:	Value:
1	Male

2 Female
3 Ambiguous

Intent/Clarification:

Indicate the patient's sex/gender at birth. This is not intended to capture gender identity.

If ambiguous at birth, update this field once genetic testing is resulted.

Long Name: Blood Type

SeqNo: 170
Short Name: BldTyp
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the patient's blood type.
Harvest Codes:

Code:	Value:
1	A
2	B
3	O
4	AB
5	Unknown

Intent/Clarification:

Indicate the patient's blood type, otherwise indicate unknown.

Long Name: Rhesus Factor

SeqNo: 175
Short Name: RhFactor
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the patient's Rh factor.
Harvest Codes:

Code:	Value:
1	Positive
2	Negative

3 Unknown

Intent/Clarification:

Indicate the patient's Rhesus (Rh) factor, otherwise indicate unknown.

Long Name: Birth Information Known

SeqNo: 300
Short Name: BirthInfoKnown
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient's birth information is known.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if any of the following are known for the patient:

- Birth weight (in kg)
- Premature birth (yes/no)
- Gestational age (in weeks)

Long Name: Birth Weight Known

SeqNo: 305
Short Name: BirthWtKnown
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient's birth weight is known.
ParentLongName: Birth Information Known
ParentShortName: BirthInfoKnown
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If birth information known, indicate if the patient's birth weight is known.

Long Name: Birth Weight

SeqNo:	310
Short Name:	BirthWtKg
Database Table Name:	Demographics
Data Source:	User
Format:	Real
Definition:	Indicate the weight in kilograms of the patient at birth.
Low Value:	0.100
High Value:	10.000
ParentLongName:	Birth Weight Known
ParentShortName:	BirthWtKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes

Intent/Clarification:

If the patient's birth weight is known, enter the birthweight in kilograms (kg).

Long Name: Premature Birth

SeqNo:	315
Short Name:	Premature
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was born prematurely as defined by a gestational period of less than 37 weeks.
ParentLongName:	Birth Information Known
ParentShortName:	BirthInfoKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If birth information is known, indicate if the patient was born prematurely defined as < 37 weeks gestation.

This field is intended to capture completed weeks of gestation, do not round up. For example, if the patient's gestational age is 36 weeks and 5 days, enter Yes. If the medical record states the patient was born 'full term' or 'at term', code as (2) No.

Long Name: Gestational Age At Birth Known

SeqNo:	320
Short Name:	GestAgeKnown
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient's gestational age at birth is known.
ParentLongName:	Birth Information Known
ParentShortName:	BirthInfoKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If birth information known, indicate if the patient's gestational age is known.

If the medical record states the patient was born 'full term' or 'at term', code as (2) No.

Long Name: Gestational Age At Birth In Weeks

SeqNo:	325
Short Name:	GestAgeWeeks

Database Table Name:	Demographics
Data Source:	User
Format:	Integer
Definition:	Indicate the number of full weeks in the patient's estimated gestational age at birth. This field is a required field for neonates and infants and is an optional field for children and adults.
Low Value:	16
High Value:	44
ParentLongName:	Gestational Age At Birth Known
ParentShortName:	GestAgeKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes

Intent/Clarification:

If gestational age known, enter the number of full weeks gestation completed.

This field is intended to capture completed weeks of gestation, do not round up. For example, if the patient’s gestational age is 36 weeks and 5 days, enter 36 weeks.

Long Name: Gestational Age at Birth In Days

SeqNo:	330
Short Name:	GestAgeDays
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the number of additional days in the patient’s estimated gestational age at birth. (Example, 36 weeks, 5 days.) This field is a required field for neonates and infants and is an optional field for children and adults.
ParentLongName:	Gestational Age At Birth Known
ParentShortName:	GestAgeKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes

Harvest Codes:

Code:	Value:
0	0
1	1
2	2

3	3
4	4
5	5
6	6
9	Unknown

Intent/Clarification:

Indicate the number of additional days gestation completed.

For example, if the patient's gestational age is 36 weeks and 5 days, enter 5 days.

Long Name: Multiple Gestation

SeqNo:	335
Short Name:	MultGest
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was part of a multiple gestation, such as twins or triplets.

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

Indicate if the patient was part of a multiple gestation pregnancy, i.e., twin or triplet etc.

Long Name: Antenatal Diagnosis of Congenital Heart Disease

SeqNo:	340
Short Name:	AntenatalDiag
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a cardiac anomaly was diagnosed antenatally (e.g., fetal ultrasound).

Harvest Codes:

Code:	Value:
1	Yes
2	No

3 Unknown

Intent/Clarification:

Indicate if the patient was diagnosed with congenital heart disease/cardiac anomaly in utero.

Coding Notes:

Code (1) Yes:

- if the patient was suspected to have congenital heart disease where imaging could not make a definitive diagnosis.
- if congenital heart disease is confirmed even if the post-birth diagnosis is different from the diagnosis made prenatally.

Long Name: Pregnancy Related Complications

SeqNo:	345
Short Name:	PregComplications
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the mother had any pregnancy-related complications.

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

Code (1) Yes if an official diagnosis of one of the following pregnancy related complications was made in the medical record.

- Pre-eclampsia
- Hypertension
- Polyhydramnios
- Hydrops fetalis
- Intrauterine Growth Restriction
- HELLP Syndrome
- Oligohydramnios
- Maternal Smoking
- Fetal Alcohol Exposure
- Fetal Drug Exposure
- Maternal Diabetes
- Other pregnancy related complication

Long Name: Pregnancy Related Complications - Multi-select

SeqNo: 350
Short Name: PregCompMulti
Database Table Name: Demographics
Data Source: User
Format: Multi-Select
Definition: Indicate the pregnancy related complication(s). Select all that apply.
ParentLongName: Pregnancy Related Complications
ParentShortName: PregComplications
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Pre-eclampsia
2	Hypertension
3	Polyhydramnios
4	Hydrops fetalis
5	Intrauterine Growth Restriction
6	HELLP Syndrome
7	Oligohydramnios
8	Maternal Smoking
9	Fetal Alcohol Exposure
10	Fetal Drug Exposure
11	Maternal Diabetes
12	Other

Intent/Clarification:

If the mother experiences a pregnancy related complication, indicate the complication(s).

Code:	Value:	Definition:
1	Pre-eclampsia	Documented preeclampsia during pregnancy.
2	Hypertension	Documented hypertension during pregnancy.
3	Polyhydramnios	Documented polyhydramnios during pregnancy.
4	Hydrops fetalis	Documented hydrops fetalis during pregnancy.

Code:	Value:	Definition:
5	Intrauterine Growth Restriction	Documented intrauterine growth restriction (IUGR) during pregnancy.
6	HELLP Syndrome	Documented HELLP Syndrome (hemolysis, elevated liver enzymes, low platelet count) during pregnancy.
7	Oligohydramnios	Documented oligohydramnios during pregnancy. Includes anhydramnios (no amniotic fluid).
8	Maternal Smoking	Documented smoking or vaping of any substance, including but not limited to tobacco and/or marijuana.
9	Fetal Alcohol Exposure	Any documented alcohol consumption during the pregnancy.
10	Fetal Drug Exposure	Any reported/documented use of the following categories of substances based on their potential teratogenic effect (harm to fetus). *Note:* The FDA has updated their labeling requirements for prescription medications and no longer requires the lettered categories, but narrative information regarding risk during pregnancy. Prescription drugs approved prior to 2015 have an assigned lettered category whereas prescription drugs approved after the labeling rule will not. • All federally illicit drugs - heroin, lysergic acid diethylamide (LSD), marijuana, methylenedioxymethamphetamine (ecstasy), methaqualone, peyote etc. Includes abuse of prescription drugs, e.g., non-prescribed opioid/narcotic, stimulant, benzodiazepine use/abuse – oxycodone, fentanyl, amphetamine, methamphetamine etc. • Drugs shown to have risk to the fetus, but the potential benefits may outweigh the risk (previously category D). *Examples* include but are not limited to aminoglycoside and tetracycline antibiotics, Phenytoin, Fosphenytoin, Phenobarbital,

Code:	Value:	Definition:
		Trimethadone, Clonazepam, Carbamazepine, Lorazepam, Amiodarone, Warfarin (mother with mechanical valve), • Drugs studies have demonstrated evidence of fetal abnormalities (previously category X). The use of drugs in this category are contraindicated during pregnancy. *Examples* include but are not limited to Accutane, Valproate products, Methotrexate, Ribavirin, Bosentan, emergency contraception medications, Aliskiren, Triazolam, Griseofulvin, Warfarin (mother without mechanical heart valve), Methylene blue, Oxytocin. If there is unknown impact on the fetus, select this pregnancy related complication. Drug related pregnancy information can be found at FDA Medication Guide or Med Categories FDA Pregnancy and Lactation Rule Final Rule
11	Maternal Diabetes	Documented diabetes of any type during pregnancy, including Type I, Type II, or gestational diabetes.
12	Other	Any other pregnancy related complication not listed.

Long Name: Maternal Diabetes Onset

SeqNo: 355
Short Name: MatDiabOnset
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the onset of maternal diabetes.
ParentLongName: Pregnancy Related Complications - Multi-select

ParentShortName: PregCompMulti

ParentHarvestCodes: contains (11)

ParentValue: Contains ("Maternal Diabetes")

Harvest Codes:

Code:	Value:
1	Prior to pregnancy
2	During pregnancy
3	Unknown

Intent/Clarification:

If maternal diabetes, indicate the onset of the diabetes.

D. NONCARDIAC CONGENITAL ANATOMIC ABNORMALITIES

Long Name: Noncardiac Congenital Anatomic Abnormalities Known

SeqNo: 416

Short Name: NCAAKnown

Database Table Name: Demographics

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient has any known noncardiac anatomic abnormalities.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient has any documented non-cardiac anatomic abnormalities. This is intended to collect congenital anatomic abnormalities outside of the cardiac defects.

Long Name: Noncardiac Congenital Anatomic Abnormalities - Multi-select

SeqNo: 420

Short Name: NCAAMulti

Database Table Name: Demographics

Data Source: User

Format: Multi-Select

Definition: Indicate all of the major noncardiac abnormalities the patient has. Select all that apply.

ParentLongName: Noncardiac Congenital Anatomic Abnormalities Known

ParentShortName: NCAAKnown

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
80	Major abnormality of head, Choanal atresia
90	Major abnormality of head, Cleft lip
100	Major abnormality of head, Cleft palate
440	Major abnormality of head, Craniosynostosis
450	Major abnormality of head, Macrocephaly
460	Major abnormality of head, Microcephaly
470	Major abnormality of head, Micrognathia
120	Major abnormality of brain, Hydrocephalus
480	Major abnormality of brain, Tuberous sclerosis
160	Major abnormality of spinal cord, Myelomeningocele
170	Major abnormality of spinal cord, Spina bifida
660	Major abnormality of spinal cord, Tethered cord
190	Major abnormality of spine, Scoliosis
670	Major abnormality of spine, Kyphosis
680	Major abnormality of spine, Lordosis
640	Major abnormality of vertebra, Hemi-vertebrae
650	Major abnormality of vertebra, Butterfly vertebrae
490	Major abnormality of larynx - trachea - or bronchus, Laryngeal cleft
210	Major abnormality of larynx - trachea - or bronchus, Laryngomalacia
220	Major abnormality of larynx - trachea - or bronchus, Congenital tracheal stenosis
230	Major abnormality of larynx - trachea - or bronchus, Tracheomalacia
70	Major abnormality of larynx - trachea - or bronchus, Tracheoesophageal fistula (TEF)
240	Major abnormality of larynx - trachea - or bronchus, Bronchomalacia
500	Major abnormality of chest wall, Pectus carinatum
510	Major abnormality of chest wall, Pectus excavatum
520	Major abnormality of lung, Alveolar capillary dysplasia
260	Major abnormality of lung, Congenital lobar emphysema (CLE)
270	Major abnormality of lung, Cystic congenital adenomatous malformation of the lung (CAM)
280	Major abnormality of lung, Cystic fibrosis
530	Major abnormality of lung, Hypoplastic lung

290 Major abnormality of lung, Pulmonary lymphangiectasia
20 Major abnormality of diaphragm, Congenital diaphragmatic hernia (CDH), Bochdalek hernia
30 Major abnormality of abdominal wall, Gastroschisis
60 Major abnormality of abdominal wall, Omphalocele
540 Major abnormality of gastrointestinal system, Esophageal atresia
550 Major abnormality of gastrointestinal system, Pyloric stenosis
310 Major abnormality of gastrointestinal system, Biliary atresia
320 Major abnormality of gastrointestinal system, Duodenal atresia
330 Major abnormality of gastrointestinal system, Duodenal stenosis
340 Major abnormality of gastrointestinal system, Jejunal atresia
350 Major abnormality of gastrointestinal system, Jejunal stenosis
360 Major abnormality of gastrointestinal system, Ileal atresia
370 Major abnormality of gastrointestinal system, Ileal stenosis
50 Major abnormality of gastrointestinal system, Intestinal malrotation
40 Major abnormality of gastrointestinal system, Hirschsprung's disease (Congenital aganglionic megacolon)
380 Major abnormality of gastrointestinal system, Stenosis of large intestine
390 Major abnormality of gastrointestinal system, Atresia of large intestine
400 Major abnormality of gastrointestinal system, Atresia of rectum
410 Major abnormality of gastrointestinal system, Stenosis of rectum
10 Major abnormality of gastrointestinal system, Anal Atresia (imperforate anus)
560 Major abnormality of genitalia, Ambiguous genitalia
570 Major abnormality of genitalia, Hypospadias
580 Major abnormality of genitalia, Rectovaginal fistula
590 Major abnormality of genitalia, Undescended testis
600 Major abnormality of kidney, Horseshoe kidney
610 Major abnormality of kidney, Hydronephrosis
620 Major abnormality of kidney, Polycystic kidney
630 Major abnormality of kidney, Single kidney
990 Other

Intent/Clarification:

Documented clinical diagnosis is required to code a noncardiac congenital anatomic abnormality (NCAA). Any anatomic lesion not included in the list can be captured as (930) Other and specified in SeqNo 425.

While the NCAA are congenital (present from birth) the diagnosis may not be made in utero or at birth. For example, pyloric stenosis may not be determined until the patient is fed in the postoperative period.

Code:	Value:	Definition:

Code:	Value:	Definition:
90	Major abnormality of head, Cleft lip	A congenital anomaly consisting of one or more clefts in the upper lip that result from the failure of the maxillary and median nasal processes to close during embryonic development. Treatment is surgical repair in infancy.
100	Major abnormality of head, Cleft palate	A congenital fissure in the roof of the mouth, resulting from incomplete fusion of the palate during embryonic development. It may involve only the uvula or extend through the entire palate. Includes submucosal cleft.
440	Major abnormality of head, Craniosynostosis	An anomaly where one or more of the cranial sutures close too early, before the brain is fully formed.
450	Major abnormality of head, Macrocephaly	Macrocephaly is defined as a head circumference which is greater than 2 standard deviations larger than the average for a given age and sex. It refers to an abnormally large head inclusive of the scalp, cranial bone, and intracranial contents. Macrocephaly may be due to megalencephaly (true enlargement of the brain) or due to other conditions such as hydrocephalus or cranial thickening.
460	Major abnormality of head, Microcephaly	Microcephaly is defined as smaller than normal circumference of the head because the cerebral cortex has not developed properly or has stopped growing. Microcephaly can be present at birth or may develop in the first few years of life.
470	Major abnormality of head, Micrognathia	A congenital anomaly where the lower jaw is much smaller than usual.
120	Major abnormality of brain, Hydrocephalus	Hydrocephalus is excessive CSF accumulation in the brain creating potentially harmful pressure. It may be congenital or acquired. Congenital hydrocephalus is present at birth and may be caused by either events or influences that occur during fetal development, or genetic abnormalities. Acquired hydrocephalus develops at the time of birth or at some point

Code:	Value:	Definition:
		afterward. This type of hydrocephalus can affect individuals of all ages and may be caused by injury or disease.
480	Major abnormality of brain, Tuberous sclerosis	A genetic condition causing mostly benign tumors to develop in different parts of the body, most often the brain, skin, kidneys, heart, eyes, and lungs. Code this NCAA if the patient has tuberous sclerosis related tumors in the brain.
160	Major abnormality of spinal cord, Myelomeningocele	Developmental defect of the central nervous system frequently accompanied by hydrocephalus and mental retardation. A hernial sac containing a portion of the spinal cord, its meninges, and cerebrospinal fluid protrudes through a congenital cleft in the vertebral column. The defect is covered by a thin membrane or skin.
170	Major abnormality of spinal cord, Spina bifida	Characterized by defective closure of the vertebral canal with herniation of the spinal cord and/or meninges. May cause skull enlargement due to an accumulation of cerebrospinal fluid. In its most severe form, termed spinal rachischisis, the entire spinal canal is open, exposing the spinal cord and nerves. More commonly, the abnormality appears as a localized mass on the back that is covered by skin or by the meninges.
660	Major abnormality of spinal cord, Tethered cord	A congenital condition where the spinal cord is attached to the surrounding tissues of the spine.
190	Major abnormality of spine, Scoliosis	Scoliosis is a lateral (side-to-side) curve in the spine, usually combined with a rotation of the vertebrae. "Most commonly presents as idiopathic (90%) but can present as a congenital or acquired defect.
670	Major abnormality of spine, Kyphosis	An excessive forward curvature of the upper spine. May be a congenital or acquired defect. Includes kyphosis that occurs in association with a

Code:	Value:	Definition:
		neuromuscular condition. Does not include kyphosis related to pregnancy or poor posture.
680	Major abnormality of spine, Lordosis	An excessive inward curvature of the spine, most often the lumbar spine. May be a congenital or acquired defect. Includes lordosis that occurs in association with a neuromuscular condition. Does not include lordosis related to pregnancy or poor posture.
640	Major abnormality of vertebra, Hemi-vertebrae	A congenital anomaly of the spine where only half of the vertebral body develops. It can cause other spinal deformities including scoliosis, lordosis, and kyphosis.
650	Major abnormality of vertebra, Butterfly vertebrae	A congenital anomaly of the spine caused by the failure of fusion of 2 lateral chondrification centers during development. The 2 hemivertebrae appear as butterfly wings on imaging.
490	Major abnormality of larynx - trachea - or bronchus, Laryngeal cleft	An abnormal opening between the esophagus and larynx through food and liquids can pass into the lungs. Characterized by breathing and eating problems.
210	Major abnormality of larynx – trachea – or bronchus, Laryngomalacia	Abnormal laxity of the laryngeal support cartilage resulting in excessive inward collapse and collapse of the lumen with inspiration during spontaneous ventilation. Characterized by inspiratory stridor.
220	Major abnormality of larynx - trachea - or bronchus, Congenital tracheal stenosis	Primary Tracheal narrowing at any level between the larynx and carina with significantly smaller than expected luminal diameter (not secondary to trauma or prolonged intubation). Frequently related to complete cartilaginous tracheal rings.
230	Major abnormality of larynx - trachea - or	Abnormal laxity of the tracheal supporting structures resulting in inward collapse of the lumen during

Code:	Value:	Definition:
	bronchus, Tracheomalacia	expiration during spontaneous ventilation. Characterized by expiratory stridor. May extend down into bronchi (tracheobronchomalacia).
70	Major abnormality of larynx - trachea - or bronchus, Tracheoesophageal fistula (TEF)	Presence of any type of patent communication below the larynx connecting the tracheo-bronchial tree to the esophagus. May be associated with other anomalies, including VATER, VACTERL and tracheal clefts. Typically, congenital but may occur due to trauma or pressure necrosis.
240	Major abnormality of larynx - trachea - or bronchus, Bronchomalacia	A deficiency in the cartilaginous wall of the bronchus that may lead to atelectasis or obstructive emphysema.
500	Major abnormality of chest wall, Pectus carinatum	A condition where the sternum protrudes due to abnormal growth of the rib and breastbone. Also known as pigeon chest.
510	Major abnormality of chest wall, Pectus excavatum	A condition where the sternum is sunken into the chest. Also known as funnel chest. Severe cases may compress the heart and lungs.
520	Major abnormality of lung, Alveolar capillary dysplasia	A congenital anomaly of the lungs characterized by abnormal development of the alveolar capillaries leading to pulmonary hypertension and respiratory distress.
260	Major abnormality of lung, Congenital lobar emphysema (CLE)	A developmental anomaly of the lower respiratory tract characterized by isolated hyperinflation of a lobe in the absence of extrinsic bronchial obstruction.
270	Major abnormality of lung, Cystic congenital adenomatous malformation of the lung (CAM)	Cystic congenital adenomatous malformation of the lung (CAM): A spectrum of cystic and solid lesions of the lung that result from abnormal embryogenesis and typically present with symptoms of respiratory distress in newborns and infants.
280	Major abnormality of	Cystic fibrosis (also known as CF or mucoviscidosis) is

Code:	Value:	Definition:
	lung, Cystic fibrosis	an autosomal recessive genetic disorder affecting most critically the lungs, and the pancreas, liver, and intestine. It is characterized by abnormal transport of chloride and sodium across an epithelium, leading to thick, viscous secretion.
530	Major abnormality of lung, Hypoplastic lung	Hypoplastic lung, or pulmonary hypoplasia is a congenital condition characterized by incomplete development of parts of the lung.
290	Major abnormality of lung, Pulmonary lymphangiectasia	Pulmonary lymphangiectasia (PL) is a rare developmental disorder involving the lung characterized by pulmonary subpleural, interlobar, perivascular and peribronchial lymphatic dilatation. PL presents at birth with severe respiratory distress, tachypnea, and cyanosis, with a very high mortality rate at or within a few hours of birth. Secondary PL may be caused by a cardiac lesion.
20	Major abnormality of diaphragm, Congenital diaphragmatic hernia (CDH), Bochdalek hernia	A developmental defect of the diaphragm that allows abdominal viscera to herniate into the chest. The volume of herniated contents may be small or large enough to contain most of the gut, spleen, or liver.
30	Major abnormality of abdominal wall, Gastroschisis	A congenital defect characterized by a defect in the anterior abdominal wall through which the intestines protrude. There is no sac covering the intestines. The defect is usually located to the right of the umbilicus.
60	Major abnormality of abdominal wall, Omphalocele	A defect in the medial anterior abdominal wall through which intraabdominal contents are extruded. The defect is covered by amnion and peritoneum and usually occurs at the base of the umbilical cord. The abdominal herniation usually includes small bowel and may include large bowel and/or liver.
540	Major abnormality of gastrointestinal system, Esophageal atresia	A congenital defect characterized by abnormal development of the esophagus causing the inability to pass food from the mouth to the stomach.
550	Major abnormality of	Pyloric stenosis is a condition where the pylorus

Code:	Value:	Definition:
	gastrointestinal system, Pyloric stenosis	muscles thicken and block food from entering the small intestine from the stomach.
310	Major abnormality of gastrointestinal system, Biliary atresia	Biliary atresia is characterized by absence or discontinuity of the extrahepatic biliary system, resulting in obstruction to bile flow.
320	Major abnormality of gastrointestinal system, Duodenal atresia	Congenital absence or closure of a portion of the duodenum.
330	Major abnormality of gastrointestinal system, Duodenal stenosis	Stricture or narrowing of a portion of the duodenum.
340	Major abnormality of gastrointestinal system, Jejunal atresia	The congenital absence or closure of the middle section of the small intestine.
350	Major abnormality of gastrointestinal system, Jejunal stenosis	A constriction or narrowing of the middle section of the small intestine.
360	Major abnormality of gastrointestinal system, Ileal atresia	Congenital absence or closure of a portion of the ileum.
370	Major abnormality of gastrointestinal system, Ileal stenosis	Stricture or narrowing of a portion of the ileum
50	Major abnormality of gastrointestinal system, Intestinal malrotation	Abnormal placement and fixation of intestines.
40	Major abnormality of gastrointestinal system, Hirschsprung's disease (Congenital aganglionic megacolon)	A disorder of the enteric nervous system characterized by an absence of ganglion cells in the distal colon resulting in a functional obstruction.

Code:	Value:	Definition:
380	Major abnormality of gastrointestinal system, Stenosis of large intestine	A constriction or narrowing of the distal portion of the intestine, extending from its junction with the small intestine to the anus and comprising the cecum, colon, rectum, and anal canal.
390	Major abnormality of gastrointestinal system, Atresia of large intestine	Colonic atresia is usually segmental, most often involving the ascending colon, and may be accompanied of the small intestine, rectum, or anal canal.
400	Major abnormality of gastrointestinal system, Atresia of rectum	Congenital absence or closure of a portion of the rectum. Atresia of the rectum proper, or a portion of the rectum, is very rare. It can occur with or without anomalies of the small intestine, colon, or anal canal.
410	Major abnormality of gastrointestinal system, Stenosis of rectum	A constriction or narrowing of the terminal portion of the large intestine, extending from the sigmoid flexure to the anal canal.
10	Major abnormality of gastrointestinal system, Anal Atresia (imperforate anus)	Anal atresia, or imperforate anus, is a specific type of what are commonly referred to as anorectal malformations. Atresia of the anal canal occurs with or without a fistulous opening to an ectopic location on the perineum, within the urinary system, or into the vaginal vestibule.
560	Major abnormality of genitalia, Ambiguous genitalia	A congenital anomaly where the external genitals do not appear to be male or female.
570	Major abnormality of genitalia, Hypospadias	A congenital anomaly where the opening of the urethra is not located at the tip of the penis.
580	Major abnormality of genitalia, Rectovaginal fistula	A congenital anomaly characterized by an abnormal connection between the rectum and the vagina.
590	Major abnormality of genitalia, Undescended testis	An undescended testicle, or cryptorchidism, is a congenital condition where a testicle has failed to move down into the scrotum before birth.

Code:	Value:	Definition:
600	Major abnormality of kidney, Horseshoe kidney	A congenital anomaly where the kidneys abnormally fuse together at the bottom, forming a U or horseshoe shape.
610	Major abnormality of kidney, Hydronephrosis	Kidney swelling characterized by an inability of urine to drain from the kidney.
620	Major abnormality of kidney, Polycystic kidney	A condition characterized by the development of clusters of cysts in the kidneys.
630	Major abnormality of kidney, Single kidney	A condition in which an individual has a single kidney instead of two. The patient may be born with a single kidney (renal agenesis) or has a single functioning kidney with documented loss of function in one of the kidneys (renal dysplasia).
990	Other	Other major non-cardiac anatomic abnormality. Indicate Other non-cardiac anatomic abnormalities in SeqNo (425) utilizing free text.

Long Name: Major Noncardiac Abnormality Other Specify

SeqNo: 425
Short Name: NCAAOthSpecify
Database Table Name: Demographics
Data Source: User
Format: Text
Definition: Indicate all other major noncardiac abnormalities.
ParentLongName: Noncardiac Congenital Anatomic Abnormalities - Multi-select
ParentShortName: NCAAMulti
ParentHarvestCodes: Contains (990)
ParentValue: Contains ("Other")

Intent/Clarification:

Indicate all other major non-cardiac congenital anatomic abnormalities utilizing free text.

E. CHROMOSOMAL ABNORMALITIES

Long Name: Chromosomal Abnormalities Known

SeqNo: 451
Short Name: ChromAbKnown
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient has any known chromosomal abnormalities.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient has any documented chromosomal abnormalities.

Long Name: Chromosomal Abnormalities - Multi-Select

SeqNo: 455
Short Name: ChromAbMulti
Database Table Name: Demographics
Data Source: User
Format: Multi-Select
Definition: Indicate the chromosomal abnormalities identified for the patient. Select all that apply.
ParentLongName: Chromosomal Abnormalities Known
ParentShortName: ChromAbKnown
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
490	Known Mosaicism

360	1p36 del
370	1q21.1 del
380	1q21.1 dup
70	1q42.1
100	2p21
110	3p22
400	3q dup
150	4p16
410	4q del
420	5p15.2 del
430	5p15.33 del
170	6p12
180	7q11
440	7q11.23 del
450	7q11.23 dup
200	7q32
210	7q34
460	8p23.1 del
470	8p23.1 dup
220	8q12
480	9q34.3 del
10	11p15.5
20	11q
30	12p1.21
40	12p12.1
50	12q24
320	15q11.2 del
60	15q21.1
330	16p11.2 del
340	17p11.2 del
350	17q21.31 del
80	20p12
90	22q11 deletion
390	22q11.2 dup
120	45X0/Monosomy X
130	47,XXY
250	Trisomy 08
260	Trisomy 09
270	Trisomy 13
280	Trisomy 18
290	Trisomy 21
310	Other chromosomal or genetic abnormality

Intent/Clarification:

If chromosomal abnormality known, code all documented chromosomal abnormalities including those diagnosed during prenatal testing (chromosomal testing during pregnancy). Documentation of results or diagnosis must be contained in the patient's medical record.

Documentation of results may include genetic testing/laboratory results or documentation of diagnosis or reference of laboratory results by a provider, including the results from an outside hospital or laboratory.

Example: 17-year-old new patient where the cardiologist documented a 22q.11 deletion from genetic testing completed at birth.

Long Name: Genes With Identified Abnormality - Multi-Select

SeqNo:	460
Short Name:	GeneMulti
Database Table Name:	Demographics
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all genes with identified abnormalities. Select all that apply.
ParentLongName:	Chromosomal Abnormalities - Multi-Select
ParentShortName:	ChromAbMulti
ParentHarvestCodes:	Contains (310)
ParentValue:	Contains ("Other chromosomal or genetic abnormality")

Harvest Codes:

Code:	Value:
10	ABCC9
20	ACTC1
30	ADAMTS10
40	AK7
50	ANKRD11
60	ANKS3
70	ANKS6
80	ARID1B
90	ARMC4
100	B3GALTL
110	B9D1
120	B9D2
130	BBIP1
140	BBS1
150	BBS10

160 BBS12
170 BBS2
180 BBS4
190 BBS7
200 BBS9
210 BCOR
2190 BMPR2
220 BRAF
230 C21orf59
240 C2CD3
250 C5orf42
260 CACNA1C
270 CBP
280 CC2D2A
290 CCDC103
300 CCDC114
310 CCDC151
320 CCDC39
330 CCDC40
340 CCDC65
350 CCNO
360 CDK13
370 CDKN1C
380 CEP120
390 CEP152
400 CEP290
410 CEP41
420 CHD4
430 CHD7
440 CITED2
450 COL1A1
460 COL1A2
470 COL5A1
480 CRKL
490 CSPP1
500 DGCR2
510 DHCR7
520 DLL4
530 DNAAF1 / LRRC50
540 DNAAF2
550 DNAAF3
560 DNAAF5 (or HEATR2)
570 DNAH11
580 DNAH5

590 DNAI1
600 DNAI2
610 DNAJB13
620 DNAL1
630 DOCK6
640 DYNC2H1
650 DYX1C1 (aka DNAAF4)
660 EFTUD2
670 EHMT1
680 ELN
690 EP300
700 ESC02
710 EST-1
720 EVC
730 EVC2
740 FBN1
750 FBN2
760 FGF8
770 FGFR1
780 FLNA
790 FMR1
800 FOXC1
810 FTO
820 GALNT11
830 GANAB
840 GAS8
850 GATA4
860 GATA6
870 GDF1
880 GJA1
890 GPC3
900 GRK5
910 HNRNPK
920 HOXA1
930 HRAS
940 HYDIN
950 IFT122
960 IFT140
970 IFT27
980 IFT43
990 IFT80
1000 INPP5E
1010 INTU
1020 INVS

1030 JAG1
1040 KAT6B
1050 KDM6A
1060 KIAA0556
1070 KIAA0586
1080 KIAA0753
1090 KIF7
1100 KMT2D (MLL2)
1110 KRAS
1120 LRRC6
1130 LTBP4
1140 MAP2K1
1150 MAP2K2
1160 MAPK1
1170 MCIDAS
1180 MED12
1190 MED13L
1200 MEGF8
1210 MID1
1220 MKKS
1230 MKKS (BBS6)
1240 MKS1
1250 MYH11
1260 MYH6
1270 MYH7
1280 NF1
1290 NHS
1300 NIPBL
1310 NKX2-5
1320 NKX2-6
1330 NME8 (aka TXNDC3)
1340 NODAL
1350 NOTCH1
1360 NPHP3
1370 NR2F2
1380 NSD1
1390 OFD1
1400 PDGFRA
1410 PEX1
1420 PIBF1
1430 PIH1D3
1440 PITX2
1450 PKD1
1460 PKD2

1470	PKHD1
1480	PQBP1
1490	PRKD1
1500	PTEN
1510	PTPN11
1520	RAB23
1530	RAD21
1540	RAI1
1550	RBM10
1560	RBPJ
1570	RDR2
1580	RECQL4
1590	ROR2
1600	RPGR
1610	RPGRIP1L
1620	RPL35A
1630	RPS10
1640	RPS17
1650	RPS24
1660	RPS26
1670	RSK2
1680	RSPH1
1690	RSPH3
1700	RSPH4A
1710	RSPH9
2200	RYR2
2210	R506Q
1720	SALL1
1730	SALL4
1740	SEMA3E
1750	SH3PXD2B
1760	SHH
1770	SHOC2
1780	SHROOM3
1790	SMAD2
1800	SMAD3
1810	SMAD6
1820	SMARCA4
1830	SMARCB1
1840	SMARCE1
1850	SMC1L1
1860	SMC3
1870	SMS
1880	SNAP29

1890 SOS2
1900 SPAG1
1910 STRA6
1920 TAB2
1930 TBX1
1940 TBX20
1950 TBX5
1960 TCOF1
1970 TCTEX1D2
1980 TCTN1
1990 TCTN2
2000 TCTN3
2010 TFAP2B
2020 TGFBR1 or 2
2030 TLL1
2040 TMEM107
2050 TMEM138
2060 TMEM216
2070 TMEM231
2080 TMEM67
2220 TRDN
2090 TRIM32 (BBS11)
2100 TSC1
2110 TSC2
2120 TTC25
2130 TTC8 (BBS8)
2140 TWIST
2150 WDR19
2160 ZFPM2 / FOG2
2170 ZIC3
2180 ZNF423
9999 Unlisted Gene or Chromosomal Anomaly

Intent/Clarification:

If other chromosomal or genetic abnormality, select the specific genes involved. If not listed, select (9999) Unlisted gene or chromosomal anomaly.

Documentation of the affected genes must be in the patient's medical record and may include genetic testing/laboratory results or documentation of diagnosis or laboratory results by a provider including the results from an outside hospital or laboratory.

Long Name: Unlisted Gene or Chromosomal Anomaly - Specify

SeqNo: 465
Short Name: ChromAbOthSpecify
Database Table Name: Demographics
Data Source: User
Format: Text
Definition: Indicate the other chromosomal abnormalities.
ParentLongName: Genes With Identified Abnormality - Multi-Select
ParentShortName: GeneMulti
ParentHarvestCodes: Contains (9999)
ParentValue: Contains ("Unlisted Gene or Chromosomal Anomaly")

Intent/Clarification:

If unlisted gene or chromosomal anomaly, enter the other chromosomal abnormality(ies) utilizing free text.

F. SYNDROMES

Long Name: Syndromes Known

SeqNo: 486
Short Name: SyndromeKnown
Database Table Name: Demographics
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient has any known syndromes.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient has any documented syndromes.

Long Name: Syndrome - Multi-Select

SeqNo: 490

Short Name: SyndromeMulti

Database Table Name: Demographics

Data Source: User

Format: Multi-Select

Definition: Indicate all Syndromes or Syndromic abnormalities. Select all that apply.

ParentLongName: Syndromes Known

ParentShortName: SyndromeKnown

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
660	15q11.2 deletion syndrome
670	16p11.2 deletion syndrome
680	1p36 deletion syndrome
690	1q21.1 duplication syndrome
700	22q11.2 duplication syndrome
710	3q duplication syndrome
720	4q deletion syndrome
730	7q11.23 duplication syndrome
740	8p23.1 deletion syndrome
750	Adams-Oliver syndrome
10	Alagille syndrome (intrahepatic biliary duct agenesis)
760	Alstrom syndrome
580	Alveolar Capillary Dysplasia Syndrome
20	Apert syndrome
770	Baller-Gerold Syndrome
780	Bardet-Biedl syndrome
790	Beckwith-Wiedemann syndrome
30	Brugada syndrome (Sudden unexplained nocturnal death syndrome) (SUNDS)
800	Brugada/Timothy Syndrome
810	Cantu syndrome
40	Cardiofaciocutaneous syndrome
50	Carpenter syndrome
60	Cat-eye syndrome
590	Caudal Regression Syndrome
830	Char syndrome
70	CHARGE Association
600	Chiari I Malformation
840	Chromosome 17q12 deletion syndrome
850	Coffin Lowry syndrome
860	Coffin Siris Syndrome

80	Cornelia de Lange syndrome
90	Costello syndrome
870	Cranioectodermal dysplasia (Sensenbrenner syndrome)
100	Cri-du-chat syndrome
610	Dandy Walker Malformation
110	Deletion 10p syndrome
120	Deletion 8p syndrome
130	DiGeorge syndrome (velocardiofacial syndrome) (conotruncal anomaly face syndrome) (22q11 deletion)
140	Down syndrome (Trisomy 21)
890	Duane Radial Ray (Okihiro) syndrome
620	Duchenne Muscular Dystrophy
150	Edwards syndrome (Trisomy 18)
570	Ehlers-Danlos Syndrome
160	Ellis-van Creveld syndrome
910	Familial CHD
165	Fetal alcohol syndrome (FAS)
380	Fetal rubella syndrome (Congenital rubella syndrome)
930	Fragile X
170	Goldenhar syndrome
190	Heterotaxy syndrome, Asplenia syndrome
200	Heterotaxy syndrome, Polysplenia syndrome
180	Heterotaxy syndrome, Unknown if asplenia or polysplenia
210	Holt-Oram syndrome
220	Jacobsen syndrome
940	Joubert syndrome
230	Kabuki syndrome
240	Kartagener syndrome (Siewert syndrome) (Primary ciliary dyskinesia)
950	Kleefstra Syndrome
250	Klinefelter syndrome (XXY Syndrome)
1270	Klippel-Feil Sequence
960	Koolen-De Vries Syndrome
260	LEOPARD syndrome
270	Loeys-Dietz syndrome
290	Marfan syndrome
300	Marfan-like syndrome
970	McKusick-Kaufman syndrome
980	Meckel-Gruber syndrome
990	Microphthalmia syndromic 9
1000	Mowat Wilson Syndrome
310	Mucopolysaccharidosis type IH (Hurler syndrome)
320	Mucopolysaccharidosis type IH/S (Hurler-Scheie syndrome)
330	Mucopolysaccharidosis type II (Hunter syndrome)
340	Mucopolysaccharidosis type IS (Scheie syndrome)

1010 Nance Horan syndrome
1020 Nephronophthisis
1030 Neurofibromatosis
350 Noonan syndrome
1050 Oculofaciocardiodental
1060 Oral-facial-digital syndromes (types I-XVI and unclassified)
360 Patau syndrome (Trisomy 13)
1070 Peter's Plus syndrome
540 Pierre Robin syndrome
1080 Polycystic Kidney Disease
1090 Primary ciliary dyskinesia (PCD)
530 Prune Belly Syndrome
370 Rethore syndrome (Trisomy 9)
1100 Roberts syndrome
1110 Robinow syndrome
390 Rubinstein-Taybi syndrome
1120 Saethre Chotzen syndrome
1130 Short Rib Polydactyly Type I
1140 Short rib thoracic dysplasias including Jeune chondrodysplasia, Saldino Mainzer
550 Sickle cell disease
560 Sickle cell trait
1150 Sifrim-Hitz-Weiss syndrome (SIHIWES)
1160 Simpson-Golabi-Behmel syndrome
410 Situs inversus
1170 Smith Magenis syndrome
420 Smith-Lemli-Opitz syndrome
1180 Sotos syndrome
1280 Spinal Muscular Atrophy
1210 TAR syndrome
640 Thalassemia – Major
650 Thalassemia – Minor
1220 Townes-Brocks syndrome
430 Turner syndrome (45XO)
440 VACTERL syndrome (VACTER/VATER/VATERR syndrome)
450 VACTERL-H syndrome (VATER association with hydrocephalus) (Briard-Evans syndrome)
520 von Willebrand disease (vWD)
460 Warkany syndrome (Trisomy 8)
470 Williams syndrome (Williams-Beuren syndrome)
490 Wolf-Hirschhorn syndrome
1260 X-linked heterotaxy
510 Other syndromic abnormality

Intent/Clarification:

If the patient has a known syndrome, select all documented syndromes. The syndrome(s) must be documented in the patient's medical record and may include laboratory results or a clinical diagnosis by a provider, including results from an outside hospital or laboratory.

Example: 10-year-old patient where the cardiologist documented a history of Duchenne muscular dystrophy.

Associated physical/anatomic abnormalities can be captured under non-cardiac congenital anatomic abnormalities, for example, a patient with VACTERL syndrome with tracheoesophageal fistula (TEF).

Code:	Value:	Definition:
660	15q11.2 deletion syndrome	
670	16p11.2 deletion syndrome	
680	1p36 deletion syndrome	
690	1q21.1 duplication syndrome	
700	22q11.2 duplication syndrome	
710	3q duplication syndrome	
720	4q deletion syndrome	
730	7q11.23 duplication syndrome	
740	8p23.1 deletion syndrome	
750	Adams-Oliver syndrome	
10	Alagille syndrome (intrahepatic biliary duct agenesis)	Alagille syndrome, or Alagille-Watson syndrome, is an autosomal dominant condition [mapped to 20p12 & 1p13-p11] of intrahepatic biliary duct agenesis or arteriohepatic dysplasia. Incidence is 1:70,000 births. The 20-year predicted life expectancy is 75% for all patients, 80% for those not requiring a liver transplant, and 60% for those

Code:	Value:	Definition:
		requiring a liver transplant. Typical manifestations include intrahepatic cholestasis, distinctive facies, anterior chamber abnormalities of the eye, and butterfly hemivertebrae. The most common cardiovascular abnormality is peripheral pulmonary artery stenosis. Additional defects include ASD, VSD, coarctation of the aorta and TOF.
760	Alstrom syndrome	Alstrom syndrome, or Alstrom-Halgren syndrome, is a rare autosomal recessive genetic disorder caused by mutations in the ALMS1 gene. It is characterized by vision and hearing abnormalities, obesity, insulin resistance leading to diabetes, and progressive renal dysfunction. More than 60% of affected individuals will develop dilated cardiomyopathy. Alstrom syndrome affects males and females in equal rates with an estimated incidence of 1:10,000 to less than 1:1,000,000 individuals.
580	Alveolar Capillary Dysplasia Syndrome	Alveolar Capillary Dysplasia syndrome is congenital anomaly of the lungs caused by a mutation in the FOXF1 gene or by a deletion on chromosome 16q24.1. The genetic changes are thought to occur at the time of fertilization and are not inherited from the parents. It is characterized by abnormal development of the alveolar capillaries leading to pulmonary hypertension and respiratory distress. Infants experience severe respiratory distress and respiratory failure within a few hours or days of birth. As the syndrome is rare, the incidence and prevalence are unknown.
20	Apert syndrome	Apert syndrome, also known as Apert-Crouzon disease or Vogt cephalodactyly, is an autosomal dominant condition [mapped to 10q26] of acrocephalosyndactyly. Incidence is 1:65,000-88,000 births; it occurs in strong association with advanced paternal age at conception. Apert syndrome is similar to Crouzon and Pfeiffer syndromes. Cardiovascular abnormalities include pulmonic stenosis, VSD, overriding aorta, and

Code:	Value:	Definition:
		endocardial fibroelastosis.
770	Baller-Gerold Syndrome	Baller-Gerold syndrome, or craniosynostosis-radial aplasia syndrome is a rare, autosomal recessive genetic disorder characterized by premature fusion of the cranial sutures and bone abnormalities in the forearms and hands. It is linked to mutations in the RECQL4 gene. The estimated prevalence may be less than 1:1,000,000 persons.
780	Bardet-Biedl syndrome	Bardet-Biedl syndrome (BBS) is a rare, autosomal recessive genetic condition caused by mutations in more than 20 genes. Common symptoms include retinal degeneration, obesity, renal dysfunction, hypogonadism, and polydactyly. Up to 45% of affected individuals develop type II diabetes. The estimated prevalence in the US is 1:250,000 people worldwide.
790	Beckwith-Wiedemann syndrome	Beckwith-Wiedemann syndrome is a genetic disorder characterized by overgrowth caused by mutations in the genes on chromosome 11 (11p15). Common features include large birth weight and length, macroglossia, abdominal wall defects, enlarged abdominal organs, hypoglycemia, and overgrowth on one side or part of the body. Affected individuals are at increased risk of developing specific childhood cancers. The estimated incidence is 1:11,000 births approximately affecting males and females equally.
30	Brugada syndrome (Sudden unexplained nocturnal death syndrome) (SUNDS)	Brugada syndrome, also known as sudden unexplained nocturnal death syndrome (SUNDS), is an autosomal dominant condition [mapped to 3p21, 3p22.3, 12p13.3 & 10p12], occurring in 1:2000 births. Brugada syndrome is associated with the risk of sudden cardiac death. Mean age of sudden death is approximately 40 years. Symptoms include right bundle branch block and ST segment elevation on ECG, idiopathic ventricular fibrillation, and cardiac arrest. Brugada syndrome, in its typical form is sinus

Code:	Value:	Definition:
		rhythm with anterior raised ST segment in V1 and V2 due to a genetic ion-channel defect involving a sodium-channel defect isolated to SCN5A gene. Brugada syndrome is a type of “Channelopathy.” A ventricular tachycardia due to a genetic ion-channel defect is also known as a "Channelopathy" or "Ion channelopathy.” This diagnosis is most commonly Long QT syndrome, but also includes Brugada syndrome, Jervell and Lange-Nielsen syndrome, Romano-Ward syndrome, Andersen syndrome, etc.
800	Brugada/Timothy Syndrome	Brugada and Timothy syndromes are both caused by mutations in the CACNA1C gene mapped on chromosome 12p13.Both syndromes affect the conduction system of the heart and can lead to cardiac dysrhythmias.
810	Cantu syndrome	Cantu syndrome, or hypertrichotic osteochondrodysplasia, is a rare, autosomal dominant disorder affected approximately 50 persons worldwide. Most cases have mutations in the ABCC9 or KCNJ8 genes. The main characteristics include hypertrichosis (excessive hair growth), osteochondrodysplasia (skeletal abnormalities), and cardiomegaly. Fifty percent of affected individuals have associated PDAs and 20% have pericardial effusions.
40	Cardiofaciocutaneous syndrome	Cardiofaciocutaneous syndrome (CFC) is a sporadic condition [mapped to 7q34] affecting the heart, face, skin and hair. Incidence is 1:333,000-500,000 births. CFC is similar to Noonan and Costello syndromes. Cardiovascular abnormalities include pulmonary valve stenosis, ASD and hypertrophic cardiomyopathy.
50	Carpenter syndrome	Carpenter syndrome is an autosomal recessive condition [mapped to 6p11] of acrocephalo-polysyndactyly, type II. Incidence is 1:1,000,000 births. Cardiovascular abnormalities in 50% of cases include ASD, VSD, pulmonic stenosis, TOF, TGA and

Code:	Value:	Definition:
		PDA.
60	Cat-eye syndrome	The cat-eye syndrome, or Schmid-Fraccaro syndrome, is an autosomal dominant condition [mapped to 22q11], associated with coloboma of the iris. Incidence is 1:50,000-150,000 births. The classic pattern of malformations includes mild mental deficiency, hypertelorism, down-slanting palpebral fissures, iris coloboma, pre-auricular pits or tags, and anal and renal malformations. Cardiovascular abnormalities in 40% of cases include TAPVC, ASD, VSD, persistent left superior vena cava, TOF, interruption of the inferior vena cava, and tricuspid atresia.
590	Caudal Regression Syndrome	Caudal regression syndrome, also known as caudal dysplasia, sacral regression, or sacral agenesis is a rare disorder characterized by abnormal fetal development of the caudal end of the spine. Symptoms range from mild to severe depending on the severity of the agenesis and severely affected individuals may experience small lower extremities, paralysis, and lack of bowel and bladder control.The exact cause is unknown. The estimated incidence is 1:60,000 live births.
830	Char syndrome	Char syndrome, or CHAR, is a rare, autosomal dominant genetic condition caused by mutations in the TFAP2B gene. It is characterized by a combination of 3 key features: a PDA, facial abnormalities including wide spaced eyes, downward slanting palpebral fissures, flat midface and nasal bridge, and hand abnormalities including hypoplasia or aplasia of middle phalanges of the 5th finger(s).
70	CHARGE Association	CHARGE syndrome, or Hall-Hittner syndrome, is an autosomal dominant condition [mapped to 8q12.1 & 7q21.11]; some sporadic cases have been reported. Incidence is 1:8500-10,000 births. CHARGE syndrome is a nonrandom association of

Code:	Value:	Definition:
		congenital anomalies which may include Coloboma, Heart defects, Atresia choanae, Retarded growth and development and/or central nervous system anomalies, Genital anomalies and/or hypogonadism and Ear anomalies and/or deafness. Diagnosis is made if 4/6 major (or 3 major & 3 minor) defects are present. Heart defects are present in 75% to 80% of cases. Of those with heart defects, most have conotruncal anomalies (TOF, DORV, truncus arteriosus) and aortic arch anomalies (vascular ring, aberrant subclavian artery, IAA, coarctation of the aorta, right aortic arch, and aortic valve stenosis). Other cardiovascular abnormalities include PDA, AVSD, VSD, and ASD.
600	Chiari I Malformation	Chiari I malformation or Chiari malformation type 1, is a condition characterized by the extension of brain tissue into the spinal canal during the time of skull and brain growth. Thus, signs and symptoms may not occur until late childhood or adulthood. Affected individuals may experience neurological symptoms related to compression of the brainstem and spinal cord. The exact cause and incidence and prevalence are unknown.
840	Chromosome 17q12 deletion syndrome	Chromosome 17q12 deletion syndrome is an autosomal dominant condition caused by the deletion on the long arm of chromosome 17. Most commonly, affected individuals experience abnormalities with their renal and urinary systems ranging from UTIs to renal failure. The pancreas may be affected leading to maturity-onset diabetes of the young. Half of the affected people have developmental delays, intellectual disabilities, psychiatric disorders, or behavioral problems. The worldwide prevalence is unknown.
850	Coffin Lowry syndrome	Coffin Lowry syndrome is a rare, X linked dominant genetic disorder caused by mutations in the RPS6KA3 gene (Xp22.2-p22.1). Affected individuals typically experience severe growth retardation

Code:	Value:	Definition:
		causing short stature, craniofacial dysmorphisms, digit abnormalities, and intellectual disabilities. Males experience more severe symptoms than female carriers. The estimated prevalence is 1:50,000 to 1:100,000 persons.
860	Coffin Siris Syndrome	Coffin Siris syndrome is a rare, autosomal dominant genetic condition characterized by craniofacial abnormalities, developmental disabilities, and abnormalities in the 5th digits of the upper and lower extremities. It is caused by mutations in multiple genes: ARID1B, ARID1A, SMARCA4, SMARCB1, SMARCE1, or SOX11. There are less than 200 cases reported in the literature.
80	Cornelia de Lange syndrome	Cornelia de Lange syndrome (CDLS), also known as de Lange or Brachmann-de Lange syndrome, is an autosomal dominant condition [mapped to 5p13.1, Xp11.22-11.21 & 10q25]; some X-linked and sporadic cases have been reported. Incidence is 1:10,000-30,000 births. Cardiovascular abnormalities in 25% of cases most commonly include VSD and ASD.
90	Costello syndrome	Costello syndrome is an autosomal dominant condition [mapped to 12p12.1 & 11p15.5]; some sporadic cases have been reported. Incidence is 1:1,000,000 births. Cardiovascular abnormalities include ASD, VSD, pulmonic stenosis, mitral valve prolapse, hypertrophic cardiomyopathy and arrhythmias.
870	Cranioectodermal dysplasia (Sensenbrenner syndrome)	Cranioectodermal dysplasia (CED) is a rare, autosomal recessive developmental disorder caused by mutations in the IFT122, IFT43, WDR19, and WDR35 genes. CED is primarily characterized by abnormal bone development, dysmorphic facial features, and ectodermal defects including dental abnormalities, sparse hair, and abnormal nails. Nephronophthisis is common leading to chronic renal failure. Heart defects may be present.

Code:	Value:	Definition:
100	Cri-du-chat syndrome	Cri-du-chat (cat cry), or LeJeune syndrome, is a chromosome deletion syndrome [mapped to 5p15.2]. Incidence is 1:20,000-50,000 births. Cri-du-chat refers to the distinctive cry of children with this disorder, caused by abnormal larynx development. Cardiovascular abnormalities in 30% of cases most commonly include VSD and ASD. Rare defects include TOF and AVSD.
610	Dandy Walker Malformation	Dandy Walker malformation (DWM) is a brain malformation, the underdevelopment of the cerebellar vermis, cystic enlargement of the 4th ventricle and enlargement of the posterior fossa, that occurs during early embryonic development. Affected individuals experience developmental delays, hypotonia and/or spasticity, poor coordination, and balance. Some experience hydrocephalus and seizures. The frequency in the US is approximately 1:25,000 to 1:35,000 live births.
110	Deletion 10p syndrome	Deletions on the short arm of chromosome 10 are associated with septal defects, particularly ASDs, and DiGeorge/velocardiofacial 2 syndrome.
120	Deletion 8p syndrome	Deletions on the short arm of chromosome 8 are associated with ASD, AVSC, conotruncal abnormalities, pulmonic valve stenosis and Tetralogy of Fallot.
130	DiGeorge syndrome (velocardiofacial syndrome) (conotruncal anomaly face syndrome) (22q11 deletion)	DiGeorge syndrome, also known as Shprintzen, Takao, velocardiofacial, or conotruncal anomaly face syndrome, is an autosomal dominant condition [mapped to 22q11.2]. Incidence is 1:4000 births. Cardiovascular anomalies are seen in association with hypoplasia or aplasia of the thymus and parathyroid gland, which are derivatives of pharyngeal pouches III and IV, and which can result in abnormalities of the immune system and calcium metabolism respectively. Cardiovascular abnormalities include conotruncal or outflow tract defects of the heart, such as tetralogy of Fallot,

Code:	Value:	Definition:
		truncus arteriosus, and interrupted aortic arch, particularly type B IAA. Additional defects include VSD, right aortic arch, aberrant right subclavian artery, and PDA.
140	Down syndrome (Trisomy 21)	Down syndrome, or Trisomy 21, is the most frequent chromosomal abnormality. Incidence is 1:600-1000 live births. Sporadic cases of Down syndrome occur in strong association with advanced maternal age at conception. Affected individuals have an extra (or third) copy of chromosome 21. Cardiovascular abnormalities in 40-50% of cases, in decreasing order of frequency, include AVSD, VSD, TOF and PDA. Left-sided obstructive defects, such as coarctation and aortic valve stenosis, are rare.
890	Duane Radial Ray (Okihiro) syndrome	Duane Radial Ray syndrome (DRRS), or Acrorenoocular syndrome, is an autosomal dominant genetic syndrome mapped to mutations in the SALL4 gene. It is characterized by ocular abnormalities and bone abnormalities in the arms and hands. Features include problems with eye movement, malformed or absent thumbs, and partial or complete absence of bones in the forearms. The prevalence is unknown.
620	Duchenne Muscular Dystrophy	Duchenne muscular dystrophy (DMD) is a severe, progressive, muscle wasting disease with X-linked inheritance, caused by mutations in the DMD gene. Most affected individuals become wheelchair bound around age 10-12 years and ventilator dependent by age 20 years. The estimated prevalence is less than 10:100,000 males and cases in females is very rare. Only includes DMD, not other types of dystrophies, instead include as Other syndromic anomaly.
150	Edwards syndrome (Trisomy 18)	Edwards syndrome, or Trisomy 18, is a chromosomal abnormality. Incidence is 1:3000-5000 births. Sporadic cases of Edwards syndrome

Code:	Value:	Definition:
		occur usually in association with advanced maternal age at conception. Affected individuals have an extra (or third) copy of chromosome 18. Approximately 50% of infants with Trisomy 18 die within the first week of life, approximately 40% die within the first month of life, only 5-10% survive beyond the first year. Cardiovascular abnormalities in more than 50% of cases include VSD, ASD and PDA; bicuspid aortic and/or pulmonary valves, nodularity of valve leaflets, pulmonic stenosis, coarctation of the aorta in 10-50% of cases; and anomalous coronary artery, TGA, TOF, dextrocardia and aberrant subclavian artery in less than 10% of cases. Does not include Partial Trisomy 18, do not code this syndrome for Partial Trisomy 18.
570	Ehlers-Danlos Syndrome	Ehlers-Danlos syndrome is a group of inherited disorders marked by extremely loose joints, hyperelastic skin that bruises easily, and easily damaged blood vessels. A variety of gene mutations involve collagen of the skin, bone, blood vessels, and internal organs. The abnormal collagen leads to the symptom which can include rupture of internal organs or abnormal heart valves.
160	Ellis-van Creveld syndrome	Ellis-van Creveld syndrome, or chondroectodermal dysplasia, is an autosomal recessive condition [mapped to 4p16] of skeletal dysplasia. Incidence is 1:60,000-200,000 births. Major features include short stature of prenatal onset (short limbs), hypoplastic nails and dental anomalies, postaxial polydactyly, narrow thorax, and cardiac defects. Cardiovascular abnormalities in more than 50% of cases most commonly include ASD or common atrium. Additional defects include PDA, persistent left superior vena cava, hypoplastic left heart defects, coarctation of the aorta, TAPVC, and TGA.
910	Familial CHD	Defined as congenital heart disease in a first or

Code:	Value:	Definition:
		second degree relative only. A first degree relative is defined as a family member who shares approximately half of their genetic information with specific family members Includes parents, siblings, and offspring. A second degree relative is defined as a family member who shares a quarter of their genetic information with specific family members. Includes aunt, uncle, grandparent, grandchild, niece, nephew, or half-sibling.
165	Fetal alcohol syndrome (FAS)	Indicate whether the patient has a history of Fetal alcohol syndrome (FAS). Fetal alcohol syndrome (FAS) is a condition that results from prenatal alcohol exposure. FAS is a group of problems that can include mental retardation, birth defects, abnormal facial features, growth problems, problems with the central nervous system, trouble remembering and/or learning, vision or hearing problems, and behavior problems. Mothers who consume large quantities of alcohol during pregnancy may have babies who are born with Fetal Alcohol Syndrome (or FAS). A diagnosis of FAS is based on three factors: 1) prenatal and postnatal growth retardation; 2) central nervous system abnormalities, and 3) abnormalities of the face. Many of these children display significant disabilities, learning disorders, and emotional problems as they mature.
380	Fetal rubella syndrome (Congenital rubella syndrome)	Indicate whether the patient has a history of maternal rubella virus infection during first trimester of pregnancy. Fetal rubella syndrome is associated with PDA, peripheral pulmonary stenosis, fibromuscular and intimal proliferation of medium and large arteries, VSD and ASD.
930	Fragile X	Fragile X syndrome, or Martin-Bell syndrome, is an X-linked genetic condition caused by mutations in the FMR1 gene. Affected individuals experience

Code:	Value:	Definition:
		developmental delays, intellectual disabilities, behavioral issues and/or autism spectrum disorder. While both males and females can be affected, females experience milder symptoms. The estimated incidence is 1:8,000 to 1:11,000 in females and 1:4,000 and 1:7,000 in males.
170	Goldenhar syndrome	Goldenhar syndrome, also known as hemifacial microsomia, oculoauriculovertebral dysplasia or spectrum, and facioauriculovertebral sequence, is an autosomal dominant condition [mapped to 14q32]. Incidence is 1:3000-5000 births. Cardiovascular abnormalities include VSD, PDA, TOF and coarctation.
190	Heterotaxy syndrome, Asplenia syndrome	“Asplenia syndrome” can be defined as a subset of heterotaxy with components of bilateral right-sidedness, usually associated with absence of the spleen.
200	Heterotaxy syndrome, Polysplenia syndrome	“Polysplenia syndrome” can be defined as a subset of heterotaxy with components of bilateral left-sidedness, usually associated with multiple spleens.
180	Heterotaxy syndrome, Unknown if asplenia or polysplenia	Heterotaxy is synonymous with ‘visceral heterotaxy’ and ‘heterotaxy syndrome’. Heterotaxy is defined as an abnormality where the internal thoraco-abdominal organs demonstrate abnormal arrangement across the left-right axis of the body. By convention, heterotaxy does not include patients with either the expected usual or normal arrangement of the internal organs along the left-right axis, also known as ‘situs solitus’, nor patients with complete mirror-imaged arrangement of the internal organs along the left-right axis also known as ‘situs inversus’.
210	Holt-Oram syndrome	Holt-Oram, or heart hand, syndrome is an autosomal dominant condition [mapped to 12q24.1]. Incidence is 1:100,000 births. Holt-Oram syndrome was first described in 1960 by Holt and

Code:	Value:	Definition:
		Oram who noted the association of radial anomalies with atrial septal defects. Cardiovascular abnormalities in 75% of cases most commonly include ASD. Additional defects include first degree AV block, bradycardia, fibrillation, AVSD, VSD, HLHS and PDA.
220	Jacobsen syndrome	Jacobsen syndrome is a chromosome deletion syndrome [mapped to 11q23]. Incidence is 1:100,000 births. Associated cardiovascular abnormalities include VSD and ASD.
940	Joubert syndrome	Joubert syndrome is a rare, autosomal recessive genetic disorder characterized by improper brain development in utero. The cerebellar vermis may be underdeveloped or absent and the brain stem may be abnormal. Affected individuals may experience developmental delays and intellectual disabilities. It is diagnosed by the 'molar tooth sign' identified by MR. More than 30 genes have been identified that cause the syndrome. The estimated prevalence is estimated between 1:80,000 and 1:100,000 live births.
230	Kabuki syndrome	Kabuki, or Niikawa-Kuroki, syndrome is an autosomal dominant condition. Incidence is 1:32,000 births. Affected individuals have a facial appearance like Japanese Kabuki theatre actors. Cardiovascular abnormalities in 50% of cases include ASD, VSD, coarctation of the aorta, bicuspid aortic valve, mitral valve prolapse, TOF, single ventricle with common atrium, DORV, TGA, and pulmonic, aortic, and mitral valve stenoses.
240	Kartagener syndrome (Siewert syndrome) (Primary ciliary dyskinesia)	Kartagener syndrome, also known as Siewert syndrome or primary ciliary dyskinesia, is an autosomal recessive condition [mapped to 9p21-p13]. Incidence is 1:30,000 births. Features include situs inversus and asplenia. Cardiovascular abnormalities include dextrocardia.

Code:	Value:	Definition:
950	Kleefstra Syndrome	Kleefstra syndrome is a rare genetic disorder mapped to a deletion or mutation in the EHMT1 gene on chromosome 9. It is characterized by intellectual disabilities, developmental delay, hypotonia, and distinct facial features.
250	Klinefelter syndrome (XXY Syndrome)	Klinefelter, or 47XXY syndrome, is a sporadic chromosomal abnormality in which males have at least two X chromosomes and at least one Y chromosome. Incidence is 1:500 males or 1:1000 births. Klinefelter syndrome occurs usually in association with advanced maternal age at conception. It is the most common sex chromosome disorder and the most common cause of hypogonadism and infertility. Cardiovascular abnormalities in more than 50% of cases include mitral valve prolapse, varicose veins and deep venous thrombosis.
1270	Klippel-Feil Sequence	Klippel-Feil syndrome (sequence) is a rare bone disorder caused by mutations in the GDF6 or GDF3 genes characterized by the abnormal fusion or 2 or more bones in the neck during fetal development. Affected individuals may have a short, webbed neck, decreased head and neck range of motion, and a low hairline on the back of the neck. The estimated incidence is 1:40,000 births.
960	Koolen-De Vries Syndrome	Koolen-De Vries syndrome is an autosomal dominant genetic condition caused by a mutation on the KANSL1 gene or a deletion at 17q21.31. The estimated prevalence of the syndrome is 1:55,000 individuals. The syndrome is characterized by developmental delay and intellectual disabilities. Affected individuals may experience hypotonia, seizures, cryptorchidism, skeletal anomalies, and congenital heart defects.
260	LEOPARD syndrome	LEOPARD is an acronym for multiple Lentigines, Electrocardiographic conduction abnormalities, Ocular hypertelorism, Pulmonic stenosis, Abnormal

Code:	Value:	Definition:
		genitalia, Retardation of growth, and sensorineural Deafness. LEOPARD syndrome is an autosomal dominant condition [mapped to 12q24.1 & 3p25]. Cardiovascular abnormalities include pulmonic stenosis in 40% of cases, and hypertrophic cardiomyopathy in 20% of cases. Additional defects include subaortic stenosis, complete heart block, bundle branch block, prolonged P-R and QRS, and abnormal P waves.
270	Loeys-Dietz syndrome	Loeys-Dietz syndrome is an autosomal dominant condition [mapped to 3p22 & 9q22]. Cardiovascular abnormalities include aortic and arterial aneurysms/dissections with tortuosity of the arteries, PDA, ASD, bicuspid aortic and pulmonic valves, and mitral valve prolapse.
290	Marfan syndrome	Marfan syndrome is an autosomal dominant condition [mapped to 5q21.1]. Incidence is 1:5000 births. Marfan syndrome is the most common connective tissue disorder and is associated with the risk of sudden cardiac death. Cardiovascular abnormalities include aortic root dilation, aortic dissection and rupture, aortic regurgitation, ascending aortic aneurysm, mitral valve prolapse, mitral regurgitation, tricuspid valve prolapse, premature calcification of the mitral annulus, pulmonary artery dilatation and CHF.
300	Marfan-like syndrome	Marfan-like syndrome is a connective tissue disorder, resembling Marfan syndrome.
970	McKusick-Kaufman syndrome	McKusick-Kaufman syndrome is a rare, autosomal recessive genetic condition characterized by genitourinary malformations, cardiac defects, and postaxial polydactyly. Associated cardiac defects include AVSD, ASD, VSD, PDA, and hypoplastic left ventricle.
980	Meckel-Gruber syndrome	Meckel-Gruber syndrome is a rare autosomal recessive genetic condition caused by mutations in

Code:	Value:	Definition:
		13 genes. Affected individuals may experience meningeal protrusion through an occipital encephalocele, cystic kidneys, and polydactyly. Worldwide, the estimated incidence is 1:13,250 to 1:140,000 live births.
990	Microphthalmia syndromic 9	Microphthalmia syndromic 9 is a rare autosomal recessive genetic condition characterized by abnormally small or missing eyeballs. In addition to visual impairment, affected individuals usually have lung hypoplasia. Common cardiac defects include TOF, PDA, septal and valvular defects, or single ventricles.
1000	Mowat Wilson Syndrome	Mowat Wilson syndrome is an autosomal dominant genetic disorder caused by a mutation in the ZEB2 gene. It is characterized by intellectual disabilities, seizures, and facial anomalies. Affected individuals may also have other anomalies including Hirschsprung disease, heart defects, and renal abnormalities. The estimated incidence is 1:50,000 to 1;100,000 births.
310	Mucopolysaccharidosis type IH (Hurler syndrome)	Hurler syndrome, also known as mucopolysaccharidosis type IH (MPS IH), is an autosomal recessive condition [mapped to 4p16.3]. Incidence is 1:100,000 births. MPS is a lysosomal storage disease. Affected individuals appear normal at birth; subtle changes may be evident during the first 6 months. Survival beyond 10 years of age is unusual. Cardiovascular abnormalities include valve anomalies, coronary artery narrowing, and mitral and atrial regurgitation.
320	Mucopolysaccharidosis type IH/S (Hurler-Scheie syndrome)	Hurler-Scheie syndrome, also known as mucopolysaccharidosis type IH/S (MPS IH/S), is an autosomal recessive disorder [mapped to 4p16.3]. Incidence is 1:500,000 births. MPS is a lysosomal storage disease. Onset of symptoms occurs between ages 3 and 8 years. Survival to adulthood is typical. Cardiovascular abnormalities include

Code:	Value:	Definition:
		mitral valve anomalies.
330	Mucopolysaccharidosis type II (Hunter syndrome)	Hunter syndrome, also known as mucopolysaccharidosis type II (MPS 2), is an X-linked recessive disorder [mapped to Xq28]. Incidence is 1:100,000-170,000 births. MPS is a lysosomal storage disease. Individuals with Hunter syndrome appear normal at birth. Symptoms emerge between ages 2 and 4. Life expectancy is 10-20 years. Cardiovascular abnormalities include valve anomalies, ischemic heart disease, ventricular hypertrophy, and CHF.
340	Mucopolysaccharidosis type IS (Scheie syndrome)	Scheie syndrome, also known as mucopolysaccharidosis type IS (MPS IS), is an autosomal recessive disorder [mapped to 4p16.3], which occurs in 1:500,000 births. Scheie syndrome is a lysosomal storage disease. Survival to a late age is typical. Cardiovascular abnormalities include aortic regurgitation, aortic and mitral valve abnormalities.
1010	Nance Horan syndrome	Nance-Horan syndrome is a rare X-linked dominant genetic disorder characterized by congenital cataract formation and dental abnormalities. It is caused by mutations on the NHS gene located on the X chromosome.
1020	Nephronophthisis	Nephronophthisis is a genetic disorder where the kidneys become inflamed and fibrotic and lose function with progression to renal failure. The estimated incidence in the US is 1:922,000 people and is the most common cause of end stage renal disease in children and young adults.
1030	Neurofibromatosis	Neurofibromatosis is a genetic disorder characterized by the formation of tumors on nerve tissue. The incidence of type 1 is estimated at 1:4,000 births and type 2 at 1:40,000 births.
350	Noonan syndrome	Noonan syndrome is an autosomal dominant

Code:	Value:	Definition:
		condition [mapped to 12q24.1]. Incidence is 1:1000-2500 births. Major features include short stature, seen in about half, mental retardation (usually mild), characteristic facial features, a shield chest deformity, cubitus valgus, and a short, webbed neck. Cardiovascular abnormalities occur in at least 50% of cases and include pulmonary valve stenosis (75%) secondary to a dysplastic pulmonary valve with thickened valve leaflets, ASD (30%) usually associated with pulmonary stenosis, PDA (10%), VSD (10%), and hypertrophic cardiomyopathy (10-20%) that can involve both ventricles. Rare lesions include TOF, coarctation of the aorta, subaortic stenosis, and Ebstein malformation. Hypertrophic cardiomyopathy is observed in 10% to 20% and can involve both ventricles.
1050	Oculofaciocardiodental	Oculofaciocardiodental syndrome (OFCD) is an X-linked genetic syndrome caused by mutations in the BCOR gene. Characteristics include deep set eyes, cataracts, long narrow face, and a broad tipped nose divided by cleft. It is associated with structural heart defects.
1060	Oral-facial-digital syndromes (types I-XVI and unclassified)	A group of conditions affecting the development of the oral cavity, face, and upper and lower extremity digits. Mutations in specific genes have been found for many types. The estimated incident of type 1 is 1:50,000 to 1:250,000 births and type 2 1:300,000 births.
360	Patau syndrome (Trisomy 13)	Patau or Bartholin-Patau syndrome, or Trisomy 13, is a chromosomal abnormality. Incidence is 1:5000-10,000 births. Sporadic cases occur usually in association with advanced maternal age at conception. Affected individuals have an extra (or third) copy of chromosome 13. More than 90% of individuals with Trisomy 13 die within their first days or weeks of life. Only 5-10% survive beyond 1 year of age. Cardiovascular abnormalities in 80% of cases include VSD, PDA, ASD; dextrocardia in more

Code:	Value:	Definition:
		than 50% of cases; and anomalous pulmonary venous connection, overriding aorta, pulmonary stenosis, hypoplastic aorta, mitral valve atresia, aortic valve atresia, and bicuspid aortic valve in fewer than 50% of cases.
1070	Peter's Plus syndrome	Peter's Plus syndrome is an autosomal recessive genetic disorder linked to variants in the B3GLCT gene. Common characteristics include structural eye abnormalities, impaired growth, short stature, cleft lip and/or cleft palate, and other developmental disabilities.
540	Pierre Robin syndrome	Pierre Robin Syndrome is characterized by an unusually small mandible (micrognathia), posterior displacement or retraction of the tongue (glossoptosis), and upper airway obstruction. Incomplete closure of the roof of the mouth (cleft palate) is present in the majority of patients and is commonly U-shaped.
1080	Polycystic Kidney Disease	Polycystic kidney disease is a genetic disorder characterized by the formation of clusters of cysts in the kidneys leading to loss of function. The incidence of the autosomal dominant form is approximately 1:500 – 1:1,000 people and the incidence of the autosomal recessive form is approximately 1:20,000 to 1:40,000 people.
1090	Primary ciliary dyskinesia (PCD)	Primary ciliary dyskinesia, or immotile cilia syndrome, is a primarily autosomal recessive genetic condition where the cilia in the lungs are defective leading to frequent respiratory and sinus infections. The incidence is approximately 1:16,000 to 1:20,000 births.
530	Prune Belly Syndrome	Prune belly syndrome, also known as Eagle-Barrett syndrome, is characterized by three main features: Anterior abdominal wall musculature ("stomach muscles") deficient or absent, urinary tract anomalies (such as a very large bladder) and

Code:	Value:	Definition:
		bilateral cryptorchidism (two undescended testicles.) The incidence of prune belly syndrome is about 1 in 40,000 births; 95% of cases occur in males. It is thought that prune belly syndrome is a multisystem disease complex that derives from a primary defect in mesodermal development at about 8 weeks' gestation. The major prognostic factor is the degree of dilation of the urinary tract; 20% of patients are stillborn, 30% die of renal failure or urosepsis within the first two years of life, and the remaining 50% have varying degrees of urinary pathology.
370	Rethore syndrome (Trisomy 9)	Trisomy 9, or Rethore syndrome, is a rare chromosomal abnormality, which is a frequent cause of first trimester spontaneous abortions. Incidence is 1:100,000 births. Affected individuals have an extra (or third) copy of chromosome 9. Most affected individuals die during infancy or early childhood. Cardiovascular abnormalities occur in 75% of cases and include VSD, ASD, PDA, valve defects, DORV, persistent left SVC, and endocardial fibroelastosis.
1100	Roberts syndrome	Roberts syndrome is a rare genetic disorder caused by changes of the ESCO2 gene, characterized by growth delays and limb and craniofacial malformations. Limb abnormalities include underdeveloped bones in the arms and legs to complete absence of the limbs. The incidence is unknown.
1110	Robinow syndrome	A rare genetic disorder affecting bone development. There are autosomal dominant and recessive forms which differ in severity, common findings include short stature and other skeletal abnormalities. Some have congenital heart defects, most commonly RVOT obstruction lesions.
390	Rubinstein-Taybi syndrome	Rubinstein-Taybi or Rubinstein syndrome is an autosomal dominant condition [mapped to 16p13.3

Code:	Value:	Definition:
		& 22q13]. Incidence is 1:100,000-125,000 births. Cardiovascular abnormalities occur in 30% of cases and include ASD, VSD and PDA
1120	Saethre Chotzen syndrome	Saethre Chotzen syndrome is a rare form of craniosynostosis where the suture lines in the skull prematurely fuse and/or fusion of fingers and toes.
1130	Short Rib Polydactyly Type I	Short Rib Polydactyly Type I, or Saldino-Noonan, is an autosomal recessive congenital condition characterized by shortening of the ribs and long bones, polydactyly and a narrow thorax. It is associated with heart defects.
1140	Short rib thoracic dysplasias including Jeune chondrodysplasia, Saldino Mainzer	Short rib thoracic dysplasias including Jeune chondrodysplasia, Saldino Mainzer are a group of autosomal recessive conditions characterized by short ribs and a restricted thoracic cavity, with or without polydactyly.
550	Sickle cell disease	Sickle-cell disease (SCD), or sickle-cell anemia (SCA) is an autosomal recessive genetic blood disorder with overdominance, characterized by red blood cells that assume an abnormal, rigid, sickle shape. Sickling decreases the cells' flexibility and results in a risk of various complications. The sickling occurs because of a mutation in the hemoglobin gene. Sickle-cell disease occurs more commonly in people (or their descendants) from parts of tropical and sub-tropical regions where malaria is or was common.
560	Sickle cell trait	Sickle cell trait describes a condition in which a person has one abnormal allele of the hemoglobin beta gene (is heterozygous) but does not display the severe symptoms of sickle cell disease that occur in a person who has two copies of that allele (is homozygous). Those who are heterozygous for the sickle cell allele produce both normal and abnormal hemoglobin (the two alleles are co-dominant). Sickle cell disease is a blood disorder in which the

Code:	Value:	Definition:
		body produces an abnormal type of the oxygen-carrying substance hemoglobin in the red blood cells. Sickling and sickle cell disease also confer some resistance to malaria parasitization of red blood cells, so that individuals with sickle-cell trait (heterozygotes) have a selective advantage in some environments.
1150	Sifrim-Hitz-Weiss syndrome (SIHIWES)	Sifrim-Hitz-Weiss syndrome (SIHIWES) is an autosomal dominant neurodevelopmental disorder impacting intellectual development caused by a mutation in the CHD4 gene. It is associated with brain, heart, and skeletal abnormalities.
1160	Simpson-Golabi-Behmel syndrome	Simpson-Golabi-Behmel syndrome (SGBS) is a rare recessive X-linked genetic disorder primarily affecting males characterized by overgrowth. Heart abnormalities impact 1/3 persons affected by SGBS.
410	Situs inversus	Situs inversus is defined as an abnormality where the internal thoraco-abdominal organs demonstrate mirror-imaged atrial arrangement across the left-right axis of the body.
1170	Smith Magenis syndrome	Smith Magenis syndrome (SMS) is a genetic disorder characterized by skeletal abnormalities, motor delays, and intellectual disabilities. The incidence is approximately 1:15,000 to 1:25,000 births in the US. Most cases are associated with a deletion on the short arm of chromosome 17 (17q11.2). Affected individuals may also experience structural heart defects.
420	Smith-Lemli-Opitz syndrome	Smith-Lemli-Opitz syndrome is an autosomal recessive condition mapped to 11q12-q13]. Incidence is 1:20,000-40,000 births. Cardiovascular abnormalities include VSD, ASD, coarctation of the aorta, and PDA.
1180	Sotos syndrome	Sotos syndrome is an autosomal dominant genetic disorder characterized by excessive growth

Code:	Value:	Definition:
		resulting in an elongated head and distinctive facial features including a prominent forehead, pointed chin, and widely spaced eyes. There are associated intellectual disabilities with delays in milestones. Many experience advanced bone age with children reaching heights and weights years over chronological age.
1280	Spinal Muscular Atrophy	Spinal muscle atrophy (SMA) is a degenerative autosomal recessive genetic disorder affecting the central and peripheral nervous systems caused by a loss of nerve cells (motor neurons) in the spinal cord. The incidence is approximately 1:10,000 live births. SMA is characterized by progressive loss of motor function. Includes all types of SMA.
1210	TAR syndrome	Thrombocytopenia-absent radium (TAR) syndrome is a rare autosomal recessive disorder caused by mutations in the RBM8A gene. The incidence is estimated at 1:200,000 – 1:100,000 births. It is characterized by low platelet levels and absence of the radius bones in the forearms. Other skeletal abnormalities may be present along with structural heart defects including TOF and ASDs.
640	Thalassemia – Major	Beta thalassemia – major, or Cooley's anemia, is a genetic blood disorder characterized by decreased levels of hemoglobin and production of red blood cells resulting in anemia. Care includes lifelong regular blood transfusions. Most cases are caused by a mutation in the HBB gene.
650	Thalassemia – Minor	Beta thalassemia - minor, or beta thalassemia trait, is a genetic blood disorder characterized by decreased hemoglobin levels. While a mild anemia may be present, many will not develop symptoms or know they have the disorder. Most cases are caused by a mutation in the HBB gene.

Code:	Value:	Definition:
1220	Townes-Brocks syndrome	Townes-Brocks syndrome (TBS) is an autosomal dominant genetic condition caused by a mutation in the SALL1 gene. It is characterized by imperforate anus and hand, foot, and ear anomalies including hearing loss. The incidence is approximately 1:250,000 births. There may be associated heart and genital abnormalities.
430	Turner syndrome (45XO)	Turner syndrome (45XO) is a chromosomal deletion abnormality, which occurs in 1:5000 live female births. Although common in first trimester, most 45XO conceptuses are spontaneously aborted. Affected individuals are missing one X chromosome. The major features include short stature, primary amenorrhea due to ovarian dysgenesis, webbed neck, congenital lymphedema, and cubitus valgus. Cardiovascular abnormalities occur in 20-40% of cases, the most common of which is coarctation of the aorta (70%). Additional defects include bicommissural aortic valve, aortic stenosis, a spectrum of left-sided obstructive defects and/or hypoplastic defects, hypoplastic left heart syndrome, aortic dilation, dissection, and rupture.
440	VACTERL syndrome (VACTER/VATER/VATERR syndrome)	VACTERL syndrome is a nonrandom association of defects, including Vertebral anomalies, Anal atresia, Cardiovascular anomalies, Tracheoesophageal fistula, Esophageal atresia, Renal and/or Radial anomalies, and Limb anomalies. Diagnosis is made if 3/7 defects are present. Incidence is 1:6000 births. Cardiovascular malformations include VSD, TOF, TGA and PDA.
450	VACTERL-H syndrome (VATER association with hydrocephalus) (Briard-Evans syndrome)	VACTERL-H association is also known as VATER association with hydrocephalus, Briard-Evans syndrome, David-O'Callaghan syndrome (autosomal recessive type), and Hunter-MacMurray syndrome (X-linked type) [mapped to 10q23.31 & Xp22.31]. VACTERL-H is an autosomal recessive condition; some X-linked cases have been reported. VACTERL-H is a nonrandom association of defects, including

Code:	Value:	Definition:
		Vertebral anomalies, Anal atresia, Cardiac malformations, Tracheoesophageal fistula, Renal anomalies, Limb anomalies and Hydrocephalus. Diagnosis is made if 3/7 defects are present with hydrocephalus. Cardiovascular abnormalities include VSD, TOF, TGA and PDA.
520	von Willebrand disease (vWD)	Von Willebrand disease (vWD) is the most common hereditary coagulation abnormality described in humans, although it can also be acquired as a result of other medical conditions. It arises from a qualitative or quantitative deficiency of von Willebrand factor (vWF), a multimeric protein that is required for platelet adhesion. There are three forms of vWD: inherited, acquired and pseudo or platelet type. There are three types of hereditary vWD: vWD Type I, vWD Type II and vWD III. Within the three inherited types of vWD there are various subtypes. Platelet type vWD is also an inherited condition. vWD Type I is the most common type of the disorder and those that have it are typically asymptomatic or may experience mild symptoms such as nosebleeds although there may be severe symptoms in some cases. There are various factors that affect the presentation and severity of symptoms of vWD such as blood type.
460	Warkany syndrome (Trisomy 8)	Trisomy 8, or Warkany syndrome, is a chromosomal abnormality, which is a frequent cause of first trimester spontaneous abortions. Complete Trisomy 8 is usually an early lethal disorder. Incidence is 1:25,000-50,000 births. Affected individuals have an extra (or third) copy of chromosome 8. Cardiovascular abnormalities include septal defects and great vessel anomalies.
470	Williams syndrome (Williams-Beuren syndrome)	Williams syndrome, or Williams-Beuren syndrome, is an autosomal dominant condition [mapped to 7q11.23]. Incidence is 1:7500 births. Williams syndrome was initially described by Williams and colleagues in four unrelated children with mental

Code:	Value:	Definition:
		retardation, an unusual facial appearance, and supravalvar stenosis. Cardiovascular abnormalities occur in at least 50% of cases and include supravalvar aortic stenosis, bicuspid aortic valve, mitral valve prolapse, mitral regurgitation, coronary artery stenosis, pulmonary valve stenosis, ASD, VSD and peripheral pulmonary artery stenosis. Supravalvar aortic stenosis is the most frequent single defect, but any of the systemic or pulmonary arteries can be affected.
490	Wolf-Hirschhorn syndrome	Wolf-Hirschhorn syndrome is a chromosome deletion syndrome [mapped to 4p16.3]. Incidence is 1:96,000 births. Affected individuals have a 35% risk of mortality prior to age 2. Cardiovascular abnormalities include ASD and VSD.
1260	X-linked heterotaxy	X-linked heterotaxy is a rare form of heterotaxy caused by mutations in the ZIC3 gene. It is inherited in an X-linked recessive fashion most often seen in males. Associated cardiac abnormalities include TGA, VSD, PDA, and pulmonary stenosis.
510	Other syndromic abnormality	This patient has other syndromic abnormality(ies) that are not on this list. Indicate Other syndromic abnormalities in SeqNo (495) utilizing free text.

Long Name: Syndrome - Other - Specify

SeqNo: 495
Short Name: SyndromeOthSpecify
Database Table Name: Demographics
Data Source: User
Format: Text
Definition: Indicate all other Syndrome or Syndromic abnormalities.
ParentLongName: Syndrome - Multi-Select

ParentShortName: SyndromeMulti

ParentHarvestCodes: Contains (510)

ParentValue: Contains ("Other syndromic abnormality")

Intent/Clarification:

If other syndromic abnormality, list the other syndrome abnormality(ies) utilizing free text.

G. HOSPITALIZATION

Long Name: Hospital Name

SeqNo: 500

Short Name: HospName

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by user)

Definition: Indicate the full name of the facility where the procedure was performed. Values should be full, official hospital names with no abbreviations or variations in spelling for a single hospital. Values should also be in mixed case.

Intent/Clarification:

Indicate the name of the hospital where the procedure was performed.

User to maintain the hospital list. Hospital name and Hospital NPI changes must be on file with STS. The current form for updating Hospital name and Hospital NPI is located on the STS website accessed here: Participant Contact Form.

Long Name: Hospital Zip Code

SeqNo: 505

Short Name: HospZIP

Database Table Name: Operations

Data Source: Lookup

Format: Text (categorical values specified by User)

Definition: Indicate the ZIP Code of the hospital. Outside the USA, these data may be known by other names such as Postal Code.

This field should be collected in compliance with state/local privacy laws.

Intent/Clarification:

Enter the zip code (postal code) of the hospital where the procedure is being performed.

Long Name: Hospital State

SeqNo:	510
Short Name:	HospStat
Database Table Name:	Operations
Data Source:	Lookup
Format:	Text (categorical values specified by User)
Definition:	Indicate the region of the country (i.e., state or province) in which the hospital is located.

Intent/Clarification:

Enter the state or province of the hospital where the procedure is being performed.

Long Name: Hospital National Provider Identifier

SeqNo:	515
Short Name:	HospNPI
Database Table Name:	Operations
Data Source:	Lookup
Format:	Text (categorical values specified by User)
Definition:	Indicate the hospital's National Provider Identifier (NPI). This number, assigned by the Center for Medicare and Medicaid Services (CMS), is used to uniquely identify facilities for Medicare billing purposes. Non_US participants will have a unique ID number assigned by the STS.

Intent/Clarification:

The STS maintains a list of Hospital NPIs associated with Participation Agreements. Data files that include other hospitals cannot be processed. If the field is missing or incorrect, the file will not be processed. This is different from the Surgeon NPI.

Hospital NPIs can be found utilizing this link: NPI Registry

Notify STS with any changes to the hospital NPI as soon as possible to ensure records are processed appropriately at the time of harvest. NPIs may change at times of acquisitions and

mergers. The current form for updating Hospital name and Hospital NPI is located on the STS website accessed here: Participant Contact Form

Long Name: Hospital CMS Certification Number

SeqNo:	520
Short Name:	HospCMSCert
Database Table Name:	Operations
Data Source:	Lookup
Format:	Text (categorical values specified by User)
Definition:	Indicate the hospital's CMS certification number.

Intent/Clarification:

To avoid confusion with the NPI, the Medicare/Medicaid Provider Number (also known as the OSCAR Provider Number, Medicare IdentificationNumber or Provider Number) has been renamed the CMS Certification Number (CCN). To find the CCN for your site, **c**ontact your medical records or billing department.

The Medicare/Medicaid provider number can be found on the CMS website utilizing the following link: CCN Lookup

Long Name: Primary Payor

SeqNo:	525
Short Name:	PayorPrim
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary insurance payor for this admission.

Harvest Codes:

Code:	Value:
1	None / self
2	Medicare
3	Medicaid
4	Military Health
5	Indian Health Service
6	Correctional Facility
7	State Specific Plan
8	Other Government Insurance
9	Commercial Health Insurance

10 Health Maintenance Organization
11 Non-U.S. Plan
13 Charitable Care/Foundation Funding (internal)
14 Charitable Care/Foundation Funding (external)

Intent/Clarification:

When there is more than one payor, the primary payor pays first. If there is only one primary payor listed, capture that as the Primary Payor.

In the scenario where a patient is admitted for a car accident, the primary payor may be listed as the auto insurance provider. Do not capture the auto insurance as the Primary Payor, capture the patient's 'normal' healthcare insurance or payor.

Payor Descriptions

None / Self – the patient has no insurance, or the patient is self-pay. Code Christian Healthcare Ministries and Medi-Share Christian Health Care in this selection.

Medicare – Includes commercially managed options.

- **Medicare Part A** – is hospital insurance and covers inpatient hospital stays, skilled nursing facility, hospice care and some home health care. Some patients may only have Medicare A, and this is not included in Fee-for-Service.
- **Medicare Part B** – is medical insurance; payment for Pro-fee or the coverage for physician services (therefore it is coded as Fee-for-Service), outpatient care, medical supplies, and preventive services.
- **Medicare Part C / Medicare Advantage Plan** – is still a Medicare program which is managed by an insurance company, most have additional benefits – vision, and/or dental. Medicare Advantage Plan covers most Medicare benefits and usually require patients to see specific providers in their network**.** All Medicare Advantage/ Managed Care plans (i.e., Humana HMO Medicare) are captured in the payor category as Medicare only. For example, if the patient has Medicare HMO, code as primary payor Medicare, there is no secondary payor in this scenario. Medicare Part D is prescription drug coverage. Medicare Part D is optional, and it's available only through private insurance companies that contract with Medicare (Medicare Advantage or Managed Care plans). Medicare Supplement plans are not part of Medicare – this is a separate private health insurance plan.

    Medicare Advantage Plan Types:

    - HMO
    - PPO
    - Private Fee-for-Service
    - Special needs plan
    - Medicare Medical Savings Account plan

Medicaid – Medicaid in the United States is a federal and state program that helps with medical costs for some people with limited income and resources. Medicaid also offers benefits not normally covered by Medicare, including nursing home care and personal care services. All Medicaid Commercial / Managed Care plans (i.e., Humana Medicare, Star Molina Medicaid) are captured in the payor category as Medicaid only.

Military – US Military provides insurance. Typically reported as VA insurance or Tricare.

Indian Health Service – The Indian Health **Service** (IHS), an agency within the Department of Health and Human **Services**, is responsible for providing federal health **services** to American Indians and Alaska Natives.

Correctional Facility – Insurance coverage for currently incarcerated patients provided by the correctional facility.

State Specific Plan – Insurance plan offered within a specific state excluding Medicare/Medicaid state specific plans.

Other Government Insurance – Any other government sponsored or funded insurance plans excluding Medicare, Medicaid, and Tricare.

Commercial Health Insurance – Commercial health insurance is health insurance provided and administered by non-governmental entities. It covers medical expenses and disability income for the insured. Commercial insurance includes Medicare Supplement plans such as Medigap or AARP etc. It is a private insurance policy that can help pay for some of the health care cost Medicare doesn't cover, such as co-payments, coinsurance, and deductibles. This is not part of Medicare – this is a separate private health insurance plan. Point-of-service plan (POS) and Preferred Provider Organization (PPO) plans not associated with Medicare Advantage plans will be captured here.

Health Maintenance Organization (HMO) – An HMO gives you access to certain doctors and hospitals within its network. A network is made up of providers that have agreed to lower their rates for plan members and meet quality standards. But unlike PPO plans, care under an HMO plan is covered only if you see a provider within that HMO's network. There are few opportunities to see a non-network provider. There are also typically more restrictions for coverage than other plans, such as allowing only a certain number of visits, tests or treatments.

Non-U.S. Plan – Insurance covered by a non-U.S. source.

Charitable Care/ Foundation Funding (internal) – Several charitable funds are available to patients and families to assist with covering their medical expenses as a primary or secondary payor. Select this if this admission's charges will be billed to a charitable or foundation fund internal to the surgical hospital. Internal funding varies by site and this list should be managed individually. Patients/families may also apply or separately qualify for funds or grants to help pay medical expenses; do not capture these here, only capture events where the hospital

directly bills the charitable fund.

Charitable Care/ Foundation Funding (external) – Several charitable funds are available to patients and families to assist with covering their medical expenses as a primary or secondary payor. Select this if this admission's charges will be billed to a charitable or foundation fund from outside of the surgical hospital. Patients/families may also apply or separately qualify for funds or grants to help pay medical expenses; do not capture these here, only capture events where the hospital directly bills the charitable fund.

Long Name: Primary Payor Medicare Fee For Service

SeqNo:	545
Short Name:	PrimMCareFFS
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient is covered by Medicare Part B.
ParentLongName:	Primary Payor
ParentShortName:	PayorPrim
ParentHarvestCodes:	2
ParentValue:	= "Medicare"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Medicare Part B – is payment for Professional-fee or the coverage for physician services therefore it is coded as Fee-for-Service. This field is for traditional Medicare plans that pay via FFS (Fee-for-service). Medicare Replacement (Medicare Advantage) and Managed Care plans that pay via PFFS (Private-Fee-for Service) are not captured as Medicare FFS.

Long Name: Secondary (Supplemental) Payor

SeqNo:	550
Short Name:	PayorSecond
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate which if any secondary insurance payor was used for this admission.
ParentLongName:	Primary Payor
ParentShortName:	PayorPrim
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "None / self" And Is Not Missing

Harvest Codes:

Code:	Value:
1	None / self
2	Medicare
3	Medicaid
4	Military Health
5	Indian Health Service
6	Correctional Facility
7	State Specific Plan
8	Other Government Insurance
9	Commercial Health Insurance
10	Health Maintenance Organization
11	Non-U.S. Plan
13	Charitable Care/Foundation Funding (internal)
14	Charitable Care/Foundation Funding (external)

Intent/Clarification:

See SeqNo 525 for definitions of payor types.

Long Name: Secondary Payor Medicare Fee For Service

SeqNo:	555
Short Name:	SecondMCareFFS
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient is covered by Medicare Fee For Service (Part B).
ParentLongName:	Secondary (Supplemental) Payor
ParentShortName:	PayorSecond
ParentHarvestCodes:	2
ParentValue:	= "Medicare"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Medicare Part B – is payment for Professional-fee or the coverage for physician services therefore it is coded as Fee-for-Service. This field is for traditional Medicare plans that pay via FFS (Fee-for-service). Medicare Replacement (Medicare Advantage) and Managed Care plans that pay via PFFS (Private-Fee-for Service) are not captured as Medicare FFS.

Long Name: Temporary Coded Field

SeqNo:	560
Short Name:	TempCode
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	This is a temporary field that should not be used for data collection until expressly instructed to by the STS. As of release of v6.22.1, this is currently being used to collect COVID testing.

Harvest Codes:

Code:	Value:	
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	(No)
11	11	(Yes, prior to hospitalization for this surgery)
12	12	(Yes, in hospital prior to surgery)
13	13	(Yes, in hospital after surgery)
14	14	(Yes, after discharge within 30 days of surgery)
15	15	
16	16	
17	17	
18	18	

19 19
20 20

Intent/Clarification:

Please complete this field on patients entered in the database starting April 1, 2020. Sites have the option to retroactively collect this field back to January 1, 2020, if they choose to do so.

Positive antibody testing is not captured. There are many tests for different types of coronaviruses and STS is only collecting the one causing Covid-19 which is SARS-CoV-2.

Note: Beginning on January 1, 2022, the STS National Database will begin to include all COVID-19 positive patients undergoing surgery in risk-adjusted analyses and reporting. This will not be applied retroactively to previously excluded patients. The impact of COVID-19 on operative risk will continue to be an active area of investigation in the database, and future policy may be implemented as our understanding evolves and the data warrant. Please continue collecting COVID data until further direction is available.

Did the patient have a laboratory confirmed diagnosis of Covid-19?

Code:	Value:	Definition:
10	No	Applies to any timeframe (preoperatively, during hospitalization, and post-operatively). Code if the patient tested negative or was not tested for Covid-19. If the patient discharges from the surgical facility (Hospital Discharge) and tests positive for Covid-19 within 30 days of a cardiac operation, remove code 10 and code Harvest Code 14 (Yes, after discharge within 30 days of surgery).
11	Yes, prior to hospitalization for this surgery	There is no timeframe for coding, capture any Covid-19 positive test preoperatively and enter the test date in SeqNo 565 (TempDt). Includes patients who self-report a positive Covid-19 test at any time prior to admission to the surgical hospital. Includes patients who tested positive for Covid-19 at another facility prior to transfer to the surgical hospital.
12	Yes, in hospital prior to surgery	The patient tests positive for Covid-19 after admission to the surgical hospital but prior to the

Code:	Value:	Definition:
		date of surgery.
13	Yes, in hospital after surgery	The patient tests positive for Covid-19 during the surgical admission after the date of surgery.
14	Yes, after discharge within 30 days of surgery	The patient tests positive for Covid-19 after discharge from the surgical hospital but within 30 days of the surgery date. Includes patients following surgical hospital discharge who self-report a positive Covid-19 test within 30 days of surgery

Long Name: Temporary Date Field

SeqNo: 565

Short Name: TempDt

Database Table Name: Operations

Data Source: User

Format: Date - mm/dd/yyyy

Definition: This is a temporary field that should not be used for data collection until expressly instructed to by the STS.

As of release of v6.22.1, this field is used to collect the date of a positive COVID test.

Intent/Clarification:

To further understand the impact of COVID-19 on surgical patients, STS will collect the date of positive PCR testing for COVID-19 patients. To achieve this, the temporary field (TempDt) will be utilized for patients who have a confirmed COVID-19 diagnosis through PCR testing.

Coding Notes:

Positive antibody testing is not captured in this field.

If there is more than one positive test date, collect the date that is closest to the surgery date.

In the event the date of the positive test is unknown, leave TempDt blank. If month and year of the positive COVID-19 test is known and the day is unknown, enter month/01/year. If only the year is known, code 01/01/Year.

In the event a patient has multiple positive COVID-19 tests preoperatively and postoperatively, enter the date of the positive test closest to the surgery date.

Long Name: Date of Admission

SeqNo:	570
Short Name:	AdmitDt
Database Table Name:	Operations
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the date the patient was admitted to the hospital. For those patients who originally enter the hospital in an out-patient capacity (i.e., catheterization), but then are not discharged, the admit date is the date of the patients entry into the hospital.

Intent/Clarification:

The date of admission is the admit date to the surgical hospital and in most cases is the start of the Episode of Care (EOC).

Time spent in the emergency department (ED) or clinic does not start the EOC unless a surgical operation/procedure is performed. For example, in the event a patient is canulated for ECMO in the ED, the EOC/AdmitDt is the date the patient underwent the procedure. However, if the patient came from the ED and transferred to the ICU for the ECMO procedure, the EOC/AdmitDt is the date the patient arrived in the ICU.

In the event of multiple admit dates in the medical record, identify a consistent source within the medical record. The admission date *cannot* be after the surgery date.

In the event the patient is admitted to observation status and during the stay become an inpatient, use the date the patient was admitted to observation status as the admit date.

In the event the patient underwent a same day or outpatient procedure (the admit and discharge dates occurred on the same date), the admit date is the same as the surgery date.

Long Name: Location From Which Patient Admitted

SeqNo:	575
Short Name:	AdmitFromLoc
Database Table Name:	Operations
Data Source:	User

Format: Text (categorical values specified by STS)

Definition: Indicate the location from which the patient was admitted.

Harvest Codes:

Code: Value:
1 Home
2 Other acute care center
3 Other chronic care center
4 Born at operative center

Intent/Clarification:

Indicate the location the patient was admitted to the surgical hospital from.

Code:	Value:	Definition:
1	Home	The patient was admitted to the surgical hospital from home. Includes patients who transfer from an emergency department or an outpatient clinic. Includes patients who present to an outside hospital but are not admitted prior to transfer to the surgical hospital.
2	Other acute care center	The patient was admitted to the surgical hospital from another acute care center. The patient must have been admitted to the transferring hospital / other acute care center prior to transfer to the surgical hospital.
3	Other chronic care center	The patient was admitted to the surgical hospital from a chronic care center.
4	Born at operative center	The patient was born at this operative center (the surgical hospital) during this episode of care.

Long Name: Date of Surgery

SeqNo: 580

Short Name: SurgDt

Database Table Name: Operations

Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the date of surgery which equals the date the patient enters the OR or equivalent.

Intent/Clarification:

Indicate the date the patient enters the OR.

Long Name: Height in Centimeters

SeqNo:	585
Short Name:	HeightCm
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the height of the patient in centimeters at the time of surgery.
Low Value:	15.0
High Value:	250.0

Intent/Clarification:

Capture the patient's height closest to time of OR entry date and time.

This field is used to calculate body surface area (BSA) and body mass index (BMI). Conversion: 1 inch = 2.54 cm.

For patients who have had lower extremity amputations, code the patient's original height.

Long Name: Weight in Kilograms

SeqNo:	590
Short Name:	WeightKg
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the weight of the patient in kilograms at the time of surgery.
Low Value:	0.001
High Value:	200.000

Intent/Clarification:

Capture the patient's weight closest to time of OR entry date and time.

Used to calculate body surface area (BSA) and body mass index (BMI). Conversion: 1 Kg = 2.2 pounds.

Long Name: Calculated BMI

SeqNo:	591
Short Name:	CalculatedBMI
Database Table Name:	Operations
Data Source:	Calculated
Format:	Real
Definition:	System calculated BMI
Low Value:	0.0
High Value:	200.0

Intent/Clarification:

Body mass index (BMI) will be automatically calculated utilizing HeightCm and WeightKg.

Long Name: Calculated BSA

SeqNo:	592
Short Name:	CalculatedBSA
Database Table Name:	Operations
Data Source:	Calculated
Format:	Real
Definition:	System calculated BSA
Low Value:	0.0
High Value:	5.0

Intent/Clarification:

Body surface area (BSA) will be automatically calculated utilizing HeightCm and WeightKg.

Long Name: Patient Age In Days

SeqNo:	595

Short Name: AgeDays
Database Table Name: Operations
Data Source: Calculated
Format: Integer
Definition: Calculate the patient's age in days at the time of the surgery procedure. The patient's age will be calculated by the software from the date of birth and the date of surgery.
Low Value: -1
High Value: 40150

Intent/Clarification:

Software calculated field utilizing the patient's date of birth and date of surgery.

H1. PREOPERATIVE FACTORS

Long Name: Preoperative Factor Known

SeqNo: 616
Short Name: PreopFactorKnown
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient has any known preoperative factors.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient has any preoperative factors. Each preoperative factor listed in SeqNo 620 has a specific definition and timeframe for inclusion. Refer to the definitions in Seq 620.

Long Name: Preoperative Factor - Multi-Select

SeqNo: 620
Short Name: PreopFactorMulti
Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all factors that are present preoperatively or code "No preoperative factors identified".

ParentLongName: Preoperative Factor Known

ParentShortName: PreopFactorKnown

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes and Display Conditions:

Code:	Value: (Display Condition)
200	Cardio-pulmonary resuscitation
210	Preoperative complete AV block (AgeDays<6575)
220	Preoperative/Preprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)
230	Shock, Persistent at time of surgery
240	Shock, Resolved at time of surgery
250	Diabetes mellitus, Insulin dependent
260	Diabetes mellitus, Non-insulin dependent
270	Hypothyroidism
280	Currently taking steroids as treatment for adrenal insufficiency
290	Currently taking steroids for any reason other than treatment of adrenal insufficiency
295	Colostomy present
300	Enterostomy of small intestine present
305	Esophagostomy present
307	Gastrostomy present
310	Hepatic dysfunction
320	Necrotizing entero-colitis, Treated medically
330	Necrotizing entero-colitis, Treated surgically
340	Coagulation disorder, Hypercoagulable state
350	Coagulation disorder, Hypocoagulable state not secondary to medication (intrinsic hypocoagulable state)
360	Coagulation disorder, Hypocoagulable state secondary to medication
590	Dyslipidemia
370	Endocarditis
650	Immunocompromised
580	Family History of Coronary artery disease
680	Chronic lung disease (not associated with premature birth)
700	Hypertension (AgeDays>=6575)
720	Liver disease (AgeDays>=6575)
740	Cancer within 5 years (AgeDays>=6575)
760	Syncope (AgeDays>=6575)

780 Cerebrovascular disease (AgeDays>=6575)
380 Sepsis
390 Sepsis with positive blood culture
400 Preoperative neurological deficit
410 Seizure during lifetime
420 Seizure within 48 hours prior to surgery
430 Stroke, CVA, or Intracranial hemorrhage > Grade 2 during lifetime (AgeDays<6575)
440 Stroke, CVA, or Intracranial hemorrhage > Grade2 within 48 hours prior to surgery (AgeDays<6575)
450 Renal dysfunction
460 Renal failure requiring dialysis
470 Invasive Mechanical ventilation to treat cardiorespiratory failure
600 Non-Invasive respiratory support to treat cardiorespiratory failure
480 Respiratory Syncytial Virus
490 Single lung
500 Tracheostomy present
510 Asthma
520 Bronchopulmonary dysplasia (BPD)
530 ICD (AICD) ([automatic] implantable cardioverter defibrillator) present
540 Pacemaker present
570 Tobacco use
610 Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care
620 Admitted from home after having a cardiac surgical operation within the past 30 days
630 Preoperative dysrhythmia requiring anti-dysrhythmia medication
640 Illicit drug use within one year
660 Mediastinal radiation
670 Heart failure
690 Cardiac Dysrhythmia (AgeDays>=6575)
710 Sleep apnea (AgeDays>=6575)
730 Liver Cirrhosis (AgeDays>=6575)
750 Peripheral artery disease (AgeDays>=6575)
770 Unresponsive state (AgeDays>=6575)
790 Prior myocardial infarction (AgeDays>=6575)
777 Other preoperative factors

Intent/Clarification:

If the patient has any preoperative factors, select all preoperative factors present.

Note the specific timeframes as each preoperative factor has its own defined timeframe for inclusion. This includes new timeframes for a select few preoperative factors that occur prior to admission to the surgical hospital.

Select all applicable preoperative factors for the surgery/procedure being completed at that date/time. Depending on the patient scenario, the applicable preoperative factors may be the same for each surgery/procedure; alternatively, they may differ.

There are preoperative factors that may overlap.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
200	Cardio-pulmonary resuscitation	Defined: Chest compressions with or without medications or in the event of an open chest, internal cardiac massage. Timeframe: within 48-hours prior to OR entry date/time *or* at time of OR entry date/time. Code this factor: if the patient received chest compressions within 48-hours of OR entry date/time or is actively receiving compressions at OR entry date/time. The 48-hours prior to OR entry date/time may include time spent in another hospital/emergency department etc. Does not include 'chemical resuscitation' only; chest compressions are required. Do not include chest compressions that occur after OR entry date/time as it is no longer a preoperative factor (it may be a postoperative event depending on the timing).
210	Preoperative complete AV block (AgeDays<6575)	Defined: Arrhythmia-Atrioventricular conduction disorder, AV block, third degree AV block (Complete heart block) is defined as the absence of AV node conduction leading to complete dissociation of the atria and ventricles. Timeframe: present at OR entry date/time. Code this factor: if the patient had complete AV block present at OR entry date/time and/or has an existing pacemaker for a documented history of

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		complete AV block. Does not include other types of AV block, e.g., 1st or 2nd degree block.
220	Preoperative/Preprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Defined: Mechanical circulatory support (MCS) provided by intra-aortic balloon pump (IABP), ventricular assist device (VAD), extracorporeal mechanical support (ECMO), and cardiopulmonary support (CPS). Timeframe: present at OR entry date/time. Code this factor: if the patient is receiving mechanical circulatory support at the time of OR entry date/time. Do not include patients where the mechanical support was instituted and stopped during the hospitalization prior to OR entry date/time.
230	Shock, Persistent at time of surgery	Defined: Shock is defined as a state of inadequate tissue perfusion. Timeframe: present at OR entry date/time. Code this factor: if ***both*** criteria below are met at the time of OR entry date/time: (1) the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient ***and*** (2) the patient has at least one of the following at OR entry date/time: • pH < 7.2 • lactate > 4 mmol/L • cardiac index <2.2 L/min/m^2 • Dopamine > 10 mcg/kg/min

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		• Dobutamine at > 10 mcg/kg/min • Epinephrine > 0.1 mcg/kg/min • Norepinephrine > 0.1 mcg/kg/min • Vasopressin > 0.5 mU/kg/min
240	Shock, Resolved at time of surgery	Defined: Shock is defined as a state of inadequate tissue perfusion. Timeframe: during the hospitalization (anytime at or after surgical hospital admission date) that resolved *prior* to OR entry date/time. Code this factor: if ***both*** criteria below are met: (1) the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient *and* (2) the patient has ***at least one*** of the following the resolved *prior* to OR entry date/time: • pH <7.2 • lactate > 4 mmol/L • cardiac index <2.2 L/min/m^2 • Dopamine > 10 mcg/kg/min • Dobutamine at > 10 mcg/kg/min • Epinephrine > 0.1 mcg/kg/min • Norepinephrine > 0.1 mcg/kg/min • Vasopressin > 0.5 mU/kg/min Includes situations where shock was present while the patient was hospitalized at another hospital prior to transferring to the surgical hospital if the patient arrived at the surgical hospital and met the above listed criteria.
250	Diabetes mellitus, Insulin dependent	Defined: Diabetes mellitus, Insulin dependent is defined as the patient has a diagnosis of diabetes

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		mellitus that is controlled/treated with insulin. Timeframe: diagnosis present at OR entry date/time. Code this factor: if the patient has a documented active diagnosis of diabetes mellitus that is controlled with insulin. Includes patients with a diagnosis of diabetes mellitus with insulin treatment when the insulin is held for surgery. Only code for patients with steroid induced hyperglycemia or gestational diabetes if there is documented diabetes and/or treatment with insulin. Includes patients with a history of diabetes treated with insulin who have received pancreatic transplant. In the absence of a documented diagnosis of insulin dependent diabetes, a hemoglobin A1c (HbA1c) result ≥ 6.5% collected within 3 months prior to surgery is acceptable for documentation of diabetes as long as the patient is also receiving insulin therapy.
260	Diabetes mellitus, Non-insulin dependent	Defined: Diabetes mellitus, Insulin dependent is defined as the patient has a diagnosis of diabetes mellitus that is controlled/treated with dietary modification with or without oral anti-hyperglycemic agents. Timeframe: diagnosis with treatment present at OR entry date/time. Code this factor: if the patient has a documented active diagnosis of diabetes mellitus being treated with dietary modification and/or oral anti-

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		hyperglycemic agents. Include patients with a diagnosis of diabetes mellitus, non-insulin dependent when the treatment is held for surgery. Only code for patients with steroid induced hyperglycemia or gestational diabetes if there is documented diabetes and/or treatment. In the absence of a documented diagnosis of insulin dependent diabetes, a hemoglobin A1c (HbA1c) result ≥ 6.5% collected within 3 months prior to surgery is acceptable for documentation of diabetes. Some medications used to treat diabetes may be used to treat other conditions. Only include if the patient has a documented diagnosis of diabetes mellitus.
270	Hypothyroidism	Defined: Hypothyroidism refers to decreased levels of triiodothyronine (T3) and thyroxine (T4), and reverse triiodothyronine (reverse T3), with high levels of thyroid-stimulating hormone (TSH). Timeframe: present at OR entry date/time. Code this factor: if ***at least one*** of the following is present at OR entry date/time: • thyroid stimulating hormone (TSH) level > 20 mU/L. Lab values within 30 days prior to the surgery date are acceptable to use. • active diagnosis of pituitary failure with hypothyroidism • receiving medication to treat hypothyroidism, e.g., Synthroid (even if temporarily held for surgery)
280	Currently taking steroids as	Defined: a condition where the adrenal glands don't

Code:	Value (Display Condition):	Definition / Intent / Clarification:
	treatment for adrenal insufficiency	make enough of the hormone cortisol and/or aldosterone. Timeframe: present at OR entry date/time. Code this factor: if the patient received systemic steroids as treatment for confirmed or presumed adrenal insufficiency at the time of OR entry date/time. The patient must have received at least one dose of systemic steroids for confirmed/presumed adrenal insufficiency within 24-hours prior to OR entry date/time. Does not include one-time stress doses prior to/on call prior to the procedure. Does not include pre-bypass administration of steroids. Includes systemic steroids only; does not include inhaled or topical steroids.
290	Currently taking steroids for any reason other than treatment of adrenal insufficiency	Defined: current steroid use is defined as the patient is taking systemic steroids for any reason other than adrenal insufficiency (see harvest code 280 for definition of adrenal insufficiency). Timeframe: present at OR entry date/time. Code this factor: if the patient received systemic steroids for any reason other than confirmed or presumed adrenal insufficiency at the time of OR entry date/time. The patient must have received at least one dose of systemic steroids within 24-hours prior to OR entry date/time. Does not include one-time stress doses prior to/on call prior to the procedure. Does not include pre-bypass administration of steroids. Includes systemic steroids only; does not include inhaled or topical steroids.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
295	Colostomy present	Defined: a surgical procedure where a portion of the colon (longest part of the long intestine) is diverted into a surgically created opening in the abdominal wall providing a new pathway for waste to pass. Timeframe: present at OR entry date/time. Code this factor: if the patient has a colostomy present at the time of OR entry date and time.
300	Enterostomy of small intestine present	Defined: the surgical creation of an opening into the small intestine. Timeframe: present at OR entry date/time. Code this factor: if the patient has an enterostomy of the small intestine present at the time of OR entry date and time. Include enterostomies of any part of the small intestine including jejunostomy and ileostomy.
305	Esophagostomy present	Defined: the surgical creation of an opening into the esophagus. Timeframe: present at OR entry date/time. Code this factor: if the patient has an esophagostomy present at the time of OR entry date and time.
307	Gastrostomy present	Defined: A gastrostomy tube (G-Tube) is a surgically or percutaneously placed device directly into the stomach. G-Tubes are different from nasogastric (NG) or nasojejunal (NJ) tubes. Timeframe: present at OR entry date/time. Code this factor: if the patient has a gastrostomy tube present at the time of OR entry date/time.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		The intent is to capture a true gastrostomy with stoma; it is not intended to capture long-term feeding through NG or NJ tubes. Do not include NG/NJ tubes as gastrostomy tubes.
310	Hepatic dysfunction	Defined: dysfunction of the liver that results in hypoalbuminemia, coagulopathy, and hyperbilirubinemia. Timeframe: anytime within 24-hours of OR entry date/time. Code this factor: if the patient is listed for liver transplant at the time of OR entry date/time ***or*** the patient develops ***at least two*** of the following factors within 24-hours of OR entry date/time: • Albumin level < 2 grams/dl • Prothrombin time (PT) > 1.5x the upper limits of normal • Total bilirubin level > 3x the upper limits of normal Do not include patients who do not meet the above listed laboratory criteria but are receiving treatment to correct hypoalbuminemia. Use any lab values within 24-hours prior to OR entry date/time. Still code this factor if the patient met criteria within 24-hours prior to OR entry date/time even if newer and improved lab values are obtained closer to OR entry date/time.
320	Necrotizing entero-colitis, Treated medically	Defined: Necrotizing enterocolitis (NEC) is defined as an acute reduction in the supply of oxygenated blood to the small intestine or large intestine, typically resulting in acidosis, abdominal distention, pneumatosis, and/or intestinal perforation, that

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		prompts initiation of antibiotics or exploratory laparotomy. Timeframe: within 14-days prior to OR entry date/time. Code this factor: if NEC was diagnosed and/or antibiotic treatment was ongoing within 14-days prior to OR entry date/time regardless of whether the patient received the diagnosis and/or antibiotic treatment at the surgical hospital or a transferring hospital. Do not code this factor if NEC treatment (including antibiotics) was completed greater than 14-days prior to OR entry date/time. Feeding/NPO status, by itself, is not included in the determination for coding this factor.
330	Necrotizing entero-colitis, Treated surgically	Defined: Necrotizing enterocolitis (NEC) is defined as an acute reduction in the supply of oxygenated blood to the small intestine or large intestine, typically resulting in acidosis, abdominal distention, pneumatosis, and/or intestinal perforation, that prompts initiation of antibiotics or exploratory laparotomy. Timeframe: within 14-days prior to OR entry date/time. Code this factor: if NEC was diagnosed and managed with surgery within 14-days prior to OR entry date/time, regardless of whether the patient received the diagnosis and/or treatment at the surgical hospital or a transferring hospital. Do not code this factor if NEC treatment (including antibiotics and surgery) was completed greater than 14-days prior to OR entry date/time. Feeding/NPO status, by itself, is not included in the determination for coding this factor.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
340	Coagulation disorder, Hypercoagulable state	Defined: Hypercoagulable state is characterized by elevation of prothrombotic factors that increase risk of thrombosis (clotting) in blood vessels. Timeframe: present at OR entry date/time *or* within 24-hours prior to OR entry date/time. Code this factor: if the patient has evidence of a hypercoagulable state at the time of OR entry date/time or within 24-hours prior to OR entry date/time. Laboratory findings may include Anti thrombin III deficiency, primary (hereditary) thrombophilia, Protein C deficiency, Protein S deficiency, factor V Leiden mutation, factor VII deficiency, or prothrombin gene mutation. If Thromboelastogram (TEG) is performed, the R (reaction) value and K (kinetic) times are decreased, and the MA (maximum amplitude) and alpha (angle) are increased. Use any lab values within 24-hours prior to OR entry date/time. Still code this factor if the patient met criteria within 24-hours prior to OR entry date/time even if newer and improved lab values are obtained closer to OR entry date/time. Includes the documentation/provider confirmed diagnosis of factor V Leiden mutation in the absence of supporting laboratory values.
350	Coagulation disorder, Hypocoagulable state not secondary to medication (intrinsic hypocoagulable state)	Defined: Hypocoagulable state is a condition that occurs when the blood does not clot normally not related to medications that impact bleeding and/or thrombosis. Timeframe: present at OR entry date/time *or* within 24-hours prior to OR entry date/time.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Code this factor: if the patient has evidence of a coagulopathy ***not*** secondary to medications impacting coagulation (e.g., Heparin, aspirin, warfarin) at the time OR entry date/time as manifested by ***at least one*** of the following: • Prothrombin time (PT) or activated Partial thromboplastin time (aPTT/PTT) above normal • Platelet count <100,000/mcl • Fibrinogen split products positive (>10%) • Thromboelastogram (TEG) findings of prolonged R (reaction) value and K (kinetic) times and/or decreased MA (maximum amplitude) and alpha (angle) Use any lab values within 24-hours prior to OR entry date/time. Still code this factor if the patient met criteria within 24-hours prior to OR entry date/time even if newer and improved lab values are obtained closer to OR entry date/time.
360	Coagulation disorder, Hypocoagulable state secondary to medication	Defined: Hypocoagulable state is a condition that occurs when the blood does not clot normally related to medications that impact bleeding and/or thrombosis. Timeframe: present at OR entry date/time *or* within 24-hours prior to OR entry date/time. Code this factor: if the patient has evidence of a coagulopathy secondary to medications impacting coagulation at the time OR entry date/time as manifested by ***at least one*** of the following: • Patient taking Warfarin or other medications that prolong the Prothrombin time (PT) *and* PT above normal • Patient taking systemic Heparin or low molecular weight heparin or other

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		medications that prolong the activated partial thromboplastin time (aPTT/PTT) ***and*** aPTT/PTT/anti-Xa above normal • Patient taking aspirin or other antiplatelet/antithrombotic medications impacting platelet function ***and*** platelet count <100,000/mcl • Patient taking medications impacting Fibrinogen split products (fibrin degradation products) and fibrinogen split products positive (>10%) • Patient taking warfarin, systemic heparin, or low molecular weight heparin ***and*** Thromboelastogram (TEG) findings of prolonged R (reaction) value and K (kinetic) times and/or decreased MA (maximum amplitude) and alpha (angle) Use any lab values within 24-hours prior to OR entry date/time. Still code this factor if the patient met criteria within 24-hours prior to OR entry date/time even if newer and improved lab values are obtained closer to OR entry date/time. Includes patients with ongoing use of anticoagulant medications with provide induction of a hypocoagulable state with labs being drawn greater than 24-hours prior to OR entry date/time and not redrawn and the medications were not held/discontinued prior to OR entry date/time. Do not include infusions of heparin to keep venous and/or arterial lines patent as this is not systemic heparin and would not impact systemic anticoagulation. Do not include patients who received anticoagulant medications during a pre-surgical cardiac catheterization the day prior to OR entry date/time. The half-life of heparin is approximately 60-90

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		minutes and doses given in the cath lab will not maintain a hypercoagulable state prior to OR entry date/time the following day.
590	Dyslipidemia	Defined: the abnormal elevation of blood lipid levels. Timeframe: any time between birth and OR entry date/time. Code this factor: if the patient meets ***at least one*** of the following criteria for dyslipidemia: • total cholesterol ≥ to 200 mg/dL (≥ 5.18 mmol/L) • LDL ≥ 130 mg/dL (≥ 3.37 mmol/L) • HDL ≤ 40 mg/dL (≤1.04 mmol/L) in males and ≤ 50 mg/dL (≤1.30 mmol/L) in females • patient taking a statin medication for documented diagnosis of dyslipidemia Any lab values during the patient's lifetime prior to OR entry date/time can be used. Does not include patients where a statin is prescribed and there are no supporting lab values or diagnosis of dyslipidemia.
370	Endocarditis	Defined: life-threatening inflammation of the endocardium or the inner lining of the heart and the heart valves. Timeframe: previous history of endocarditis *or* diagnosis during the surgical hospitalization (at or after the admission date) prior to OR entry date/time including time spent at the outside or transferring facility that resulted in a transfer to this hospital for this hospitalization (active endocarditis). Code this factor: if the patient has a history of

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		previously treated endocarditis where the Duke Criteria for the Diagnosis of Infective Endocarditis is not met during this hospitalization ***or*** if the patient was diagnosed with endocarditis utilizing the Duke Criteria for the Diagnosis of Infective Endocarditis (IE); See SeqNo 630 for the Duke Criteria.
650	Immunocompromised	Defined: Immunocompromised state is defined as a weakened immune system. Timeframe: within 30-days prior to OR entry date/time *or* at the time of OR entry date and time. Code this factor: if the patient is taking immunosuppressive medication therapy within 30-days prior to OR entry date/time ***and/or*** has a documented existing medical condition causing immunocompromise at OR entry date/time. Immunosuppressive medication includes but is not limited to systemic steroid therapy, anti-rejection medications, and chemotherapy. Include patients being treated with IVIG, Methotrexate, Anti-TNF, Azasan, Imuran, Hydroxurea, Interleukin-17 inhibitors to include Secukinumab Ixekizumab and Brodalumab and Interleukin-23 inhibitors to include ustekinumab, guselkumab, tildrakizumab, and Risankizumab. Immunosuppressive medications do not include topical steroid applications, one-time systemic steroid doses, inhaled steroid therapy, pre-procedural steroid doses, or steroid injections in the back or knee for chronic pain. Also does not include anabolic steroid use. Patients who have had splenectomy are considered immunocompromised.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Examples of conditions causing immunocompromise include DiGeorge syndrome, severe combined immunodeficiency (SCID), hypogammaglobulinemia, HIV infection, Hemoglobin H disease Thalassemia, and patients with systemic lupus taking Plaquenil QD. Patients taking Ocrelizumab (IV every 6-months) can be coded as 'Yes' to immunocompromised as Ocrelizumab significantly depletes B cells for 6-12 months. Patients with the following conditions are ***not*** considered immunocompromised: • heterotaxy (polysplenia or asplenia) • splenic sequestration • partial splenectomy (may reduce both short and long-term mortality by preserving immune system functioning) • IgG4 related sclerosing disease • uncontrolled diabetes (diabetes is captured in a separate field) • Patients taking sulfasalazine for Guillain Barre syndrome • Patients with immune complex from endocarditis (endocarditis is captured in a separate field)
580	Family History of Coronary artery disease	Defined: Family history of coronary artery disease (CAD) is defined as direct blood relatives having documented CAD (i.e., angina, previous coronary artery bypass graft [CABG] or percutaneous coronary intervention) or myocardial infarction prior to age 55-years in male and 65-years in female relatives. Timeframe: anytime between birth and OR entry

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		date/time. Code this factor: if the patient has/had any direct blood relatives who have had ***at least one*** of the following diagnosed at age less than 55-years for male relatives or less than 65-years for female relatives: • coronary artery disease (i.e., angina, previous CABG or PCI) • myocardial Infarction (MI) Include direct blood relatives only (parents, siblings, children). The disease, treatment (surgical, non-surgical or medical) and/or symptoms must have been present or reported to have occurred prior to age 55 in males and 65 in females. Include patients where there is documentation of a family history of premature coronary artery disease. In the event of conflicting information, i.e., documentation of premature family history and other documentation of the patient's brother had a myocardial infarction at age 70, use the most objective data available (age 70-years is the most objective and thus do not code this factor of family history of CAD). Half-siblings are considered second-degree relatives and will not be coded as family history of first degree / direct blood relatives. Do not code if the family history is unknown.
680	Chronic lung disease (not associated with premature birth)	Defined: Chronic lung disease (CLD) not associated with premature birth is defined as chronic parenchymal lung disease not associated with prematurity. Patients may experience chronic cough, wheezing, sputum production and/or

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		dyspnea. The degree of functional impairment may vary by patient, by disease, and over the span of time. Timeframe: present at OR entry date/time (use values closest to OR entry date/time; can use lung testing values obtained within 12-months of the procedure). Code this factor: if the patient has documented chronic lung disease not related to prematurity meeting ***at least one*** of the following: • pulmonary function testing (PFTs): forced expiratory volume (FEV1) less than 75% of predicted • chronic oral or systemic steroid therapy for documented lung disease • room air pO2 < 60 mmHg or pCO2 > 50 mmHg • documented chronic lung disease diagnosis • diffusing capacity of the lungs for carbon monoxide (DLCO): – Simple DLCO or DLCO/VA > 60% of predicted *and* < the lower limit of normal – Simple DLCO or DLCO/VA < 60% of predicted Does *not* include the following conditions: • asthma • pulmonary hypertension • tracheomalacia • bronchomalacia • tracheobronchomalacia Do not use PFT/DLCO values obtained more than 12-months prior to OR entry date/time. DLCO

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		values must be obtained through formal pulmonary function testing. Do not include transient conditions, i.e., pneumonia, atelectasis, previous isolated pneumothorax, or in adult patients a prior history of childhood mild/transient asthma. Include patients with chronic obstructive pulmonary disease (COPD) including chronic bronchitis and emphysema as having CLD unrelated to premature birth. COPD is the most common CLD in the ACSD as the typical adult cardiac surgery patient has a smoking history. Include patients being chronically treated with inhaled or oral pharmacological therapy (e.g., beta-adrenergic agonist, anti-inflammatory agent, leukotriene receptor antagonist, or steroid) for lung disease. Patients with chronic or extensive exposure to environmental dusts/chemicals (asbestosis, black lung disease or pneumoconiosis, etc.) may qualify as having CLD unrelated to premature birth based on an established diagnosis resulting from formal pulmonary evaluation. Prior lung radiation therapy typically results in radiation pneumonitis (acutely) and radiation fibrosis (chronically) also qualifies as CLD unrelated to premature birth provided pulmonary function testing is abnormal. Sarcoidosis can be considered a CLD if the patient meets the criteria based on pulmonary function studies or use of inhaled medications or steroids aimed at the lungs. These patients will have restrictive lung physiology. Patients who have undergone previous lung transplant due to severe CLD no longer have CLD

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		unless the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs.
700	Hypertension (AgeDays>=6575)	Defined: Hypertension or high blood pressure is a condition where the force of blood on the artery wall is abnormally high. Long term, hypertension may lead to stroke or myocardial infarction. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a documented current diagnosis of hypertension defined by ***at least one*** of the following: • history of hypertension diagnosed and treated with medication, diet, and/or exercise • currently undergoing pharmacological therapy for treatment of hypertension Provider documentation of a hypertension diagnosis is required to code this factor. Reference: 2017 ACC/AHA/AAPA/ABC/ACPM/AGS /APHA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/ American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol 2018;71:e127-e248.
720	Liver disease (AgeDays>=6575)	Defined: a patient history of hepatitis B, hepatitis C, drug-induced hepatitis, autoimmune hepatitis, cirrhosis, portal hypertension, esophageal varices, liver transplant, or congestive hepatopathy. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a history of

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		hepatitis B, hepatitis C, drug-induced hepatitis, autoimmune hepatitis, cirrhosis, portal hypertension, esophageal varices, liver transplant, or congestive hepatopathy anytime between birth and OR entry date/time. The following are ***not*** included as liver disease: • Hepatitis A / Hepatitis E • non-alcoholic steatohepatitis (NASH) (a type of nonalcoholic fatty liver disease (NAFLD) in the absence of cirrhosis • Gilberts syndrome • fatty liver • liver cancer • ischemic hepatitis or shock liver • transient elevation of liver enzymes Liver function tests (LFTs) or model for end-stage liver disease (MELD) score *cannot* be used alone to determine the presence of liver disease as those results are impacted by other conditions. Liver fibrosis with recurrent ascites supported by the MELD score can be coded as liver disease. Sarcoidosis and polycystic liver disease (PLD) *cannot* be coded alone as liver disease. Other qualifying disease criteria must be met (cirrhosis, hepatitis etc. as per the definition).
740	Cancer within 5 years (AgeDays>=6575)	Defined: Patient with a history of cancer within 5-years of OR entry date and time Timeframe: within 5-years of OR entry date/time. Code this factor: if the patient has a history of cancer diagnosed within 5-years prior to OR entry date/time that have or may require surgical intervention, chemotherapy, and/or radiation therapy.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Excludes low grade skin cancers including basal cell or squamous cell carcinoma; include melanoma as it is not a low-grade skin cancer. Include chronic lymphocytic leukemia (CLL) and myelodysplastic syndrome. In the event the date of diagnosis is unknown, the date of the last treatment may be used to determine the 5-year interval.
760	Syncope (AgeDays>=6575)	Defined: Syncope is defined as the sudden loss of consciousness with loss of postural tone, not related to anesthesia, with spontaneous recovery thought to be related to a cardiac condition. Timeframe: within 1-year of OR entry date/time. Code this factor: if the patient experienced syncope within 1-year of OR entry date/time as reported by the patient or an observer. Patients may experience syncope when supine. Cardiac conditions such as ventricular tachycardia, ventricular fibrillation, and aortic stenosis can cause syncope (do not code using these conditions unless the syncope is reported by the patient or an observer). Do not include 'near syncope' or 'vasovagal syncope' as syncope. Cardiac arrest with resuscitation is not considered syncope.
780	Cerebrovascular disease (AgeDays>=6575)	Defined: cerebrovascular disease refers to conditions impacting the blood vessels and blood flow in the brain. Timeframe: anytime between birth and OR entry

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		date/time. Code this factor: if the patient has a current or previous history of ***at least one*** of the following: • stroke/CVA (an acute episode of focal or global neurological dysfunction caused by brain, spinal cord, or retinal vascular injury due to hemorrhage or infarction, where the neurological dysfunction lasts for greater than 24-hours). • transient ischemic attack (TIA) (transient episode of focal neurological dysfunction caused by brain, spinal cord, or retinal ischemia, without acute infarction, where the neurological dysfunction resolves within 24-hours). • noninvasive or invasive arterial imaging test demonstrating ≥ 50% stenosis of any of the major extracranial or intracranial vessels to the brain. • vertebral artery and internal carotid and intracranial consistent with atherosclerotic disease with documentation as CVD. External carotid disease is excluded. • previous cervical or cerebral artery revascularization surgery or percutaneous intervention • brain/cerebral aneurysm • Occlusion of vertebral artery, internal carotid artery, and intracranial due to dissection. Do not include chronic nonvascular neurological diseases or other acute neurological insults such as metabolic and anoxic ischemic encephalopathy. Do not include subdural hematoma or arteriovenous malformation (AVM).

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Include internal and common carotid disease and disease at the carotid bifurcation; do not include external carotid disease. Include patients with a head CT scan positive for cerebral vascular disease regardless of symptoms. Include CT scans with evidence of old or chronic infarcts. Include patients with prior left vertebral occlusions with distal reconstruction.
380	Sepsis	Defined: evidence of serious infection accompanied by a deleterious systemic response. Sepsis may be diagnosed by the presence of a systemic inflammatory response syndrome (SIRS) resulting from suspected or proven infection. Timeframe: within 48-hours prior to OR entry date/time. Code this factor: if ***at least two*** of the following criteria related to sepsis are present within 48-hours prior to OR entry date/time: • Hypothermia (temp < 36.0° C) or hyperthermia (temp > 38.5° C) • Tachycardia or bradycardia • Tachypnea • Leukocytosis or leukopenia • Thrombocytopenia Code this factor if the patient met criteria within 48-hours prior to OR entry date/time even if the patient's clinical status improved prior to OR entry date/time.
390	Sepsis with positive blood culture	Defined: sepsis is defined as evidence of serious infection accompanied by a deleterious systemic response. Sepsis may be diagnosed by the presence

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		of a Systemic Inflammatory Response Syndrome (SIRS) resulting from suspected or proven infection. Timeframe: within 48-hours prior to OR entry date/time. Code this factor: if the patient has a positive blood culture within 48-hours prior to OR entry date/time ***and*** ***at least two*** of the following criteria related to sepsis are present within 48-hours prior to OR entry date/time: • Hypothermia (temp < 36.0° C) or hyperthermia (temp > 38.5° C) • Tachycardia or bradycardia • Tachypnea • Leukocytosis or leukopenia • Thrombocytopenia Code this factor if the patient met criteria within 48-hours prior to OR entry date/time even if the patient's clinical status improved prior to OR entry date/time.
400	Preoperative neurological deficit	Defined: A neurological deficit is defined as abnormal neurological functioning caused by injuries to or conditions impacting the brain, spinal cord, muscles, or nerves. Timeframe: during the hospitalization (at or after the surgical hospital admission date) prior to OR entry date/time. Code this factor: if the patient has any deficit of neurologic function identified by the care team. Includes systemic or central neurologic deficits including muscular dystrophy, cerebral palsy, and neurologic deficits manifesting from a previous

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		stroke. Includes sensorineural hearing loss and hypoxic ischemic encephalopathy (HIE). The following are ***not*** included as preoperative neurologic deficits: • vocal cord paralysis • diaphragm paralysis • attention deficit hyperactivity disorder (ADHD) • attention deficit disorder (ADD) • autism • impaired judgement • psychiatric delusions • conductive hearing loss • developmental delays Do not include hypotonia in the absence of a well-defined condition or neurologic disorder. The intent is to capture neurological deficits not included in the NCAA, syndromes, or chromosomal abnormality sections.
410	Seizure during lifetime	Defined: A seizure is defined as the clinical and/or electroencephalographic recognition of epileptiform activity. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has documented history of seizure ***prior to*** OR entry date/time. Being on anti-seizure medications alone is not sufficient to code. There must be documentation of seizure activity. Do not code if the documented seizure activity occurred within 48-hours prior to OR entry date/time; instead, code factor (420) Seizure within

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		48-hours prior to surgery.
420	Seizure within 48 hours prior to surgery	Defined: A seizure is defined as the clinical and/or electroencephalographic recognition of epileptiform activity. Timeframe: within 48-hours of OR entry date/time. Code this factor: if the patient has documented history of seizure ***within 48-hours*** of OR entry date/time. Being on anti-seizure medications alone is not sufficient; there must be documentation of seizure activity within 48-hours prior to OR entry date/time.
430	Stroke, CVA, or Intracranial hemorrhage > Grade 2 during lifetime (AgeDays<6575)	Defined: Stroke is defined as a confirmed neurological deficit of abrupt onset and lasting greater than 24-hours caused by a disturbance in blood flow to the brain. Intracranial hemorrhage is defined as bleeding inside of the skull (specifically looking for intraventricular hemorrhage for this factor defined as bleeding inside or around the brain). IVH Grade II requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of IVH that involves an area of up to, but not more than 50% of the ventricular cross-sectional area in sagittal view. IVH Grade III requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that involves at least 50% of the ventricular cross-sectional area in sagittal view, but not an intraparenchymal component. IVH Grade IV requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that includes an intraparenchymal

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		component extending beyond the germinal matrix. Timeframe: anytime between birth and OR entry date/time. Code this factor: If the patient has documented history of a stroke and/or Intraventricular hemorrhage grade II or greater during their lifetime. Intraventricular hemorrhages (IVH) are classified by the specific location and the amount of bleeding in the brain. Do not code Grade I intraventricular hemorrhages. Do not include other types of intracranial hemorrhages (i.e., subdural hemorrhages). Hypoxic ischemic encephalopathy is not a stroke and should not be included. Do not code if the stroke, CVA, or Intracranial hemorrhage > Grade 2 occurred within 48-hours prior to OR entry date/time; instead, code factor (440) Stroke, CVA, or Intracranial hemorrhage > Grade 2 within 48 hours prior to surgery.
440	Stroke, CVA, or Intracranial hemorrhage > Grade 2 within 48 hours prior to surgery (AgeDays<6575)	Defined: Stroke is defined as a confirmed neurological deficit of abrupt onset and lasting greater than 24-hours caused by a disturbance in blood flow to the brain. Intracranial hemorrhage is defined as bleeding inside of the skull (specifically looking for intraventricular hemorrhage for this factor defined as bleeding inside or around the brain). IVH Grade II requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of IVH that involves an area of up to, but not more than 50% of the ventricular cross-sectional area in sagittal view. IVH Grade III requires the existence of a neurologic

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that involves at least 50% of the ventricular cross-sectional area in sagittal view, but not an intraparenchymal component. IVH Grade IV requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that includes an intraparenchymal component extending beyond the germinal matrix. Timeframe: within 48-hours prior to OR entry date/time. Code this factor: If the patient has documented history of a stroke and/or Intraventricular hemorrhage grade II or greater ***within 48-hours*** prior to OR entry date/time. Intraventricular hemorrhages (IVH) are classified by the specific location and the amount of bleeding in the brain. Do not code Grade I IVH. Do not include other types of intracranial hemorrhages (i.e., subdural hemorrhages). Hypoxic ischemic encephalopathy is not a stroke and should not be included.
450	Renal dysfunction	Defined: as reduced kidney function not requiring dialysis/renal replacement therapy. Timeframe: within 24-hours prior to OR entry date/time or present at OR entry date/time. Code this factor: if the patient experiences ***at least one*** of the following criteria without the need for dialysis (peritoneal dialysis, hemodialysis, or hemofiltration) within 24-hours prior to OR entry date/time:

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		• if < 6575-days (<18-years) of age, new onset oliguria with sustained urine output < 0.5 ml/kg/hr for 24-hours and/or a rise in serum creatinine > 1.5 times the upper limits of normal for age (or twice the most recent preoperative value if available) • if ≥ 6575-days (≥ 18-years) of age, a 3x increase in serum creatinine level from the preoperative value, and/or a serum creatinine level ≥ 4.0 mg/dl with at least a 0.5 mg/dl rise from the preoperative value. Code this factor if the patient met criteria within 24-hours prior to OR entry date/time even if the patient's urine output/lab values improved prior to OR entry date/time.
460	Renal failure requiring dialysis	Defined: Renal failure requiring dialysis is defined as the loss of kidney function (ability of the kidney to remove waste and regulate fluid balance) requiring dialysis. Timeframe: within 24-hours of OR entry date/time or present at OR entry date/time. Code this factor: if the patient experiences ***at least one*** of the following criteria with the need for dialysis including peritoneal dialysis, hemodialysis, and hemofiltration at the time of OR entry date/time or within 24-hours prior to OR entry date/time: • if < 6575-days (<18-years) of age, new onset oliguria with sustained urine output < 0.5 ml/kg/hr for 24-hours and/or a rise in serum creatinine > 1.5 times the upper limits of normal for age (or twice the most recent preoperative value if available) • if ≥ 6575-days (≥ 18-years) of age, a 3x increase in serum creatinine level from the

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		preoperative value, and/or a serum creatinine level ≥ 4.0 mg/dl with at least a 0.5 mg/dl rise from the preoperative value. Includes patients with active dialysis treatments, e.g., hemodialysis every M, W, F, even when the dialysis is held temporarily for surgery. Code this factor for patients who met criteria within 24-hours prior to OR entry date/time but dialysis was no longer needed due to clinical improvement. This requires the patient to have received dialysis/hemofiltration within the 24-hour time-period prior to OR entry date/time. Excludes patients with resolution of renal failure where dialysis is no longer required (with the exception of the 24-hour time-period prior to OR entry date/time).
470	Invasive Mechanical ventilation to treat cardiorespiratory failure	Defined: Invasive mechanical ventilation to treat cardiorespiratory failure is defined as the delivery of positive pressure to the lungs utilizing an endotracheal tube or tracheostomy tube in a patient with cardiorespiratory failure. Timeframe: at the time of or within 72-hours prior to OR entry date/time. Code this factor: if the patient was supported with invasive mechanical ventilation via endotracheal tube or tracheostomy for cardiorespiratory failure at the time of or within 72-hours prior to OR entry date/time, regardless of whether the patient received the invasive mechanical ventilation at the surgical hospital or a transferring hospital/other center. Do not include non-invasive forms of respiratory support including high flow gases, Vapotherm, up to and including BiPAP without an endotracheal tube.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Do include patients with an open sternum at OR entry date/time as a patient with an open sternum is incapable of breathing spontaneously due to the inability to create negative intrathoracic pressure. Do not include patients with elective intubations or elective periods of mechanical ventilation (i.e., remained intubated electively in preparation for a surgery/procedure or between surgeries/procedures). Only code for patients with respiratory failure. In the event a patient experiences preoperative respiratory failure treated with both invasive and non-invasive respiratory support, code both preoperative factors (470) Invasive mechanical ventilation to treat cardiorespiratory failure and (600) Non-invasive respiratory support to treat cardiorespiratory failure. *Example*: patient is intubated at birth for severe respiratory failure related to meconium aspiration. The patient is extubated to high flow nasal cannula on day of life 1 and transfers to the surgical hospital. One day of life 2, the patient undergoes emergent placement of a central shunt. Code this factor as the patient received invasive mechanical ventilation within 72-hours of OR entry date/time.
600	Non-Invasive respiratory support to treat cardiorespiratory failure	Defined: Non-invasive respiratory support to treat cardiorespiratory failure is defined as the delivery of respiratory support or positive pressure ventilation to treat cardiorespiratory failure without insertion of an artificial airway (endotracheal or tracheostomy tube). Timeframe: at the time of or within 72-hours prior to OR entry date/time. Code this factor: if the patient is supported with

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		non-invasive positive pressure respiratory support to treat cardiorespiratory failure without the use of an endotracheal tube or tracheostomy tube within 72-hours prior to OR entry date/time, regardless of whether the patient received the support at the surgical hospital, transferring hospital, or home etc. Support may be delivered using nasal masks, face masks, or nasal prongs. This support should be administered through a ventilator device/machine without the use of an endotracheal tube or tracheostomy tube. Includes continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP), and Vapotherm. Do not include high flow nasal cannula. Includes patients who require non-invasive support at night for documented respiratory failure (i.e., CPAP) but arrive to the hospital on the day of surgery not receiving non-invasive support (as the support is not required during the day). In the event a patient experiences preoperative respiratory failure treated with both invasive and non-invasive respiratory support, code both preoperative factors (470) Invasive mechanical ventilation to treat cardiorespiratory failure and (600) Non-invasive respiratory support to treat cardiorespiratory failure.
480	Respiratory Syncytial Virus	Defined: Respiratory Syncytial Virus (RSV) is a common, contagious virus that causes respiratory infections. Timeframe: within 4-weeks of OR entry date/time. Code this factor: if the patient was diagnosed with RSV infection within 4-weeks of OR entry date/time regardless of whether the infection occurred at the

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		surgical hospital, transferring hospital, home etc.
490	Single lung	Defined: the presence of having only one lung. Timeframe: present at OR entry date/time. Code this factor: if the patient has only one lung present at OR entry date/time. May include congenital and surgically created single lung states.
500	Tracheostomy present	Defined: a surgically created stoma (opening) in the trachea. Timeframe: present at OR entry date/time. Code this factor: if the patient has a tracheostomy present at the time of OR entry date/time.
510	Asthma	Defined: Asthma is a chronic condition causing inflammation and narrowing of the airways characterized by variable and recurring symptoms, reversible airflow obstruction, and bronchospasm. Symptoms include wheezing, coughing, chest tightness, and shortness of breath. Asthma is clinically classified according to the frequency of symptoms, forced expiratory volume in 1 second (FEV1), and peak expiratory flow rate. Asthma may also be classified as atopic (extrinsic) or non-atopic (intrinsic). It is thought to be caused by a combination of genetic and environmental factors. Treatment of acute symptoms is usually with an inhaled short-acting beta-2 agonist (such as salbutamol). Symptoms can be prevented by avoiding triggers, such as allergens and irritants, and by inhaled corticosteroids. Timeframe: diagnosis present at OR entry date/time.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Code this factor: if the patient has a current documented diagnosis of asthma or reactive airway disease.
520	Bronchopulmonary dysplasia (BPD)	Defined: Bronchopulmonary dysplasia (BPD) is a chronic lung disorder that is most common among children who were born prematurely, with low birth weights and who received prolonged mechanical ventilation to treat respiratory distress syndrome. BPD is characterized by inflammation and scarring in the lungs. The high pressures of oxygen delivery result in necrotizing bronchiolitis and alveolar septal injury, further compromising oxygenation of blood. Today, with the advent of surfactant therapy and high frequency nasal ventilation and oxygen supplementation, infants with BPD experience much milder injury without necrotizing bronchiolitis or alveolar septal fibrosis. It develops most commonly in the first 4 weeks after birth. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a documented diagnosis of BPD. Neonates and infants (patients < 1-yr of age) with a diagnosis of chronic lung disease can be included as BPD as BPD is the most common form of chronic lung disease in this population.
530	ICD (AICD) ([automatic] implantable cardioverter defibrillator) present	Defined: An implantable cardioverter-defibrillator (ICD) is a small battery-powered electrical impulse generator that is implanted in patients who are at risk of sudden cardiac death due to ventricular fibrillation and ventricular tachycardia. The device is programmed to detect cardiac arrhythmia and correct it by delivering a jolt of electricity. In current models, the ability to convert tachyarrhythmias has been extended to include both atrial and ventricular arrhythmias. There also exists the ability to perform

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		biventricular pacing for asystole or bradycardia. Timeframe: present at OR entry date/time Code this factor: if the patient has an ICD or LifeVest (wearable cardioverter defibrillator) present at OR entry date/time. In the scenario a patient has an implantable cardioverter defibrillator that also paces, only code preoperative factor (530) ICD (AICD) ([automatic] implantable cardioverter defibrillator) present, do not code pacemaker present.
540	Pacemaker present	Defined: A pacemaker is a medical device that uses electrical impulses, delivered by electrodes contacting the heart muscles, to regulate the beating of the heart. The purpose of a pacemaker is to maintain an adequate heart rate, either because the heart's native pacemaker is not fast enough, or there is a block in the heart's electrical conduction system. Pacemakers are externally programmable and allow the physician to select the optimum pacing modes for individual patients. Some have multiple electrodes stimulating differing positions within the heart to improve synchronization of the upper (atria) and lower (ventricles) chambers of the heart. Timeframe: present at OR entry date/time. Code this factor: if the patient is actively being paced with a temporary or permanent pacemaker at the time of OR entry date/time. Do not include if the patient has temporary pacing wires but is not actively being paced. In the scenario a patient has an implantable cardioverter defibrillator that also paces, only code preoperative factor (530) ICD (AICD) ([automatic]

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		implantable cardioverter defibrillator) present, do not code pacemaker present.
570	Tobacco use	Defined: the use of tobacco products. Timeframe: anytime between birth and OR entry date/time. Code this factor: if there is current or prior use of any tobacco product including cigarettes, cigars, pipes, and chewing tobacco prior to OR entry date/time. Also includes other tobacco products such as dissolvable forms (orbs, strips, sticks etc.) or hookah tobacco use. Include any type of vaping as tobacco use as most vaped products are tobacco. Do not include maternal smoking (fetal exposure) or secondhand exposure to tobacco products. Maternal smoking can be included under pregnancy complications. Do not include marijuana use except for when the marijuana is wrapped in tobacco leaves.
610	Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care	Defined: a patient underwent a cardiac operation prior to transferring to this surgical hospital. Timeframe: at the time of this surgical hospital admission when transferred from another hospital. Code this factor: if the patient underwent a cardiac surgical operation at previous hospital before transferring to this hospital. Cardiac surgical operations include operation types CPB Cardiovascular and No CPB Cardiovascular only. Excludes all other operation types.
620	Admitted from home after	Defined: a patient who was admitted from home

Code:	Value (Display Condition):	Definition / Intent / Clarification:
	having a cardiac surgical operation within the past 30 days	after having a cardiac surgical operation within 30-days prior to the surgical hospital admission date. Timeframe: within 30-days prior to the surgical hospital admit date. Code this factor: if the patient admitted from home after having a cardiac surgical operation within 30-days of hospital admit date. Cardiac surgical operations include operation types CPB Cardiovascular and No CPB Cardiovascular only. Excludes all other operation types.
630	Preoperative dysrhythmia requiring anti- dysrhythmia medication	Defined: dysrhythmia or arrhythmia is defined as an abnormality in the beating of the heart. Antidysrhythmic or antiarrhythmic medications are used to treat and/or prevent abnormal heart rhythms. Timeframe: present at OR entry date/time. Code this factor: if the patient has a documented dysrhythmia/arrhythmia and is receiving antidysrhythmic or antiarrhythmic medications to treat or prevent the dysrhythmia/arrhythmia at time of OR entry date/time. Include patients with prescribed meds where the meds are held (NPO) prior to OR.
640	Illicit drug use within one year	Defined: Illicit drug use is defined as the use of illicit or illegal drugs or the misuse or abuse of a controlled substance. Timeframe: within 1-year prior to OR entry date/time. Code this factor: if the patient has a documented history of illicit drug use or abuse of a controlled substance within 1-year of OR entry date/time.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Illicit drugs may include heroin, cocaine (including crack), hallucinogens, inhalants, and methamphetamine. Includes the abuse of controlled substances (prescription medication and/or opioid abuse). Capture all routes of administration of illicit drugs including intravenous (IV), oral, nasal, rectal, subcutaneous (SQ), intradermal, inhalant, snorting, swallowing etc. For this factor, marijuana should not be captured as an illicit drug. Additional Info: Illicit drug use is associated with numerous health and social problems, and age-related physiological, psychological, and social changes that could impact recovery from surgery.
660	Mediastinal radiation	Defined: Mediastinal radiation (radiation therapy or radiotherapy) is defined as the use of ionizing radiation in the mediastinal area or chest generally provided to control or kill malignant cells. Chest wall or mediastinal radiation can cause damage to blood vessels, heart valves and lung tissue. Scar tissue caused by radiation therapy can lead to increased bleeding, may make harvesting the internal mammary artery difficult and may interfere with sternal healing. Timeframe: anytime between birth and OR entry date/time. Code this factor: if a patient received radiation therapy to the mediastinum or chest prior to OR date/time. Include radiation to the “mantel/chest” area only, including treatment of breast cancer with radiation. Do not include BrachyMESH radiation therapy to

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		the mediastinal area.
670	Heart failure	Defined: Heart failure is described as unusual dyspnea on light exertion, recurrent dyspnea occurring in the supine position, fluid retention; or the description of rales, jugular venous distension, pulmonary edema on physical exam, or pulmonary edema on chest x-ray presumed to be cardiac dysfunction. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has documented history of heart failure, including right or left heart failure, prior to OR entry date/time. A low ejection fraction alone, without clinical evidence of heart failure does not qualify as heart failure. An elevated BNP without other supporting documentation should not be coded as heart failure. New York Heart Association (NYHA) class documentation alone cannot be used for diagnosis for heart failure, you must have physician documentation that states heart failure. There needs to be documentation in the chart that the patient has been in or was in a state of heart failure. Do not code heart failure for a diagnosis of cardiomyopathy. A diagnosis of heart failure must be documented in the medical record to code heart failure. Cardiomyopathy may or may not be associated with a heart failure diagnosis. Provider diagnosis of HFpEF (diastolic HF), HFrEF (systolic HF), HFmrEF (mid-range HF) can be used to code heart failure.
690	Cardiac Dysrhythmia	Defined: Dysrhythmia or arrhythmia is defined as an

Code:	Value (Display Condition):	Definition / Intent / Clarification:
	(AgeDays>=6575)	abnormality in the beating of the heart. Timeframe: current diagnosis/history of during lifetime Code this factor: if the patient has a diagnosis of any of the following dysrhythmias/ arrhythmias: • ventricular fibrillation or ventricular tachycardia • sick sinus syndrome • atrial flutter or atrial fibrillation • second degree heart block • third degree heart block Current diagnosis may include a previous history of one of the listed arrhythmias, but the arrhythmia is listed in the current problem list or is documented in the current medical record. Do not include the listed arrhythmias if they occurred transiently during a surgical/cath procedure, e.g., while the patient is separating from bypass or removal of the cross clamp. If permanently paced for one of the above listed dysrhythmias, also code preoperative factor (540) Pacemaker present.
710	Sleep apnea (AgeDays>=6575)	Defined: Sleep apnea is a potentially serious sleep disorder in which breathing repeatedly stops and starts during sleep. Sleep apnea occurs in two main types: Obstructive sleep apnea, the more common form that occurs when throat muscles relax, and central sleep apnea, which occurs when the brain doesn't send proper signals to the muscles that control breathing. Additionally, some people have complex sleep apnea, which is a combination of both. Sleep apnea has been associated with sudden death.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		Timeframe: diagnosis present at OR entry date/time. Code this factor: if the patient has a documented current diagnosis of sleep apnea (may be described as obstructive sleep apnea or OSA). Sleep apnea must be diagnosed by a provider (physician/NP/PA) and requires a formal diagnostic tool such as sleep study. Sleep Apnea cannot be diagnosed with a screening tool. Include patients who were diagnosed with sleep apnea through a formal diagnostic tool such as sleep study regardless of the treatment or no treatment. Include patients with prescribed home therapy despite frequency of use. Do not capture suspected sleep apnea or sleep apnea reported by family members as sleep apnea. CPAP or BiPAP therapy is not a requirement to code sleep apnea. Do not include patients where the sleep apnea was surgically corrected.
730	Liver Cirrhosis (AgeDays>=6575)	Defined: chronic liver damage where the liver has scarring (fibrosis) and can lead to liver failure. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a documented diagnosis of liver cirrhosis. Do not include patients with history of liver transplant to treat prior cirrhosis unless the new liver also has cirrhosis.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
750	Peripheral artery disease (AgeDays>=6575)	Defined: peripheral artery disease (PAD), also called peripheral vascular disease (PVD), is a circulatory condition where there is abnormal narrowing of the arteries leading to reduced blood flow to the arms and legs. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a documented history of PAD/PVD prior to OR entry date/time. This may include patients with: • claudication, either with exertion or at rest • amputation for arterial vascular insufficiency • vascular reconstruction, vascular bypass surgery, or percutaneous intervention to the extremities (excluding dialysis fistulas and vein stripping) • documented abdominal aortic aneurysm with or without repair • documented subclavian artery stenosis • chronic stable abdominal aortic dissection PAD/PVD excludes disease in the carotid arteries, cerebrovascular arteries, or thoracic aorta. PAD/PVD does not include deep vein thrombosis (DVT), pulmonary artery aneurysm, Raynaud's syndrome/phenomenon, or arteriovenous malformation (AVM). While PAD/PVD can include disease in the peripheral vein or artery, only include arterial disease. Provider diagnosis/documentation of PAD/PVD is required to code this field: • if documentation is vague or further

Code:	Value (Display Condition):	Definition / Intent / Clarification:
		clarification is needed, the data manager may use diagnostic results to confirm accurate coding. Positive testing, invasive or non-invasive, showing a >50% diameter stenosis in any peripheral artery is a possible indicator of PVD. Supporting documentation from the provider is also required. • if there is conflicting information in the medical record, please clarify with the provider. For example, a CT angiogram shows 80% stenosis in the iliac artery, but there is no supporting documentation in the medical record.
770	Unresponsive state (AgeDays>=6575)	Defined: unresponsive state or unaware unresponsive state is a condition where a person has no consciousness or cognitive functioning but has a functioning brain stem. Timeframe: within 24-hours prior to OR entry date/time. Code this factor: if the patient experienced non-medically induced complete mental unresponsiveness and no evidence of psychological or physiologically appropriate responses to stimulation within 24-hours prior to OR entry date/time. This includes patients who experienced sudden cardiac death. Include patients who never regained consciousness prior to OR entry date/time. Do not include patients who experienced temporary loss of consciousness that resolved after cardiac arrest. The intent is to identify those patients whose postoperative neurologic state may not be a result of the surgery but rather patient's unknown preoperative neurologic status.

Code:	Value (Display Condition):	Definition / Intent / Clarification:
790	Prior myocardial infarction (AgeDays>=6575)	Defined: myocardial infarction (MI) is a life-threatening condition that occurs when there is decreased blood flow to the heart muscle does leading to tissue damage. Timeframe: anytime between birth and OR entry date/time. Code this factor: if the patient has a documented history of MI or heart attack. Provider documentation is required to code MI. Do not include phrases such as “cannot rule out”, “suggestive”, “probable”, “cannot exclude”, etc. to code MI. Do not include slight troponin increase without EKG changes alone as MI without confirming documentation by a provider of MI in the medical record. Do not include patients with a history of heart transplant if the MI occurred prior to the transplant.
777	Other preoperative factors	The patient has other preoperative factor(s) that are not on this list. Include the Other preoperative factors in field (625) PreOpFactor Other – Specify utilizing free text.

Long Name: PreOpFactor Other - Specify

SeqNo: 625
Short Name: PreOpFactorOtherSpecify
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Indicate all other preoperative factors.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(777)

ParentValue: Contains ("Other preoperative factors")

Intent/Clarification:

If the patient has Other preoperative factors, enter the Other preoperative factors utilizing free text.

Long Name: RF-Infect Endocard Type

SeqNo: 630

Short Name: InfEndTy

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of endocarditis the patient has. If the patient is currently being treated for endocarditis, the disease is considered active. If no antibiotic medication (other than prophylactic medication) is being given at the time of surgery and the cultures are negative, then the infection is considered treated.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(370)

ParentValue: Contains ("Endocarditis")

Harvest Codes:

Code:	Value:
2	Active
1	Treated

Intent/Clarification:

If the patient has endocarditis, indicate the type.

Code:	Value:	Definition:
2	Active	Endocarditis occurred during the hospitalization (at or after the admission date) prior to OR entry date/time including time spent at the outside or transferring facility that resulted in a transfer to this hospital for this hospitalization.

Code:	Value:	Definition:
		Includes patients who meet the Duke diagnostic criteria in the OR (diagnosis in the OR) but began treatment postoperatively. Code this factor: if the patient was diagnosed with endocarditis utilizing the Duke Criteria for the Diagnosis of Infective Endocarditis (IE); the patient must meet ***at least one*** of the four following situations: (1) Histologic and/or microbiologic evidence of infection at surgery or autopsy such as positive valve culture or histology (2) Two major criteria (3) One major criterion and three minor criteria (4) Five minor criteria ***The two major criteria are****:* • Blood cultures positive for IE • Evidence of endocardial involvement *Blood cultures positive for IE requires:* 1) Typical microorganism consistent with IE isolated from 2 separate blood cultures, as noted below in number two below. Typical microorganisms include viridans streptococci, Streptococcus bovis, Staphylococcus aureus, or HACEK group (HACEK, Haemophilus species [H. aprophilus and H. paraaphrophilus], Actinobacillus actinoinycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, and Kingella kingae) or Community-acquired enterococci in the absence of a primary focus. 2) Microorganisms consistent with IE isolated from persistently positive blood cultures defined as: – At least 2 positive cultures of blood samples obtained > 12-hours apart) *or* – All of 3 or a majority of 4 or more separate cultures of blood, the first and the last sample obtained > 1-hour apart 3) Single blood culture positive for Coxiella burnetii or an antiphase I IgG antibody titer of > 1:800. *Evidence of endocardial involvement requires:*

Code:	Value:	Definition:
		1) Positive results of echocardiography for IE defined as: oscillating intracardiac mass on the valve or supporting structures in the path of regurgitant jets or on implanted material in the absence of an alternative anatomic explanation; or abscess; or new partial dehiscence of a valvar prosthesis *or* 2) New valvar regurgitation (worsening or changing or preexisting murmur not sufficient). **The six minor criteria are:** • Predisposing heart disease or injection drug use (intravenous drug abuse [IVDA]) • Temperature of > 38 degrees Celsius • Vascular phenomenon (major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial or conjunctival hemorrhage, Janeway's lesions) • Immunologic phenomenon (glomerulonephritis, Osler's nodes, Roth's spots, rheumatoid factor) • Microbiologic evidence (a positive blood culture that does not meet a major criterion as noted above) or serologic evidence of active infection with an organism consistent with IE • Echocardiographic findings that are consistent with IE but do not meet a major criterion as noted above. References: 1) Dhawan VK Infectious Endocarditis in Elderly Patients. Clin. Infect. Dis. 2002;34:806-812. 2) Durack DT, Lukes AS, Bright DK. New criteria for diagnosis of infective endocarditis: utilization of specific echocardiographic findings. Duke Endocarditis Service. Am. J. Med. 1994;96:200-209. 3) Li IS, Sexton DJ, Mick N, et al. Proposed modifications to the Duke criteria for the diagnosis of infective endocarditis. Clin. Infect. Dis. 2000;30:633-638. 4) http://gold.aecom.yu.edu/id/almanac/dukeendocarditis.htm, accessed July 5, 2006.
1	Treated	Includes patient who have completed treatment for endocarditis (e.g., treatment completed during a previous hospitalization). Duke criteria no longer met during this hospitalization.

Code:	Value:	Definition:
		Example: patient hospitalized for endocarditis and treatment initiated. Patient discharged home with IV antibiotics. Six weeks later, the patient returned for valve replacement.

Long Name: RF-Infect Endocard Culture

SeqNo: 635
Short Name: InfEndCult
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate culture results (may use cultures obtained in the OR).
ParentLongName: RF-Infect Endocard Type
ParentShortName: InfEndTy
ParentHarvestCodes: 2
ParentValue: = "Active"
Harvest Codes:

Code:	Value:
1	Culture negative
3	Strep species
11	MRSA
12	MSSA
4	Coagulase negative staph
5	Enterococcus species
9	Gram negative species
10	Polymicrobial
13	Mycobacterium (chimera)
6	Fungal
7	Other
8	Unknown

Intent/Clarification:

If active endocarditis, indicate the culture results, including those obtained in the OR.

Coding Notes:

- Code (7) Other if the causal agent is not included in the list.

- Code (8) Unknown if no culture results available.

Long Name: RF-Intravenous Drug Use within One Year

SeqNo: 640
Short Name: IVDrugUse1Yr
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Intravenous Drug Use within one year of surgery.
ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(640)
ParentValue: Contains ("Illicit drug use within one year")
Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If illicit drug within 1-year prior to the surgery date, indicate if the illicit drug use included intravenous (IV) drug use within 1-year prior to OR entry date/time. Includes the use of illicit drugs and/or abuse of controlled substances taken intravenously.

Code:	Value:	Definition:
1	Yes	Documented IV drug use within 1-year prior to OR entry date/time.
2	No	No documented/patient reported IV drug use within 1-year prior to OR entry date/time.
3	Unknown	Code unknown when there is conflicting information in the medical record and/or the patient/family is unable to provide history. Includes patients with documented history of IV drug use, but no documentation if the IV drug use was within 1-year prior to OR entry date/time.

Long Name: RF-Drug use within 30 days of procedure

SeqNo: 645
Short Name: DrugUse30D
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate if the patient has used illicit drugs within 30 days prior to the procedure
ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(640)
ParentValue: Contains ("Illicit drug use within one year")
Harvest Codes:

Code: Value:
1 Yes
2 No
3 Unknown

Intent/Clarification:

If illicit drug within 1-year prior to the surgery date, indicate if the illicit drug use occurred within 30-days prior to OR entry date/time.

Code:	Value:	Definition:
1	Yes	Documented illicit drug use and/or abuse of controlled substances within 30-days prior to OR entry date/time.
2	No	No documented illicit drug use and/or abuse of controlled substances within 30-days prior to OR entry date/time.
3	Unknown	Code unknown when there is conflicting information in the medical record and/or the patient/family is unable to provide history. Includes patients with documented history of illicit drug use and/or abuse of controlled substances, but no documentation if the illicit drug use and/or abuse of controlled substances was within 30-days prior to OR entry date/time.

Long Name: Cardiogenic Shock Resolved Within 24 Hours Prior To OR Entry

SeqNo:	650
Short Name:	CarShockRes24
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient developed cardiogenic shock which resolved within 24 hours prior to OR entry time.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(240)
ParentValue:	Contains ("Shock, Resolved at time of surgery")

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If Shock, Resolved at time of surgery, indicate if the patient's shock resolved within the 24-hour period prior to OR entry time.

Example: patient developed shock 2 days prior to OR entry date/time. Following treatment, the patient's shock resolved 12-hours prior to entering the OR entry date/time. Code (1) Yes.

Long Name: RF-Diabetes-Control

SeqNo:	655
Short Name:	DiabCtrl
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the patient's diabetes control method at home. Choose the most aggressive therapy from the order below: ~~• Insulin: insulin treatment (includes any combination with insulin)~~ • Other subcutaneous medications (e.g., GLP-1 agonist)

- Oral: treatment with oral agent (includes oral agent with or without diet treatment)
- Diet only: Treatment with diet only
- None: no treatment for diabetes
- Other: other adjunctive treatment, non-oral/insulin/diet
- Unknown

2017 American Diabetes Association Standards of Medicare Care in Diabetes - 2017. Diabetes Care. 40 (Suppl.1) :S13.

https://professional.diabetes.org/sites/professional.diabetes.org/files/media/dc_40_s1_final.pdf.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(260)

ParentValue: Contains ("Diabetes mellitus, Non-insulin dependent")

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code: Value:
1 None
2 Diet only
3 Oral
6 Other SubQ
5 Other
7 Unknown

Intent/Clarification:

If Diabetes, Non-Insulin Dependent and age ≥ 18-years, indicate the most aggressive prescribed medication/treatment the patient needs to control their diabetes.

Treatment type must be documented in the medical record.

Code:	Value:	Definition:
1	None	No treatment for diabetes.
2	Diet only	Diabetes treatment with diet only
3	Oral	Diabetes treatment with a prescribed oral agent, including oral

Code:	Value:	Definition:
		agent with or without diet treatment. Includes situations where a patient is prescribed an oral medication for diabetes control but is non-compliant as this is the prescribed treatment the patient needs to control their diabetes.
6	Other SubQ	Subcutaneous medication (excluding insulin) for diabetes treatment (e.g., GLP-1 agonist)
5	Other	Other adjunctive treatment not listed (excludes oral agents, insulin, or diet treatments)
7	Unknown	Diabetes treatment is unknown or not documented.

Long Name: RF-Liver Disease - Child Pugh Class

SeqNo: 660
Short Name: LiverChildPugh
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the Child Pugh Class, if known.
ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(730)
ParentValue: Contains ("Liver Cirrhosis")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	A
2	B
3	C
4	Unknown

Intent/Clarification:

If Liver Cirrhosis and age ≥ 18-years, indicate the Child Pugh Class.

Documentation includes the compilation of the MELD score, the clinical diagnosis, and the controllability of ascites.

The Child-Pugh classification must be calculated by the provider (surgeon, physician, advanced practice nurse, physician associate/assistant) and documented in the medical record. If not documented, code unknown.

Long Name: RF-Chronic Lung Disease

SeqNo:	665
Short Name:	ChrLungD
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient has chronic lung disease, and the severity level according to the following classification: • No • Mild: FEV1 60% to 75% of predicted, or on chronic inhaled or oral bronchodilator therapy. • Moderate: FEV1 50% to 59% of predicted, or on chronic oral/systemic steroid therapy aimed at lung disease. • Severe: FEV1 < 50% or Room Air pO2 < 60 or pCO2 > 50. CLD present, severity not documented. • Unknown
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(680)
ParentValue:	Contains ("Chronic lung disease (not associated with premature birth)")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
2	Mild

3 Moderate
4 Severe
5 Lung disease documented, severity unknown

Intent/Clarification:

If Chronic lung disease not associated with premature birth and age ≥ 18-years, indicate the severity level.

Code:	Value:	Definition:
2	Mild	The FEV1 is 60% to 75% of predicted, or the patient is on chronic inhaled/oral bronchodilator therapy.
3	Moderate	FEV1 50% to 59% of predicted, or the patient is on chronic oral/systemic steroid therapy aimed at lung disease.
4	Severe	FEV1 < 50% or room air pO2 < 60 mmHg or pCO2 > 50 mmHg.
5	Lung disease documented; severity unknown	Chronic lung disease is documented but the severity is not documented or is unknown.

FEV1 = Forced expiratory volume in the first second

Diffusing Capacity of the Lungs for Carbon Monoxide (DLCO)

The DLCO (diffusing capacity of the lungs for carbon monoxide) can be used to determine the severity of lung disease. The lowest % predicted of either the simple DLCO or the DLCO/VA (diffusing capacity divided by the alveolar volume) uncorrected should be captured.

If DLCO is used to determine the severity of lung disease, the DCLO values must be obtained through formal PFT testing and can be coded using the following:

- Code (2) Mild if the DLCO or the DLCO/VA >60% of predicted and < lower limit of normal. Forexample, DCLO is 72% and the normal value is 80-120%, then you would code (2) Mild in this situation.
- Code (3) Moderate if the DLCO or the DLCO/VA 40-60% of predicted.
- Code (4) Severe if the DLCO or the DLCO/VA <40% of predicted.

Discordance between Tests

Code the most severe category if there is a discordance between the FEV1, DLCO, ABG, and inhaler criteria. See below examples:

- FEV1 is 60%, the DCLO is 45% and the ABG pO2 is 50 mmHg, code as severe.
- FEV1 of 45% and DCLO of 40%, code as severe.
- FEV1 76% and DCLO 78% (normal limit 80-120%), code as mild

Spirometry results that have not been interpreted by a pulmonologist may be used to quantify chronic lung disease.

Asthma can be considered a chronic lung disease if the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs.

Sarcoidosis can be considered a chronic lung disease if the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed atthe lungs. These patients will have restrictive physiology.

Patients who have had previous lung transplant due to severe CLD no longer have chronic lung disease unless the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs.

Note Regarding the Grading the Severity of Chronic Lung Disease:

It is important to understand that the criteria used to grade the severity of lung disease have evolved over time, but all grading schemas incorporate the results of pulmonary function testing. The ACSD uses the FEV1 criteria noted above. We do so because itis a reasonable framework, and it has been a stable format over the years both for the purposes of risk model development and consistency in reporting over time. However, other grading systems, such as the Global Initiative for Chronic Obstructive Lung Disease or GOLD criteria for FEV1 grading have changed over the years. GOLD uses slightly different cutoffs in FEV1 for grading the severity of disease. Additionally, GOLD currently uses a severity schema that incorporates both PFTs and clinical symptoms and response to treatment. So, when you see a difference between the surgical team and the pulmonologist, it may be the results of using different grading systems. Please use only the ACSD criteria listed above.

Additional Examples of Severity Grading of Chronic Lung Disease:

- Bedside spirometry results have an FEV1 of 57% but the pulmonologist states the patient has mild chronic lung disease. Code as (3) Moderate based on the FEV1 of 57%.
- Patient had PFT with FEV1 of 48% but no documented diagnosis of chronic lung disease in the chart. Code as (4) Severe per FEV1.
- Patient had PFT with FEV1 of 78% and a room air ABG with a PCO2 of 36.5 mmHg and a PO2 of 56 mmHg. Code as (4) Severe per the room air ABG.
- Patient had PFT with FEV1 of 79% and is on Spiriva inhaler and albuterol inhalers at home. Pulmonary physician cleared patient for surgery documenting the patient had stable COPD and normal PFTs. Code as (2) Mild per the use of chronic inhalers at home.

Long Name: RF-Chronic Lung Disease - Type

SeqNo: 670
Short Name: ChrLungDType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of chronic lung disease.
ParentLongName: RF-Chronic Lung Disease
ParentShortName: ChrLungD
ParentHarvestCodes: 2|3|4
ParentValue: = "Mild", "Moderate" or "Severe"
Harvest Codes:

Code: Value:
1 Obstructive
2 Reactive
7 Restrictive
5 Multiple
4 Other
6 Not documented

Intent/Clarification:

If Chronic lung disease not associated with premature birth is of mild, moderate, or severe severity, and age ≥ 18-years, indicate the type of chronic lung disease (CLD).

Code:	Value:	Definition:
1	Obstructive	Characterized by chronically poor airflow. It typically worsens over time and the main symptoms include shortness of breath, cough, and sputum production (e.g., COPD; Chronic Bronchitis; Emphysema). Obstructive CLD is caused by conditions that obstruct the flow of air through the respiratory system The obstruction can come from the narrowing of smaller or larger bronchioles from chronic inflammation, excessive contraction of smooth muscles or from the loss of elastic recoil in the lungs (such as in severe emphysema due to the destruction of alveolar units). In the ACSD population, COPD (chronic obstructive pulmonary disease) is by far the most common entity creating an obstructive defect. Asthma creates reversible obstruction and in its earlier or

Code:	Value:	Definition:
		milder forms, it typically does not create chronic obstruction. However, long standing or poorly treated asthma may demonstrate chronic obstructive changes on PFTs. Other causes of chronic obstruction are from bronchiectasis and cystic fibrosis, but these are uncommon in the ACSD population.
2	Reactive	This category should rarely, if ever, be used. Reactive lung disease is an older construct, its use is somewhat controversial, it does not have a clear definition, and has been used to describe different conditions. It is sometimes informally used as a placeholder for asthma before a definitive diagnosis can be made. Reactive airway disease should not be confused with reactive airway dysfunction syndrome (RADS), which is caused by excessive exposure to corrosive gases or vapors
7	Restrictive	Restrictive lung diseases, or restrictive ventilatory defects, are a category of extrapulmonary, pleural, or parenchymal respiratory diseases that restrict lung expansion, resulting in decreased lung volume, increased work of breathing, and inadequate ventilation and/or oxygenation. Restrictive lung diseases are less common than obstructive but comprise a diverse group of underlying conditions. Interstitial fibrosis comprises a group of parenchymal lung diseases that are included in the restrictive lung disease category. The hallmark of all these diseases is that they restrict the ability of the lung to expand to normal volumes. These diseases include entities that interfere with the interstitium or lung parenchyma or affect the chest wall, pleura, or diaphragm.
5	Multiple	Multiple types of CLD are present.
4	Other	Other CLD not otherwise listed, e.g., Amiodarone toxicity.
6	Not documented	The type of CLD is not documented.

Long Name: Prior CVA

SeqNo: 675

Short Name: CVA

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient has a history of stroke. Stroke is an acute episode of focal or global neurological dysfunction caused by brain, spinal cord, or retinal vascular injury as a result of hemorrhage or infarction, where the neurological dysfunction lasts for greater than 24 hours.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(780)

ParentValue: Contains ("Cerebrovascular disease")

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If cerebrovascular disease and age ≥ 18-years, indicate if the patient has a history of a stroke.

Not all subarachnoid hemorrhages (SAH) will create a stroke. There must be some form of deficit (symptoms lasting > 24 hr.) documented in the chart to code SAH as a CVA.

Time frame: Capture any occurrence of a CVA between birth and prior to OR entry date/time.

Description: Stroke or cerebrovascular accident (CVA) is defined as any confirmed neurological deficit of abrupt onset caused by a disturbance in cerebral blood supply that did not resolve within 24-hours of the event. The physical deficit can be in the form of extremity weakness, facial asymmetry, language (speech and/or cognitive thinking) impairment etc. The intent is to differentiate between neurological events that resolve within 24 hours and those that do not.

Code:	Value:	Definition:
1	Yes	Documented history of stroke.

Code:	Value:	Definition:
		Includes patients with no history or symptoms of stroke, but imaging study results show an infarct (old/chronic or new) or cerebral septic emboli. Includes patients who undergo a postoperative imaging with evidence of old or chronic infarct.
2	No	No documented history of stroke and imaging negative.
3	Unknown	Code unknown if any neurologic dysfunction occurred or was suspected, did not resolve in 24 hours, and could not be confirmed or when there is conflicting information in the medical record and/or with the patient/family or when the patient/family is unable to provide history.

Long Name: Prior CVA-When

SeqNo: 680
Short Name: CVAWhen
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate when the CVA events occurred. Those events occurring within 30 days prior to the surgical procedure are considered recent, while all others are considered remote.
ParentLongName: Prior CVA
ParentShortName: CVA
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
3	<= 30 days
4	> 30 days

Intent/Clarification:

If the patient has a history of a stroke or cerebrovascular accident (CVA), indicate the timing.

Code:	Value:	Definition:
3	<= 30 days	Recent history of stoke (CVA); CVA occurred within the 30-days prior to OR entry date/time.
4	> 30 days	Remote history of stoke (CVA); CVA occurred greater than 30-days prior to OR entry date/time. Includes chronic and/or old infarcts.

Long Name: CVD TIA

SeqNo: 685
Short Name: CVDTIA
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient has a history of a Transient Ischemic Attack (TIA).
ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(780)
ParentValue: Contains ("Cerebrovascular disease")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If cerebrovascular disease and age ≥ 18-years, indicate if the patient has a history of a transient ischemic attack (TIA).

Time frame: capture any occurrence between birth and OR entry date/time.

Coding Notes:

- Code (3) Unknown if any neurologic dysfunction occurred or was suspected, was resolved in 24 hours, and could not be confirmed or when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.

Long Name: CVD Carotid Stenosis

SeqNo:	690
Short Name:	CVDCarSten
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate which carotid artery was determined from any diagnostic test to be >= 50% stenotic.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(780)
ParentValue:	Contains ("Cerebrovascular disease")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
2	Right
3	Left
4	Both
1	None
5	Not documented

Intent/Clarification:

If cerebrovascular disease and age ≥ 18-years, indicate if the patient has carotid artery stenosis and the location of the stenosis.

Timeframe: Code results of the study closest to OR entry date/time within 1-year of OR entry date/time even if a prior carotid stent is in place or with the history of a carotid endarterectomy performed (CEA).

Coding Notes:

- Capture only Internal carotid and common carotid disease. Do not include external carotid disease.
- In the event the results report a range, utilize the highest reported value in the range. For example, the stenosis for the right carotid artery is reported as 40-50%, code (2) Right given the right carotid artery stenosis is reported as equal to 50% (the highest in the range).
- In the event of dissection occluding the carotid artery, code the appropriate coded vessel, e.g. (2) Right or (3) Left. A dissection acts like an occlusion as the blood flow is null. The severity of the stenosis is coded in a subsequent question and for dissection should be coded as 100%.
- If carotid ultrasound results are reported in both velocity and ratio measurements on the study closest to OR entry date/time, code the vessel with the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, < 50% by ratio. Code (4) both given the highest measurement was greater than 50% by velocity criteria.
- When a carotid duplex scan reports stenosis as 0-59%, but states no evidence of hemodynamic significance, code (1) None for No for CVD given the extremely wide range of 0-59% and documentation of no hemodynamic significance.

Long Name: CVD Carotid Stenosis - Right

SeqNo:	695
Short Name:	CVDStenRt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the severity of stenosis reported on the right carotid artery.
ParentLongName:	CVD Carotid Stenosis
ParentShortName:	CVDCarSten
ParentHarvestCodes:	2|4
ParentValue:	= "Right" or "Both"

Harvest Codes:

Code:	Value:
3	50% to 79%
1	80% to 99%
2	100%
4	Not documented

Intent/Clarification:

If right carotid artery stenosis, indicate the severity by the % stenosis measured or documented severity. Utilize the results closest to OR entry date/time.

Coding Notes:

- In the event the results report a range, utilize the highest reported value in the range. For example, the stenosis for the right carotid artery is reported as 40-50%, code (3) 50% to 79%.
- If carotid ultrasound results are reported in both velocity and ratio measurements on the study closest to OR entry date/time, utilize the measurement with the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, < 50% by ratio. Code (3) 50% to 79%.
- In the event the carotid ultrasound report describes the percent stenosis as >70%, consider this as 71% and code (3) 50% to 79%.

Code:	Value:	Definition:
3	50% to 79%	Code if the stenosis is reported between 50 – 79% or documented as moderate stenosis.
1	80% to 99%	Code if the stenosis is reported between 80 – 99% or documented as critical, severe, or subtotal stenosis.
2	100%	Code if the stenosis is reported as 100% or documented as total stenosis or occluded.
4	Not documented	Severity of stenosis is not documented

Long Name: CVD Carotid Stenosis - Left

SeqNo: 700
Short Name: CVDStenLft
Database Table Name: Operations Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the severity of stenosis reported on the left carotid artery.
ParentLongName: CVD Carotid Stenosis

ParentShortName: CVDCarSten

ParentHarvestCodes: 3|4

ParentValue: = "Left" or "Both"

Harvest Codes:

Code: Value:
- 3 50% to 79%
- 1 80% to 99%
- 2 100%
- 4 Not documented

Intent/Clarification:

If left carotid artery stenosis, indicate the severity by the % stenosis measured or documented severity. Utilize the results closest to OR entry date/time.

Coding Notes:

- In the event the results report a range, utilize the highest reported value in the range. For example, the stenosis for the right carotid artery is reported as 40-50%, code (3) 50% to 79%.
- If carotid ultrasound results are reported in both velocity and ratio measurements on the study closest to OR entry date/time, utilize the measurement with the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, < 50% by ratio. Code (3) 50% to 79%.
- In the event the carotid ultrasound report describes the percent stenosis as >70%, consider this as 71% and code (3) 50% to 79%.

Code:	Value:	Definition:
3	50% to 79%	Code if the stenosis is reported between 50 – 79% or documented as moderate stenosis.
1	80% to 99%	Code if the stenosis is reported between 80 – 99% or documented as critical, severe, or subtotal stenosis.
2	100%	Code if the stenosis is reported as 100% or documented as total stenosis or occluded.
4	Not documented	Severity of stenosis is not documented

Long Name: CVD Prior Carotid Surgery

SeqNo:	705
Short Name:	CVDPCarSurg
Database Table Name:	Operations Data Source: User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient has a history of previous carotid artery surgery and/or stenting.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(780)
ParentValue:	Contains ("Cerebrovascular disease")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cerebrovascular disease and age ≥ 18-years, indicate if the patient has undergone a previous carotid artery surgery and/or carotid artery stenting.

Description: Carotid endarterectomy is a surgical procedure during which a surgeon removes atherosclerotic plaque or other material obstructing the flow of blood from the artery. This procedure eliminates a substance called plaque from the artery and can restore blood flow.

Carotid artery stenting is a procedure in which a slender, metal- mesh tube, called a stent, is inserted and expands inside the carotid artery to increase blood flow in areas blocked by plaque. Also includes internal carotid artery aneurysm coils and a history of carotid angioplasty.

Time frame: Capture any occurrence between birth and OR entry date/time.

Coding Notes:

- Do not code patients with prior left vertebral occlusions with distal reconstruction as prior carotid artery surgery, code (2) No.

Long Name: MI-When

SeqNo:	710
Short Name:	MIWhen
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the time period between the last documented myocardial infarction and surgery.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(790)
ParentValue:	Contains ("Prior myocardial infarction")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	<=6 Hrs
2	>6 Hrs but <24 Hrs
3	1 to 7 Days
4	8 to 21 Days
5	>21 Days

Intent/Clarification:

If prior myocardial infarction (MI) and age ≥ 18-years, indicate the timing of the MI prior to OR entry date/time.

Select the time-interval category based on information available on when the MI occurred (the time of diagnosis and/or when confirmation of the last MI is documented prior to OR entry time).

In the event the documentation indicates a prior MI without any determination of timeframe, code (5) >21 days if the patient has no recently reported/documented symptoms.

Long Name: Cardiac Arrhythmia - VTach / VFib

SeqNo:	715
Short Name:	ArrhythVV
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether arrhythmia was VTach or VFib.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(690)
ParentValue:	Contains ("Cardiac Dysrhythmia")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was ventricular tachycardia (VT) (VTach) or ventricular fibrillation (VF) (VFib) and indicate the timing prior to OR entry date/time.

Coding Notes:

VT rhythm must be sustained/persistent or paroxysmal and require some type of intervention (pharmacological and/or electrical shock) to interrupt and cease the arrhythmia. Do not include short runs of VTach.

A patient with a witnessed cardiac arrest with AED shock can be coded as VTach/VFib.

- Code (2) Remote if the patient has a history of VT/V more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of VT/VF within 30-days prior to OR entry date/time.

Long Name: Cardiac Arrhythmia – Sick Sinus Syndrome

SeqNo:	720
Short Name:	ArrhythSSS
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether arrhythmia was sick sinus syndrome.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(690)
ParentValue:	Contains ("Cardiac Dysrhythmia")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was sick sinus syndrome (SSS) and indicate the timing prior to OR entry date/time.

Coding Notes:

SSS may present as: Sinus bradycardia (slow heart rates from the natural pacemaker of the heart), tachycardias (fast heart rates from the natural pacemaker of the heart), or bradycardia-tachycardia (alternating slow and fast heart rhythms).

- Code (2) Remote if the patient has a history of SSS more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of SSS within 30-days prior to OR entry date/time.

Description: Sick sinus syndrome (SSS) is a collection of heart rhythm disorders caused by dysfunction in the SA node, the heart's main pacemaker.

Long Name: Cardiac Arrhythmia – Aflutter

SeqNo:	725
Short Name:	ArrhythAFlutter
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether arrhythmia was atrial flutter.

ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(690)
ParentValue: Contains ("Cardiac Dysrhythmia")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was atrial flutter and indicate the timing prior to OR entry date/time.

Coding Notes:

- Code (2) Remote if the patient has a history of A-flutter more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of A-flutter within 30-days prior to OR entry date/time.
- If rhythm is described as fib/flutter, code atrial fibrillation (SeqNo 730) and code A-flutter (1) None.

Description: Atrial flutter (A-flutter) is an abnormal heart rhythm that occurs in the atria of the heart. When it first occurs, it is usually associated with a fast heart rate or tachycardia (beats over 100 per minute) which falls into the category of supra-ventricular tachycardias. While this rhythm occurs most often in individuals with cardiovascular disease (e.g., hypertension, coronary artery disease, and cardiomyopathy) and diabetes, it may occur spontaneously in people with otherwise normal hearts. It is typically not a stable rhythm, and frequently degenerates into atrial fibrillation (A-fib). However, it does rarely persist for months to years.

Long Name: Cardiac Arrhythmia - Atrial Fibrillation

SeqNo: 730
Short Name: ArrhythAtrFib
Database Table Name: Operations

Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether arrhythmia was atrial fibrillation.
ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(690)
ParentValue: Contains ("Cardiac Dysrhythmia")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was atrial fibrillation and indicate the timing prior to OR entry date/time.

Coding Notes:

- Code (2) Remote if the patient has a history of atrial fibrillation (A-fib) more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of A-fib within 30-days of OR entry date/time.
- In the event a patient is permanently paced, and the preoperative pacemaker interrogation shows an underlying rhythm of A-fib, code (3) Recent and additionally code (1) Yes to SeqNo 750 patient was in A-fib or A-flutter at OR entry.

Long Name: Cardiac Arrhythmia - Second Degree Heart Block

SeqNo: 735
Short Name: ArrhythSecond
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether arrhythmia was second degree heart block.

ParentLongName: Preoperative Factor - Multi-Select
ParentShortName: PreopFactorMulti
ParentHarvestCodes: contains(690)
ParentValue: Contains ("Cardiac Dysrhythmia")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was second degree heart block and indicate the timing prior to OR entry date/time.

Coding Notes:

- Code (2) Remote if the patient has a history of second-degree heart block more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of second-degree heart block within 30-days of OR entry date/time.

Description: In second-degree heart block, some signals from the atria don't reach the ventricles. This causes "dropped beats." On an ECG, the P wave isn't followed by the QRS wave, because the ventricles weren't activated. There are two types: Type I second-degree heart block (Mobitz Type I or Wenckebach's AV block) where electrical impulses are delayed more and more with each heartbeat until a beat is skipped. This condition is not too serious but sometimes causes dizziness and/or other symptoms. Type II second-degree heart block (Mobitz Type II) is less common than Mobitz Type I but generally more serious. In Type II, electrical impulses cannot reach the ventricles resulting in an abnormally slow heartbeat. In some cases, a permanent pacemaker is required.

Long Name: Cardiac Arrhythmia - Third Degree Heart Block

SeqNo: 740
Short Name: ArrhythThird
Database Table Name: Operations
Data Source: User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether arrhythmia was third degree heart block.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(690)
ParentValue:	Contains ("Cardiac Dysrhythmia")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None
2	Remote (> 30 days preop)
3	Recent (<= 30 days preop)

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate if the dysrhythmia was third degree heart block and indicate the timing prior to OR entry date/time.

Coding Notes:

- Code (2) Remote if the patient has a history of third-degree heart block more than 30-days prior to OR entry date/time.
- Code (3) Recent if the patient has a history of third-degree heart block within 30-days prior to OR entry date/time.

Description: Third-degree heart block (complete heart block or third-degree atrioventricular (AV) block) is a disorder of the cardiac conduction system where there is no conduction through the AV node. Therefore, complete dissociation of the atrial and ventricular activity exists.

Long Name: Atrial Fibrillation - Type

SeqNo:	745
Short Name:	ArrhythAFib
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of atrial fibrillation.
ParentLongName:	Cardiac Arrhythmia - Atrial Fibrillation

ParentShortName: ArrhythAtrFib

ParentHarvestCodes: 2|3

ParentValue: = "Remote (> 30 days preop)" or "Recent (<= 30 days preop)"

Harvest Codes:

Code:	Value:
2	Paroxysmal
4	Persistent

Intent/Clarification:

If atrial fibrillation (A-fib) is present (remote or recent) code, the type of A-fib.

Code:	Value:	Definition:
2	Paroxysmal	A-fib that terminates spontaneously or with intervention within seven days of onset. Episodes may recur with variable frequency.
4	Persistent	Any documented episode of A-fib that fails to terminate with or without intervention within seven days of onset. Includes the following types of A-fib: persistent, early persistent, long-standing persistent, permanent, and chronic. *Data Source: Heart Rhythm. 2017;S1547*

Long Name: Patient in A-fib at OR Entry

SeqNo: 750

Short Name: AFibRecOREntry

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether patient was in A-fib or A-flutter at the time of OR entry.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(690)

ParentValue: Contains ("Cardiac Dysrhythmia")

ParentLongName2: Patient Age In Days

ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiac dysrhythmia and age ≥ 18-years, indicate whether the patient is in atrial fibrillation (A-fib), atrial flutter (A-flutter), A-fib/flutter, at OR entry date/time.

Coding Notes:

Use the first rhythm documented on the anesthesia record prior to induction to determine if the patient is in A-fib, atrial flutter, or A-fib/flutter at OR entry date/time. If there is no documentation on the anesthesia record prior to induction, then use the rhythm documented closest to OR entry date/time.

In the event a patient is permanently paced, and the preoperative pacemaker interrogation shows an underlying rhythm of A-fib, code (1) Yes. Also, code SeqNo 730 as (3) Recent (<= 30 days preop).

Long Name: Cardiac Arrhythmia - Permanently Paced Rhythm

SeqNo:	755
Short Name:	ArrhythPPaced
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient has a permanently paced rhythm, evidenced by pacemaker activity during heart rhythm evaluation.
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(540)
ParentValue:	Contains ("Pacemaker present")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If pacemaker present and age ≥ 18-years, indicate if the patient has a permanently paced rhythm.

To code permanently paced rhythm, the patient must have a permanent pacemaker and is 100% paced.

Excludes temporary pacing.

Long Name: RF-Tobacco Use

SeqNo:	760
Short Name:	TobaccoUse
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate current (within 30 days prior to admission) or previous use of any tobacco product, including Cigarettes, Pipe, Cigars, Smokeless Cans, Other tobacco products (orbs, strips, sticks, hookah, etc.).
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(570)
ParentValue:	Contains ("Tobacco use")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
2	Current every day tobacco user
3	Current some day tobacco user
4	Tobacco user, current status (frequency) unknown
5	Former tobacco user
6	Tobacco use status unknown

Intent/Clarification:

If tobacco use and age ≥ 18-years, indicate current or previous use of any tobacco product. Includes the use of tobacco cigarettes, pipes, cigars, smokeless cans, and/or other tobacco products (orbs, strips, sticks, hookah, etc.).

Any type of vaping should be captured.

Medical marijuana (wrapped in tobacco leaves) which is used for anxiety is considered tobacco use because of the tobacco leaves.

Code:	Value:	Definition:
2	Current everyday tobacco user	Patient utilizes tobacco / any vaping product daily with the most recent use within 30-days prior to the surgical hospital admission date.
3	Current someday tobacco user	Patient utilizes tobacco / any vaping product on a less than daily basis with the most recent use within 30 days prior to the surgical hospital admission date.
4	Tobacco user, current status (frequency) unknown	Patient currently utilizes tobacco / any vaping product within 30 days prior to the surgical hospital admission date but the frequency of use is unknown.
5	Former tobacco user	Patient is a former user of tobacco / any vaping product and no use within the 30-days prior to the surgical hospital admission date.
6	Tobacco use status unknown	The patient's tobacco /vaping product use is unknown or not documented.

Long Name: Heart Failure Timing

SeqNo: 765
Short Name: HeartFailTmg
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition:	Indicate whether heart failure is acute, chronic or both (acute on chronic)
ParentLongName:	Preoperative Factor - Multi-Select
ParentShortName:	PreopFactorMulti
ParentHarvestCodes:	contains(670)
ParentValue:	Contains ("Heart failure")

Harvest Codes:

Code:	Value:
1	Acute
2	Chronic
3	Both

Intent/Clarification:

If heart failure, indicate the timing.

There must be physician/provider documentation in the medical record indicating the timing of heart failure (acute, chronic, or both).

Description:

Acute heart failure is the rapid onset of symptoms and signs of heart failure and may occur with or without previous cardiac disease occurring within 2 weeks of surgery. Acute decompensated heart failure is a sudden worsening of the signs and symptoms of heart failure, which typically includes difficulty breathing (dyspnea), leg or feet swelling, and fatigue.

Chronic heart failure develops gradually over time with symptoms of shortness of breath, lower extremity swelling and fatigue without an acute exacerbation within the 2 weeks prior to admission.

Both involves patients with chronic heart failure who presents with acute or worsening symptoms within 2 weeks of surgery. This may be documented as acute on chronic heart failure.

Long Name: Heart Failure Type

SeqNo:	770
Short Name:	HeartFailType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of heart failure.
ParentLongName:	Preoperative Factor – Multi-Select
ParentShortName:	PreopFactorMulti

ParentHarvestCodes: contains(670)

ParentValue: Contains ("Heart failure")

Harvest Codes:

Code:	Value:
1	Systolic
2	Diastolic
3	Both
4	Unavailable

Intent/Clarification:

If heart failure, indicate the type.

There must be physician/provider documentation in the medical record indicating the type of heart failure (systolic, diastolic, or combined dysfunction/both).

Provider diagnosis of HFpEF (diastolic HF) or HFrEF (systolic HF) can be used to code systolic or diastolic heart failure.

Description:

- Systolic: The left ventricle lacks the force to push enough blood into the circulation.
- Diastolic: The left ventricle is stiff and fails to relax sufficiently to allow adequate filling.
- Both: Components of both systolic and diastolic failure exist.
- Unavailable: The type of heart failure is not documented in the medical record.

Long Name: Heart Failure Involved Ventricle

SeqNo: 775

Short Name: InvolvedVent

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate which ventricle(s) are the cause of heart failure.

ParentLongName: Preoperative Factor - Multi-Select

ParentShortName: PreopFactorMulti

ParentHarvestCodes: contains(670)

ParentValue: Contains ("Heart failure")

Harvest Codes:

Code:	Value:

1 Systemic ventricle
2 Pulmonary ventricle
3 Both ventricles
4 Unknown / unavailable

Intent/Clarification:

If heart failure, indicate which ventricle is causing the heart failure.

There must be physician/provider documentation in the medical record indicating the causal ventricle.

Long Name: Primary Coronary Symptom for Surgery

SeqNo:	780
Short Name:	CardSympTimeOfAdm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the patient's worst symptom prior to surgery from Admission to OR Entry
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code: Value:
1 No coronary symptoms
2 Stable Angina
5 ST Elevation MI (STEMI)
6 Angina equivalent
3 Unstable Angina
4 Non-ST Elevation MI (Non-STEMI)
7 Other

Intent/Clarification:

If age ≥ 18-years, indicate the patient's cardiac presentation/symptoms and select the worst symptom if present.

Time Frame: Code the worst symptom from the admission date to OR entry date/time. This may include time spent at an outside hospital prior to transferring to the surgical hospital. Do not include the worst symptom from a previous episode of care.

Coding Notes:

- In the event the surgery is elective, code the coronary artery disease presentation that is bringing the patient to surgery.
- In the event the patient presents with atypical symptoms of myocardial ischemia (i.e., only shortness of breath, upper abdominal pain, left arm pain, etc.) that is known and documented to be myocardial ischemia, and is considered to be an angina equivalent, code the symptom that fits their presentation. If these symptoms are not thought to be or have not been proven to be an anginal equivalent, code (1) No Coronary Symptoms.
- Physician documentation of a patient's Canadian Cardiovascular Society (CCS) classification for angina still requires the physician to quantify the severity of angina. Work with the physician to clarify the type/severity angina if it is not documented beyond the CCS classification.

Code:	Value:	Definition:
1	No coronary symptoms	Patient has no angina, no acute ST Elevation MI (STEMI), no Non-ST Elevation MI (Non- STEMI), no anginal equivalent, and no other atypical chest pain.
2	Stable Angina	Patient has angina without a change in frequency or pattern for the 6 weeks prior. Angina is controlled by rest and/or oral or transcutaneous medications.
5	ST Elevation MI (STEMI)	Patient presented with a ST elevation myocardial infarction (STEMI) or its equivalent as documented in the medical record.
6	Angina equivalent	An anginal equivalent is a symptom such as shortness of breath (dyspnea), diaphoresis, extreme fatigue, or belching, occurring in a patient at high cardiac risk. Anginal equivalents are considered symptoms of myocardial ischemia. Anginal equivalents are considered to have the same importance as angina pectoris in patients presenting with elevation of cardiac enzymes or certain EKG changes which are diagnostic of myocardial ischemia. There needs to be supportive documentation in the medical record that the symptoms are representative of angina. For example, if the patient presents with the symptoms above and it is proven that the patient has documented obstructive coronary artery disease, then anginal equivalent may be

Code:	Value:	Definition:
		coded even if there is no provider documentation specifically stating that the symptoms are an anginal equivalent. For the patient with diabetes who presents with “silent angina”, code anginal equivalent.
3	Unstable Angina	There are three principal presentations of unstable angina: • Rest angina (occurring at rest and prolonged, usually >20 minutes) • New-onset angina (within the past 2 months of at least Canadian Cardiovascular Society Class III severity) • Increasing angina (previously diagnosed angina that has become distinctly more frequent, longer in duration, or increased by 1 or more Canadian Cardiovascular Society class to at least CCS III severity)
4	Non-ST Elevation MI (Non-STEMI)	Patient was hospitalized for a non-ST elevation myocardial infarction (NSTEMI) as documented in the medical record.
7	Other	Includes aortic dissections, sudden death, heart block, arrhythmia, syncope, heart failure or other symptoms associated with non-coronary artery disease (CAD) conditions such as aortic or mitral stenosis / insufficiency without CAD.

Long Name: RF-Home Oxygen

SeqNo:	785
Short Name:	HmO2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether supplemental oxygen at home is prescribed and used.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575

ParentValue: >=6575

Harvest Codes:

Code: Value:

3 Yes, PRN

4 Yes, oxygen dependent

2 No

5 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate the patient's home oxygen use prior to the surgical hospital admission date.

Timeframe: home oxygen use up to hospital admission date. This does not include the oxygen delivered at an outside hospital prior to transfer to the surgical hospital. Include home use only.

Code:	Value:	Definition:
3	Yes, PRN	Patient uses oxygen at home on an as needed basis. Code in the event the patient is using home oxygen on a PRN/as needed basis, but has not used it for > 1-month prior to the surgical hospital admission.
4	Yes, oxygen dependent	Patient uses oxygen continuously at home.
2	No	Patient does not have a home oxygen need. Code in the event the patient is using home oxygen on a PRN/as needed basis but has not used it for > 1-month prior to the surgical hospital admission.
5	Unknown	Patient's home oxygen use is unknown and/or there is no no indication of when home oxygen was last used, Includes when there is conflicting information in the medical record and/or with the patient/family. Includes when the patient/family is unable to provide history of home oxygen use.

Long Name: RF-Pneumonia

SeqNo: 790

Short Name: Pneumonia

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether patient has a recent (within 30 days) or remote (more than 30 days) history of pneumonia.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
2	Recent
3	Remote
1	No
4	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate the patient's history of pneumonia prior to OR entry date/time. Pneumonia should not be coded for documentation of pneumonitis (lung inflammation) or chronic eosinophilic pneumonia.

Timeframe: anytime up to OR entry date/time

Code:	Value:	Definition:
2	Recent	Patient has a documented pneumonia diagnosis within 30-days prior to OR entry date/time
3	Remote	Patient has a documented pneumonia diagnosis more than 30-days prior to OR entry date/time
1	No	Patient has no recent or remote history of pneumonia prior to OR entry date/time. Includes documentation of pneumonitis or chronic eosinophilic pneumonia.
4	Unknown	Patient's pneumonia history is unknown. Includes documentation of possible pneumonia with

Code:	Value:	Definition:
		documentation of antibiotic treatment. Includes when there is conflicting information in the medical record and/or with the patient/family. Includes when the patient/family is unable to provide pneumonia history.

Long Name: RF-Alcohol Use

SeqNo: 795
Short Name: Alcohol
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Specify alcohol consumption history.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code: Value:
1 <= 1 drink/week
2 2-7 drinks/week
3 >=8 drinks/week
4 None
5 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate the patient's alcohol use up to the surgical hospital admission date.

In the event alcohol intake is documented as a range, code the highest amount in the range. For example, alcohol use is reported as 6-8 drinks a week. Code as (3) >= 8 drinks per week.

Code:	Value:	Definition:
1	<= 1 drink/week	Rare or occasional drinker; one beer, one glass of wine, or 1

Code:	Value:	Definition:
		shot per week
2	2-7 drinks/week	Social drinker
3	>=8 drinks/week	Heavy drinker Includes documentation that patient is an alcoholic or suffers from alcoholism.
4	None	Non-drinker
5	Unknown	Patient's alcohol use is unknown or has not been assessed. Includes when there is conflicting information in the medical record and/or with the patient/family. Includes when the patient/family is unable to describe alcohol use.

H2. PREOPERATIVE LABS / TESTING

Long Name: Preoperative Labs Available

SeqNo: 800
Short Name: PreopLabsAvail
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether preoperative labs are available.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient has any of the following preoperative lab values available within the 30-

days prior to OR entry date/time.

All Patients	Patients age ≥ 18-years
• creatinine	• WBC count
• total albumin	• hemoglobin
• total bilirubin	• A1C level
• BNP	• sodium
• hematocrit	• INR
• platelet count	• HIT antibodies

Time Frame: Use the lab results closest to and prior to OR entry date/time, prior to anesthesia provider initiating care. Only use lab results obtained within 30 days of OR entry date/time, unless otherwise indicated.

Coding Notes:

- Capture any of the lab values if available. Leave the unavailable labs blank.
- Do not use labs drawn after IV fluids are hung in the preoperative/holding area or labs drawn in the OR.
- Arterial or venous blood can be used for lab results. Point of care (POC) labs are also acceptable to use.
- Do not round lab values up.
- For lab values that are documented as more or less than a value, code as the next decimal point. For example, if the total bilirubin closest to OR entry date/time is documented as <0.2, code as 0.19.

Long Name: Last Creatinine Level

SeqNo:	805
Short Name:	CreatLst
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the creatinine level in mg/dL (mg/100mL or mg%) closest to the date and time prior to surgery.
Low Value:	0.10
High Value:	30.00

ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the serum creatinine level

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Description: Creatinine (Cr) is a chemical waste molecule excreted by the kidneys that is generated from muscle metabolism. If the kidneys become impaired for any reason, the creatinine level in the blood will rise due to poor clearance by the kidneys. Abnormally high levels of creatinine thus warn of possible malfunction or failure of the kidneys. The unit of measurement for Creatinine is mg/dl or mg/100ml or mg%.

Long Name: Total Albumin

SeqNo:	810
Short Name:	TotAlbumin
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the total albumin in g/dL (g / 100 mL or g%) closest to the date and time prior to surgery.
Low Value:	1.00
High Value:	10.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the total albumin level.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 6-weeks prior to OR entry date/time provided there is no known acute liver disease process.

Description: Albumin (alb), produced only in the liver, is the major plasma protein that circulates in the bloodstream. Albumin is essential for maintaining the oncotic pressure in the

vascular system. A decrease in oncotic pressure due to a low albumin level allows fluid to leak out from the interstitial spaces into the peritoneal cavity, producing ascites. Albumin is also especially important in the transportation of many substances such as drugs, lipids, hormones, and toxins that are bound to albumin in the bloodstream. A low serum albumin indicates poor liver function. Decreased serum albumin levels are not seen in acute liver failure because it takes several weeks of impaired albumin production before the serum albumin level drops. The most common reason for a low albumin is chronic liver failure caused by cirrhosis. The serum albumin concentration is usually normal in chronic liver disease until cirrhosis and significant liver damage has occurred. The unit of measurement for Albumin is g/dl or g/100 ml or g%.

Long Name: Total Bilirubin

SeqNo:	815
Short Name:	TotBlrbn
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the total Bilirubin in mg/dL (mg / 100 mL or mg%) closest to the date and time prior to surgery.
Low Value:	0.10
High Value:	50.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the total albumin level.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 6-weeks prior to OR entry date/time provided there is no known acute liver disease process.

Description: Bilirubin, an orange-yellow pigment in blood, is a natural byproduct that results from the normal breakdown of red blood cells. As a normal process, bilirubin is carried in the blood and passes through the liver. Too much bilirubin may indicate liver damage or disease. The unit of measurement for Bilirubin is mg/dl or mg/100 ml or mg%.

Long Name: BNP

SeqNo:	820

Short Name:	BNP
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the BNP value in pg/mL.
Low Value:	5.0
High Value:	100000.0
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the brain natriuretic peptide (BNP) level

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Coding Notes:

- An N-Terminal pro B-type (NT-proBNP) is not the same as a BNP. There is no conversion factor for the comparison of BNP and NT-proBNP values. Do not use NT-proBNP values. If only NT-proBNP (proBNP) values are available, leave field blank.

Description: BNP now known as B-type natriuretic peptide or Ventricular Natriuretic Peptide (still BNP), is a 32-amino acid polypeptide secreted by the ventricles of the heart in response to excessive stretching of heart muscle cells (cardiomyocytes). The physiologic actions of BNP are like those of atrial natriuretic peptide (ANP) and include decrease in systemic vascular resistance and central venous pressure as well as an increase in natriuresis. Thus, the net effect of BNP and ANP is a decrease in blood volume, which lowers systemic blood pressure and afterload, yielding an increase in cardiac output, partly due to a higher ejection fraction. The unit of measurement for BNP is pg/ml.

Long Name: Preoperative Hematocrit

SeqNo:	825
Short Name:	Hct
Database Table Name:	Operations
Data Source:	User
Format:	Real

Definition:	Indicate the pre-operative Hematocrit level (%) at the date and time closest to surgery. Capture only measured hematocrit levels, not calculated values.
Low Value:	1.00
High Value:	99.99
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the hematocrit.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Coding Notes:

- Utilize the surgical hospital laboratory report first. If unavailable, then additional source documents may be referenced for lab results.
- Capture measured HCT, not calculated values. If measured HCT values are not available, calculated values can be utilized if the calculated value is available in the medical record. The data manager should not calculate the HCT value.

Description: Hematocrit (HCT) is the proportion of red cells in the blood. The unit of measurement for HCT is %.

Long Name: Platelet Count

SeqNo:	830
Short Name:	Platelets
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the platelet count in mcL closest to the date and time prior to surgery.
Low Value:	1000
High Value:	900000
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail

ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If preoperative labs available, indicate the platelet count.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Coding Notes:

- Utilize the surgical hospital laboratory report first. If unavailable, then additional source documents may be referenced for lab results.

Description: Platelets (PLT) are a blood component instrumental in clot formation. The unit of measurement for Platelets is x10^3/µl or 103 /µl (1000 µl) or 103 /mm3 (1000/mm3) or K/µl or K/mm3.

Long Name: WBC Count

SeqNo:	835
Short Name:	WBC
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the pre-operative White Blood Cell (WBC) count in mcL closest to the date and time prior to surgery.
Low Value:	0.10
High Value:	99.99
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If preoperative labs available, indicate the white blood cell (WBC) count.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Coding Notes:

- Utilize the surgical hospital laboratory report first. If unavailable, then additional source documents may be referenced for lab results.

Description: White Blood Cells (WBC/leukocytes) are part of the body's immune defense and are often elevated in the presence of infection. The unit of measurement for WBC is x10^3/µl or 103 /µl (1000 ul) or 103 /mm3 (1000/mm3) or K/µl or K/mm3.

Long Name: Hemoglobin

SeqNo:	840
Short Name:	RFHemoglobin
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the pre-operative Hemoglobin level in g/dL (g / 100 mL or g%) at the date and time closest to surgery. Capture only measured hemoglobin levels, not calculated values.
Low Value:	1.00
High Value:	50.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If preoperative labs available, indicate the hemoglobin.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Coding Notes:

- Utilize the surgical hospital laboratory report first. If unavailable, then additional source documents may be referenced for lab results.

Description: The hemoglobin (Hgb) test may be used to screen for, diagnose, or monitor several conditions and diseases that affect red blood cells (RBCs) and/or the amount of hemoglobin in blood. The unit of measurement for Hgb is g/dl or g/100 ml or g%.

Long Name: Last A1C Level

SeqNo:	845
Short Name:	A1cLvl
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the pre-operative HbA1c level (%) closest to the date and time prior surgery.
Low Value:	1.00
High Value:	20.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If preoperative labs available, indicate the hemoglobin A1c (HbA1c) level.

Timeframe – Use the lab results closest to and prior to OR entry date/time, up to 3-months prior to OR entry date/time.

Description: Glycosylated hemoglobin, HbA1c, is a form of hemoglobin used primarily to identify the average plasma glucose concentration over prolonged periods of time. It is formed in a non-enzymatic glycation pathway by hemoglobin's exposure to plasma glucose. Normal levels of glucose produce a normal amount of glycosylated hemoglobin. As the average amount of plasma glucose increases, the fraction of glycosylated hemoglobin increases in a predictable way. This serves as a marker for average blood glucose levels over the previous months prior to the measurement. The HbA1c level is proportional to average blood glucose concentration over

the previous four weeks to three months. The unit of measurement for A1C is %. The 2010 American Diabetes Association Standards of Medical Care in Diabetes added the A1c ≥ 6.5% as a criterion for the diagnosis of diabetes.

Long Name: Sodium

SeqNo:	850
Short Name:	Sodium
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the Sodium in mEq/L (mmol / L) closest to the date and time prior to surgery. If liver disease is present, then Sodium is required for Meld score calculation.
Low Value:	30.0
High Value:	200.0
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If preoperative labs available, indicate the sodium level.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Description: The MELDNa/MELD-Na Score for Liver Cirrhosis adds sodium to the MELD model to evaluate liver cirrhosis severity. The sodium addition in the model was based on the registration data from the United Network for Organ Sharing. The formula MELD Na = MELD − Na − [0.025 × MELD × (140 − Na)] + 140. The unit of measurement for Sodium is mEq/L, or mmol/L. Source: https://optn.transplant.hrsa.gov/data/allocation-calculators/about-meld-and-peld/.

Long Name: INR

SeqNo:	855
Short Name:	INR
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the International Normalized Ratio (INR) closest to the date and time prior to surgery.
Low Value:	0.50
High Value:	30.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If preoperative labs available, indicate the hemoglobin.

Time Frame: Use the lab results closest to and prior to OR entry date/time, within 30-days prior to OR entry date/time.

Description: International Normalized Ratio (INR) is the standard unit used to report the result of a prothrombin (PT) test. An individual whose blood clots normally and who is not on anticoagulation should have an INR of approximately 1. The higher the INR, the longer it takes the blood to clot. As the INR increases above a given level, the risk of bleeding and bleeding-related events increases. As the INR decreases below a given level, the risk of clotting events increases.

Long Name: HIT Antibodies

SeqNo:	860
Short Name:	HITAnti
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition: Indicate whether Heparin Induced Thrombocytopenia (HIT) is confirmed by antibody testing.

ParentLongName: Preoperative Labs Available

ParentShortName: PreopLabsAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code: Value:
1 Yes
2 No
3 Not applicable

Intent/Clarification:

If preoperative labs available, indicate if heparin induced thrombocytopenia (HIT) is confirmed by antibody testing.

Time Frame: Use the lab results closest to and prior to OR entry date/time, any time prior to OR entry date/time.

Description: Heparin induced thrombocytopenia (HIT) can be defined as any clinical event best explained by platelet factor 4 (PF4) / heparin-reactive antibodies ('HIT antibodies') in a patient who is or has recently received heparin. Thrombocytopenia is the most common 'event' in HIT and occurs in at least 90% of patients, depending upon the definition of thrombocytopenia. A high proportion of patients with HIT can develop thrombosis. Alternative, non-heparin, anticoagulant therapy reduces the risk of subsequent thrombosis. The serotonin release assay (SRA) is the most definitive HIT test.

Code:	Value:	Definition:
1	Yes	Antibody testing performed and was HIT positive (positive antibody testing)
2	No	Antibody testing was performed and was HIT negative (negative antibody testing)
3	Not applicable	Antibody testing was not performed

Long Name: MELD Score

SeqNo:	865
Short Name:	MELDScr
Database Table Name:	Operations
Data Source:	Calculated
Format:	Real
Definition:	MELD score value calculated by software to indicate severity of liver disease.
Low Value:	0.00
High Value:	150.00
ParentLongName:	Preoperative Labs Available
ParentShortName:	PreopLabsAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

Software calculated field utilizing available lab values.

MELD is not used to confirm liver disease, rather as a severity measure for patients with known liver disease:

- ≤ 15 predictive of 95% survival at 3 months
- ~ 30 predictive of 65% survival at 3 months
- ≥ 40 predictive of 10-15% survival at 3 months

Formula MELD = 9.57 x loge(serum creatinine) + 3.78 x loge(total serum bilirubin) + 11.2 x loge(INR) + 6.4.

Formula considerations:

- Results range from 6 - 40
- Total serum bilirubin measured in mg/dl; serum creatinine measured in mg/dl; serum sodium is measured in mEq/L
- Serum creatinine is set at a lower limit of 1mg/dl and a high limit of 4mg/dl.

- For patients receiving dialysis of ≥2 times per week, serum creatinine is set to 4mg/dl regardless of serum creatinine value.

Description: Model for End-Stage Liver Disease (MELD) is a validated liver disease severity scoring system that uses laboratory values for serum bilirubin, serum creatinine and the INR to predict survival. In patients with chronic liver disease, an increasing MELD score is associated with increasing risk of death.

Reference: https://optn.transplant.hrsa.gov/data/allocation-calculators/meld-calculator/
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3940492/

Long Name: Pulmonary Vascular Resistance Measured Within 6 Months

SeqNo:	870
Short Name:	PVRMeas
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Pulmonary Vascular Resistance (PVR) in Woods units was measured by cardiac catheterization within 6 months prior to this operation.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if pulmonary vascular resistance was measures within 6-months prior to OR entry date/time.

In the event a patient undergoes a cardiac catheterization and the PVR is not calculated, the data manager may use the catheterization measurements to calculate the PVR.

Long Name: Pulmonary Vascular Resistance

SeqNo:	875
Short Name:	PVR
Database Table Name:	Operations
Data Source:	User
Format:	Real

Definition:	Indicate the pulmonary vascular resistance (in Wood units) as measured by cardiac catheterization.
Low Value:	0.0
High Value:	100.0
ParentLongName:	Pulmonary Vascular Resistance Measured Within 6 Months
ParentShortName:	PVRMeas
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Weight in Kilograms
ParentShortName2:	WeightKg
ParentHarvestCodes2:	>=40
ParentValue2:	>=40

Intent/Clarification:

If pulmonary vascular resistance (PVR) measured and patient surgical weight is ≥ 40kg, enter PVR in Wood units.

In the event a patient undergoes a cardiac catheterization and the PVR is not calculated, the data manager may use the catheterization measurements to calculate the PVR.

Long Name: Pulmonary Vascular Resistance Index

SeqNo:	880
Short Name:	PVRI
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the Pulmonary Vascular Resistance Index (in Wood units x m2) as measured by cardiac catheterization.
Low Value:	0.0
High Value:	100.0
ParentLongName:	Pulmonary Vascular Resistance Measured Within 6 Months
ParentShortName:	PVRMeas
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Weight in Kilograms
ParentShortName2:	WeightKg
ParentHarvestCodes2:	<40

ParentValue2: <40

Intent/Clarification:

If pulmonary vascular resistance (PVR) measured and patient surgical weight is < 40kg, enter PVR in Wood units per m2.

In the event a patient undergoes a cardiac catheterization and the PVR is not calculated, the data manager may use the catheterization measurements to calculate the PVR.

Long Name: RF-Pulmonary Function Test

SeqNo: 885
Short Name: PFT
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether pulmonary function tests were performed.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If surgical age ≥ 18-years, indicate if pulmonary function testing was completed.

Time Frame: Use the study closest to and prior to OR entry date/time within 12-months prior to surgery date.

Coding Notes:

- Spirometry results that have not been interpreted by a pulmonologist may be used to quantify chronic lung disease.

Description: Pulmonary function testing (PFT) is a valuable tool for evaluating the respiratory system, representing an important adjunct to the patient history, various lung imaging studies, and invasive testing such as bronchoscopy and open-lung biopsy. Insight into underlying pathophysiology can often be gained by comparing the measured values for pulmonary function tests obtained on a patient at any point with normative values derived from

population studies. The percentage of predicted normal is used to grade the severity of the abnormality. PFT is used in clinical medicine for evaluating respiratory symptoms such as dyspnea and cough, for stratifying preoperative risk, and for diagnosing common diseases such as asthma and chronic obstructive pulmonary disease.

Long Name: RF-Forced Expiratory Volume Predicted

SeqNo:	890
Short Name:	FEV1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the FEV1 % predicted from the most recent pulmonary function test prior to procedure. Choose the highest value reported for % predicted, with or without a bronchodilator. If reported value is a decimal (real number), truncate to the whole number (do not round).
Low Value:	1
High Value:	200
ParentLongName:	RF-Pulmonary Function Test
ParentShortName:	PFT
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If pulmonary function testing completed, indicate the forced expiratory volume in the first second (FEV1). Enter the highest reported value for % predicted.

Coding Notes:

Do not round the result up. For example, if a FEV1 is documented as 49.9%, code as 49%.

Description: FEV1 is the maximal amount of air forcefully exhaled in one second. It is then converted to a percentage of normal. For example, the FEV1 may be 80% of predicted based on height, weight, and race. FEV1 is a marker for the degree of obstruction. In normal persons, the FEV1 accounts for the greatest part of the exhaled volume from a spirometric maneuver and reflects mechanical properties of the large and the medium-sized airways.

- FEV1 > 75% of predicted = Normal
- FEV1 60% to 75% of predicted = Mild obstruction
- FEV1 50% to 59% of predicted = Moderate obstruction

- FEV1 < 50% of predicted = Severe obstruction

Long Name: DLCO Test Performed

SeqNo:	895
Short Name:	DLCO
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a lung diffusion test (DLCO) was performed.
ParentLongName:	RF-Pulmonary Function Test
ParentShortName:	PFT
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If pulmonary function testing completed, indicate if diffusing capacity for carbon monoxide (DLCO) testing was performed.

Description: The diffusing capacity for carbon monoxide (DLCO) is a test of the integrity of the alveolar-capillary surface area for gas transfer.

Long Name: DLCO Predicted

SeqNo:	900
Short Name:	DLCOPred
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the % predicted DLCO value obtained for the patient. Choose the value that represents the lowest % predicted whether or not it is the simple DLCO or the DLCO/VA.
Low Value:	10
High Value:	200

ParentLongName: DLCO Test Performed

ParentShortName: DLCO

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If diffusing capacity for carbon monoxide (DLCO) testing was performed, indicate the % predicted. Includes both testing for simple DLCO or DLCO/VA (alveolar volume).

Coding Notes:

- The lowest value for diffusing capacity for carbon monoxide (DLCO) uncorrected should be captured.
- A PFT may report different measurements including DLCO_SB, DLCO/VA, or DLCOcSB (corrected for hemoglobin). Capture the lowest uncorrected value only; do not use DCLOcSB as it is a corrected value.

Long Name: RF-Arterial Blood Gas

SeqNo: 905

Short Name: ABG

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a room-air arterial blood gas was performed prior to surgery.

Answer no if the only available arterial blood gasses were drawn while patient was receiving supplemental oxygen.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If surgical age ≥ 18-years, indicate if an arterial blood gas (ABG) was measured while the patient is not receiving oxygen supplementation.

Time Frame: Use the ABG results closest to and prior to OR entry date/time, within 30-days of OR entry date/time.

Coding Notes:

- Do not use ABGs drawn after initiation of anesthetic management as they may not accurately reflect the patient's true baseline due to preop sedation, anxiety, and pain etc.
- Answer (2) No if an ABG was drawn only while the patient was receiving supplemental oxygen.

Long Name: RF-Preoperative Carbon Dioxide Level

SeqNo:	910
Short Name:	PreOpPCO2
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate carbon dioxide level (PCO2) in mmHg on the most recent room air blood gas prior to procedure.
Low Value:	15.0
High Value:	150.0
ParentLongName:	RF-Arterial Blood Gas
ParentShortName:	ABG
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If arterial blood gas (ABG) drawn, indicate the carbon dioxide (PCO_2) level. Do not include values while the patient was receiving oxygen supplementation.

Time Frame: Use the ABG results closest to and prior to OR entry date/time, within 30-days of OR entry date/time.

Description: Higher levels (CO2 retention) may indicate hypoventilation and low levels are consistent with hyperventilation. The normal range is 35-45 mmHg.

Long Name: RF-Preoperative Oxygen Level

SeqNo:	915

Short Name:	PreOpPO2
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate oxygen level (PO2) result in mmHg on most recent room air arterial blood gas prior to procedure.
Low Value:	30.0
High Value:	600.0
ParentLongName:	RF-Arterial Blood Gas
ParentShortName:	ABG
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If arterial blood gas (ABG) drawn, indicate the oxygen (O_2) level. Do not include values while the patient was receiving oxygen supplementation.

Time Frame: Use the ABG results closest to and prior to OR entry date/time, within 30-days of OR entry date/time.

H3. PREOPERATIVE MEDICATIONS (AGE ≥ 18-YEARS)

Preoperative Medications Guidance

- Contraindications for pre-operative medication requires documentation of a contraindication for the class of medications when applicable such as statin, beta blockers, ADP inhibitors etc., not just one medication in the medication class.

  Example: a documented contraindication for Toprol preoperatively would need to be documented as a contraindication for beta blockers, not one drug in the medication class.

- Patient refusal of medication can be captured as contraindicated if the refusal is clearly documented in the medical record. For example, “Patient educated on importance of taking pre-op beta blocker and patient refused to take the

medication.

- Each medication class has its own timeline for inclusion. Refer to the specific definitions/timeframes.

Long Name: Meds-ACE Inhibitors or ARB Within 48 Hours

SeqNo:	920
Short Name:	MedACEI48
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received ACE Inhibitors or ARB within 48 hours prior to OR Entry.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Contraindicated
4	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received an angiotensin-converting enzyme inhibitor (ACEI) and/or angiotensin II receptor blocker (ARB) within 48-hours prior to OR entry date/time.

Description: ACEIs and ARBs are used in the treatment of hypertension and congestive heart failure. The drugs inhibit the release of the hormone angiotensin II that constricts blood vessels, causing an increase in blood pressure. Therefore, blood vessels dilate to increase systemic blood flow to the heart. Some ACE inhibitors have additional diuretic components to increase the elimination of excess fluid. Studies have shown that preoperative use of ACEIs/ARBs is associated with a 27.6% higher risk for acute kidney injury (AKI) postoperatively. Stopping ACEIs or ARBs before cardiac surgery may reduce the incidence of AKI. This includes renin inhibitors.

Code:	Value:	Definition:
1	Yes	Patient received an ACEI/ARB within 48-hours prior to OR entry date/time
2	No	Patient did not receive an ACEI/ARB within 48-hours prior to OR entry date/time
3	Contraindicated	Documented evidence of contraindication to ACEIs and/or ARBs: – a contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist). – the medication was not given due to the order parameters not being met (i.e., hold ACEI for systolic blood pressure (SBP) < 110mmHg and the documented SBP was < 110mmHg).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or the patient/family is unable to provide history.

Long Name: Meds- Amiodarone Prior To Surgery

SeqNo:	925
Short Name:	MedAmiodarone
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether and when the patient received Amiodarone therapy prior to surgery. Dronedarone (Multaq) may be coded as Amiodarone
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575

ParentValue: >=6575

Harvest Codes:

1 Yes, on home therapy
2 Yes, therapy started this admission
3 No
4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received ongoing amiodarone administration prior to surgery.

Timeframe: Include the time prior to OR entry date/time.

Description Amiodarone may play a role in reducing the risk of post-operative arrhythmias, notably atrial fibrillation.

Code:	Value:	Definition:
1	Yes, on home therapy	Patient is on amiodarone at home prior to this surgical hospital admission.
2	Yes, therapy started this admission	Patient began taking amiodarone during this episode of care prior to OR entry date/time. Can include patients where a preoperative protocol was initiated to allow for differentiation from those patients on long term home therapy.
3	No	Patient is not taking amiodarone at home prior to the surgical hospital admission date or started on therapy during this episode of care after admission date. Includes patients receiving a single dose of amiodarone prior to OR entry date/time.
4	Unknown	Conflicting information in the medical record and/or with the patient/family or the patient/family is unable to provide history.

Long Name: Meds-Beta Blockers Within 24 Hours

SeqNo: 930

Short Name: MedBeta

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether or not the patient received beta blockers within 24 hours preceding incision time, or if beta blocker was contraindicated.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

1 Yes
2 No
3 Contraindicated

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received a beta blocker within 24-hours prior to skin incision start time (SeqNo 1835).

Includes systemic delivery of beta blockers only. Do not include topical creams, nasal spready, inhalers, or ophthalmic or otic drops.

ACSD Database - NQF Endorsed Measure - Part of the medication bundle in the STS Composite Quality Rating

Timeframe: within 24-hours prior to skin incision start time.

Description: Beta blockers have been proven to increase survival in cardiac patients and are used for the treatment of high blood pressure, chest pain or angina, irregular heart rhythms, prevention of post operative atrial fibrillation, slowing ventricular rate response, and congestive heart failure.

Code:	Value:	Definition:
1	Yes	Patient received systemic beta blockers within 24-hours prior to skin incision start time. Includes one-time doses given prior to/at the same time as skin incision start time. To include patients on home beta blocker therapy, the date and time of the last dose must be documented or provider

Code:	Value:	Definition:
		documentation that the patient took home beta blocker within 24-hours prior to skin incision start time.
2	No	Patient did not receive systemic beta blockers within 24-hours prior to skin incision start time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist). – the medication was not given due to the order parameters not being met (i.e., hold beta blocker for heart rate <50 beats per minute (BPM) and the documented heart rate was 45 BPM.

Long Name: Meds-Beta Blocker Therapy For More Than 2 Weeks Prior To Surgery

SeqNo: 935
Short Name: MedBetaTher
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient received beta blocker therapy for at least 2 weeks prior to surgery.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code: Value:
1 Yes
2 No
3 Contraindicated

4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received beta blockers within the 2-weeks prior to the surgery date.

Includes systemic delivery of beta blockers only. Do not include topical creams, nasal spready, inhalers, or ophthalmic or otic drops.

Description: Beta blockers have been proven to increase survival in cardiac patients and are used for the treatment of high blood pressure, chest pain or angina, irregular heart rhythms, prevention of post operative atrial fibrillation, slowing ventricular rate response, and congestive heart failure. Studies have shown that the abrupt discontinuation of Beta- Blockers during the perioperative period in patients who were on chronic Beta-Blocker therapy prior to surgery can lead to increased mortality during the intraoperative and postoperative periods. The American College of Cardiology/American Heart Association has given the continuation of Beta- Blocker therapy throughout the perioperative period a Class I recommendation.

Code:	Value:	Definition:
1	Yes	Patient prescribed a systemic beta blocker and are presumed to be at a therapeutic level for at least 2-weeks prior to OR entry date/time. Capture patients who are on home beta blockers even if there is no documented proof the patient was on the medication for at least 2-weeks. Do not include one-time doses. Includes patients taking the beta blocker as an antianginal agent even if the beta blocker is held before surgery as this demonstrates the provider appropriately attempting to manage the patient's coronary artery disease.
2	No	Patient did not receive systemic beta blocker for at least 2-weeks prior to OR entry date/time. Includes patients where a beta blocker was prescribed but the patient is not taking a daily dose or where there is documentation that the beta blocker was not prescribed at least 2-weeks prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded

Code:	Value:	Definition:
		for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Calcium Channel Blocker Therapy For More Than 2 Weeks Prior To Surgery

SeqNo: 940
Short Name: MedCChanTher
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient received calcium channel blocker therapy for at least 2 weeks prior to surgery.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Contraindicated
4	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received a calcium channel blocker within the 2-weeks prior to the surgery date.

Description: Calcium channel blockers (CCB), calcium channel antagonists or calcium antagonists are medications that disrupts the movement of calcium (Ca2+) through calcium channels. CCBs are used to decrease blood pressure in patients with hypertension. CCBs are

particularly effective against large vessel stiffness, one of the common causes of elevated systolic blood pressure in elderly patients. CCBs are also frequently used to alter heart rate, to prevent cerebral vasospasm, and to reduce chest pain caused by angina pectoris.

Code:	Value:	Definition:
1	Yes	Patient prescribed calcium channel blocker (CCB) on a regular basis and are presumed to be at a therapeutic level for at least 2-weeks prior to OR entry date/time. Capture patients who are on home CCBs even if there is no documented proof the patient was on the medication for at least 2-weeks. Includes patients taking CCBs as an antianginal agent even if the medication is held before surgery as this demonstrates the provider appropriately attempting to manage the patient's coronary artery disease.
2	No	Patient did not receive CCB for at least the 2-week period prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Long-Acting Nitrate Therapy For More Than 2 Weeks Prior To Surgery

SeqNo: 945
Short Name: MedLongActNit
Database Table Name: Operations
Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient received long-acting nitrate therapy for at least 2 weeks prior to surgery.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code: Value:
1 Yes
2 No
3 Contraindicated
4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received long-acting nitrate therapy in the 2-weeks prior to the surgery date.

Includes topical forms, i.e., Nitro paste and Nitro patch.

Code:	Value:	Definition:
1	Yes	Patient prescribed long-acting nitrate therapy on a regular basis and are presumed to be at a therapeutic level for at least 2-weeks prior to OR entry date/time. Capture patients who are on home long-acting nitrate therapy even if there is no documented proof the patient was on the medication for at least 2-weeks. Includes patients taking long-acting nitrate therapy as an antianginal agent even if the medication is held before surgery as this demonstrates the provider appropriately attempting to manage the patient's coronary artery disease. Does not include one-time doses.
2	No	Patient did not receive long-acting nitrate therapy for at least 2-weeks prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the

Code:	Value:	Definition:
		medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Nitrates-I.V. Within 24 Hours

SeqNo: 950
Short Name: MedNitIV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient received IV Nitrates within 24 hours preceding surgery.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received intravenous (IV) nitrates within 24-hours prior to OR entry date/time.

Does not include one-time boluses of nitroglycerin.

Description: Nitrates act by increasing dilatation of the coronary arteries, thereby increasing blood flow to the myocardium and decreasing myocardial ischemic changes. Trade name is Nitroglycerin.

Long Name: Meds-Other Antianginal Medication Therapy For More Than 2 Weeks Prior To Surgery

SeqNo: 955

Short Name: MedOthAntiang

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient received any other antianginal medication therapy for at least 2 weeks prior to surgery.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Contraindicated
4	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received any other antianginal medication for at least 2-weeks prior to the surgery date.

Code:	Value:	Definition:
1	Yes	Patient prescribed any other antianginal therapy on a regular basis and are presumed to be at a therapeutic level for at least 2-weeks prior to OR entry date/time. Capture patients who are on home long-acting nitrate therapy even if there is no documented proof the patient was on the medication for at least 2-weeks. Includes patients taking home Ranexa even if stopped prior to the surgery date. Excludes beta blockers, calcium channel blockers, and long-acting nitrates. Does not include one-time doses.

Code:	Value:	Definition:
2	No	Patient did not receive any other antianginal therapy for at least 2-weeks prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-ADP Inhibitors Within Five Days

SeqNo: 960
Short Name: MedADP5Days
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient has received ADP Inhibitors within 5 days preceding surgery.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Contraindicated
4	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received adenosine diphosphate (ADP) receptor

inhibitors within 5-days prior to the surgery date.

Description: Adenosine Diphosphate (ADP) receptor inhibitors are antiplatelet agents. The anticoagulant properties of these medications may increase the risk of bleeding by inhibiting platelet aggregation (clotting). This category includes P2Y12 inhibitors. They are often used to treat patients with a history of atherosclerotic cardiovascular disease and potentially reduce the incidence of major cardiovascular events (stroke, peripheral arterial disease events). Peak drug levels are reached within 3-7 days of initiated maintenance dosing, while termination of drug affects is not seen for 5 days after last dose.

Code:	Value:	Definition:
1	Yes	Patient took an ADP receptor inhibitor within 5-days prior to OR entry date/time. Includes one-time dose of ADP inhibitor within 5-days prior to OR entry date/time. Excludes Kengreal (Cangrelor) as it is a short-acting agent.
2	No	Patient did not receive an ADP receptor inhibitor within 5-days prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-ADP Inhibitors Discontinuation

SeqNo: 965
Short Name: MedADPIDis
Database Table Name: Operations
Data Source: User
Format: Integer

Definition:	Indicate the number of days prior to surgery ADP Inhibitor use was discontinued. If less than 24 hours, enter "0".
Low Value:	0
High Value:	5
ParentLongName:	Meds-ADP Inhibitors Within Five Days
ParentShortName:	MedADP5Days
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If adenosine diphosphate (ADP) receptor inhibitor use, indicate the number of days prior to OR entry date/time the medication was discontinued.

Coding Notes:

- Each day of discontinuation is counted by starting each day at midnight. For example, a patient receives last dose on 4/27 at 1:15pm. Surgery is 4/29 at 730 am. Code as 2 days counting each day starting at midnight. Day one is 4/28, Day two is 4/29.
- If it is clear in the documentation that the ADP was given < 24 hours of OR entry date/time, code 0 days.
- If documentation is unclear that the ADP was given <24 hours of OR entry date/time, then use the day discontinuation counting method as above.
- Kengreal (Cangrelor) is a short acting ADP inhibitor that is not captured.

Description: Peak drug levels are reached within 3-7 days of initiated maintenance dosing, while termination of drug affects is not seen for 5 days after last dose, which may increase risk of bleeding.

Long Name: Meds-Aspirin Within Five Days

SeqNo:	970
Short Name:	MedASA
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether or not the patient received Aspirin or Ecotrin within 5 days preceding surgery.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code: Value:

1 Yes
2 No
3 Contraindicated
4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received aspirin or Ecotrin within 5-days prior to the surgery date.

Description: Aspirin has anti-inflammatory, analgesic, and antiplatelet actions. The half-life of aspirin products is 5-7 days. Aspirin use may predispose patient to post op bleeding.

Code:	Value:	Definition:
1	Yes	Patient took aspirin/Ecotrin within 5-days prior to OR entry date/time. The minimum dose should be at least 75mg. Includes one-time doses. Excludes Aggrenox as the dose is 25mg.
2	No	Patient did not receive aspirin/Ecotrin within 5-days prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Aspirin Discontinuation

SeqNo:	975
Short Name:	MedASADis
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of days prior to surgery Aspirin use was discontinued. If less than 24 hours, enter "0".
Low Value:	0
High Value:	5
ParentLongName:	Meds-Aspirin Within Five Days
ParentShortName:	MedASA
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If aspirin/Ecotrin use, indicate the number of days prior to OR entry date/time the medication was discontinued.

Coding Notes:

- Each day of discontinuation is counted by starting each day at midnight. For example, a patient receives last dose on 4/27 at 1:15pm. Surgery is 4/29 at 730 am. Code as 2 days counting each day starting at midnight. Day one is 4/28, Day two is 4/29.
- If it is clear in the documentation that the aspirin was given <24 hours of OR entry date/time, code 0 days.
- If documentation is unclear that the aspirin was given <24 hours of OR entry date/time, then use the day discontinuation counting method as above.

Long Name: Meds-Aspirin One-Time Dose

SeqNo:	980
Short Name:	MedASAOnce
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received a one-time ~~does~~ dose of Aspirin and is not on daily aspirin.
ParentLongName:	Meds-Aspirin Within Five Days

ParentShortName: MedASA

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aspirin/Ecotrin use, indicate the whether the patient received a one-time dose of aspirin/Ecotrin within 5-days prior to the surgery date.

The minimum dose of Aspirin (ASA) should be at least 75 mg and only a one-time dose.

Long Name: Meds-Glycoprotein IIb/IIIa Inhibitor Within 24 Hours

SeqNo: 985

Short Name: MedGP

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient received Glycoprotein IIb/IIIa inhibitors within 24 hours preceding surgery.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received glycoprotein IIb/IIIa inhibitors within 24-hours prior to the OR entry date/time.

Description: Intravenous Glycoprotein IIb/IIIa Inhibitors to include abciximab, eptifibatide, and tirofiban, work by preventing platelet aggregation and thrombus formation.

Long Name: Meds-Anticoagulants Within 48 Hours

SeqNo: 990
Short Name: MedACoag
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient received IV and/or subq anticoagulants within 48 hours preceding surgery.

Do NOT include Coumadin or one-time boluses of Heparin.

ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received intravenous (IV) or subcutaneous (SQ/Sub-Q) anticoagulants within 48-hours prior of OR entry date/time.

Description: Anticoagulant therapy inhibits platelet aggregation and clot formation and is used to treat and prevent blood clots by decreasing the viscosity of the blood. These medications may increase the risk of bleeding.

Code:	Value:	Definition:
1	Yes	Patient received IV and/or SQ/Sub-Q anticoagulants on a regular schedule and are presumed to be at a therapeutic level, within 48-hours prior to OR entry date/time. Includes Bivalirudin (Angiomax). Does not include the following: • Coumadin • one-time boluses/doses of Heparin or Lovenox (Enoxaparin) • anticoagulant doses used during a cardiac

Code:	Value:	Definition:
		catheterization procedure or anytime within 48-hours prior to OR entry date/time.
2	No	Patient did not receive IV and/or SQ/Sub-Q anticoagulants within 48-hours prior to OR entry date/time.

Long Name: Meds-Anticoagulants-Medication Name

SeqNo:995

Short Name: MedACMN

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the name of the anticoagulant the patient received within 48 hours preceding surgery.

ParentLongName: Meds-Anticoagulants Within 48 Hours

ParentShortName: MedACoag

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Heparin (Unfractionated)
2 Heparin (Low Molecular)
4 Both (unfractionated and low molecular heparin)
9 Other

Intent/Clarification:

If the patient received intravenous (IV) or subcutaneous (SQ/Sub-Q) anticoagulants within 48-hours of OR entry date/time, indicate the anticoagulant the patient received.

Long Name: Meds-Warfarin (Coumadin) Within 5 Days

SeqNo: 1000

Short Name: MedCoum5Days

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient has received Warfarin (Coumadin) within 5 days preceding surgery.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received Warfarin (Coumadin) within 5-days prior to OR entry date/time.

Description: This is collected to capture the risk of bleeding related to anticoagulation therapy.

Code:	Value:	Definition:
1	Yes	Patient took Warfarin (Coumadin) within 5-days prior to OR entry date/time.
2	No	Patient did not take Warfarin (Coumadin) within 5-days prior to OR entry date/time.
3	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Warfarin (Coumadin) Discontinuation

SeqNo: 1005

Short Name: MedCoum5Dis

Database Table Name: Operations

Data Source: User

Format: Integer

Definition:	Indicate the number of days prior to surgery Warfarin (Coumadin) use was discontinued. If less than 24 hours, enter "0".
Low Value:	0
High Value:	5
ParentLongName:	Meds-Warfarin (Coumadin) Within 5 Days
ParentShortName:	MedCoum5Days
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Intent/Clarification:

If Warfarin (Coumadin) use within 5-days prior to OR date/time, indicate the number of days prior to OR entry date/time the medication was discontinued.

Coding Notes:

- Each day of discontinuation is counted by starting each day at midnight. For example, a patient receives last dose on 4/27 at 1:15pm. Surgery is 4/29 at 730 am. Code as 2 days counting each day starting at midnight. Day one is 4/28, Day two is 4/29.
- If it is clear in the documentation the Warfarin (Coumadin) was given <24 hours of OR entry date/time, then code 0 days.
- If documentation is unclear if the Warfarin (Coumadin) was given <24 hours of OR entry date/time, then use the day discontinuation counting method as above.

Long Name: Meds-DOAC Within 5 Days

SeqNo:	1010
Short Name:	MedDOAC
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient has received Direct Oral Anticoagulant (DOAC) within 5 days preceding surgery.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575
Harvest Codes:	
Code: Value:	

1 Yes
2 No
3 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received a direct oral anticoagulant (DOAC) within 5-days prior to OR entry date/time.

Description: Direct oral anticoagulant (DOAC) drugs such as Xarelto (rivaroxaban), Eliquis (apixaban), Pradaxa (dabigatran etexilate), and Savaysa (edoxaban) are alternatives to Warfarin (Coumadin). They are collectively referred to as novel oral anticoagulants (NOACs) or direct acting oral anticoagulants (DOACs). They have been shown to be as good as or possibly better than Coumadin with less serious side effects. The newer anticoagulants (NOACs/DOACs) are more expensive than the traditional ones and should be used with care in patients with kidney problems. This includes oral Direct Factor Xa inhibitors ("xabans ") and oral thrombin inhibitors.

Code:	Value:	Definition:
1	Yes	Patient took a DAOC within 5-days prior to OR entry date/time.
2	No	Patient did not take a DAOC within 5-days prior to OR entry date/time.
3	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-DOAC Discontinuation

SeqNo:	1015
Short Name:	MedDOAC5Dis
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of days prior to surgery DOAC use was discontinued. If less than 24 hours, enter "0".
Low Value:	0
High Value:	5
ParentLongName:	Meds-DOAC Within 5 Days
ParentShortName:	MedDOAC

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If DAOC use within 5-days prior to OR date/time, indicate the number of days prior to OR entry date/time the medication was discontinued.

Coding Notes:

- Each day of discontinuation is counted by starting each day at midnight. For example, a patient receives last dose on 4/27 at 1:15pm. Surgery is 4/29 at 730 am. Code as 2 days counting each day starting at midnight. Day one is 4/28, Day two is 4/29.
- If it is clear in the documentation the DAOC was given <24-hours prior to OR entry date/time, then code 0 days.
- If documentation is unclear if the DAOC was given <24-hours prior to OR entry date/time, then use the day discontinuation counting method as above.

Long Name: Meds-Thrombolytics Within 24 Hours

SeqNo: 1020

Short Name: MedThrom

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient received thrombolytics within 24 hours preoperatively.

ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received a thrombolytic within 24-hours prior to OR entry date/time.

Description: Thrombolytic (fibrinolytic) therapy is the use of drugs to break up or dissolve blood

clots, which are the main cause of both heart attacks and stroke. It can predispose a patient to bleeding if given within 24 hours prior to surgery. There are three major classes of thrombolytic drugs: tissue plasminogen activator (tPA), streptokinase (SK), and urokinase (UK).

Long Name: Meds-Inotropes Within 48 Hours

SeqNo:	1025
Short Name:	MedInotr
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received IV inotropic agents within 48 hours preceding surgery.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received an intravenous (IV) inotropic agents within 48-hours prior to OR entry date/time.

ACSD: This field is in the risk models. Use of inotropic agents preoperatively is associated with increased risk of mortality and morbidity- including renal failure, prolonged vent, reoperation, and length of stay.

Description: Positive Inotropic agent actions act at the cellular level, increasing intracellular calcium. Cardiovascular effects range from increasing or decreasing the heart rate, increasing force of the heart muscle contraction, peripheral or extremity arterial or venous constriction. The degree to which these systems are affected are dose dependent. As well, these drugs may lose their cardiovascular effect causing a negative response at higher dosing levels. Initiation of these drugs typically is in response to some hemodynamic instability in the patient.

Code:	Value:	Definition:

Code:	Value:	Definition:
1	Yes	Patient received an IV inotropic agent within 48-hours prior to OR entry date/time. Includes positive inotropic and vasoactive medications that have positive inotropic properties such as Dopamine, Neosynephrine, Epinephrine, Norepinephrine, Dobutamine, Isoproterenol, Vasopressin, Milrinone, and Levosimendan. Do not include one-time boluses.
2	No	Patient did not receive an IV inotropic agent within 48-hours prior to OR entry date/time.

Long Name: Meds-Lipid Lowering Within 24 Hours

SeqNo: 1030
Short Name: MedLipid
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether or not the patient received lipid lowering medication within 24 hours preceding surgery.
ParentLongName: Patient Age In Days
ParentShortName: AgeDays
ParentHarvestCodes: >=6575
ParentValue: >=6575
Harvest Codes:

Code: Value:
1 Yes
2 No
3 Contraindicated
4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received a lipid-lowering medication within 24-hours prior to OR entry date/time.

Capture medications used to lower the total cholesterol, LDL, HDL, or triglyceride levels.

Code:	Value:	Definition:
1	Yes	Patient took/received a lipid-lowering medication within 24-hours prior to OR entry date/time. Do not include one-time doses. Includes patients taking Repatha appropriately as prescribed (once every 2-weeks).
2	No	Patient did not take/receive a lipid-lowering medication within 24-hours prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

Long Name: Meds-Lipid Lowering-Medication Type

SeqNo: 1035
Short Name: MedLipType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of lipid lowering medication the patient received within 24 hours preceding surgery.
ParentLongName: Meds-Lipid Lowering Within 24 Hours
ParentShortName: MedLipid
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Statin
2 Statin + Other
3 Non-statin/Other

Intent/Clarification:

If lipid-lowering medication, indicate which medication the patient received.

Coding Notes:

- Repatha and other PCSK9 inhibitors are captured as (3) Non-statin/other.
- In the event a patient is prescribed red yeast rice as a lipid lowering agent, for the purposes of the STS database, code as (3) Non-statin/other. (Red yeast rice contains the same cholesterol-lowering ingredient, monacolin K, that is in a statin called lovastatin).

Long Name: Meds-Steroids Within 24 Hours

SeqNo:	1040
Short Name:	MedSter
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was taking steroids within 24 hours of surgery. This does not include a one-time dose related to prophylaxis therapy (i.e., IV dye exposure for cath procedure or surgery pre-induction period). Non-systemic medications are not included in this category (i.e., nasal sprays, topical creams).
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code: Value:
1 Yes
2 No
3 Contraindicated
4 Unknown

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient received steroids within 24-hours prior to OR entry date/time.

Includes systemic steroids only; excludes non-systemic delivery of steroids (topical creams, nasal sprays, inhalers, ophthalmic or otic drops).

Code:	Value:	Definition:
1	Yes	Patient received systemic steroids within 24-hours prior to OR entry date/time. Do not include one-time doses. Do not include one-time systemic dose as part of a clinical pathway/guideline or procedure/surgical preparatory order.
2	No	Patient did not receive systemic steroids within 24-hours prior to OR entry date/time.
3	Contraindicated	Documented evidence of contraindication: – contraindication is documented explicitly as excluded for medical reasons or is evidenced clearly within the medical record, (i.e., notation of a medication allergy by a provider, including physician, nurse practitioner, physician associate/assistant, pharmacist, or anesthesiologist).
4	Unknown	Conflicting information in the medical record and/or with the patient/family or no information is available.

I. DIAGNOSIS

Long Name: Diagnoses – Multi-Select

SeqNo: 1065
Short Name: DiagnosisMulti
Database Table Name: Operations
Data Source: User
Format: Multi-Select

Definition: Indicate all diagnoses noted at the time of the surgical procedure or documented by preoperative studies. This entry may duplicate the Fundamental Diagnosis.

Harvest Codes:

Code:	Value:
10	PFO
20	ASD, Secundum
30	ASD, Sinus venosus
40	ASD, Coronary sinus
50	ASD, Common atrium (single atrium)
2150	ASD, Postoperative interatrial communication
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)
73	VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)
75	VSD, Type 3 (Inlet) (AV canal type)
77	VSD, Type 4 (Muscular)
79	VSD, Type: Gerbode type (LV-RA communication)
80	VSD, Multiple
100	AVC (AVSD), Complete (CAVSD)
2610	AVC (AVSD), Complete (CAVSD), Left dominant
2620	AVC (AVSD), Complete (CAVSD), Rightdominant
2630	AVC (AVSD), Complete (CAVSD), Balanced
110	AVC (AVSD), Intermediate (transitional)
2640	AVC (AVSD), Intermediate (transitional), Left dominant
2650	AVC (AVSD), Intermediate (transitional), Right dominant
2660	AVC (AVSD), Intermediate (transitional), Balanced
120	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)
2670	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Left dominant
2680	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Right dominant
2690	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Balanced
2580	Common AV valve insufficiency
2970	Common AV valve stenosis
830	Single ventricle, Unbalanced AV canal
140	AP window (aortopulmonary window)
150	Pulmonary artery origin from ascending aorta (hemitruncus)
160	Truncus arteriosus
2010	Truncus arteriosus + Interrupted aortic arch
180	Partial anomalous pulmonary venous connection (PAPVC)
190	Partial anomalous pulmonary venous connection (PAPVC), scimitar
200	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)
210	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)
220	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)
230	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)
250	Cor triatriatum

260 Pulmonary venous stenosis
2480 Pulmonary venous stenosis, Acquired
2490 Pulmonary venous stenosis, Spontaneous
270 Systemic venous anomaly
280 Systemic venous obstruction
290 TOF
2140 TOF, Pulmonary stenosis
300 TOF, AVC (AVSD)
310 TOF, Absent pulmonary valve
320 Pulmonary atresia
330 Pulmonary atresia, IVS
340 Pulmonary atresia, VSD (Including TOF, PA)
350 Pulmonary atresia, VSD-MAPCA
360 MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)
370 Ebstein's anomaly
2700 Dysplastic Tricuspid or non-systemic atrioventricular valve, non-Ebstein's
410 Tricuspid or non-systemic atrioventricular valve, Other
420 Pulmonary stenosis, pulmonary or neo-pulmonary Valvar
430 Pulmonary artery stenosis (hypoplasia), Main (trunk)
440 Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)
450 Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)
470 Pulmonary artery, Discontinuous
490 Pulmonary stenosis, Subvalvar
500 DCRV
510 Pulmonary or neo-pulmonary valve, Other
530 Pulmonary or neo-pulmonary valve insufficiency
540 Pulmonary or neo-pulmonary valve insufficiency and stenosis
2130 Shunt failure
2730 Shunt Problem
2740 Shunt Problem, Excess pulmonary blood flow (pulmonary overcirculation)
2750 Shunt Problem, Inadequate pulmonary blood flow
520 Conduit failure
550 Aortic stenosis, Subvalvar
2500 Aortic stenosis, Subvalvar, Discrete
2510 Aortic stenosis, Subvalvar, IHSS
2520 Aortic stenosis, Subvalvar, Tunnel-like
560 Aortic stenosis, aortic, neo-aortic, or truncal, Valvar
570 Aortic stenosis, Supravalvar
590 Aortic valve atresia
600 Aortic, neo-aortic or truncal valve insufficiency
610 Aortic, neo-aortic or truncal valve insufficiency and stenosis
620 Aortic, neo-aortic or truncal valve, Other
630 Sinus of Valsalva aneurysm
640 LV to aorta tunnel

650 Mitral or systemic AV valve stenosis, Supravalvar ring
660 Mitral or systemic AV valve stenosis, Valvar
670 Mitral or systemic AV valve stenosis, Subvalvar
680 Mitral or systemic AV valve stenosis, Subvalvar, Parachute
700 Mitral or systemic AV valve insufficiency and stenosis
710 Mitral or systemic AV valve insufficiency
720 Mitral or systemic AV valve, Other
730 Hypoplastic left heart syndrome (HLHS)
2760 Hypoplastic left heart syndrome (HLHS), AA+MA
2770 Hypoplastic left heart syndrome (HLHS), AA+MS
2780 Hypoplastic left heart syndrome (HLHS), AS+MA
2790 Hypoplastic left heart syndrome (HLHS), AS+MS
2080 Shone's syndrome
740 Cardiomyopathy (including dilated, restrictive, and hypertrophic)
750 Cardiomyopathy, End-stage congenital heart disease
760 Pericardial effusion
770 Pericarditis
780 Pericardial disease, Other
790 Single ventricle, DILV
800 Single ventricle, DIRV
810 Single ventricle, Mitral atresia
820 Single ventricle, Tricuspid atresia
840 Single ventricle, Heterotaxia syndrome
850 Single ventricle, Other
851 Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)
870 Congenitally corrected TGA
872 Congenitally corrected TGA, IVS
874 Congenitally corrected TGA, IVS-LVOTO
876 Congenitally corrected TGA, VSD
878 Congenitally corrected TGA, VSD-LVOTO
2800 Congenitally corrected TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2810 Congenitally corrected TGA, VSD + Coarctation or arch hypoplasia or arch interruption
880 TGA, IVS
890 TGA, IVS-LVOTO
900 TGA, VSD
910 TGA, VSD-LVOTO
2820 TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2830 TGA, VSD + Coarctation or arch hypoplasia or arch interruption
930 DORV, VSD type
940 DORV, TOF type
950 DORV, TGA type
960 DORV, Remote VSD (uncommitted VSD)

2030 DORV + AVSD (AV Canal)
975 DORV, IVS
980 DOLV
990 Coarctation of aorta
1000 Aortic arch hypoplasia
92 VSD + Aortic arch hypoplasia
94 VSD + Coarctation of aorta
1010 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA)
2840 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Left coronary artery from right sinus
2850 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Right coronary artery from left sinus
2860 Coronary artery Anomaly, Intramural coronary
1020 Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
1030 Coronary artery anomaly, Fistula
1040 Coronary artery anomaly, Aneurysm
2420 Coronary artery anomaly, Ostial Atresia
1050 Coronary artery anomaly, Other
1070 Interrupted aortic arch
2020 Interrupted aortic arch + VSD
2000 Interrupted aortic arch + AP window (aortopulmonary window)
1080 Patent ductus arteriosus
1090 Vascular ring
1100 Pulmonary artery sling
2870 Esophageal compression by vessel
2880 Tracheal compression by vessel
1110 Aortic aneurysm (including pseudoaneurysm)
1120 Aortic dissection
1130 Lung disease, Benign
1140 Lung disease, Malignant
1160 Tracheal stenosis
2430 Tracheomalacia
1170 Airway disease, Other
1430 Pleural disease, Benign
1440 Pleural disease, Malignant
1450 Pneumothorax
1460 Pleural effusion
1470 Chylothorax
1480 Empyema
1490 Esophageal disease, Benign
1500 Esophageal disease, Malignant
1505 Mediastinal disease
1510 Mediastinal disease, Benign
1520 Mediastinal disease, Malignant

1540 Diaphragm paralysis
1550 Diaphragm disease, Other
2160 Rib tumor, Benign
2170 Rib tumor, Malignant
2180 Rib tumor, Metastatic
2190 Sternal tumor, Benign
2200 Sternal tumor, Malignant
2210 Sternal tumor, Metastatic
2220 Pectus carinatum
2230 Pectus excavatum
2240 Thoracic outlet syndrome
1180 Arrhythmia
2440 Arrhythmia, Atrial, Atrial fibrillation
2450 Arrhythmia, Atrial, Atrial flutter
2460 Arrhythmia, Atrial, Other
2050 Arrhythmia, Junctional
2060 Arrhythmia, Ventricular
1185 Arrhythmia, Heart block
1190 Arrhythmia, Heart block, Acquired
1200 Arrhythmia, Heart block, Congenital
1220 Arrhythmia, Pacemaker, Indication for replacement
2530 Short QT syndrome
2540 Long QT Syndrome (Ward Romano syndrome)
2550 Wolff-Parkinson-White syndrome (WPWsyndrome)
1230 Atrial Isomerism, Left
1240 Atrial Isomerism, Right
2890 Interrupted IVC with azygos continuation
2090 Dextrocardia
2100 Levocardia
2110 Mesocardia
2120 Situs inversus
1250 Aneurysm, Ventricular, Right (including pseudoaneurysm)
1260 Aneurysm, Ventricular, Left (including pseudoaneurysm)
1270 Aneurysm, Pulmonary artery
1280 Aneurysm, Other
1290 Hypoplastic RV
1300 Hypoplastic LV
2070 Postoperative bleeding
1310 Mediastinitis
2910 ~~Mediastinitis,~~ Wound infection, Deep
2920 ~~Mediastinitis,~~ Wound infection, Superficial
1320 Endocarditis
1325 Rheumatic heart disease
1330 Prosthetic valve failure

1340 Myocardial infarction
1350 Cardiac tumor, Unspecified
2930 Cardiac tumor, Ventricular fibroma
2940 Cardiac tumor, Ventricular rhabdomyoma
2950 Cardiac tumor, Atrial myxoma
2960 Pericardial teratoma
1360 Pulmonary AV fistula
1370 Pulmonary embolism
1385 Pulmonary vascular obstructive disease
1390 Pulmonary vascular obstructive disease (Eisenmenger's)
1400 Primary pulmonary hypertension
1410 Persistent fetal circulation
1420 Meconium aspiration
2250 Kawasaki disease
1560 Cardiac, Other
1570 Thoracic and/or mediastinal, Other
1580 Peripheral vascular, Other
2260 Complication of cardiovascular catheterization procedure
2270 Complication of cardiovascular catheterization procedure, Device embolization
2280 Complication of cardiovascular catheterization procedure, Device malfunction
2290 Complication of cardiovascular catheterization procedure, Perforation
2300 Complication of interventional radiology procedure
2310 Complication of interventional radiology procedure, Device embolization
2320 Complication of interventional radiology procedure, Device malfunction
2330 Complication of interventional radiology procedure, Perforation
2340 Foreign body, Intracardiac foreign body
2350 Foreign body, Intravascular foreign body
2360 Open sternum with closed skin
2370 Open sternum with open skin (includes membrane placed to close skin)
2380 Retained sternal wire causing irritation
2390 Syncope
2400 Trauma, Blunt
2410 Trauma, Penetrating
2560 Cardio-respiratory failure not secondary to known structural heart disease
2570 Myocarditis
2590 Protein-losing enteropathy
2600 Plastic bronchitis
7000 Normal heart
7777 Miscellaneous, Other
4010 Status post - PFO, Primary closure
4020 Status post - ASD repair, Primary closure
4030 Status post - ASD repair, Patch
4040 Status post - ASD repair, Device
4050 Status post - ASD, Common atrium (single atrium), Septation

4060 Status post - ASD creation/enlargement
4070 Status post - ASD partial closure
4080 Status post - Atrial septal fenestration
4085 Status post - Atrial fenestration closure
4100 Status post - VSD repair, Primary closure
4110 Status post - VSD repair, Patch
4120 Status post - VSD repair, Device
4130 Status post - VSD, Multiple, Repair
9001 Status post - VSD repair, Patch + ASD repair, Primary closure
4140 Status post - VSD creation/enlargement
4150 Status post - Ventricular septal fenestration
4170 Status post - AVC (AVSD) repair, Complete (CAVSD)
4180 Status post - AVC (AVSD) repair, Intermediate (Transitional)
4190 Status post - AVC (AVSD) repair, Partial (Incomplete) (PAVSD)
9022 Status post - AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch
6300 Status post - Valvuloplasty, Common atrioventricular valve
6250 Status post - Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve
6230 Status post - Valve replacement, Common atrioventricular valve
9027 Status post - AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair
9034 Status post - AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended
7480 Status post - AVC (AVSD) repair, Complete (CAVSD) + Arch repair
4210 Status post - AP window repair
4220 Status post - Pulmonary artery origin from ascending aorta (hemitruncus) repair
4230 Status post - Truncus arteriosus repair
6220 Status post - Truncus + Interrupted aortic arch repair (IAA) repair
4260 Status post - PAPVC repair
9007 Status post - PAPVC repair + ASD repair, Primary closure
4270 Status post - PAPVC, Scimitar, Repair
6120 Status post - PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage)
6110 Status post - ASD repair, Patch + PAPVC repair
9024 Status post - VSD repair, Patch + PAPVC repair
9028 Status post - VSD repair, Patch + ASD repair, Patch + PAPVC repair
4280 Status post - TAPVC repair
6200 Status post - TAPVC repair + Shunt - systemic-to- pulmonary
9006 Status post - TAPVC repair + Shunt - systemic-to- pulmonary + PDA closure, Surgical
4290 Status post - Cor triatriatum repair
4300 Status post - Pulmonary venous stenosis repair
9019 Status post - Pulmonary venous stenosis repair + ASD partial closure
4310 Status post - Atrial baffle procedure (non-Mustard, non-Senning)
4330 Status post - Anomalous systemic venous connection repair

4340 Status post - Systemic venous stenosis repair
4350 Status post - TOF repair, No ventriculotomy
9004 Status post - TOF repair, No Ventriculotomy + ASD repair, Primary closure
4360 Status post - TOF repair, Ventriculotomy, Nontransanular patch
4370 Status post - TOF repair, Ventriculotomy, Transanular patch
7330 Status post - TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction
7340 Status post - TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve
4380 Status post - TOF repair, RV-PA conduit
4390 Status post - TOF - AVC (AVSD) repair
4400 Status post - TOF - Absent pulmonary valve repair
9018 Status post - TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair
4420 Status post - Pulmonary atresia - VSD (including TOF, PA) repair
9031 Status post - Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical
6700 Status post - Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
6710 Status post - Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])
6720 Status post - Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
6730 Status post - Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated)
6740 Status post - Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated)
6750 Status post - Unifocalization MAPCA(s), Unilateral pulmonary unifocalization
4440 Status post - Unifocalization MAPCA(s)
9011 Status post - Unifocalization MAPCA(s) + Conduit placement, RV to PA
9014 Status post - Unifocalization MAPCA(s) + Shunt, Systemic to pulmonary, Central (shunt from aorta)
4450 Status post - Occlusion of MAPCA(s)
4460 Status post - Valvuloplasty, Tricuspid
6280 Status post - Valvuloplasty converted to valve replacement in the same operation, Tricuspid
4465 Status post - Ebstein's repair
9030 Status post - Ebstein's repair + PDA closure, Surgical
4470 Status post - Valve replacement, Tricuspid (TVR)
4480 Status post - Valve closure, Tricuspid (exclusion, univentricular approach)
4490 Status post - Valve excision, Tricuspid (without replacement)

4500 Status post - Valve surgery, Other, Tricuspid
4510 Status post – RVOT procedure
4520 Status post - 1 1/2 ventricular repair
4530 Status post - PA, reconstruction (plasty), Main (trunk)
4540 Status post - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)
9003 Status post - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
4550 Status post - PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch)
7350 Status post – PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, proximal to first segmental branch)
7360 Status post - PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, beyond the first segmental branch)
4570 Status post - DCRV repair
7370 Status post - RV Rehabilitation, Endocardial Resection
4590 Status post - Valvuloplasty, Pulmonic
6270 Status post - Valvuloplasty converted to valve replacement in the same operation, Pulmonic
4600 Status post - Valve replacement, Pulmonic (PVR)
9015 Status post - ASD repair, Patch + Valve replacement, Pulmonary or neo-pulmonary (PVR)
9023 Status post - VSD repair, Patch + Valve replacement, Pulmonary or neo-pulmonary (PVR)
9033 Status post - Valve replacement, Pulmonary or neo-pulmonary (PVR) + explantation of pacing system
4630 Status post - Valve excision, Pulmonary or neo- pulmonary (without replacement)
4640 Status post - Valve closure, Semilunar
4650 Status post - Valve surgery, Other, Pulmonary or neo-pulmonary
9025 Status post - Valve replacement, Pulmonary or neo-pulmonary (PVR) + Valve replacement, Aortic/neo-aortic/truncal (AVR), Mechanical
4610 Status post - Conduit placement, RV to PA
7520 Status post - Conduit placement, RV to PA, Valved
7530 Status post - Conduit placement, RV to PA, Non-valved
4620 Status post - Conduit placement, LV to PA
5774 Status post - Conduit placement, Ventricle to aorta
5772 Status post - Conduit placement, Other
9013 Status post - Conduit placement, RV to PA + PDA closure, Surgical
9035 Status post - Conduit placement, RV to PA + Aortic root replacement, Mechanical
4580 Status post - Conduit reoperation
9016 Status post - VSD repair, Patch + Conduit reoperation

9020 Status post - Conduit reoperation + Valve replacement, Aortic/neo-aortic/truncal (AVR), Mechanical
4240 Status post - Valvuloplasty, Truncal valve
7490 Status post - Valvuloplasty, Truncal valve, Reduction of number of cusps/sinus resection
7500 Status post - Valvuloplasty, Truncal valve, Augmentation of valve leaflet (one or more)
7510 Status post - Valvuloplasty, Truncal valve, Neo- cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
6290 Status post - Valvuloplasty converted to valve replacement in the same operation, Truncal valve
4250 Status post - Valve replacement, Truncal valve
7790 Status post - Valve replacement, Truncal, Mechanical
7800 Status post - Valve replacement, Truncal, Bioprosthetic
7810 Status post - Valve replacement, Truncal, Homograft
4660 Status post - Valvuloplasty, Aortic/neo-aortic
7540 Status post - Valvuloplasty, Aortic/neo-aortic valve, Reduction of number of cusps/sinus resection
7550 Status post - Valvuloplasty, Aortic/neo-aortic valve, Augmentation of valve leaflet (one or more)
7560 Status post - Valvuloplasty, Aortic/neo-aortic valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
6240 Status post – Valvuloplasty converted to valve replacement in the same operation, Aortic/neo- aortic
6310 Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic/neo- aortic – with Ross procedure
6320 Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic/neo- aortic – with Ross-Konno procedure
4670 Status post - Valve replacement, Aortic/neo-aortic (AVR)
4680 Status post - Valve replacement, Aortic/neo-aortic (AVR), Mechanical
4690 Status post - Valve replacement, Aortic/neo-aortic (AVR), Bioprosthetic
4700 Status post - Valve replacement, Aortic/neo-aortic (AVR), Homograft
4715 Status post - Aortic root replacement, Bioprosthetic
4720 Status post - Aortic root replacement, Mechanical
4730 Status post - Aortic root replacement, Homograft
4735 Status post - Aortic root replacement, Valve sparing
4740 Status post - Ross procedure
4750 Status post - Konno procedure
4760 Status post - Ross-Konno procedure
9026 Status post - Ross-Konno procedure + Valve replacement, Mitral or systemic atrioventricular valve (MVR)
4770 Status post - Other annular enlargement procedure
4780 Status post - Aortic stenosis, Subvalvar, Repair
6100 Status post - Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS

4790 Status post – Aortic stenosis, Supravalvar, Repair
4800 Status post - Valve surgery, Other, Aortic/neo-aortic/truncal valve
7380 Status post - Extended Ventricular Septoplasty (modified Konno, VSD creation and patch enlargement of LVOT, sparing aortic valve) for tunnel type sub aortic stenosis
4810 Status post - Sinus of Valsalva, Aneurysm repair
4820 Status post - LV to aorta tunnel repair
4830 Status post - Valvuloplasty, Mitral or systemic atrioventricular valve
9005 Status post - Mitral or systemic atrioventricular Valvuloplasty + Valvuloplasty, Aortic/neo- aortic/truncal
6260 Status post - Valvuloplasty converted to valve replacement in the same operation, Mitral or systemic atrioventricular valve
4840 Status post - Mitral or systemic atrioventricular valve stenosis, Supravalvar ring repair
4850 Status post - Valve replacement, Mitral or systemic atrioventricular valve (MVR)
4860 Status post - Valve surgery, Other, Mitral or systemic atrioventricular valve
4870 Status post - Norwood procedure
9012 Status post - Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA
4880 Status post - Biventricular repair for hypoplastic left ventricle
7390 Status post - LV Endocardial Fibroelastosis resection
6755 Status post - Conduit insertion right ventricle to pulmonary artery + Intraventricular tunnel left ventricle to neoaorta + Arch reconstruction (Rastelli and Norwood type arch reconstruction) (Yasui)
6160 Status post - Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency
6170 Status post - Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
6180 Status post - Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands
6140 Status post - Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)
6150 Status post - Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair
6760 Status post - Hybrid Approach, Transcardiac balloon dilation
6770 Status post - Hybrid Approach, Transcardiac transcatheter device placement
1590 Status post - Transplant, Heart
9002 Status post - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Transplant, Heart
1610 Status post - Transplant, Heart and lung (Combined procedure)
7570 Status post - Transplant, Heart and Liver (Combined procedure)
7580 Status post - Transplant, Heart and Kidney (Combined procedure)
7590 Status post - Transplant, Heart and Liver and Kidney (Combined procedure)

4910 Status post - Partial left ventriculectomy (LV volume reduction surgery) (Batista)
4920 Status post - Pericardial drainage procedure
4930 Status post - Pericardiectomy
4940 Status post - Pericardial procedure, Other
4950 Status post - Fontan, Atrio-pulmonary connection
4960 Status post - Fontan, Atrio-ventricular connection
4970 Status post - Fontan, TCPC, Lateral tunnel, Fenestrated
4980 Status post - Fontan, TCPC, Lateral tunnel, Nonfenestrated
5000 Status post - Fontan, TCPC, External conduit, Fenestrated
9010 Status post - Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure
5010 Status post - Fontan, TCPC, External conduit, Nonfenestrated
6780 Status post - Fontan, TCPC, Intra/extracardiac conduit, Fenestrated
6790 Status post - Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated
7310 Status post - Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated
7320 Status post - Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated
5025 Status post - Fontan revision or conversion (Re-do Fontan)
5030 Status post - Fontan, Other
7600 Status post - Fontan, Takedown
6340 Status post - Fontan + Atrioventricular valvuloplasty
5035 Status post - Ventricular septation
7610 Status post - Ventricular septation, Following superior cavopulmonary anastomosis or hemifontan
7620 Status post - Ventricular septation, Following prior total cavopulmonary connection
7630 Status post - Ventricular septation, Following prior Hybrid Stage 1
7640 Status post - Ventricular septation, Following prior Norwood or DKS procedure
5050 Status post - Congenitally corrected TGA repair, Atrial switch and ASO (double switch)
5060 Status post - Congenitally corrected TGA repair, Atrial switch and Rastelli
5070 Status post - Congenitally corrected TGA repair, VSD closure
5080 Status post - Congenitally corrected TGA repair, VSD closure and LV to PA conduit
5090 Status post - Congenitally corrected TGA repair, Other
5110 Status post - Arterial switch operation (ASO)
5120 Status post - Arterial switch operation (ASO) and VSD repair
5123 Status post - Arterial switch procedure + Aortic arch repair
5125 Status post - Arterial switch procedure and VSD repair + Aortic arch repair
5130 Status post - Senning
5140 Status post - Mustard
5145 Status post - Atrial baffle procedure, Mustard or Senning revision
5150 Status post - Rastelli

5160 Status post - REV
6190 Status post - Aortic root translocation over left ventricle (Including Nikaidoh procedure)
6210 Status post - TGA, Other procedures (Kawashima, LV-PA conduit, other)
7400 Status post - Double root translocation
5180 Status post - DORV, Intraventricular tunnel repair
7410 Status post - DORV repair, No Ventriculotomy
7420 Status post - DORV repair, Ventriculotomy, Nontransannular patch
7430 Status post - DORV repair, Ventriculotomy, Transannular patch
7440 Status post - DORV repair, RV-PA conduit
7450 Status post - DORV - AVC (AVSD) repair
5200 Status post - DOLV repair
5210 Status post - Coarctation repair, End to end
5220 Status post - Coarctation repair, End to end, Extended
7460 Status post - Coarctation repair, Descending aorta anastomosed to Ascending aorta
5230 Status post - Coarctation repair, Subclavian flap
5240 Status post - Coarctation repair, Patch aortoplasty
5250 Status post - Coarctation repair, Interposition graft
7470 Status post - Coarctation repair, Extra-anatomic Bypass graft
5260 Status post - Coarctation repair, Other
5275 Status post - Coarctation repair + VSD repair
5280 Status post - Aortic arch repair
5285 Status post - Aortic arch repair + VSD repair
9008 Status post - Aortic arch repair + VSD repair + ASD repair, Patch
5290 Status post - Coronary artery fistula ligation
5291 Status post - Anomalous origin of coronary artery from pulmonary artery repair
5300 Status post - Coronary artery bypass
5305 Status post - Anomalous aortic origin of coronary artery from aorta (AAOCA) repair
5310 Status post - Coronary artery procedure, Other
5320 Status post - Interrupted aortic arch repair
5330 Status post - PDA closure, Surgical
5340 Status post - PDA closure, Device
5360 Status post - Vascular ring repair
5365 Status post - Aortopexy
7650 Status post - Division with or without reimplantation of aberrant subclavian artery
5370 Status post - Pulmonary artery sling repair
9009 Status post - Pulmonary artery sling repair + Tracheal procedure
5380 Status post - Aortic aneurysm repair
5390 Status post - Aortic dissection repair
7655 Status post - Aorta, Other
5400 Status post - Lung biopsy

1600 Status post - Transplant, Lung(s)
5420 Status post - Lung procedure, Other
5440 Status post - Tracheal procedure
6800 Status post - Muscle flap, Trunk (i.e. intercostal, pectus, or serratus muscle)
6810 Status post - Muscle flap, Trunk (i.e. latissimus dorsi)
6820 Status post - Removal, Sternal wire
6830 Status post - Rib excision, Complete
6840 Status post - Rib excision, Partial
6850 Status post - Sternal fracture - open treatment
6860 Status post - Sternal resection, Radical resection of sternum
6870 Status post - Sternal resection, Radical resection of sternum with mediastinal lymphadenectomy
6880 Status post - Tumor of chest wall - Excision including ribs
6890 Status post - Tumor of chest wall - Excision including ribs, With reconstruction
6900 Status post - Tumor of soft tissue of thorax - Excision of deep subfascial or intramuscular tumor
6910 Status post - Tumor of soft tissue of thorax - Excision of subcutaneous tumor
6920 Status post - Tumor of soft tissue of thorax - Radical resection
6930 Status post - Hyoid myotomy and suspension
6940 Status post - Muscle flap, Neck
6950 Status post - Procedure on neck
6960 Status post - Tumor of soft tissue of neck - Excision of deep subfascial or intramuscular tumor
6970 Status post - Tumor of soft tissue of neck - Excision of subcutaneous tumor
6980 Status post - Tumor of soft tissue of neck - Radical resection
6990 Status post - Pectus bar removal
7005 Status post - Pectus bar repositioning
7010 Status post - Pectus repair, Minimally invasive repair (Nuss), With thoracoscopy
7020 Status post - Pectus repair, Minimally invasive repair (Nuss), Without thoracoscopy
7030 Status post - Pectus repair, Open repair
7040 Status post - Division of scalenus anticus, With resection of a cervical rib
7050 Status post - Division of scalenus anticus, Without resection of a cervical rib
7060 Status post - Rib excision, Excision of cervical rib
7070 Status post - Rib excision, Excision of cervical rib, With sympathectomy
7080 Status post - Rib excision, Excision of first rib
7090 Status post - Rib excision, Excision of first rib, With sympathectomy
7100 Status post - Procedure on thorax
5450 Status post - Pacemaker implantation, Permanent
5460 Status post - Pacemaker procedure
6350 Status post - Explantation of pacing system
5470 Status post - ICD (AICD) implantation
5480 Status post - ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure

5490 Status post - Arrhythmia surgery - atrial, Surgical Ablation
5500 Status post - Arrhythmia surgery - ventricular, Surgical Ablation
6500 Status post - Cardiovascular catheterization procedure, Diagnostic
6520 Status post - Cardiovascular catheterization procedure, Diagnostic, Angiographic data obtained
6550 Status post - Cardiovascular catheterization procedure, Diagnostic, Electrophysiology alteration
6540 Status post - Cardiovascular catheterization procedure, Diagnostic, Hemodynamic alteration
6510 Status post - Cardiovascular catheterization procedure, Diagnostic, Hemodynamic data obtained
6530 Status post - Cardiovascular catheterization procedure, Diagnostic, Transluminal test occlusion
6410 Status post - Cardiovascular catheterization procedure, Therapeutic
6670 Status post - Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy
6570 Status post - Cardiovascular catheterization procedure, Therapeutic, Balloon dilation
6590 Status post - Cardiovascular catheterization procedure, Therapeutic, Balloon valvotomy
6600 Status post - Cardiovascular catheterization procedure, Therapeutic, Coil implantation
6610 Status post - Cardiovascular catheterization procedure, Therapeutic, Device implantation
7110 Status post - Cardiovascular catheterization procedure, Therapeutic, Device implantation attempted
6690 Status post - Cardiovascular catheterization procedure, Therapeutic, Electrophysiological ablation.
7120 Status post - Cardiovascular catheterization procedure, Therapeutic, Intravascular foreign body removal
6640 Status post - Cardiovascular catheterization procedure, Therapeutic, Perforation (establishing interchamber and/or intervessel communication)
6580 Status post - Cardiovascular catheterization procedure, Therapeutic, Septostomy
6620 Status post - Cardiovascular catheterization procedure, Therapeutic, Stent insertion
6630 Status post - Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation
6650 Status post - Cardiovascular catheterization procedure, Therapeutic, Transcatheter Fontan completion
6660 Status post - Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve
7660 Status post - Open chest exposure for transcatheter/per-ventricular/per-atrial procedure
7670 Status post - Peripheral vascular access for transcatheter procedures

5590 Status post - Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
9000 Status post - Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) + PDA closure, Surgical
5600 Status post - Shunt, Systemic to pulmonary, Central (shunt from aorta)
7130 Status post - Shunt, Systemic to pulmonary, Central (shunt from aorta), Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta (i.e. Mee shunt)
7230 Status post - Shunt, Systemic to pulmonary, Potts - Smith type (descending aorta to pulmonary artery)
5610 Status post - Shunt, Systemic to pulmonary, Other
7680 Status post - RV to PA Shunt (e.g., Sano Shunt or palliative RV-PA non-valved conduit to augment pulmonary blood flow)
5630 Status post - Shunt, Ligation and takedown
6095 Status post - Shunt, Reoperation
5640 Status post - PA banding (PAB), Placement of main pulmonary artery band
7860 Status post - PA banding (PAB), Placement of unilateral or bilateral branch pulmonary artery band(s) without the need for concomitant PGE and/or ductal stent
9037 Status post - PA banding (PAB) + Valvuloplasty, Common atrioventricular valve
5650 Status post - PA debanding
7200 Status post - PA band adjustment
5660 Status post - Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)
9017 Status post - Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction) + Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
5670 Status post - Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)
5680 Status post - Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
5690 Status post - Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
5700 Status post - HemiFontan
6330 Status post - Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty
6130 Status post - Superior Cavopulmonary anastomosis(es) + PA reconstruction
7300 Status post - Takedown of superior cavopulmonary anastomosis
7140 Status post - Hepatic vein to azygous vein connection, Direct
7150 Status post - Hepatic vein to azygous vein connection, Interposition graft
7160 Status post - Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)
5710 Status post - Palliation, Other
6360 Status post - ECMO cannulation

6370 Status post - ECMO decannulation
5910 Status post - ECMO procedure
5900 Status post - Intraaortic balloon pump (IABP) insertion
7820 Status post - Right/Left heart temporary assist device, Implant
7830 Status post - Right/Left heart temporary assist device, Explant
7840 Status post - Right/Left heart temporary assist device, Procedure
6390 Status post - VAD, Explant
6380 Status post - VAD, Implant
7170 Status post - VAD, Change out
7850 Status post - VAD, Procedure
6420 Status post - Echocardiography procedure, Sedated transesophageal echocardiogram
6430 Status post - Echocardiography procedure, Sedated transthoracic echocardiogram
6435 Status post - Non-cardiovascular, Non-thoracic procedure on cardiac patient with cardiac anesthesia
6440 Status post - Radiology procedure on cardiac patient, Cardiac Computerized Axial Tomography (CT Scan)
6450 Status post - Radiology procedure on cardiac patient, Cardiac Magnetic Resonance Imaging (MRI)
6460 Status post - Radiology procedure on cardiac patient, Diagnostic radiology
6470 Status post - Radiology procedure on cardiac patient, Non-Cardiac Computerized Tomography (CT) on cardiac patient
6480 Status post - Radiology procedure on cardiac patient, Non-cardiac Magnetic Resonance Imaging (MRI) on cardiac patient
6490 Status post - Radiology procedure on cardiac patient, Therapeutic radiology
5720 Status post - Aneurysm, Ventricular, Right, Repair
5730 Status post - Aneurysm, Ventricular, Left, Repair
5740 Status post - Aneurysm, Pulmonary artery, Repair
5760 Status post - Cardiac tumor resection
7690 Status post - Cardiac tumor resection, Resection of ventricular fibroma
7700 Status post - Cardiac tumor resection, Resection of ventricular rhadbomyoma
7710 Status post - Cardiac tumor resection, Resection of atrial myxoma
7720 Status post - Cardiac tumor resection, Resection of Other tumor
9021 Status post - Cardiac tumor resection + PDA closure, Surgical
7730 Status post - Cardiac tumor resection + PDA closure, Surgical, Resection of ventricular fibroma
7740 Status post - Cardiac tumor resection + PDA closure, Surgical, Resection of ventricular rhadbomyoma
7750 Status post - Cardiac tumor resection + PDA closure, Surgical, Resection of Atrial myxoma
7760 Status post - Cardiac tumor resection + PDA closure, Surgical, Resection of Other tumor
7770 Status post - Resection of pericardial teratoma

7780 Status post - Anterior PA translocation (not performed as part of an arterial switch operation) (Le Compte)
5780 Status post - Pulmonary AV fistula repair/occlusion
5790 Status post - Ligation, Pulmonary artery
5802 Status post - Pulmonary embolectomy, Acute pulmonary embolus
5804 Status post - Pulmonary embolectomy, Chronic pulmonary embolus
5810 Status post - Pleural drainage procedure
5820 Status post - Pleural procedure, Other
5830 Status post - Ligation, Thoracic duct
5840 Status post - Decortication
5850 Status post - Esophageal procedure
5860 Status post - Mediastinal procedure
5870 Status post - Bronchoscopy
5880 Status post - Diaphragm plication
5890 Status post - Diaphragm procedure, Other
5930 Status post - VATS (video-assisted thoracoscopic surgery)
5940 Status post - Minimally invasive procedure
5950 Status post - Bypass for noncardiac lesion
5960 Status post - Delayed sternal closure
5970 Status post - Mediastinal exploration
5980 Status post - Sternotomy wound drainage
7180 Status post - Intravascular stent removal
7220 Status post - Removal of transcatheter-delivered device from heart
7210 Status post - Removal of transcatheter-delivered device from blood vessel
5990 Status post - Thoracotomy, Other
6000 Status post - Cardiotomy, Other
6010 Status post - Cardiac procedure, Other
6020 Status post - Thoracic and/or mediastinal procedure, Other
6030 Status post - Peripheral vascular procedure, Other
6040 Status post - Miscellaneous procedure, Other
11776 Status post - Fetal Intervention Open, Maternal Laparotomy with Hysterotomy
11775 Status post - Fetal Intervention, Percutaneous Transcatheter
11777 Status post - Other procedure

Intent/Clarification:

Code all diagnoses noted at the time of the surgical procedure or documented by preoperative studies with a focus on the surgeon's dictated operative note.

Code the most specific diagnosis(es) as possible.

Code:	Value:	Definition:
10	PFO	A small interatrial communication (or potential

Code:	Value:	Definition:
		communication) confined to the region of the oval fossa (fossa ovalis) characterized by no deficiency of the primary atrial septum (septum primum) and a normal limbus with no deficiency of the septum secundum (superior interatrial fold).
20	ASD, Secundum	A congenital cardiac malformation in which there is an interatrial communication confined to the region of the oval fossa (fossa ovalis), most commonly due to a deficiency of the primary atrial septum (septum primum) but deficiency of the septum secundum (superior interatrial fold) may also contribute.
30	ASD, Sinus venosus	A congenital cardiac malformation in which there is a caval vein (vena cava) and/or pulmonary vein(s) that overrides the atrial septum or the septum secundum (superior interatrial fold) producing an interatrial or anomalous venoatrial communication. Although the term sinus venosus atrial septal defect is commonly used, the lesion is more properly termed a sinus venosus communication because, while it functions as an interatrial communication, this lesion is not a defect of the atrial septum.
40	ASD, Coronary sinus	A congenital cardiac malformation in which there is a deficiency of the walls separating the left atrium from the coronary sinus allowing interatrial communication through the coronary sinus ostium.
50	ASD, Common atrium (single atrium)	Complete absence of the interatrial septum. This diagnosis includes both single atrium (defects with no associated malformation of the atrioventricular valves) and common atrium(defects with associated malformation of the atrioventricular valves).
2150	ASD, Postoperative interatrial communication	A surgically/procedurally created communication between the atria. <u>Coding Notes</u>: This diagnosis CANNOT be the fundamental diagnosis.

Code:	Value:	Definition:
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)	A VSD (communication between the ventricles) that lies beneath the semilunar valve(s) in the conal or outlet septum.
73	VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)	A VSD (communication between the ventricles) that is confluent with and involves the membranous septum and is bordered by an atrioventricular valve, not including type 3 VSDs.
75	VSD, Type 3 (Inlet) (AV canal type)	A VSD (communication between the ventricles) that involves the inlet of the right ventricular septum immediately inferior to the AV valve apparatus.
77	VSD, Type 4 (Muscular)	A VSD (communication between the ventricles) completely surrounded by muscle located in the muscular portion of the ventricular septum
79	VSD, Type: Gerbode type (LV-RA communication)	A rare form of VSD (communication between the ventricles) in which the defect is at the membranous septum; the communication is between the left ventricle and right atrium.
80	VSD, Multiple	More than one VSD (communication between the ventricles) exists. Each individual VSD may be coded separately to specify the individual VSD types.
100	AVC (AVSD), Complete (CAVSD)	AVC (AVSD), Complete (CAVSD)or complete atrioventricular canal or complete atrioventricular septal defect occurs in a heart with the phenotypic feature of a common atrioventricular junction. AVC (AVSD), Complete (CAVSD) is defined as an AVC with a common AV valve and both a defect in the atrial septum just above the AV valve (ostium primum ASD [a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve]) and a defect in the ventricular septum just below the AV valve. The AV valve is one valve that bridges both the right and left sides of the heart.

Code:	Value:	Definition:
		Balanced AVC is an AVC with two essentially appropriately sized ventricles. Unbalanced AVC is an AVC defect with two ventricles in which one ventricle is inappropriately small. Such a patient may be thought to be a candidate for biventricular repair, or, alternatively, may be managed as having a functionally univentricular heart. AVC lesions with unbalanced ventricles so severe as to preclude biventricular repair should be classified as single ventricles. Coding Notes: AVC (AVSD), Complete (CAVSD) may be balanced or unbalanced. Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2610) AVC (AVSD), Complete (CAVSD), Left dominant • (2620) AVC (AVSD), Complete (CAVSD), Right dominant • (2630) AVC (AVSD), Complete (CAVSD), Balanced
2610	AVC (AVSD), Complete (CAVSD), Left dominant	A complete AVC defect with two ventricles in which the right ventricle is inappropriately small. AVC (AVSD), Complete (CAVSD) is defined as an AVC with a common AV valve and both a defect in the atrial septum just above the AV valve (ostium primum ASD [a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve]) and a defect in the ventricular septum just below the AV valve. The AV valve is one valve that bridges both the right and left sides of the heart. Such a patient may be thought to be a candidate for biventricular repair, or, alternatively, may be managed as having a functionally univentricular heart. AVC lesions with unbalanced ventricles so severe as to preclude

Code:	Value:	Definition:
		biventricular repair should be classified as single ventricles.
2620	AVC (AVSD), Complete (CAVSD), Right dominant	A complete AVC defect with two ventricles in which the left ventricle is inappropriately small. AVC (AVSD), Complete (CAVSD) is defined as an AVC with a common AV valve and both a defect in the atrial septum just above the AV valve (ostium primum ASD [a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve]) and a defect in the ventricular septum just below the AV valve. The AV valve is one valve that bridges both the right and left sides of the heart. Such a patient may be thought to be a candidate for biventricular repair, or, alternatively, may be managed as having a functionally univentricular heart. AVC lesions with unbalanced ventricles so severe as to preclude biventricular repair should be classified as single ventricles.
2630	AVC (AVSD), Complete (CAVSD), Balanced	A complete AVC with two essentially appropriately sized ventricles. AVC (AVSD), Complete (CAVSD) is defined as an AVC with a common AV valve and both a defect in the atrial septum just above the AV valve (ostium primum ASD [a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve]) and a defect in the ventricular septum just below the AV valve. The AV valve is one valve that bridges both the right and left sides of the heart.
110	AVC (AVSD), Intermediate (transitional)	An AVC with two distinct left and right AV valve orifices but also with both an ASD just above and a VSD just below the AV valves. While these AV valves in the intermediate form do form two separate orifices, they remain abnormal valves. The VSD is often restrictive. <u>Coding Notes</u>:

Code:	Value:	Definition:
		AVC (AVSD), Intermediate (transitional) may be balanced or unbalanced. Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2640) AVC (AVSD), Intermediate (transitional), Left dominant • (2650) AVC (AVSD), Intermediate (transitional), Right dominant • (2660) AVC (AVSD), Intermediate (transitional), Balanced
2640	AVC (AVSD), Intermediate (transitional), Left dominant	An intermediate (transitional) AVC with two ventricles in which the right ventricle is inappropriately small. An AVC with two distinct left and right AV valve orifices but also with both an ASD just above and a VSD just below the AV valves. While these AV valves in the intermediate form do form two separate orifices, they remain abnormal valves. The VSD is often restrictive.
2650	AVC (AVSD), Intermediate (transitional), Right dominant	An intermediate (transitional) AVC with two ventricles in which the left ventricle is inappropriately small. An AVC with two distinct left and right AV valve orifices but also with both an ASD just above and a VSD just below the AV valves. While these AV valves in the intermediate form do form two separate orifices, they remain abnormal valves. The VSD is often restrictive.
2660	AVC (AVSD), Intermediate (transitional), Balanced	An intermediate (transitional) AVC with two essentially appropriately sized ventricles. An AVC with two distinct left and right AV valve orifices but also with both an ASD just above and a VSD just below the AV valves. While these AV valves in the intermediate form do form two separate orifices, they remain abnormal valves. The VSD is often restrictive.
120	AVC (AVSD), Partial	An AVC with an ostium primum ASD (a usually crescent-

Code:	Value:	Definition:
	(incomplete) (PAVSD) (ASD, primum)	shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve) and varying degrees of malformation of the left AV valve leading to varying degrees of left AV valve regurgitation. No VSD is present. Coding Notes: AVC (AVSD), Complete (CAVSD) may be balanced or unbalanced. Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2670) AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Left dominant • (2680) AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Right dominant • (2690) AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Balanced.
2670	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Left dominant	A partial (incomplete) AVC with two ventricles in which the right ventricle is inappropriately small. An AVC with an ostium primum ASD (a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve) and varying degrees of malformation of the left AV valve leading to varying degrees of left AV valve regurgitation. No VSD is present.
2680	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Right dominant	A partial (incomplete) AVC with two ventricles in which the left ventricle is inappropriately small. An AVC with an ostium primum ASD (a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve) and varying degrees of malformation of the left AV valve leading to varying degrees of left AV valve regurgitation. No VSD is present.

Code:	Value:	Definition:
2690	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Balanced	A partial (incomplete) AVC with two essentially appropriately sized ventricles. An AVC with an ostium primum ASD (a usually crescent-shaped ASD in the inferior (posterior) portion of the atrial septum just above the AV valve) and varying degrees of malformation of the left AV valve leading to varying degrees of left AV valve regurgitation. No VSD is present.
2580	Common AV valve insufficiency	Insufficiency or regurgitation of the common atrioventricular (AV) valve. A common AV valve is the presence of one AV valve instead of two separate valves. This is most often in the setting of single ventricle physiology or is an unseptated valve (e.g., in the setting of an unrepaired complete AV septal defect). <u>Coding Notes</u>: Only use this diagnosis if there is the presence of a common AV valve.
2970	Common AV valve stenosis	Stenosis of the common atrioventricular (AV) valve. A common AV valve is the presence of one AV valve instead of two separate valves. This is most often in the setting of single ventricle physiology or is an unseptated valve (e.g., in the setting of an unrepaired complete AV septal defect). <u>Coding Notes</u>: Only use this diagnosis if there is the presence of a common AV valve.
830	Single ventricle, Unbalanced AV canal	Single ventricle anomalies with a common atrioventricular (AV) valve and only one completely well-developed ventricle. If the common AV valve opens predominantly into the

Code:	Value:	Definition:
		morphologic left ventricle, the defect is termed a left ventricular (LV)–type or LV-dominant AV septal defect. If the common AV valve opens predominantly into the morphologic right ventricle, the defect is termed a right ventricular (RV)–type or RV-dominant AV septal defect. Coding Notes: See General Information for Single Ventricle Diagnosis for more information.
140	AP window (aortopulmonary window)	An AP (aortopulmonary) window is defined as a defect with side-to-side continuity of the lumens of the aorta and pulmonary arterial tree, which is distinguished from common arterial trunk (truncus arteriosus) by the presence of two arterial valves or their atretic remnants. In other words, an aortopulmonary window is a communication between the main pulmonary artery and ascending aorta in the presence of two separate semilunar (pulmonary and aortic) valves. The presence of two separate semilunar valves distinguishes AP window from truncus arteriosus. Coding Notes: Do not use in the event AP window exists in combination with interrupted aortic arch, instead code diagnosis (2000) Interrupted aortic arch + AP window (aortopulmonary window).
150	Pulmonary artery origin from ascending aorta (hemitruncus)	Hemitruncus is defined as one pulmonary artery branch arises from the ascending aorta and the other pulmonary artery arises from the right ventricle. DOES NOT include origin of the right or left pulmonary artery from the innominate artery or the aortic arch via a patent ductus arteriosus or collateral artery.
160	Truncus arteriosus	Truncus arteriosus or common arterial trunk is a defect where a single arterial trunk arises from the heart, giving origin to the coronary arteries, the pulmonary arteries, and the systemic arterial circulation. In the

Code:	Value:	Definition:
		majority of cases, there is a ventricular septal defect and a single semilunar valve which may contain two, three, four, or more leaflets and is occasionally dysplastic. Often, the infundibular septum is virtually absent superiorly. In most instances the truncal valve overrides the true interventricular septum (and thus both ventricles), but very rarely the truncal valve may override the right ventricle entirely. In such instances, there may be no ventricular septal defect or a very small ventricular septal defect, in which case the left ventricle and mitral valve may be extremely hypoplastic. Coding Notes: Do not use in the event truncus arteriosus exists in combination with interrupted aortic arch, instead code diagnosis (2010) Truncus arteriosus + Interrupted aortic arch.
2010	Truncus arteriosus + Interrupted aortic arch	Truncus arteriosus exists in combination with interrupted aortic arch. Coding Notes: Only code if there is the presence of both diagnosis (160) Truncus arteriosus and diagnosis (1070) Interrupted aortic arch. See individual diagnoses for more information.
180	Partial anomalous pulmonary venous connection (PAPVC)	In partial anomalous pulmonary venous connection (PAPVC) some, but not all, of the pulmonary veins connect to the right atrium or to one or more of its venous tributaries. This definition excludes sinus venosus defects with normally connected but abnormally draining pulmonary veins (the pulmonary veins may drain abnormally into the right atrium via the atrial septal defect).
190	Partial anomalous pulmonary venous	In partial anomalous pulmonary venous connection (PAPVC), scimitar, the right pulmonary vein(s) connect

Code:	Value:	Definition:
	connection (PAPVC), scimitar	anomalously to the inferior vena cava or to the right atrium at the insertion of the inferior vena cava. The descending vertical vein resembles a scimitar (Turkish sword) on frontal chest x-ray. PAPVC, Scimitar is frequently associated with hypoplasia of the right lung with bronchial anomalies; dextroposition and/or dextrorotation of the heart; hypoplasia of the right pulmonary artery; and anomalous subdiaphragmatic systemic arterial supply to the lower lobe of the right lung directly from the aorta or its main branches.
200	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)	In total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac), all the pulmonary veins connect anomalously with the right atrium (RA) or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In supracardiac TAPVC, the anomalous connection is at the supracardiac level (the pulmonary veins drain into the RA through the superior vena cava) and can be obstructed or non-obstructed.
210	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)	In total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac), all the pulmonary veins connect anomalously with the right atrium (RA) or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In cardiac TAPVC, the anomalous connection is to the heart, either to the RA directly or to the coronary sinus. Most patients with cardiac (type 2) TAPVC are non-obstructed.
220	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)	In total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac), all the pulmonary veins connect anomalously with the right atrium (RA) or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium.

Code:	Value:	Definition:
		In infracardiac TAPVC, the anomalous connection is at the infracardiac level (below the diaphragm), with the pulmonary venous return entering the RA ultimately via the inferior vena cava. In the majority of patients, infracardiac TAPVC is obstructed.
230	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)	In total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed), all the pulmonary veins connect anomalously with the right atrium (RA) or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In mixed TAPVC, the anomalous connection is at two or more of the above levels (supracardiac, cardiac, and/or infracardiac) and can be obstructed or non-obstructed.
250	Cor triatriatum	In the classic form of cor triatriatum a membrane divides the left atrium (LA) into a posterior accessory chamber that receives the pulmonary veins and an anterior chamber (LA) that communicates with the mitral valve. Differentiating cor triatriatum from supravalvar mitral ring: in cor triatriatum, the posterior compartment contains the pulmonary veins while the anterior contains the left atrial appendage and the mitral valve orifice; in supravalvar mitral ring, the anterior compartment contains only the mitral valve orifice. <u>Coding Notes</u>: Cor triatriatum dexter (prominent venous valve producing obstruction of the IVC and tricuspid valve) is to be coded as diagnosis (280) Systemic venous obstruction, not cor triatriatum.
260	Pulmonary venous stenosis	Pulmonary venous stenosis is defined as any pathologic narrowing of one or more pulmonary veins. Can be further subdivided by etiology (congenital, acquired-postoperative, acquired-non postoperative) and extent of stenosis (diffusely hypoplastic, long segment

Code:	Value:	Definition:
		focal/tubular stenosis, discrete stenosis). Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2480) Pulmonary venous stenosis, Acquired • (2490) Pulmonary venous stenosis, Spontaneous
2480	Pulmonary venous stenosis, Acquired	Pulmonary venous stenosis, Acquired is defined as any pathologic narrowing of one or more pulmonary veins that develops after previous surgery or transcatheter intervention involving the pulmonary veins.
2490	Pulmonary venous stenosis, Spontaneous	Pulmonary venous stenosis, Spontaneous is defined as any pathologic narrowing of one or more pulmonary veins that develops without a history of previous surgery or transcatheter intervention involving the pulmonary veins.
270	Systemic venous anomaly	Anomalies of the systemic venous system (superior vena cava [SVC], inferior vena cava [IVC], brachiocephalic veins [often the innominate vein], azygos vein, coronary sinus, levo-atrial cardinal vein) arising from one or more anomalies of origin, duplication, course, or connection. Examples include abnormal or absent right SVC with LSVC, bilateral SVC, interrupted right or left IVC, azygos continuation of IVC, and anomalies of hepatic drainage. Bilateral SVC may have, among other configurations: 1) RSVC draining to the RA and the LSVC to the LA with completely unroofed coronary sinus, 2) RSVC draining to the RA and LSVC to the coronary sinus which drains (normally) into the RA, or 3) RSVC to the coronary sinus which drains (abnormally) into the LA and LSVC to LA. Anomalies of the inferior vena caval system include, among others: 1) left IVC to LA, 2) biatrial drainage, or 3) interrupted IVC (left or right) with azygos continuation to an LSVC or RSVC.

Code:	Value:	Definition:
		Coding Notes: Note: This diagnosis CANNOT be the fundamental diagnosis.
280	Systemic venous obstruction	Anomalies of the systemic venous system (superior vena cava [SVC], inferior vena cava [IVC], brachiocephalic veins [often the innominate vein], azygos vein, coronary sinus, levo-atrial cardinal vein) arising from congenital or acquired stenosis or occlusion. Coding Notes: Code this is in the presence of Cor triatriatum dexter (prominent venous valve producing obstruction of the IVC and tricuspid valve); instead of diagnosis (250) cor triatriatum.

General Information Tetralogy of Fallot (TOF) Diagnosis

Tetralogy of Fallot (TOF) is defined as a group of malformations with biventricular atrioventricular alignments or connections characterized by anterosuperior deviation of the conal or outlet septum or its fibrous remnant, narrowing or atresia of the pulmonary outflow, a ventricular septal defect (VSD) of the malalignment type, and biventricular origin of the aorta.

Hearts with TOF will always have a VSD, narrowing or atresia of the pulmonary outflow tract, and aortic override; most will have right ventricular hypertrophy.

The TOF diagnoses do not include TOF with pulmonary atresia, Pulmonary atresia, VSD, or Pulmonary atresia, VSD, MAPCA.

Controversy surrounds the differentiation between TOF and double outlet right ventricle (DORV); in the nomenclature used here, DORV is defined as a type of ventriculoarterial connection in which both great vessels arise predominantly from the right ventricle and the presence of mitral-aortic discontinuity.

Coding Notes:

Code the most specific TOF diagnosis known.

If present, code additional defects as separate diagnosis(es), including but not limited to the following:

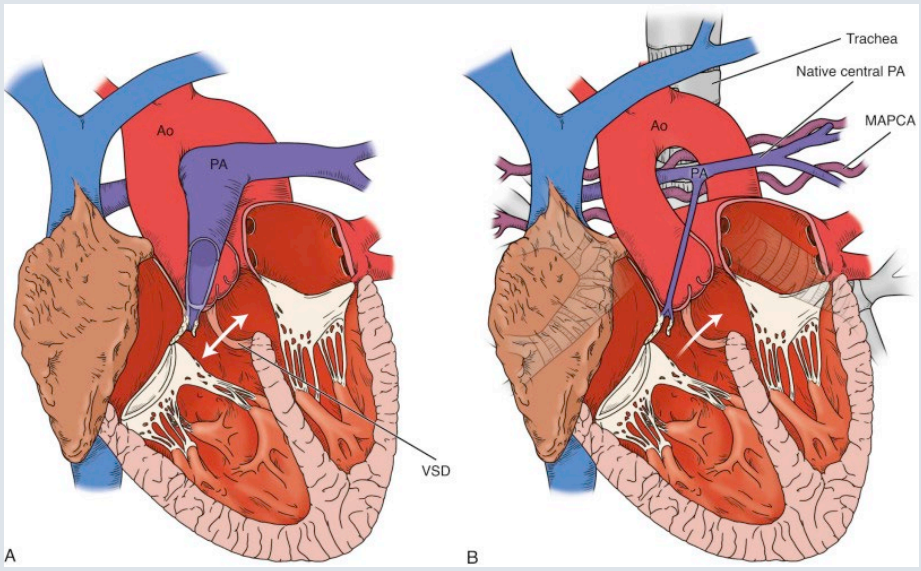
- additional muscular VSD, code secondary diagnosis (77) VSD, Type 4 (Muscular). Code other VSD subtypes as well.
- pulmonary arteries may be diminutive or there may be an absent left or right pulmonary artery; additional coding for pulmonary artery and/or branch pulmonary artery stenoses may be found under RVOT Obstruction and/or Pulmonary stenosis in the DCF.
- abnormal coronary artery distribution may exist; additional coding may be found under Coronary Artery Anomalies in the DCF.
- right aortic arch
- atrial septal defect (ASD)
- left superior vena cava code as (270) Systemic venous anomaly

TOF with pulmonary atresia should be coded as diagnosis (340) Pulmonary atresia, VSD or (350) Pulmonary atresia, VSD-MAPCA based on the presence of MAPCA(s).

General Information TOF with Pulmonary Atresia

TOF with Pulmonary atresia (PA) is a type of PA-VSD with atresia of the pulmonary valve and a range of hypoplasia of the main PA. In most cases, the intracardiac anatomy is that of TOF.

- Pulmonary arteries may/may not be present
- Major aortopulmonary collateral arteries (MAPCA(s)) may/may not be present



A. TOF/PA (including PA/VSD) B. TOF/PA/MAPCAs

https://thoracickey.com/tetralogy-of-fallot-with-and-without-pulmonary-atresia/

Code:	Value:	Definition:
290	TOF	Tetralogy of Fallot (TOF) is defined as a group of malformations with biventricular atrioventricular alignments or connections characterized by anterosuperior deviation of the conal or outlet septum or its fibrous remnant, narrowing or atresia of the pulmonary outflow, a ventricular septal defect (VSD) of the malalignment type, and biventricular origin of the aorta. Hearts with TOF will always have a ventricular septal defect, narrowing or atresia of the pulmonary outflow tract, and aortic override; hearts with tetralogy of Fallot will most often have right ventricular hypertrophy. Coding Notes: See the General Information TOF Diagnosis for more information.

Code:	Value:	Definition:
		Only use this diagnosis if it is *not* known if the patient has one of the following four more specific diagnoses: • (2140) TOF, Pulmonary stenosis • (300) TOF, AVC (AVSD) • (310) TOF, Absent pulmonary valve • (340) Pulmonary atresia, VSD (Including TOF, PA) • (350) Pulmonary atresia, VSD-MAPCA (pseudotruncus) *Please note*, if this diagnosis is used and the patient undergoes TOF repair, the case will not be included in the TOF lesion specific analysis. Code the most specific TOF diagnosis type known.
2140	TOF, Pulmonary stenosis	Tetralogy of Fallot (TOF) with pulmonary stenosis (PS), including 'pink' TOF. See the General Information TOF Diagnosis for more information. Coding Notes: Do *not* use this diagnosis if the patient has any of the following TOF diagnoses: • (300) TOF, AVC (AVSD) • (310) TOF, Absent pulmonary valve • (340) Pulmonary atresia, VSD (Including TOF, PA) • (350) Pulmonary atresia, VSD-MAPCA (pseudotruncus) See the General Information TOF Diagnosis for more information.
300	TOF, AVC (AVSD)	Tetralogy of Fallot (TOF) with complete common atrioventricular septal defect (AVSD or AVC). TOF/AVC is a rare variant of common atrioventricular

Code:	Value:	Definition:
		canal defect with the associated conotruncal abnormality of TOF. The anatomy of the endocardial cushion defect is that of Rastelli type C in almost all cases. Coding Notes: See the individual diagnosis codes and General Information TOF Diagnosis for more information.
310	TOF, Absent pulmonary valve	Tetralogy of Fallot (TOF) with absent pulmonary valve is defined as a malformation with all of the morphologic characteristics of tetralogy of Fallot (anterosuperior deviation of the conal or outlet septum or its fibrous remnant, narrowing of the pulmonary outflow, a ventricular septal defect of the malalignment type, and biventricular origin of the aorta), in which the ventriculoarterial junction of the right ventricle with the main pulmonary artery features an atypical valve with rudimentary cusps that lack the anatomical semi-lunar features of normal valve cusps and which functionally do not achieve central coaptation. The physiologic consequence is usually a combination of variable degrees of both stenosis and regurgitation of the pulmonary valve. A developmental accompaniment of this anatomy and physiology is dilatation of the main pulmonary artery and central right and left pulmonary arteries, which when extreme, is associated with abnormal arborization of lobar and segmental pulmonary artery branches and with compression of the trachea and mainstem bronchi. One theory holds that absence of the arterial duct or ductal ligament (which is a nearly constant finding in cases of tetralogy of Fallot with absent pulmonary valve) in combination with pulmonary valve stenosis and regurgitation, comprise the physiologic conditions which predispose to central pulmonary artery dilatation during fetal development. TOF with absent pulmonary valve syndrome is a term

Code:	Value:	Definition:
		frequently used to describe the clinical presentation when it features both circulatory alterations and respiratory distress secondary to airway compression.
320	Pulmonary atresia	Pulmonary atresia is a condition where the pulmonary valve does not form correctly during embryologic development. Pulmonary atresia may be the major heart defect or may also be present in other complex lesions in which pulmonary atresia is a secondary diagnosis, for example, complex single ventricle malformations with associated pulmonary atresia. <u>Coding Notes</u>: Do NOT use this diagnosis if the patient has any of the following pulmonary atresia diagnoses: • (330) Pulmonary atresia, IVS • (340) Pulmonary atresia, VSD (Including TOF, PA) • (350) Pulmonary atresia, VSD-MAPCA
330	Pulmonary atresia, IVS	Pulmonary atresia (PA) and intact ventricular septum (IVS) is a ductal-dependent congenital malformation that forms a spectrum of lesions including atresia of the pulmonary valve, a varying degree of right ventricle and tricuspid valve hypoplasia, and anomalies of the coronary circulation. An RV dependent coronary artery circulation is present when coronary artery fistulas (coronary sinusoids) are associated with a proximal coronary artery stenosis. Associated Ebstein's anomaly of the tricuspid valve can be present; the tricuspid diameter is enlarged, and the prognosis is poor.
340	Pulmonary atresia, VSD (Including TOF, PA)	Pulmonary atresia (PA) and ventricular septal defect (VSD) is a heterogeneous group of congenital cardiac malformations in which there is lack of luminal continuity and absence of blood flow from either

Code:	Value:	Definition:
		ventricle (in cases with ventriculoarterial discordance) and the pulmonary artery, in a biventricular heart that has an opening or a hole in the interventricular septum (VSD). The malformation forms a spectrum of lesions including tetralogy of Fallot (TOF) with PA. TOF with PA is a specific type of PA-VSD where the intracardiac malformation is more accurately defined (extreme under development of the RV infundibulum with marked anterior and leftward displacement of the infundibular septum often fused with the anterior wall of the RV resulting in complete obstruction of blood flow into the pulmonary artery and associated with a large outlet, subaortic ventricular septal defect). In most cases of PA-VSD, the intracardiac anatomy is that of TOF. The pulmonary circulation in PA-VSD is variable in terms of origin of blood flow, presence or absence of native pulmonary arteries, presence or absence of major aortopulmonary collateral arteries (MAPCA(s)), and distal distribution (pulmonary parenchymal segment arborization) abnormalities. Native pulmonary arteries may be present or absent. <u>Coding Notes</u>: Do not use this diagnosis code If MAPCAs are present; instead, code diagnosis (350) Pulmonary atresia, VSD-MAPCA (pseudotruncus).
350	Pulmonary atresia, VSD-MAPCA	Pulmonary atresia (PA) and ventricular septal defect (VSD) with major aortopulmonary collateral arteries (MAPCA(s)). MAPCA(s) are large and distinct arteries, highly variable in number, that usually arise from the descending thoracic aorta, but uncommonly may originate from the aortic arch or the subclavian, carotid or even the coronary arteries. MAPCA(s) may be associated with present or absent native pulmonary arteries. If present, the native pulmonary arteries may be hypoplastic, and either confluent or nonconfluent.

Code:	Value:	Definition:
		Systemic pulmonary collateral arteries have been categorized into 3 types based on their site of origin and the way they connect to the pulmonary circulation: direct aortopulmonary collaterals, indirect aortopulmonary collaterals, and true bronchial arteries. Only the first two should be considered MAPCA(s). Coding Notes: If MAPCA(s) are associated with PA-VSD or TOF, PA this code should be used.
360	MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)	Major aortopulmonary collateral arteries (MAPCA(s)) not associated with PA-VSD/TOF, PA. Rarely MAPCA(s) may occur in patents who do not have PA-VSD but have severe pulmonary stenosis. MAPCA(s) are large and distinct arteries, highly variable in number, that usually arise from the descending thoracic aorta, but uncommonly may originate from the aortic arch or the subclavian, carotid or even the coronary arteries. Coding Notes: The intracardiac anatomy in patients who have MAPCA(s) without PA should be specifically coded in each case as well.

General Information Valve Related Diagnoses

Nomenclature in the CHSD has updated in this version to reflect the function of the valve.

- The mitral valve is now the mitral or systemic atrioventricular (AV) valve and the related diagnoses (stenosis and/or insufficiency) include the native mitral or valve providing the systemic circulation (blood flow to the body). In some congenital heart defects, the systemic AV valve may be the tricuspid valve, i.e., some single ventricle defects.

- The aortic valve is now the aortic/neo-aortic/truncal valve and some of the related diagnoses (stenosis and/or insufficiency) include the native aortic, neo-aortic, and truncal valve. Neo-aortic valve is a valve functioning in the aortic position, i.e., during a Ross procedure when the native pulmonary valve is moved to the aortic position, the pulmonary valve is now the neo-aortic valve.
- The tricuspid valve is now the tricuspid or non-systemic AV valve, and the related diagnoses are to include the native tricuspid valve or valve not providing the systemic support.
- The pulmonary valve is now the pulmonary or neo-pulmonary valve, and the related diagnoses include the native pulmonary or neo-pulmonary valve. The neo-pulmonary valve is defined as a valve functioning in the pulmonary position, i.e., following arterial switch operation, the native aortic valve functions in the pulmonary position and is now the neo-pulmonary valve.

Data managers are encouraged to work with their clinical teams to accurately capture the correct valve related diagnosis.

Ebstein's anomaly and common AV valve have their own diagnosis codes.

Code:	Value:	Definition:
370	Ebstein's anomaly	Ebstein's anomaly is a malformation of the tricuspid valve and right ventricle that is characterized by a spectrum of several features: (1) incomplete delamination of tricuspid valve leaflets from the myocardium of the right ventricle; (2) downward (apical) displacement of the functional annulus; (3) dilation of the "atrialized" portion of the right ventricle with variable degrees of hypertrophy and thinning of the wall; (4) redundancy, fenestrations, and tethering of the anterior leaflets; and (5) dilation of the right atrioventricular junction (the true tricuspid annulus). These anatomical and functional abnormalities cause tricuspid regurgitation (and rarely tricuspid stenosis) that results in right atrial and right ventricular dilatation and atrial and ventricular arrhythmias. With increasing degrees of anatomic severity of malformation, the fibrous transformation of leaflets from their muscular

Code:	Value:	Definition:
		precursors remains incomplete, with the septal leaflet being most severely involved, the posterior leaflet less severely involved, and the anterior leaflet usually the least severely involved. Associated cardiac anomalies include an interatrial communication, the presence of accessory conduction pathways often associated with Wolff-Parkinson-White syndrome, and dilation of the right atrium and right ventricle in patients with severe Ebstein's anomaly. <u>Coding Notes</u>: Varying degrees of right ventricular outflow tract obstruction may be present, including pulmonary atresia. Ebstein's anomaly with pulmonary atresia should be coded with a primary diagnosis of Ebstein's anomaly, and a secondary diagnosis of pulmonary atresia. Some patients with atrioventricular (AV) discordance and ventriculoarterial discordance in situs solitus (congenitally corrected transposition (CCTGA)) have an Ebstein-like deformity of the left-sided morphologically tricuspid valve. The nature of the displacement of the septal and posterior leaflets is like that in right sided Ebstein's anomaly in patients with AV concordance and ventriculoarterial concordance in situs solitus. These patients with CCTGA and an Ebstein-like deformity of the left-sided morphologically tricuspid valve should be coded with a primary diagnosis of CCTGA, and a secondary diagnosis of Ebstein's anomaly.
2700	Dysplastic Tricuspid or non-systemic atrioventricular valve, non-Ebstein's	Dysplastic tricuspid or non-systemic atrioventricular valve, non-Ebstein's is defined as regurgitation, stenosis, or regurgitation and stenosis of the tricuspid or non-systemic atrioventricular valve not related to Ebstein's anomaly. Tricuspid or non-systemic atrioventricular valve regurgitation, non- Ebstein's related may be due to congenital factors (primary annular dilation, prolapse,

Code:	Value:	Definition:
		leaflet underdevelopment, absent papillary muscle/chordae) or acquired (post cardiac surgery or secondary to rheumatic fever, endocarditis, trauma, tumor, cardiomyopathy, iatrogenic or other causes). Tricuspid or non-systemic atrioventricular valve stenosis non- Ebstein's related may be due to congenital factors (valvar hypoplasia, abnormal subvalvar apparatus, double-orifice valve, parachute deformity) or acquired (post cardiac surgery or secondary to carcinoid, rheumatic fever, tumor, systemic disease, iatrogenic, or other causes). Tricuspid or non-systemic atrioventricular valve regurgitation present with tricuspid or non-systemic atrioventricular valve stenosis non- Ebstein's related may be due to congenital factors or acquired. Coding Notes: See General Information Valve Related Diagnosis for more information.
410	Tricuspid or non-systemic atrioventricular valve, Other	Tricuspid or non-systemic atrioventricular valve pathology not otherwise specified in diagnosis definitions (370) Ebstein's anomaly or (2700) Dysplastic Tricuspid or non-systemic atrioventricular valve, non-Ebstein's. Coding Notes: See General Information Valve Related Diagnosis for more information.
420	Pulmonary stenosis, pulmonary or neo-pulmonary Valvar	Pulmonary or neo-pulmonary stenosis, Valvar ranges from critical neonatal pulmonic valve stenosis with hypoplasia of the right ventricle to valvar pulmonary stenosis in the infant, child, or adult, usually better tolerated but potentially associated with infundibular stenosis. Pulmonary branch hypoplasia can be associated.

Code:	Value:	Definition:
		Only 10% of neonates with pulmonary or neo-pulmonary stenosis, Valvar with intact ventricular septum have RV-to-coronary artery fistula(s). An RV dependent coronary artery circulation is present when coronary artery fistulas (coronary sinusoids) are associated with a proximal coronary artery stenosis; this occurs in only 2% of neonates with Pulmonary stenosis, Valvar with IVS. Coding Notes: See General Information Valve Related Diagnosis for more information.
430	Pulmonary artery stenosis (hypoplasia), Main (trunk)	Pulmonary artery stenosis (hypoplasia), Main (trunk) is defined as a congenital or acquired anomaly with pulmonary trunk (main pulmonary artery) narrowing or hypoplasia. The stenosis or hypoplasia may be isolated or associated with other cardiac lesions. Since the narrowing is distal to the pulmonic valve, it may also be known as supravalvar pulmonary stenosis.
440	Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)	Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation) is defined as a congenital or acquired anomaly with central pulmonary artery branch (within the hilar bifurcation involving the right or left pulmonary artery, or both) narrowing or hypoplasia. The stenosis or hypoplasia may be isolated or associated with other cardiac lesions. Coarctation of the pulmonary artery is related to abnormal extension of the ductus arteriosus into a pulmonary branch, more frequently the left branch.
450	Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)	Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation) is defined as a congenital or acquired anomaly with peripheral pulmonary artery narrowing or hypoplasia (at or beyond the hilar bifurcation). The stenosis or hypoplasia may be isolated or associated with other cardiac lesions.

Code:	Value:	Definition:
470	Pulmonary artery, Discontinuous	Pulmonary artery, Discontinuous is defined as a congenital or acquired anomaly with discontinuity between the branch pulmonary arteries or between a branch pulmonary artery and the main pulmonary artery trunk.
490	Pulmonary stenosis, Subvalvar	Subvalvar (infundibular) pulmonary stenosis is a narrowing of the outflow tract of the right ventricle below the pulmonic valve. It may be due to a localized fibrous diaphragm just below the valve, an obstructing muscle bundle or to a long narrow fibromuscular channel.
500	DCRV	The double chambered right ventricle (DCRV) is characterized by a low infundibular (subvalvar) stenosis rather than the rare isolated infundibular stenosis that develops more superiorly in the infundibulum and is often associated with one or several closing VSDs. In some cases, the VSD is already closed. The stenosis creates two chambers in the RV, one inferior including the inlet and trabecular portions of the RV and one superior including the infundibulum.
510	Pulmonary or neo-pulmonary valve, Other	Other anomalies of the pulmonary or neo-pulmonary valve not otherwise listed, including but not limited to absent pulmonary valve. Coding Notes: See General Information Valve Related Diagnosis for more information.
530	Pulmonary or neo-pulmonary valve insufficiency	Pulmonary or neo-pulmonary valve insufficiency or regurgitation may be due to congenital factors (primary annular dilation, prolapse, leaflet underdevelopment, etc.) or acquired (for example, post cardiac surgery for repair of tetralogy of Fallot, etc.). Coding Notes: See General Information Valve Related Diagnosis for

Code:	Value:	Definition:
		more information.
540	Pulmonary or neo-pulmonary valve insufficiency and stenosis	Pulmonary or neo-pulmonary valve insufficiency occurring in association with pulmonary or neo-pulmonary valve stenosis. Pulmonary/neo-pulmonary valve insufficiency and stenosis beyond the neonatal period, in infancy and childhood, may be secondary to leaflet tissue that has become thickened and myxomatous. Retraction of the commissure attachment frequently creates an associated supravalvar stenosis. Coding Notes: See General Information Valve Related Diagnosis for more information.
2130	Shunt failure	Failure of a systemic to pulmonary shunt secondary to any of the following etiologies: shunt thrombosis, shunt occlusion, or shunt obstruction. Includes failure of any of a variety of systemic to pulmonary shunts including but not limited to the following: Modified Blalock-Taussig shunts (MBTS), central shunts, and Sano shunts (non-valved conduit to augment pulmonary blood flow). Coding Notes: Shunt failure does not include failure of a conduit; instead, code diagnosis (520) Conduit failure. Shunt failure does not include shunt problem where there is still blood flow through the shunt but is not functioning as intended; instead, code diagnosis (2730) Shunt problem, (2740) Shunt problem, Excess pulmonary blood flow, or (2750) Shunt problem, Inadequate pulmonary blood flow. *Example:* Shunt failure would be the primary diagnosis in a patient with Hypoplastic left heart syndrome (HLHS) who underwent a Norwood procedure with a MBTS and now requires reoperation for thrombosis of the MBTS.

Code:	Value:	Definition:
		The fundamental diagnosis in this patient is HLHS, but the primary diagnosis for the operation to treat the thrombosis of the MBTS is Shunt failure. *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2730	Shunt Problem	Other problems with a systemic to pulmonary shunt not otherwise specified in the following diagnosis definitions: • (2130) Shunt failure • (2740) Shunt Problem, Excess pulmonary blood flow (pulmonary over-circulation) • (2750) Shunt Problem, Inadequate pulmonary blood flow. This diagnosis applies to a variety of systemic to pulmonary shunts including but not limited to the following: Modified Blalock-Taussig shunts, central shunts, and Sano shunts (non-valved conduit to augment pulmonary blood flow). <u>Coding Notes</u>: Does not include conduit problem or failure; instead, code (520) Conduit failure. *Note:* This diagnosis CANNOT be the fundamental diagnosis.
2740	Shunt Problem, Excess pulmonary blood flow (pulmonary overcirculation)	A systemic to pulmonary shunt problem where the patient is receiving too much pulmonary blood flow. This diagnosis applies to a variety of systemic to pulmonary shunts including but not limited to the following: Modified Blalock-Taussig shunts, central shunts, and Sano shunts (non-valved conduit to augment pulmonary blood flow). <u>Coding Notes</u>:

Code:	Value:	Definition:
		Does not include conduit problem or failure; instead, code (520) Conduit failure. *Note:* This diagnosis CANNOT be the fundamental diagnosis.
2750	Shunt Problem, Inadequate pulmonary blood flow	A systemic to pulmonary shunt problem where the patient is not receiving enough pulmonary blood flow through a functional shunt (stenosis, outgrowth…). There is still flow through the shunt. This diagnosis applies to a variety of systemic to pulmonary shunts including but not limited to the following: Modified Blalock-Taussig shunts, central shunts, and Sano shunts (non-valved conduit to augment pulmonary blood flow). <u>Coding Notes</u>: Do not code if the inadequate pulmonary blood flow is due to shunt failure; instead, code diagnosis (2130) Shunt failure. *Note:* This diagnosis CANNOT be the fundamental diagnosis.
520	Conduit failure	Failure of a conduit. Includes failure of any of a variety of conduits including ventricular (right or left)-to-PA conduits, ventricular (right or left)-to-aorta, right atria to right ventricle (RA-to-RV), etc. secondary to any of the following etiologies: conduit outgrowth, obstruction, stenosis, insufficiency, or insufficiency and stenosis. <u>Coding Notes</u>: Do not code for failure of a systemic to pulmonary shunt; instead, code diagnosis (2130) Shunt failure. *Example:* Conduit failure would be the primary diagnosis in a patient with Truncus arteriosus repaired in infancy

Code:	Value:	Definition:
		who years later is hospitalized because of conduit stenosis/insufficiency. The underlying or fundamental diagnosis in this patient is Truncus arteriosus, but the primary diagnosis for the operation to be performed during the hospitalization (in this case, Conduit reoperation) would be (520) Conduit failure. *Note:* This diagnosis CANNOT be the fundamental diagnosis.
550	Aortic stenosis, Subvalvar	Subaortic obstruction can be caused by different lesions: subaortic membrane or tunnel, accessory mitral valve tissue, abnormal insertion of the mitral anterior leaflet to the ventricular septum, deviation of the outlet septum (seen in coarctation of the aorta and interrupted aortic arch), or a restrictive bulboventricular foramen in single ventricle complexes. The Shone complex consists of subvalvar aortic stenosis in association with supravalvar mitral ring, parachute mitral valve, and coarctation of aorta. <u>Coding Notes</u>: Only use this diagnosis if it is ***<u>not</u>*** known if the patient has one of the following more specific diagnoses: • (2500) Aortic stenosis, Subvalvar, Discrete • (2510) Aortic stenosis, Subvalvar, IHSS • (2520) Aortic stenosis, Subvalvar, Tunnel-like
2500	Aortic stenosis, Subvalvar, Discrete	Aortic stenosis, Subvalvar, Discrete or localized subvalvar aortic stenosis consists of a fibrous or fibromuscular ridge that forms under the aortic valve causing an obstruction of blood from the left ventricle to the aorta.
2510	Aortic stenosis, Subvalvar, IHSS	Idiopathic hypertrophic subaortic stenosis (IHSS) is also known as hypertrophic obstructive cardiomyopathy (HOCM) and is characterized by a primary hypertrophy of the myocardium. The obstructive forms involve different degrees of dynamic subvalvar aortic

Code:	Value:	Definition:
		obstruction from a thickened ventricular wall and anterior motion of the mitral valve.
2520	Aortic stenosis, Subvalvar, Tunnel-like	Aortic stenosis, Subvalvar, Tunnel-like or diffuse tunnel subvalvar aortic stenosis is where circumferential narrowing commences at the annular level and extends downward for 1-3 cm, much like a tunnel.
560	Aortic stenosis, aortic, neo-aortic, or truncal, Valvar	Stenosis of the aortic/neo-aortic/truncal valve and may be congenital or acquired. In its congenital form there are two types: critical (infantile), seen in the newborn in whom systemic perfusion depends on a patent ductus arteriosus, and noncritical, seen in infancy or later. Congenital valvar stenosis may result from: (1) complete fusion of commissures (acommissural) that results in a dome-shaped valve with a pinpoint opening (seen most commonly in infants with critical aortic valve stenosis); (2) a unicommissural valve with one defined commissure and eccentric orifice (often with two raphes radiating from the ostium indicating underdeveloped commissures of a tricuspid aortic valve); (3) from a bicuspid aortic valve, with leaflets that can be equal in size or discrepant, and in left-right or anterior-posterior position; and finally (4) from a dysplastic tricuspid valve, which may have a gelatinous appearance with thick rarely equal in size leaflets, often obscuring the commissures. The dysplastic, tricuspid, or bicuspid form of aortic valve deformity may not be initially obstructive but may become stenotic later in life due to leaflet thickening and calcification. Acquired valvar stenosis may be seen as a result of rheumatic valvar disease. <u>Coding Notes</u>: This diagnosis is for aortic/neo-aortic/truncal valve stenosis of a native valve only. Do not code this diagnosis if the aortic/neo-aortic/truncal valvar stenosis

Code:	Value:	Definition:
		is in a prosthetic valve; instead, code diagnosis (520) Conduit failure or (1330) Prosthetic valve failure, as applicable. The underlying fundamental diagnosis that led to the initial conduit or valve prosthesis placement should also be described. See General Information Valve Related Diagnosis for more information.
570	Aortic stenosis, Supravalvar	Supravalvar aortic stenosis can be congenital or acquired. Congenital supravalvar aortic stenosis is described as three forms: an hourglass deformity, a fibrous membrane, and a diffuse narrowing of the ascending aorta. The disease can be inherited as an autosomal dominant trait or part of Williams-Beuren syndrome in association with mental retardation, elfin facies, failure to thrive, and occasionally infantile hypercalcemia. Supravalvar aortic stenosis may involve the coronary artery ostia, and the aortic leaflets may be tethered. The coronary arteries can become tortuous and dilated due to elevated pressures and early atherosclerosis may ensue. Supravalvar aortic stenosis may be acquired: (1) after a neoaortic reconstruction such as arterial switch, Ross operation, or Norwood procedure; (2) at a suture line from a previous aortotomy or cannulation; and (3) from a narrowed conduit.
590	Aortic valve atresia	Aortic valve atresia is where there is no opening from the left ventricle into the aorta. Aortic valve atresia will most often be coded under the hypoplastic left heart syndrome (HLHS)/complex diagnostic codes since it most often occurs as part of a spectrum of cardiac malformations. However, there is a small subset of patients with aortic valve atresia who

Code:	Value:	Definition:
		have a well-developed left ventricle and mitral valve and a large VSD (nonrestrictive or restrictive). Coding Notes: If the aortic atresia is associated with HLHS/complex and its associated malformations, do not code the aortic valve atresia as a separate diagnosis. This diagnosis enables users to report those patients with aortic valve atresia and a well-developed systemic ventricle without recourse to either a hypoplastic left heart syndrome/complex diagnosis or a single ventricle diagnosis.
600	Aortic, neo-aortic or truncal valve insufficiency	Insufficiency or regurgitation of the aortic/neo-aortic/truncal valve. May be congenital or acquired. Congenital aortic/neo-aortic/truncal valve insufficiency is rare as an isolated entity. There are rare reports of congenital malformation of the aortic valve that result in aortic insufficiency shortly after birth from an absent or underdeveloped aortic valve cusp. Aortic insufficiency is more commonly seen with other associated cardiac anomalies: (1) in stenotic aortic valves (commonly stenotic congenital bicuspid aortic valves) with some degree of aortic regurgitation due to aortic leaflet abnormality; (2) in association with a VSD (especially in supracristal or conal type I VSD, more commonly seen in Asian populations); (3) secondary to aortic-left ventricular tunnel; (4) secondary to tethering or retraction of aortic valve leaflets in cases of supravalvar aortic stenosis that may involve the aortic valve; and similarly (5) secondary to encroachment on an aortic cusp by a subaortic membrane; or (6) turbulence caused by a stenotic jet can create progressive aortic regurgitation. Aortic insufficiency may also result from: (1) post-procedure such as closed or open valvotomy or aortic valve repair, VSD closure, balloon valvotomy, or

Code:	Value:	Definition:
		diagnostic catheterization; (2) in the neo-aorta post arterial switch, pulmonary autograft (Ross) procedure, homograft placement, Norwood procedure, or Damus-Kaye-Stansel procedure; (3) as a result of endocarditis secondary to perforated or prolapsed leaflets or annular dehiscence; (4) secondary to annulo-aortic ectasia with prolapsed or noncoapting leaflets; (5) secondary to trauma, blunt or penetrating; or (6) as a result of aortitis, bacterial, viral or autoimmune. Coding Notes: This diagnosis is for aortic/neo-aortic/truncal valve insufficiency of a native valve only. Do not code this diagnosis if the aortic/neo-aortic/truncal insufficiency is in a prosthetic valve; instead, code diagnosis (520) Conduit failure or (1330) Prosthetic valve failure, as applicable. The underlying fundamental diagnosis that led to the initial conduit or valve prosthesis placement should also be described. See General Information Valve Related Diagnosis for more information.
610	Aortic, neo-aortic or truncal valve insufficiency and stenosis	Aortic/neo-aortic/truncal valve insufficiency (regurgitation) in combination with Aortic/neo-aortic/truncal valve stenosis. Aortic/neo-aortic/truncal valve insufficiency is often seen in association with a stenotic aortic/neo-aortic/truncal valve, commonly the stenotic congenital bicuspid aortic valve. The degree of aortic/neo-aortic/truncal regurgitation is due to the severity of the aortic/neo-aortic/truncal leaflet abnormality. Coding Notes: This diagnosis is for aortic/neo-aortic/truncal valve insufficiency and stenosis of a native valve only. Do not code this diagnosis if the aortic/neo-aortic/truncal

Code:	Value:	Definition:
		insufficiency and stenosis is in a prosthetic valve; instead, code diagnosis (520) Conduit failure or (1330) Prosthetic valve failure, as applicable. The underlying fundamental diagnosis that led to the initial conduit or valve prosthesis placement should also be described. See General Information Valve Related Diagnosis for more information.
620	Aortic, neo-aortic or truncal valve, Other	Aortic/neo-aortic/truncal valve pathology not otherwise specified in diagnosis definitions (590) Aortic valve atresia, (600) Aortic, neo-aortic or truncal valve insufficiency, or (610) Aortic, neo-aortic or truncal valve insufficiency and stenosis. Coding Notes: See General Information Valve Related Diagnosis for more information.
630	Sinus of Valsalva aneurysm	The sinus of Valsalva is defined as that portion of the aortic root between the aortic root annulus and the sinotubular ridge. An aneurysm of this area may be congenital or acquired. A congenital sinus of Valsalva aneurysm (SOVA) is a dilation usually of a single sinus of Valsalva. These most commonly originate from the right sinus (65%-85%), less commonly from the noncoronary sinus (10%-30%), and rarely from the left sinus (<5%). A true SOVA presents above the aortic annulus. The hierarchical coding system distinguishes between congenital versus acquired, ruptured versus non-ruptured, sinus of origin, and chamber/site of penetration (right atrium, right ventricle, left atrium, left ventricle, pulmonary artery, pericardium). A non-ruptured congenital SOVA may vary from a mild dilation of a single aortic sinus to an extensive windsock deformity. Rupture of a congenital SOVA into an adjacent chamber occurs most commonly between the

Code:	Value:	Definition:
		ages of 15-30 years. Rupture may occur spontaneously, after trauma, after strenuous physical exertion, or from acute bacterial endocarditis. Congenital etiology is supported by the frequent association of SOVAs with VSDs. Other disease processes are also associated with SOVA and include syphilis, endocarditis, cystic medial necrosis, atherosclerosis, and trauma. Acquired SOVAs more frequently involve multiple sinuses of Valsalva; when present in multiple form they are more appropriately classified as aneurysms of the aortic root. <u>Coding Notes</u>: Use this diagnosis for acquired or congenital as well as for ruptured or non-ruptured sinus of Valsalva aneurysms.
640	LV to aorta tunnel	The aortico-left ventricular tunnel (LV-to-aorta tunnel) is an abnormal paravalvular (alongside or in the vicinity of a valve) communication between the aorta and left ventricle, commonly divided into 4 types: (1) type I, a simple tunnel with a slit-like opening at the aortic end and no aortic valve distortion; (2) type II, a large extracardiac aortic wall aneurysm of the tunnel with an oval opening at the aortic end, with or without ventricular distortion; (3) type III, intracardiac aneurysm of the septal portion of the tunnel, with or without right ventricular outflow obstruction; and (4) type IV, a combination of types II and III. Further differentiation within these types may be notation of right coronary artery arising from the wall of the tunnel. <u>Coding Notes</u>: Do not code if there is an LV-to-aorta tunnel that communicates with the right ventricle as many feel that the defect is really a ruptured sinus of Valsalva aneurysm; instead, code as diagnosis (630) Sinus of Valsalva aneurysm.

Code:	Value:	Definition:
650	Mitral or systemic AV valve stenosis, Supravalvar ring	Supravalvar mitral/systemic AV valve stenosis related to a supravalvar ring. The ring is formed by a circumferential ridge of tissue that is attached to the anterior mitral/systemic AV valve leaflet (also known as the aortic leaflet) slightly below its insertion on the annulus and to the atrium slightly above the attachment of the posterior mitral/systemic AV valve leaflet (also known as the mural leaflet). Depending on the diameter of the ring orifice, varying degrees of obstruction exist. The underlying valve is usually abnormal and frequently stenotic or hypoplastic. Supravalvar mitral/systemic AV valve ring is commonly associated with other stenotic lesions such as parachute or hammock valve (subvalvar stenosis), papillary muscle fusion (subvalvar stenosis), and double orifice mitral/systemic AV valve (valvar stenosis). Differentiation from cor triatriatum focuses on the compartments created by the supravalvar ring. In cor triatriatum the posterior compartment contains the pulmonary veins; the anterior contains the left atrial appendage and the mitral valve orifice. In supravalvar mitral/systemic AV valve ring, the posterior compartment contains the pulmonary veins and the left atrial appendage; the anterior compartment contains only the mitral valve orifice. Coding Notes: When coding multiple mitral/systemic AV valvar lesions, the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
660	Mitral or systemic AV valve stenosis, Valvar	Stenosis of the mitral/systemic AV valve arising from congenital (annular and/or leaflet) or acquired causes, both surgical (after mitral valve/systemic AV valve repair or replacement or other cardiac surgery) and non-

Code:	Value:	Definition:
		surgical (post rheumatic heart disease, infective endocarditis, ischemia, myxomatous degeneration, trauma, or cardiomyopathy). Mitral/systemic AV valve annular hypoplasia is distinguished from severe mitral/systemic AV valve hypoplasia and mitral/systemic AV valve atresia, which are typically components of hypoplastic left heart syndrome. Coding Notes: This diagnosis is for mitral/systemic AV valvar stenosis of a native valve only. Do not code this diagnosis if the mitral/systemic AV valvar stenosis is in a prosthetic valve; instead, code diagnosis (1330) Prosthetic valve failure. When coding multiple mitral/systemic AV valvar lesions, the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
670	Mitral or systemic AV valve stenosis, Subvalvar	Congenital subvalvar mitral/systemic AV valve stenosis may be due to obstructive pathology of either the chordae tendineae and/or papillary muscles which support the valve leaflets. Coding Notes: This diagnosis is for mitral/systemic AV valve subvalvar stenosis of a native valve only. Do not code this diagnosis if the mitral/systemic AV valve stenosis, Subvalvar is in a prosthetic valve; instead, code diagnosis (1330) Prosthetic valve failure. When coding multiple mitral/systemic AV valvar lesions, the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis)

Code:	Value:	Definition:
		should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
680	Mitral or systemic AV valve stenosis, Subvalvar, Parachute	In parachute mitral/systemic AV valve, all chordae are attached to a single papillary muscle originating from the posterior ventricular wall. When the interchordal spaces are partially obliterated, valvar stenosis results. This defect also causes valvar insufficiency, most commonly due to a cleft leaflet, a poorly developed anterior leaflet, short chordae, or annular dilatation. This lesion is also part of Shone's anomaly, which consists of the parachute mitral valve, supravalvar mitral ring, subaortic stenosis, and coarctation of the aorta. Coding Notes: When coding multiple mitral/systemic AV valvar lesions, the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
700	Mitral or systemic AV valve insufficiency and stenosis	Mitral/systemic AV valve insufficiency (regurgitation) in association with Mitral/systemic AV valve stenosis. Mitral/systemic AV valve insufficiency and stenosis may arise from congenital or acquired causes or occur after cardiac surgery. Coding Notes: This diagnosis is for mitral/systemic AV valve insufficiency and stenosis of a native valve only. Do not code this diagnosis if the mitral/systemic AV valve insufficiency and stenosis is in a prosthetic valve; instead, code diagnosis (1330) Prosthetic valve failure. See the individual diagnosis codes for more information.

Code:	Value:	Definition:
		When coding multiple mitral systemic AV valve lesions, the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
710	Mitral or systemic AV valve insufficiency	Mitral/systemic AV valve insufficiency or regurgitation may arise from congenital (at the annular, leaflet or subvalvar level) or acquired causes both surgical (after mitral valve repair or replacement, subaortic stenosis repair, atrioventricular canal repair, cardiac transplantation, or other cardiac surgery) and non-surgical (post rheumatic heart disease, infective endocarditis, ischemia (with chordal rupture or papillary muscle infarct), myxomatous degeneration including Barlow's syndrome, trauma, or cardiomyopathy). Congenital lesions at the annular level include annular dilatation or deformation (usually deformation is consequent to associated lesions). At the valve leaflet level, mitral/systemic AV valve insufficiency may be due to a cleft, hypoplasia or agenesis of leaflet(s), excessive leaflet tissue, or a double orifice valve. At the subvalvar level, mitral/systemic AV valve regurgitation may be secondary to chordae tendineae anomalies (agenesis, rupture, elongation, or shortening as in funnel valve), or to papillary muscle anomalies (hypoplasia or agenesis, shortening, elongation, single-parachute, or multiple-hammock valve). Coding Notes: This diagnosis is for mitral/systemic AV valve insufficiency of a native valve only Do not code this diagnosis if the mitral/systemic AV valve insufficiency is in a prosthetic valve; instead, code diagnosis (1330) Prosthetic valve failure. When coding multiple mitral/systemic AV valvar lesions,

Code:	Value:	Definition:
		the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect. See General Information Valve Related Diagnosis for more information.
720	Mitral or systemic AV valve, Other	Mitral systemic AV valve pathology not otherwise included in the diagnosis list. Coding Notes: See General Information Valve Related Diagnosis for more information.
730	Hypoplastic left heart syndrome (HLHS)	Hypoplastic left heart syndrome (HLHS) is a spectrum of cardiac malformations characterized by a severe underdevelopment of the left heart-aorta complex, consisting of aortic and/or mitral valve atresia, stenosis, or hypoplasia with marked hypoplasia or absence of the left ventricle, and hypoplasia of the ascending aorta and of the aortic arch with coarctation of the aorta. Hypoplastic left heart complex is a subset of patients at the favorable end of the spectrum of HLHS characterized by hypoplasia of the structures of the left heart-aorta complex, consisting of aortic and mitral valve hypoplasia without valve stenosis or atresia, hypoplasia of the left ventricle, hypoplasia of the left ventricular outflow tract, hypoplasia of the ascending aorta and of the aortic arch, with or without coarctation of the aorta. Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2760) Hypoplastic left heart syndrome (HLHS), AA+MA • (2770) Hypoplastic left heart syndrome (HLHS), AA+MS

Code:	Value:	Definition:
		• (2780) Hypoplastic left heart syndrome (HLHS), AS+MA • (2790) Hypoplastic left heart syndrome (HLHS), AS+MS
2760	Hypoplastic left heart syndrome (HLHS), AA+MA	Hypoplastic left heart syndrome (HLHS) with aortic valve atresia (AA) and mitral valve atresia (MA).
2770	Hypoplastic left heart syndrome (HLHS), AA+MS	Hypoplastic left heart syndrome (HLHS) with aortic valve atresia (AA) and mitral valve stenosis (MS).
2780	Hypoplastic left heart syndrome (HLHS), AS+MA	Hypoplastic left heart syndrome (HLHS) with aortic valve stenosis (AS) and mitral valve atresia (MA).
2790	Hypoplastic left heart syndrome (HLHS), AS+MS	Hypoplastic left heart syndrome (HLHS) with aortic valve stenosis (AS) and mitral valve stenosis (MS).
2080	Shone's syndrome	Shone's syndrome is a syndrome of multilevel hypoplasia and obstruction of left sided cardiovascular structures including more than one of the following lesions: (1) supravalvar ring of the left atrium, (2) a parachute deformity of the mitral valve, (3) subaortic stenosis, and (4) aortic coarctation. The syndrome is based on the original report from Shone [1] that was based on analysis of 8 autopsied cases and described the tendency of these four obstructive, or potentially obstructive, conditions to coexist. Only 2 of the 8 cases exhibited all four conditions, with the other cases exhibiting only two or three of the anomalies [2]. <u>Coding Notes</u>: *Note:* Shone's syndrome CANNOT be the primary diagnosis of an operation. However, it can be the

Code:	Value:	Definition:
		fundamental diagnosis and included as a secondary diagnosis. Code the components of Shone's syndrome present, including: (1) supravalvar ring of the left atrium, (2) a parachute deformity of the mitral valve, (3) subaortic stenosis, and (4) aortic coarctation. *References: [1] Shone JD, Sellers RD, Anderson RG, Adams P, Lillehei CW, Edwards JE. The developmental complex of "parachute mitral valve", supravalvar ring of left atrium, subaortic stenosis, and coarctation of the aorta. Am J Cardiol 1963; 11: 714–725. [2]. Tchervenkov CI, Jacobs JP, Weinberg PM, Aiello VD, Beland MJ, Colan SD, Elliott MJ, Franklin RC, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G. The nomenclature, definition and classification of hypoplastic left heart syndrome. Cardiology in the* Young, 2006; 16(4): 339–368, *August 2006.*
740	Cardiomyopathy (including dilated, restrictive, and hypertrophic)	Cardiomyopathy is a term applied to a wide spectrum of cardiac diseases in which the predominant feature is poor myocardial function in the absence of any anatomic abnormalities. Cardiomyopathies can be divided into three relatively easily distinguishable entities: (1) dilated, characterized by ventricular dilatation and systolic dysfunction; (2) hypertrophic, characterized by physiologically inappropriate hypertrophy of the left ventricle; and (3) restrictive, characterized by diastolic dysfunction, with a presentation often identical to constrictive pericarditis. Also included in this diagnostic category are patients with a cardiomyopathy or syndrome confined to the right ventricle, for example: (1) arrhythmogenic right ventricular dysplasia; (2) Uhl's syndrome (hypoplasia of right ventricular myocardium, parchment heart); or (3) spongiform cardiomyopathy. <u>Coding Notes</u>: Do not use this diagnosis if the cardiomyopathy occurs in the setting of structural congenital heart disease;

Code:	Value:	Definition:
		instead, code diagnosis (750) Cardiomyopathy, End-stage congenital heart disease.
750	Cardiomyopathy, End-stage congenital heart disease	Myocardial abnormality in which there is systolic and/or diastolic dysfunction in the presence of structural congenital heart disease without any (or any further) surgically correctable lesions.
760	Pericardial effusion	Inflammatory stimulation of the pericardium that results in the accumulation of appreciable amounts of pericardial fluid (also known as effusive pericarditis). The effusion may be idiopathic or acquired (e.g., postoperative, infectious, uremic, neoplastic, traumatic, drug-induced).
770	Pericarditis	Inflammatory process of the pericardium that leads to either (1) effusive pericarditis with accumulation of appreciable amounts of pericardial fluid or (2) constrictive pericarditis that leads to pericardial thickening and compression of the cardiac chambers, ultimately with an associated significant reduction in cardiac function. Etiologies are varied and include idiopathic or acquired (e.g., postoperative, infectious, uremic, neoplastic, traumatic, drug-induced) pericarditis.
780	Pericardial disease, Other	A structural or functional abnormality of the visceral or parietal pericardium that may, or may not, have a significant impact on cardiac function. Included are absence or partial defects of the pericardium.

General Information Single Ventricle Diagnoses

The version of the IPCCC derived from the International Congenital Heart Surgery Nomenclature and Database Project of the EACTS and STS uses the term "single ventricle" as synonymous for the "functionally univentricular heart."

The term “functionally univentricular heart” describes a spectrum of congenital cardiovascular malformations in which the ventricular mass may not readily lend

itself to partitioning that commits one ventricular pump to the systemic circulation, and another to the pulmonary circulation.

A heart may be functionally univentricular because of its anatomy or because of the lack of feasibility or lack of advisability of surgically partitioning the ventricular mass. Common lesions in this category typically include double inlet right ventricle (DIRV), double inlet left ventricle (DILV), tricuspid atresia, mitral atresia, and hypoplastic left heart syndrome. Other lesions which sometimes may be considered to be a functionally univentricular heart include complex forms of atrioventricular septal defect, double outlet right ventricle, congenitally corrected transposition, pulmonary atresia with intact ventricular septum etc. Specific diagnostic codes should be used whenever possible, and not the term functionally univentricular heart.

Reference: Jacobs JP, Franklin RCG, Jacobs ML, Colan SD, Tchervenkov CI, Maruszewski B, Gaynor JW, Spray TL, Stellin G, Aiello VD, Béland MJ, Krogmann ON, Kurosawa H, Weinberg PM, Elliott MJ, Mavroudis C, Anderson R. Classification of the Functionally Univentricular Heart: Unity from mapped codes. In 2006 Supplement to Cardiology in the Young: Controversies and challenges in the Management of the Functionally Univentricular Heart, Jacobs JP, Wernovsky G, Gaynor JW, and Anderson RH (editors). Cardiology in the Young, Volume 16, Supplement 1: 9 - 21, February 2006.

Code:	Value:	Definition:
790	Single ventricle, DILV	A congenital cardiac malformation in which both atria connect to a single, morphologically left ventricle. Coding Notes: See General Information Single Ventricle Diagnoses for more information.
800	Single ventricle, DIRV	A congenital cardiac malformation in which both atria connect to a single, morphologically right ventricle. Coding Notes: See General Information Single Ventricle Diagnoses for more information.
810	Single ventricle, Mitral atresia	A congenital cardiac malformation in which there is no orifice of mitral valve.

Code:	Value:	Definition:
		Coding Notes: See General Information Single Ventricle Diagnoses for more information.
820	Single ventricle, Tricuspid atresia	A congenital cardiac malformation in which there is no orifice of tricuspid valve. Coding Notes: See General Information Single Ventricle Diagnoses for more information.
840	Single ventricle, Heterotaxia syndrome	A single ventricle in the setting of heterotaxia syndrome. Heterotaxia syndrome is synonymous with heterotaxy, visceral heterotaxy, and heterotaxy syndrome. Heterotaxy is defined as an abnormality where the internal thoraco-abdominal organs demonstrate abnormal arrangement across the left-right axis of the body. By convention, heterotaxy does not include patients with either the expected usual or normal arrangement of the internal organs along the left-right axis, also known as situs solitus, nor patients with complete mirror-imaged arrangement of the internal organs along the left-right axis also known as situs inversus. Coding Notes: See General Information Single Ventricle Diagnoses for more information.
850	Single ventricle, Other	A single ventricle not otherwise described in the diagnosis list. If the single ventricle is of primitive or indeterminate type, other is chosen in coding. Coding Notes: See General Information Single Ventricle Diagnoses for

Code:	Value:	Definition:
		more information. While it is recognized that a considerable variety of other structural cardiac malformations (e.g., biventricular hearts with straddling atrioventricular valves, pulmonary atresia with intact ventricular septum, some complex forms of double outlet right ventricle) may at times be best managed in a fashion similar to that which is used to treat univentricular hearts. Code the respective lesions regardless of the treatment approach; do not use the diagnosis Single ventricle, Other.
851	Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)	Single ventricle exists in combination with total anomalous pulmonary venous connection (TAPVC). Coding Notes: Use this diagnosis in the event of single ventricle existing in combination with TAPVC, and then code additional secondary diagnostic codes to describe the single ventricle and the TAPVC separately to provide further information. See the individual diagnosis codes and General Information Single Ventricle Diagnoses for further information.

General Information CCTGA and TGA Diagnoses

CCTGA

Congenitally corrected transposition of the great arteries (CCTGA) (L-TGA) is synonymous with the terms corrected transposition and discordant atrioventricular connections with discordant ventriculoarterial connections and is defined as a spectrum of cardiac malformations where the atrial chambers are joined to morphologically inappropriate ventricles, and the ventricles then support morphologically inappropriate arterial trunks [1].

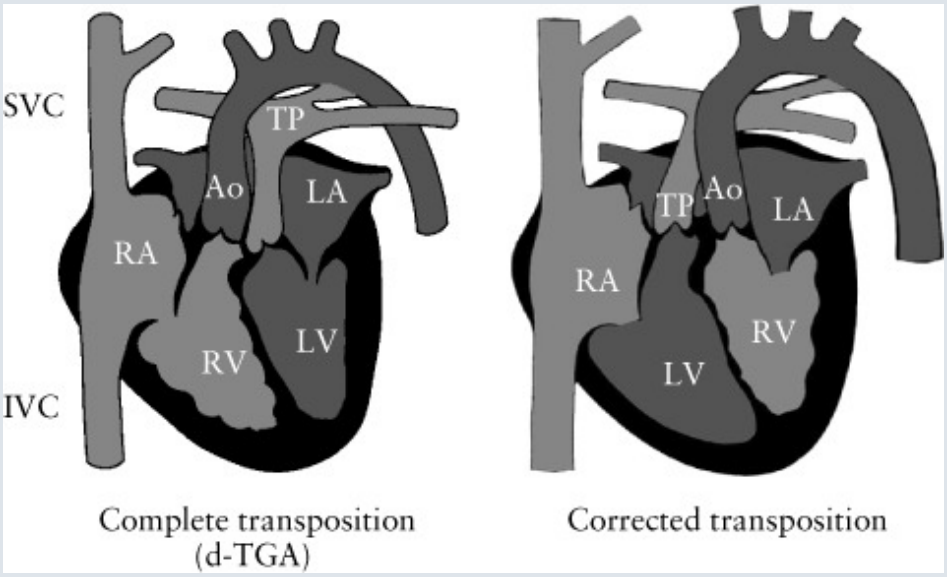
CCTGA is a different lesion from transposition of the great arteries (TGA or d-TGA). In

CCTGA, the two ventricles and their attached valves are reversed. In TGA, the connections between the ventricles and atria are concordant.

TGA

TGA is defined as a malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with an intact ventricular septum (without a ventricular septal defect [VSD]). The pulmonary artery arises from the left ventricle and the aorta arises from the right ventricle.

In TGA, there may be d, l, or ambiguous transposition (segmental diagnoses include S, D, D, S, D, L, S, D, A). Also to be included in this diagnostic grouping are those defects with situs inversus, L-loop ventricles and either d or l transposition (segmental diagnosis of I,L, L and I,L,D) and occasionally those defects with ambiguous situs of the atria which behave as physiologically uncorrected transposition and are treated with arterial switch (segmental diagnoses include A,L,L and A,D,D).



https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/uog.896

Reference: [1] Jacobs JP, Franklin RCG, Wilkinson JL, Cochrane AD, Karl TR, Aiello VD, Béland MJ, Colan SD, Elliott, MJ, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G, Tchervenkov CI, Weinberg PM. The nomenclature, definition and classification of discordant atrioventricular connections. In 2006 Supplement to Cardiology in the Young: Controversies and Challenges of the Atrioventricular Junctions and Other Challenges Facing Paediatric Cardiovascular Practitioners and their Patients, Jacobs JP, Wernovsky G, Gaynor JW, and Anderson RH (editors). Cardiology in the Young, Volume 16 (Supplement 3): 72-84, September

2006.

Code:	Value:	Definition:
870	Congenitally corrected TGA	Congenitally corrected transposition of the great arteries (CCTGA) is defined as a spectrum of cardiac malformations where the atrial chambers are joined to morphologically inappropriate ventricles, and the ventricles then support morphologically inappropriate arterial trunks. Coding Notes: Only use this diagnosis if it is ***not*** known if the patient has one of the following more specific diagnoses: • (872) Congenitally corrected TGA, IVS • (874) Congenitally corrected TGA, IVS-LVOTO • (876) Congenitally corrected TGA, VSD • (878) Congenitally corrected TGA, VSD-LVOTO • (2800) Congenitally corrected TGA, IVS + Coarctation or arch hypoplasia or arch interruption • (2810) Congenitally corrected TGA, VSD + Coarctation or arch hypoplasia or arch interruption See General Information CCTGA and TGA Diagnoses for more information.
872	Congenitally corrected TGA, IVS	Congenitally corrected TGA, IVS is congenitally corrected transposition of the great arteries (CCTGA) with an intact ventricular septum, or without a ventricular septal defect (VSD). Coding Notes: Do not use this diagnosis if the patient has CCTGA, IVS with LVOTO; instead, code diagnosis (874) CCTGA, IVS-LVOTO.

Code:	Value:	Definition:
		In the event CCTGA, IVS exists with coarctation of the aorta, aortic arch hypoplasia, or aortic arch interruption, code diagnosis (2800) CCTGA, IVS + Coarctation or arch hypoplasia or arch interruption and include more specific secondary diagnostic terms to further describe. See General Information CCTGA and TGA Diagnoses for more information.
874	Congenitally corrected TGA, IVS-LVOTO	Congenitally corrected TGA, IVS-LVOTO is Congenitally corrected transposition of the great arteries (CCTGA) with an intact ventricular septum (without a ventricular septal defect [VSD]) and left ventricular outflow tract obstruction. The left ventricular outflow tract obstruction may occur at the level of or below the pulmonary valve and may include pulmonary stenosis or pulmonary atresia. Coding Notes: See General Information CCTGA and TGA Diagnoses for more information.
876	Congenitally corrected TGA, VSD	Congenitally corrected TGA, VSD is Congenitally corrected transposition of the great arteries (CCTGA) with a ventricular septal defect (VSD). Coding Notes: Do use this diagnosis if the patient has CCTGA, VSD with left ventricular outflow tract obstruction (pulmonary stenosis or pulmonary atresia); instead, code diagnosis (878) CCTGA, VSD-LVOTO. In the event CCTGA, VSD exists with coarctation of the aorta, aortic arch hypoplasia, or interrupted aortic arch, code diagnosis (2810) CCTGA, VSD + Coarctation or arch hypoplasia or arch interruption and include more specific secondary diagnostic terms to further describe.

Code:	Value:	Definition:
		See General Information CCTGA and TGA Diagnoses for more information.
878	Congenitally corrected TGA, VSD-LVOTO	Congenitally corrected TGA, VSD-LVOTO is Congenitally corrected transposition of the great arteries (CCTGA) with a ventricular septal defect (VSD) and left ventricular outflow tract obstruction. The left ventricular outflow tract obstruction may occur at the level of or below the pulmonary valve and may include pulmonary stenosis or atresia. Coding Notes: See General Information CCTGA and TGA Diagnoses for more information.
2800	Congenitally corrected TGA, IVS + Coarctation or arch hypoplasia or arch interruption	Congenitally corrected TGA, IVS exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption. Coding Notes: In the event CCTGA, IVS exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption, code this combination code and include more specific secondary diagnostic terms to further describe the coarctation or arch hypoplasia or arch interruption. See the individual diagnosis codes and General Information CCTGA and TGA Diagnoses for more information.
2810	Congenitally corrected TGA, VSD + Coarctation or arch hypoplasia or arch interruption	Congenitally corrected TGA, VSD exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption. Coding Notes: In the event CCTGA, VSD exists in combination with

Code:	Value:	Definition:
		coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption, code this combination code and include more specific secondary diagnostic terms to further describe the coarctation or arch hypoplasia or arch interruption. See the individual diagnosis codes and General Information CCTGA and TGA Diagnoses for more information.
880	TGA, IVS	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with an intact ventricular septum (without a ventricular septal defect [VSD]). The pulmonary artery arises from the left ventricle and the aorta arises from the right ventricle. Coding Notes: See General Information CCTGA and TGA Diagnoses for more information. Do not code in the event TGA, IVS exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption; instead, code (2820) TGA, IVS + Coarctation or arch hypoplasia or arch interruption and then use additional secondary diagnosis codes to further describe the coarctation or arch hypoplasia or arch interruption.
890	TGA, IVS-LVOTO	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with an intact ventricular septum (without a ventricular septal defect [VSD]) and associated left ventricular obstruction. The left ventricular outflow tract obstruction may occur at the level of or below the pulmonary valve and may include pulmonary stenosis or atresia. Coding Notes:

Code:	Value:	Definition:
		See General Information CCTGA and TGA Diagnoses for more information.
900	TGA, VSD	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with one or more ventricular septal defects (VSD)s. The pulmonary artery arises from the left ventricle and the aorta arises from the right ventricle. Coding Notes: Do not use in the event TGA, VSD exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption; instead, code (2830) TGA, VSD + Coarctation or arch hypoplasia or arch interruption and then use additional secondary diagnosis codes to further describe the coarctation or arch hypoplasia or arch interruption. See General Information CCTGA and TGA Diagnoses for more information.
910	TGA, VSD-LVOTO	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with one or more ventricular septal defects (VSD)s and left ventricular outflow tract obstruction. The pulmonary artery arises from the left ventricle and the aorta arises from the right ventricle. The left ventricular outflow tract obstruction may occur at the level of or below the pulmonary valve and may include pulmonary stenosis or atresia. Coding Notes: See General Information CCTGA and TGA Diagnoses for more information.
2820	TGA, IVS + Coarctation or arch hypoplasia or arch interruption	TGA, IVS exists in combination with coarctation or arch hypoplasia or arch interruption.

Code:	Value:	Definition:
		Coding Notes: In the event of TGA, IVS exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption, code (2820) TGA, IVS + Coarctation or arch hypoplasia or arch interruption and then use additional secondary diagnosis codes to further describe the coarctation or arch hypoplasia or arch interruption. See the individual diagnosis codes and General Information CCTGA and TGA Diagnoses for more information.
2830	TGA, VSD + Coarctation or arch hypoplasia or arch interruption	TGA, VSD exists in combination with coarctation or arch hypoplasia or arch interruption. Coding Notes: In the event of TGA, VSD exists in combination with coarctation of the aorta or aortic arch hypoplasia or aortic arch interruption, code (2830) TGA, VSD + Coarctation or arch hypoplasia or arch interruption and then use additional (secondary) diagnosis codes to further describe the coarctation or arch hypoplasia or arch interruption. See the individual diagnosis codes and General Information CCTGA and TGA Diagnoses for more information.

General Information DORV Diagnoses

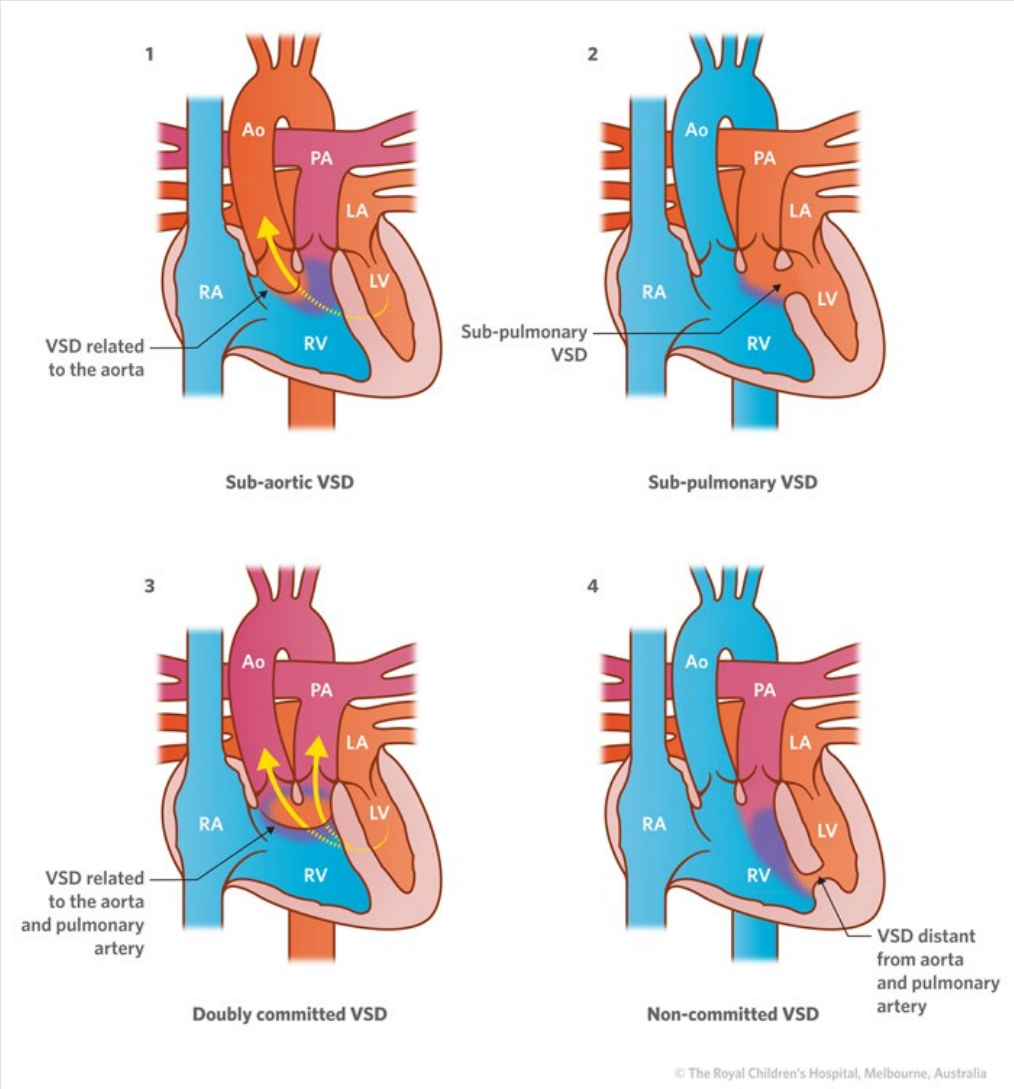
Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle.

In the nomenclature developed for DORV, there must be usual atrial arrangements and concordant atrioventricular connections, and normal or near-normal sized ventricles.

Discordant atrioventricular connection with DORV is to be coded under congenitally corrected TGA. DORV associated with univentricular atrioventricular connections, atrioventricular valve atresia, or atrial isomerism is to be coded under the appropriate single ventricle listing.

DORV may occur with other congenital heart defects and those should be included as separate diagnoses.

Controversy surrounds the differentiation between tetralogy of Fallot and DORV; in the nomenclature used here, DORV is defined as a type of ventriculoarterial connection in which both great vessels arise predominantly from the right ventricle and the presence of mitral-aortic discontinuity.



https://www.rch.org.au/cardiology/heart_defects/Double_Outlet_Right_Ventricle/

Code:	Value:	Definition:
930	DORV, VSD type	Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In DORV, ventricular septal defect (VSD) type, there is an associated subaortic or doubly committed VSD and no pulmonary outflow tract obstruction. Subaortic VSD's are located beneath the aortic valve. Doubly committed VSD's lie beneath the leaflets of the aortic and pulmonary valves (juxtaarterial). Coding Notes: See General Information for DORV Diagnoses for more information.
940	DORV, TOF type	Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In DORV, tetralogy of Fallot (TOF) type, there is an associated subaortic or doubly committed VSD and pulmonary outflow tract obstruction. Subaortic VSD's are located beneath the aortic valve. Doubly committed VSD's lie beneath the leaflets of the aortic and pulmonary valves (juxtaarterial). DORV can occur in association with pulmonary atresia. Coding Notes: In the event DORV occurs in combination with pulmonary atresia, DORV is the primary diagnosis, and the pulmonary atresia should be included as a secondary diagnosis. See General Information for DORV Diagnoses for more information.
950	DORV, TGA type	Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels

Code:	Value:	Definition:
		arise entirely or predominantly from the right ventricle. In DORV, transposition of the great arteries (TGA) type, there is an associated subpulmonary ventricular septal defect (VSD). Most frequently, there is no pulmonary outflow tract obstruction (Taussig-Bing heart). The aorta is usually to the right and slightly anterior to or side-by-side with the pulmonary artery. Associated aortic outflow tract stenosis (subaortic, aortic arch obstruction) is commonly associated with the Taussig-Bing heart. Rarely, there is associated pulmonary outflow tract obstruction. Coding Notes: In the event DORV occurs in combination with aortic outflow tract stenosis (subaortic or aortic arch obstruction), include as secondary diagnosis codes. See General Information for DORV Diagnoses for more information.
960	DORV, Remote VSD (uncommitted VSD)	Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In DORV, Remote ventricular septal defect (VSD) type, there is a remote or noncommitted VSD. The VSD is far removed from both the aortic and pulmonary valves, usually within the inlet septum. Many of these VSDs are in hearts with DORV and common atrioventricular canal/septal defect. Coding Notes: See General Information for DORV Diagnoses for more information.
2030	DORV + AVSD (AV Canal)	Double outlet right ventricle (DORV) exists in combination with atrioventricular septal defect (AVSD). DORV is a type of ventriculoarterial connection in which

Code:	Value:	Definition:
		both great vessels arise entirely or predominantly from the right ventricle. In this case, the DORV exists in combination with an AVSD, and common atrioventricular (AV) junction guarded by a common AV valve. Coding Notes: In the event of DORV occurring in combination with AVSD, code diagnosis (2030) DORV + AVSD (AV Canal) and then use additional secondary diagnosis codes to further describe the DORV and the AVSD (AV Canal) separately. See General Information for DORV Diagnoses for more information.
975	DORV, IVS	Double outlet right ventricle (DORV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In the rare case of DORV with intact ventricular septum (IVS), the ventricular septum is intact (no ventricular septal defect). Coding Notes: See General Information for DORV Diagnoses for more information.
980	DOLV	Double outlet left ventricle (DOLV) is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the left ventricle. In the nomenclature developed for DOLV, there must be usual atrial arrangements and concordant atrioventricular connections, and normal or near-normal sized ventricles. Coding Notes: Discordant atrioventricular connection with DOLV is to be coded under congenitally corrected TGA.

Code:	Value:	Definition:
		DOLV associated with univentricular atrioventricular connections, atrioventricular valve atresia, or atrial isomerism is to be coded under the appropriate single ventricle listing.
990	Coarctation of aorta	A coarctation of the aorta (COA) generally indicates a narrowing of the descending thoracic aorta just distal to the left subclavian artery. However, the term may also be accurately used to refer to a region of narrowing anywhere in the thoracic or abdominal aorta. Coding Notes: Do not use this diagnosis in the event COA exists in combination with a ventricular septal defect (VSD); instead, code diagnosis (94) VSD + Coarctation of aorta and then use additional secondary diagnosis codes to describe the VSD type.
1000	Aortic arch hypoplasia	Hypoplasia of the aortic arch is hypoplasia of the proximal or distal transverse arch or the aortic isthmus. The isthmus (arch between the left subclavian and insertion of the patent ductus arteriosus/ligamentum arteriosum) is hypoplastic if its diameter is less than 40% of the diameter of the ascending aorta. The proximal transverse arch (arch between the innominate and left carotid arteries) and distal transverse arch (arch between the left carotid and left subclavian arteries) are hypoplastic if their diameters are less than 60% and 50%, respectively, of the diameter of the ascending aorta. Coding Notes: Do not use this diagnosis in the event aortic arch hypoplasia exists in combination with a ventricular septal defect (VSD); instead, code diagnosis (92) VSD + Aortic arch hypoplasia and then use additional (secondary) diagnostic codes to describe the VSD type.

Code:	Value:	Definition:
92	VSD + Aortic arch hypoplasia	A ventricular septal defect (VSD), any type, in combination with hypoplasia of the aortic arch. Coding Notes: See the individual diagnosis codes for further information. In the event VSD exists in combination with aortic arch hypoplasia, code (92) VSD + Aortic arch hypoplasia and then use additional (secondary) diagnostic codes to describe the VSD type.
94	VSD + Coarctation of aorta	A ventricular septal defect (VSD), any type, associated with coarctation of the aorta. Coding Notes: See the individual diagnosis codes for further information. In the event VSD exists in combination with coarctation of the aorta, code (94) VSD + coarctation of the aorta and then use additional (secondary) diagnostic codes to describe the VSD type.
1010	Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA)	Anomalous aortic origins of the coronary arteries include a spectrum of anatomic variations of the normal coronary artery origins. Coronary artery anomalies of aortic origin to be coded under this diagnostic field include the following: anomalies of take-off (high take-off), origin (sinus), branching, and number. An anomalous course of the coronary artery vessels is also significant, particularly those coronary arteries that arise or course between the great vessels. Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses:

Code:	Value:	Definition:
		• (2840) Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Left coronary artery from right sinus • (2850) Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Right coronary artery from left sinus
2840	Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Left coronary artery from right sinus	Anomalous aortic origin of a coronary artery where the left coronary artery originates from the right coronary sinus. The course of the anomalous vessel may be interarterial (between the aorta and pulmonary artery), intramural (the coronary artery has grown within the aortic wall), or intraseptal (the anomalous coronary vessel courses within the heart muscle).
2850	Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Right coronary artery from left sinus	Anomalous aortic origin of a coronary artery where the right coronary artery originates from the left coronary sinus. The course of the anomalous vessel may be interarterial (between the aorta and pulmonary artery), intramural (the coronary artery has grown within the aortic wall), or intraseptal (the anomalous coronary vessel courses within the heart muscle).
2860	Coronary artery Anomaly, Intramural coronary	Intramural coronary artery (ICA) is a rare congenital coronary artery anomaly where a portion of a coronary artery runs through the myocardium beneath a muscle bridge (myocardial bridge) rather than coursing on top of the surface of the heart.
1020	Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)	In patients with anomalous pulmonary origin of the coronary artery, the coronary artery (most commonly the left coronary artery) arises from the pulmonary artery rather than from the aorta. Rarely, the right coronary artery, the circumflex, or both coronary arteries may arise from the pulmonary artery.
1030	Coronary artery anomaly, Fistula	The most common of coronary artery anomalies, a coronary arteriovenous fistula is a communication between a coronary artery and either a chamber of the heart (coronary-cameral fistula) or any segment of the

Code:	Value:	Definition:
		systemic or pulmonary circulation (coronary arteriovenous fistula). They may be congenital or acquired (traumatic, infectious, iatrogenic) in origin, and are mostly commonly seen singly, but occasionally multiple fistulas are present. Nomenclature schemes have been developed that further categorize the fistulas by vessel of origin and chamber of termination, and one angiographic classification scheme by Sakakibara has surgical implications. Coronary artery fistulas can be associated with other congenital heart anomalies such as tetralogy of Fallot, atrial septal defect, ventricular septal defect, and pulmonary atresia with intact ventricular septum, among others. The major cardiac defect should be listed as the fundamental diagnosis.
1040	Coronary artery anomaly, Aneurysm	Coronary artery aneurysms are defined as dilations of a coronary vessel 1.5 times the adjacent normal coronaries. There are two forms, saccular and fusiform (most common), and both may be single or multiple. These aneurysms may be congenital or acquired (atherosclerotic, Kawasaki, systemic diseases other than Kawasaki, iatrogenic, infectious, or traumatic) in origin.
2420	Coronary artery anomaly, Ostial Atresia	A coronary anomaly where the left or right coronary ostia is atretic causing occlusion of blood flow into the coronary artery and is associated with hypoplasia of the corresponding coronary artery.
1050	Coronary artery anomaly, Other	Coronary artery anomalies not otherwise included in the diagnosis list. <u>Coding Notes</u>: Includes coronary artery stenosis. Includes other secondary coronary artery variations seen with other structural heart defects including tetralogy of Fallot, transposition of the great arteries,

Code:	Value:	Definition:
		and truncus arteriosus unless otherwise listed in a more specific coronary artery diagnosis.
1070	Interrupted aortic arch	Interrupted aortic arch (IAA) is defined as the loss of luminal continuity between the ascending and descending aorta. In most cases, blood flow to the descending thoracic aorta is through a PDA, and there is a large VSD. Arch interruption is further defined by site of interruption. In type A, interruption is distal to the left subclavian artery; in type B interruption is between the left carotid and left subclavian arteries; and in type C interruption occurs between the innominate and left carotid arteries. Coding Notes: Do not use in the event IAA exists in combination with VSD; instead, code diagnosis (2020) Interrupted aortic arch + VSD and then use additional (secondary) diagnostic codes to describe the type of VSD. Do not use in the event IAA exists in combination with AP window, instead code diagnosis (2000) Interrupted aortic arch + AP window (aortopulmonary window). Do not use for near IAA. Work with your surgeon to determine if the arch is truly interrupted or if the more accurate diagnosis is severe aortic arch hypoplasia.
2020	Interrupted aortic arch + VSD	Interrupted aortic arch (IAA) exists in combination with ventricular septal defect (VSD). Coding Notes: See the individual diagnosis codes for further information. In the event IAA exists in combination with VSD, code diagnosis (2020) Interrupted aortic arch + VSD and then use additional (secondary) diagnostic codes to describe

Code:	Value:	Definition:
		the type of VSD
2000	Interrupted aortic arch + AP window (aortopulmonary window)	Interrupted aortic arch (IAA) exists in combination with aortopulmonary (AP) window. Coding Notes: See the individual diagnosis codes for further information.
1080	Patent ductus arteriosus	The ductus arteriosus (arterial duct) is an essential feature of fetal circulation, connecting the main pulmonary trunk with the descending aorta, distal to the origin of the left subclavian artery. In most patients it is on the left side. If a right aortic arch is present, it may be on the right or the left; very rarely it is bilateral. When luminal patency of the duct persists postnatally, it is referred to as patent ductus arteriosus (PDA) or patent arterial duct. A PDA is a vascular arterial connection between the thoracic aorta and the pulmonary artery. Most commonly, a PDA has its origin from the descending thoracic aorta, just distal and opposite the origin of the left subclavian artery. The insertion of the ductus is most commonly into the very proximal left pulmonary artery at its junction with the main pulmonary artery. Origination and insertion sites can be variable. The length and diameter may vary considerably from case to case. The media of the ductus consists mainly of smooth muscle that is arranged spirally, and the intima is much thicker than that of the aorta.
1090	Vascular ring	Vascular ring refers to a group of congenital vascular anomalies that encircle and compress the esophagus and trachea. The compression may be from a complete or incomplete anatomic ring (e.g., double aortic arch or right aortic arch with a left ligamentum). Coding Notes:

Code:	Value:	Definition:
		Do not code if the compression effect is related to a vessel; instead, code diagnosis (2870) Esophageal compression by vessel or diagnosis (2880) Tracheal compression by vessel as appropriate.
1100	Pulmonary artery sling	In pulmonary artery sling, the left pulmonary artery originates from the right pulmonary artery and courses posteriorly between the trachea and esophagus in its route to the left lung hilum, causing a sling-like compression of the trachea.
2870	Esophageal compression by vessel	Extrinsic esophageal compression from a great vessel in the absence of a complete/incomplete vascular ring often resulting in dysphagia. Coding Notes: Includes dysphagia lusoria where an aberrant right subclavian artery from a left aortic arch compresses the esophagus.
2880	Tracheal compression by vessel	Extrinsic compression of the airway (tracheal/bronchial) from a great vessel resulting in symptoms includes inspiratory stridor and expiratory wheezing. Coding Notes: Includes innominate artery compression syndrome where the innominate artery compresses the trachea. Includes compression of the left mainstem bronchus following aortic arch reconstruction.
1110	Aortic aneurysm (including pseudoaneurysm)	An aneurysm of the aorta is defined as a localized dilation or enlargement of the aorta at any site along its length (from aortic annulus to aortoiliac bifurcation). A true aortic aneurysm involves all layers of the aortic wall. A false aortic aneurysm (pseudoaneurysm) is defined as a dilated segment of the aorta not containing all layers of the aortic wall and may include postoperative or post-procedure false aneurysms at

Code:	Value:	Definition:
		anastomotic sites, traumatic aortic injuries or transections, and infectious processes leading to a contained rupture.
1120	Aortic dissection	Aortic dissection is a separation of the layers of the aortic wall. Extension of the plane of the dissection may progress to free rupture into the pericardium, mediastinum, or pleural space if not contained by the outer layers of the media and adventitia. Dissections may be classified as acute or chronic (if they have been present for more than 14 days).
1130	Lung disease, Benign	Lung disease arising from any etiology (congenital or acquired) which does not result in death or lung or heart-lung transplant; examples might be non-life-threatening asthma or emphysema, benign cysts etc.
1140	Lung disease, Malignant	Lung disease arising from any etiology (congenital or acquired, including pulmonary parenchymal disease, pulmonary vascular disease, congenital heart disease, neoplasm, etc.) which may result in death or lung or heart-lung transplant.
1160	Tracheal stenosis	Tracheal stenosis is a reduction in the anatomic luminal diameter of the trachea by more than 50% of the remaining trachea. This stenosis may be congenital or acquired (as in post-intubation or traumatic tracheal stenosis).
2430	Tracheomalacia	A condition where the cartilage in the trachea did not develop correctly or was damaged, resulting in flaccidity (floppiness) of the trachea causing difficulty breathing.
1170	Airway disease, Other	Included in this diagnostic category would be airway pathology not otherwise included in the diagnosis list. Coding Notes: Includes bronchotracheomalacia, tracheal right upper lobe, bronchomalacia, subglottic stenosis, bronchial

Code:	Value:	Definition:
		stenosis, etc.
1430	Pleural disease, Benign	Benign diseases of the mediastinal or visceral pleura.
1440	Pleural disease, Malignant	Malignant diseases of the mediastinal or visceral pleura.
1450	Pneumothorax	A collection of air or gas in the pleural space.
1460	Pleural effusion	Abnormal accumulation of fluid in the pleural space.
1470	Chylothorax	The presence of lymphatic fluid in the pleural space secondary to a leak from the thoracic duct or its branches. Chylothorax is a specific type of pleural effusion.
1480	Empyema	A collection of purulent material in the pleural space, usually secondary to an infection.
1490	Esophageal disease, Benign	Any benign disease of the esophagus.
1500	Esophageal disease, Malignant	Any malignant disease of the esophagus.
1505	Mediastinal disease	Any disease of the mediastinum awaiting final benign/malignant pathology determination. Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (1510) Any benign disease of the mediastinum. • (1520) Any malignant disease of the mediastinum.
1510	Mediastinal disease, Benign	Any benign disease of the mediastinum.
1520	Mediastinal disease,	Any malignant disease of the mediastinum.

Code:	Value:	Definition:
	Malignant	
1540	Diaphragm paralysis	Paralysis of diaphragm, unilateral or bilateral.
1550	Diaphragm disease, Other	Any disease of the diaphragm other than paralysis.
2160	Rib tumor, Benign	Non-cancerous tumor of rib(s) (e.g., fibrous dysplasia).
2170	Rib tumor, Malignant	Cancerous tumor of rib(s)- primary (e.g., osteosarcoma, chondrosarcoma).
2180	Rib tumor, Metastatic	Cancerous tumor metastasized to rib(s) from a different primary location.
2190	Sternal tumor, Benign	Non-cancerous tumor of sternum (e.g., fibrous dysplasia).
2200	Sternal tumor, Malignant	Cancerous tumor of sternum - primary (e.g., osteosarcoma, chondrosarcoma).
2210	Sternal tumor, Metastatic	Cancerous tumor metastasized to sternum from a different primary location.
2220	Pectus carinatum	Pectus carinatum represents a spectrum of protrusion abnormalities of the anterior chest wall. Severe deformity may result in dyspnea and decreased endurance. Some patients develop rigidity of the chest wall with decreased lung compliance, progressive emphysema, and increased frequency of respiratory tract infections.
2230	Pectus excavatum	Pectus excavatum is a congenital chest wall deformity in which several ribs and the sternum grow abnormally, producing a concave, or caved-in, appearance in the anterior chest wall. Pectus excavatum is the most common type of congenital chest wall abnormality. It occurs in an estimated 1 in 300-400 births, with male predominance (male-to-female ratio of 3:1). The condition is typically noticed at birth, and more than

Code:	Value:	Definition:
		90% of cases are diagnosed within the first year of life. Worsening of the chest's appearance and the onset of respiratory symptoms are usually reported during rapid bone growth in the early teenage years.
2240	Thoracic outlet syndrome	Thoracic outlet syndrome (TOS) is caused by compression at the superior thoracic outlet wherein excess pressure is placed on a neurovascular bundle passing between the anterior scalene and middle scalene muscles. It can affect the brachial plexus (nerves that pass into the arm from the neck), the subclavian artery, and - rarely - the vein, which does not normally pass through the scalene hiatus. TOS may occur due to a positional cause, for example, by abnormal compression from the clavicle (collarbone) and shoulder girdle on arm movement. There are also several static forms, caused by abnormalities, enlargement, or spasm of the various muscles surrounding the arteries, veins, and/or brachial plexus, a fixation of a first rib, or a cervical rib. The most common causes of thoracic outlet syndrome include physical trauma from a car accident, repetitive injuries from a job such as frequent non-ergonomic use of a keyboard, sports-related activities, anatomical defects such as having an extra rib, and pregnancy.
		Arrhythmia general statement and reference Code arrhythmias if documented in the medical record as being present as a surgical diagnosis. *[1]. Jacobs JP. (Editor). 2008 Supplement to Cardiology in the Young: Databases and The Assessment of Complications associated with The Treatment of Patients with Congenital Cardiac Disease, Prepared by: The Multi-Societal Database Committee for Pediatric and Congenital Heart Disease, Cardiology in the Young, Volume 18, Supplement S2, pages 1 – 530, December 9, 2008, page 379.*

General Information for Arrhythmia Diagnoses

Coding Info:

- Code arrhythmias if documented in the medical record as being present as a diagnosis.
- The arrhythmia does not need to be present at OR entry date/time nor does it have to be addressed during the current surgical procedure.

Reference: Jacobs JP. (Editor). 2008 Supplement to Cardiology in the Young: Databases and The Assessment of Complications associated with The Treatment of Patients with Congenital Cardiac Disease, Prepared by: The Multi-Societal Database Committee for Pediatric and Congenital Heart Disease, Cardiology in the Young, Volume 18, Supplement S2, pages 1 –530, December 9, 2008, page 379.

Code:	Value:	Definition:
1180	Arrhythmia	Any cardiac rhythm other than normal sinus rhythm. The definition of normal sinus rhythm is each beat has a QRS complex; each QRS is preceded by a p-wave with normal morphology; and the PR interval is greater than 0.12 seconds (except in patients with situs inversus). Coding Notes: Includes scenarios where a surgeon or cardiologist diagnoses a patient < 18-years of age with sinus tachycardia, sinus bradycardia, or slow sinus rhythm. See General Information for Arrhythmia Diagnoses for more information.
2440	Arrhythmia, Atrial, Atrial fibrillation	A cardiac condition where the atria beat out of sync with the ventricles. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.

Code:	Value:	Definition:
2450	Arrhythmia, Atrial, Atrial flutter	A cardiac condition where the atria beat too quickly. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
2460	Arrhythmia, Atrial, Other	Cardiac arrhythmias originating in the atria not including atrial fibrillation or atrial flutter. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
2050	Arrhythmia, Junctional	Arrhythmias arising from the atrioventricular junction; may be bradycardia, tachycardia, premature beats, or escape rhythm. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
2060	Arrhythmia, Ventricular	Arrhythmia, Ventricular' is an abnormal rhythm originating from the ventricles. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
1185	Arrhythmia, Heart block	Atrioventricular block is a condition where the electrical signals that control the heartbeat is partially or completely blocked, may be congenital or acquired, and may be of varying degree (first, second, or third degree). Coding Notes: Only use this diagnosis if it is NOT known if the patient has one of the following more specific diagnoses: • (1190) Arrhythmia, Heart block, Acquired

Code:	Value:	Definition:
		• (1200) Arrhythmia, Heart block, Congenital See General Information for Arrhythmia Diagnoses for more information.
1190	Arrhythmia, Heart block, Acquired	Atrioventricular (AV) block is a condition where the electrical signals that control the heartbeat is partially or completely blocked. When acquired, AV block may be post-surgical, or secondary to myocarditis or other etiologies; the block may be first, second or third degree. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
1200	Arrhythmia, Heart block, Congenital	Atrioventricular (AV) block is a condition where the electrical signals that control the heartbeat is partially or completely blocked. Congenital AV block may be first-, second-, or third-degree block. Coding Notes: See General Information for Arrhythmia Diagnoses for more information.
1220	Arrhythmia, Pacemaker, Indication for replacement	Indications for pacemaker replacement may include end of generator life, malfunction, or infection. Coding Notes: Includes indications for automatic implantable cardioverter-defibrillator (AICD) placements. *Note*: This diagnosis CANNOT be the fundamental diagnosis. See General Information for Arrhythmia Diagnoses for more information.
2530	Short QT syndrome	A rare genetic channelopathy of the heart where the

Code:	Value:	Definition:
		time interval between the contracting and relaxing of the heart muscle is short resulting in an irregular heart rhythm. Coding Notes: *Note*: Do not include this diagnosis in the Syndrome section of the database. See General Information for Arrhythmia Diagnoses for more information.
2540	Long QT Syndrome (Ward Romano syndrome)	A cardiac condition that may be inherited or acquired where the time interval for heart muscle contraction and recovery is prolonged increasing the risk of torsades de pointes, a life-threatening arrhythmia. Coding Notes: Includes all types of Long QT syndrome, not just those associated with Ward Romano syndrome (Ward Romano will be removed in a future See General Information for Arrhythmia Diagnoses for more information.
2550	Wolff-Parkinson-White syndrome (WPWsyndrome)	A congenital cardiac condition where an extra electrical pathway in the heart leads to tachycardia or rapid heart rate. Coding Notes: *Note*: Do not include this diagnosis in the Syndrome section of the database. See General Information for Arrhythmia Diagnoses for more information.
1230	Atrial Isomerism, Left	In isomerism, both appendages are of like morphology or structure; in left atrial isomerism both the right atrium and left atrium appear to be a left atrium structurally.

Code:	Value:	Definition:
		Coding Notes: *Note*: This diagnosis CANNOT be the primary diagnosis of any operation.
1240	Atrial Isomerism, Right	In isomerism, both appendages are of like morphology or structure; in right atrial isomerism both the right atrium and left atrium appear to be a right atrium structurally. Coding Notes: Note: This diagnosis CANNOT be the primary diagnosis of any operation.
2890	Interrupted IVC with azygos continuation	Also known as azygos continuation of the inferior vena cava (IVC), Interruped IVC with azygos continuation is a rare congenital condition where the hepatic segment of the IVC fails to develop and lower limb venous drainage is completed via the azygous veins into the superior vena cava (SVC). The condition is more likely to occur in patients with congenital heart disease. Coding Notes: *Note*: This diagnosis CANNOT be the primary *or* fundamental diagnosis.
2090	Dextrocardia	Dextrocardia' is most usually considered synonymous with a right-sided ventricular mass, whilst ''dextroversion'' is frequently defined as a configuration where the ventricular apex points to the right. In a patient with the usual atrial arrangement, or situs solitus, dextroversion, therefore, implies a turning to the right of the heart [1]. Coding Notes: *Note*: This diagnosis CANNOT be the primary *or* fundamental diagnosis.

Code:	Value:	Definition:
		Reference: [1]. Jacobs JP, Anderson RH, Weinberg P, Walters III HL, Tchervenkov CI, Del Duca D, Franklin RCG, Aiello VD, Béland MJ, Colan SD, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G, Elliott MJ. The nomenclature, definition and classification of cardiac structures in the setting of heterotaxy. In 2007 Supplement to Cardiology in the Young: Controversies and Challenges Facing Paediatric Cardiovascular Practitioners and their Patients, Anderson RH, Jacobs JP, and Wernovsky G, editors. Cardiology in the Young, Volume 17, Supplement 2, pages 1–28, doi: 10.1017/S1047951107001138, September 2007.
2100	Levocardia	Levocardia usually considered synonymous with a left-sided ventricular mass, whilst levoversion is frequently defined as a configuration where the ventricular apex points to the left. Coding Notes: *Note*: This diagnosis CANNOT be the primary *or* fundamental diagnosis. It is suggested to code this diagnosis in the setting of complex congenital heart disease. *Reference: Jacobs JP, Anderson RH, Weinberg P, Walters III HL, Tchervenkov CI, Del Duca D, Franklin RCG, Aiello VD, Béland MJ, Colan SD, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G, Elliott MJ. The nomenclature, definition and classification of cardiac structures in the setting of heterotaxy. In 2007 Supplement to Cardiology in the Young: Controversies and Challenges Facing Paediatric Cardiovascular Practitioners and their Patients, Anderson RH, Jacobs JP, and Wernovsky G, editors. Cardiology in the Young, Volume 17, Supplement 2, pages 1–28, doi: 10.1017/S1047951107001138, September 2007.*
2110	Mesocardia	Mesocardia is most usually considered synonymous with the ventricular mass occupying the midline. Coding Notes: *Note*: This diagnosis CANNOT be the primary *or* fundamental diagnosis.

Code:	Value:	Definition:
		Reference: Jacobs JP, Anderson RH, Weinberg P, Walters III HL, Tchervenkov CI, Del Duca D, Franklin RCG, Aiello VD, Béland MJ, Colan SD, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G, Elliott MJ. The nomenclature, definition and classification of cardiac structures in the setting of heterotaxy. In 2007 Supplement to Cardiology in the Young: Controversies and Challenges Facing Paediatric Cardiovascular Practitioners and their Patients, Anderson RH, Jacobs JP, and Wernovsky G, editors. Cardiology in the Young, Volume 17, Supplement 2, pages 1–28, doi: 10.1017/S1047951107001138, September 2007.
2120	Situs inversus	Situs inversus of the atrial chambers. The development of morphologically right-sided structures on one side of the body, and morphologically left-sided structures on the other side, is termed lateralization. Normal lateralization, the usual arrangement, is also known as situs solitus. The mirror-imaged arrangement is also known as situs inversus. The term visceroatrial situs is often used to refer to the situs of the viscera and atria when their situs is in agreement. The arrangement of the organs themselves, and the arrangement of the atrial chambers, is not always the same. Should such disharmony be encountered, the sidedness of the organs and atrial chambers must be separately specified. <u>Coding Notes</u>: *Note*: Also code situs inversus in the Syndrome section of the database. *Note*: This diagnosis CANNOT be the primary *or* fundamental diagnosis. *Reference: Jacobs JP, Anderson RH, Weinberg P, Walters III HL, Tchervenkov CI, Del Duca D, Franklin RCG, Aiello VD, Béland MJ, Colan SD, Gaynor JW, Krogmann ON, Kurosawa H, Maruszewski B, Stellin G, Elliott MJ. The nomenclature, definition and classification of cardiac structures in the setting of heterotaxy. In 2007 Supplement to Cardiology in the Young: Controversies and Challenges Facing Paediatric Cardiovascular Practitioners and*

Code:	Value:	Definition:
		their Patients, Anderson RH, Jacobs JP, and Wernovsky G, editors. Cardiology in the Young, Volume 17, Supplement 2, pages 1–28, doi: 10.1017/S1047951107001138, September 2007.
1250	Aneurysm, Ventricular, Right (including pseudoaneurysm)	An aneurysm of the right ventricle is defined as a localized dilation or enlargement of the right ventricular wall.
1260	Aneurysm, Ventricular, Left (including pseudoaneurysm)	An aneurysm of the left ventricle is defined as a localized dilation or enlargement of the left ventricular wall.
1270	Aneurysm, Pulmonary artery	An aneurysm of the pulmonary artery is defined as a localized dilation or enlargement of the pulmonary artery trunk and its central branches (right and left pulmonary artery).
1280	Aneurysm, Other	A localized dilation or enlargement of a cardiac vessel or chamber not coded in specific fields available for aortic aneurysm, sinus of Valsalva aneurysm, coronary artery aneurysm, right ventricular aneurysm, left ventricular aneurysm, or pulmonary artery aneurysm.
1290	Hypoplastic RV	Small size of the right ventricle. This morphological abnormality usually is an integral part of other congenital cardiac anomalies and, therefore, frequently does not need to be coded separately. It should, however, be coded as secondary to an accompanying congenital cardiac anomaly if the right ventricular hypoplasia is not considered an integral and understood part of the primary congenital cardiac diagnosis. It would rarely be coded as a primary and/or isolated diagnosis. <u>Coding Notes</u>: Note: This diagnosis CANNOT be the fundamental

Code:	Value:	Definition:
		diagnosis.
1300	Hypoplastic LV	Small size of the left ventricle. This morphological abnormality usually is an integral part of other congenital cardiac anomalies and, therefore, frequently does not need to be coded separately. It should, however, be coded as secondary to an accompanying congenital cardiac anomaly if the left ventricular hypoplasia is not considered an integral and understood part of the primary congenital cardiac diagnosis. It would rarely be coded as a primary and/or isolated diagnosis. Coding Notes: Note: This diagnosis CANNOT be the fundamental diagnosis.
2070	Postoperative bleeding	Indicate if the patient has the diagnosis of postoperative bleeding. Coding Notes: Note: This diagnosis CANNOT be the fundamental diagnosis.
1310	Mediastinitis	Inflammation/infection of the mediastinum, the cavity between the lungs which holds the heart, great vessels, trachea, esophagus, thymus, and connective tissues. In the United States mediastinitis occurs most commonly following chest surgery. Coding Notes: Infection involves any part of the body deeper than the fascia/muscle layers that is opened or manipulated during the operative procedure **and** the patient must meet *at least one* of the following numbered criteria:

Code:	Value:	Definition:
		1. patient has organisms cultured from mediastinal tissue or fluid that is obtained during a surgical operation or by needle aspiration. 2. patient has evidence of mediastinitis by histopathologic examination or visual evidence of mediastinitis seen during a surgical operation. 3. patient has *at least one* of the following signs or symptoms with no other recognized cause: • fever • chest pain • sternal instability *and at least one* of the following: • purulent mediastinal drainage • widening of the cardio-mediastinal silhouette 4. patient ≤ 1-year of age has at least one of the following signs or symptoms with no other recognized cause: • fever • hypothermia • apnea • bradycardia • sternal instability *and at least one* of the following: • purulent mediastinal drainage • widening of the cardio-mediastinal silhouette Infections of the sternum (sternal osteomyelitis) should be classified as mediastinitis
2910	~~Mediastinitis~~ Wound infection, Deep	*Note*: This is intended to capture **Wound infection, Deep**. This will be updated in a future upgrade. Wound infection, Deep is an infection involving the deep soft tissues (e.g., fascial and muscle layers) of the

Code:	Value:	Definition:
		incision. Coding Notes: Code this diagnosis if the patient has a wound infection involving the deep soft tissues (e.g., fascial and muscle layers) of the incision ***and*** the patient has at least one of the following numbered features: 1. purulent drainage from the deep portion of the incision (but not from the organ / space component of the surgical site and no evidence of sternal osteomyelitis) 2. the deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has *one* of the following lettered signs or symptoms (unless the incision is culture negative): a) fever (> 38 C) b) localized pain c) tenderness 3. an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination 4. a diagnosis of a deep wound infection by a surgeon or by an attending physician. Use this diagnosis to capture deep wound infections of any surgical wound.
2920	~~Mediastinitis,~~ Wound infection, Superficial	*Note*: This is intended to capture **Wound infection, Superficial**. This will be updated in a future upgrade. Wound infection, Superficial is defined as an infection involving the skin and subcutaneous tissue of the incision.

Code:	Value:	Definition:
		Coding Notes: Code this diagnosis if the patient has a wound infection involving only the skin and the subcutaneous tissue of the incision ***and*** the patient has *at least one* of the following lettered features: A. purulent drainage from the superficial portion of the incision B. organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial portion of the incision C. at least *one* of the following numbered signs or symptoms: (1) pain or tenderness (2) localized swelling, redness, or heat (3) the superficial portion of the incision is deliberately opened by a surgeon, unless the incision is culture negative D. a diagnosis of superficial wound infection by the surgeon or by the attending physician. The following do not qualify as a superficial wound infection: • diagnosis/treatment of cellulitis (redness/warmth/ swelling), by itself, does not meet criterion (D) for superficial SSI. Conversely, an incision that is draining or that has organisms identified by culture or non-culture-based testing is not considered a cellulitis. • **s**titch abscess alone (minimal inflammation and discharge confined to the points of suture penetration).

Code:	Value:	Definition:
		Use this diagnosis to capture superficial wound infections of any surgical wound.
1320	Endocarditis	An infection of the endocardial surface of the heart, which may involve one or more heart valves (native or prosthetic) or septal defects or prosthetic patch material placed at previous surgery.
1325	Rheumatic heart disease	Heart disease, usually valvar (e.g., mitral or aortic), following an infection with group A streptococci. Coding Notes: Note: This diagnosis CANNOT be the primary *or* fundamental diagnosis.
1330	Prosthetic valve failure	This diagnosis is intended to capture patients undergoing replacement of a previously placed valve (not conduit) prosthesis, whatever type (e.g., bioprosthetic, mechanical, etc.). The failure may be due to patient somatic growth, malfunction of the prosthesis, or calcification or overgrowth of the prosthesis (e.g., pannus formation). Secondary or fundamental diagnosis would relate to the underlying valve disease entity. Coding Notes: This diagnosis is intended to capture failure of a non-native valve, regardless of position (e.g., aortic/neo-aortic/truncal or pulmonary/neo-pulmonary etc.). Do not use this diagnosis to capture failure of a valved conduit; instead, code diagnosis (520) Conduit failure. *Note*: This diagnosis CANNOT be the fundamental diagnosis. *Example:* a patient undergoing replacement of a prosthetic pulmonary valve previously placed for

Code:	Value:	Definition:
		pulmonary insufficiency after repair of tetralogy of Fallot (TOF) would have a primary diagnosis of (1330) Prosthetic valve failure and the specific TOF type as the fundamental diagnosis.
1340	Myocardial infarction	A myocardial infarction is the development of myocardial necrosis caused by a critical imbalance between the oxygen supply and demand of the myocardium. While a myocardial infarction may be caused by any process that causes this imbalance it most commonly results from plaque rupture with thrombus formation in a coronary vessel, resulting in an acute reduction of blood supply to a portion of the myocardium. Myocardial infarction is a usual accompaniment of anomalous left coronary artery from the pulmonary artery (ALCAPA). Coding Notes: Note: This diagnosis CANNOT be the fundamental diagnosis.
1350	Cardiac tumor, Unspecified	An abnormal growth of tissue in or on the heart, demonstrating partial or complete lack of structural organization, and no functional coordination with normal cardiac tissue. Commonly, a mass is recognized which is distinct from the normal structural components of the heart. A primary cardiac tumor is one that arises directly from tissues of the heart, (e.g., myxoma, fibroelastoma, rhabdomyoma, fibroma, lipoma, pheochromocytoma, teratoma, hemangioma, mesothesioloma, sarcoma). A secondary cardiac tumor is one that arises from tissues distant from the heart, with subsequent spread to the otherwise normal tissues of the heart, (e.g., renal cell tumor with caval extension from the kidney to the level of the heart or tumor with extension from other organs or areas of the body (hepatic, adrenal, uterine, infradiaphragmatic).

Code:	Value:	Definition:
		Coding Notes: Includes primary or secondary cardiac tumors. Only use this diagnosis if it is *NOT* known if the patient has one of the following more specific diagnoses: • (2930) Cardiac tumor, Ventricular fibroma • (2940) Cardiac tumor, Ventricular rhabdomyoma • (2950) Cardiac tumor, Atrial myxoma In this version, cardiac thrombus and cardiac vegetation are no longer included as primary cardiac tumors; instead, code diagnosis (1560) Cardiac, Other.
2930	Cardiac tumor, Ventricular fibroma	A rare benign primary cardiac tumor made of fibroblast and connective tissue in the ventricular myocardium.
2940	Cardiac tumor, Ventricular rhabdomyoma	A rare benign primary cardiac tumor that typically grows in clusters in the ventricular myocardium
2950	Cardiac tumor, Atrial myxoma	A benign primary cardiac tumor most commonly found in the left atrium.
2960	Pericardial teratoma	A rare benign tumor that originates from the pericardium or sac surrounding the heart and are often attached to the outside of the pulmonary artery or aorta.
1360	Pulmonary AV fistula	An abnormal intrapulmonary connection (fistula) between an artery and vein that occurs in the blood vessels of the lungs. Pulmonary AV fistulas may be seen in association with congenital heart defects; the associated cardiac defect should be coded as well.
1370	Pulmonary embolism	A pulmonary embolus is a blockage of an artery in the lungs by fat, air, clumped tumor cells, or a blood clot.
1385	Pulmonary vascular	Pulmonary vascular obstructive disease (PVOD) other

Code:	Value:	Definition:
	obstructive disease	than those specifically defined elsewhere (Eisenmenger's pulmonary vascular obstructive disease, primary pulmonary hypertension, persistent fetal circulation). The spectrum includes PVOD arising from (1) pulmonary arterial hypertension or (2) pulmonary venous hypertension or (3) portal hypertension, or (4) collage vascular disease, or (5) drug or toxin induced, or (6) diseases of the respiratory system, or (7) chronic thromboembolic disease, among others. Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (1390) Pulmonary vascular obstructive disease (Eisenmenger's) • (1400) Primary pulmonary hypertension • (1410) Persistent fetal circulation
1390	Pulmonary vascular obstructive disease (Eisenmenger's)	Eisenmenger syndrome could briefly be described as acquired severe pulmonary vascular disease associated with congenital heart disease. In Eisenmenger-type pulmonary vascular obstructive disease, long-term left-to-right shunting (e.g., through a ventricular or atrial septal defect, patent ductus arteriosus, aortopulmonary window) can lead to chronic pulmonary hypertension with resultant pathological changes in the pulmonary vessels. The vessels become thick-walled, stiff, noncompliant, and may be obstructed. In Eisenmenger syndrome, the long-term left-to-right shunting will reverse and become right to left. As PVOD progresses, the pulmonary vascular resistance will exceed the systemic vascular resistance, and the patients become cyanotic due to right-to-left shunting across their defects, also commonly known as Eisenmenger syndrome. The natural history for patients who develop PVOD/Eisenmenger syndrome in association with large interventricular or great vessel communications is very poor with a mean survival of 11

Code:	Value:	Definition:
		years, and surgical intervention after PVOD has developed will usually not reverse this progressive and ultimately fatal disorder and may actually shorten survival. Therefore, the timing of surgical intervention must be directed at preventing the development of irreversible pulmonary vascular disease and should take into account both the age of the patient and the presence of other factors which are associated with an accelerated pace of development of irreversible PVOD, including Down syndrome and coexisting transposition of the great arteries. Coding Notes: If present, the specific heart defect should be coded in addition to this diagnosis. *Reference: Mayer JE. Pathophysiology of Pediatric and Congenital Heart Disease. In: Baumgartner WA, Jacobs JP, Darling GE, eds. Adult and Pediatric Cardiac Surgery. STS Cardiothoracic Surgery E-Book. Chicago: Society of Thoracic Surgeons; 2021. ebook.sts.org. Accessed September 14, 2021.*
1400	Primary pulmonary hypertension	Primary pulmonary hypertension is a rare disease characterized by elevated pulmonary artery hypertension with no apparent cause. Two forms are included in the nomenclature, a sporadic form and a familial form which can be linked to the BMPR-II gene.
1410	Persistent fetal circulation	Persistence of the blood flow pattern seen in fetal life, in which high pulmonary vascular resistance in the lungs results in decreased blood flow to the lungs. Normally, after birth pulmonary pressure falls with a fall in pulmonary vascular resistance and there is increased perfusion of the lungs. Persistent fetal circulation, also known as persistent pulmonary hypertension of the newborn, can be related to lung or diaphragm malformations or lung immaturity.
1420	Meconium aspiration	Aspiration of amniotic fluid stained with meconium before, during, or after birth can lead to pulmonary sequelae including (1) pneumothorax, (2)

Code:	Value:	Definition:
		pneumomediastinum, (3) pneumopericardium, (4) lung infection, and (5) meconium aspiration syndrome (MAS) with persistent pulmonary hypertension.
2250	Kawasaki disease	Kawasaki disease, also known as Kawasaki syndrome, is an acute febrile illness of unknown etiology that primarily affects children younger than 5 years of age. It was first described in Japan in 1967, and the first cases outside of Japan were reported in Hawaii in 1976. It is characterized by fever, rash, swelling of the hands and feet, irritation and redness of the whites of the eyes, swollen lymph glands in the neck, and irritation and inflammation of the mouth, lips, and throat. Serious complications of Kawasaki disease include coronary artery dilatations and aneurysms, and Kawasaki disease is a leading cause of acquired heart disease in children in the United States. The standard treatment with intravenous immunoglobulin and aspirin substantially decreases the development of coronary artery abnormalities.
1560	Cardiac, Other	Any cardiac diagnosis not specifically delineated in other diagnostic codes.
1570	Thoracic and/or mediastinal, Other	Any thoracic and/or mediastinal disease not specifically delineated in other diagnostic codes.
1580	Peripheral vascular, Other	Any peripheral vascular disease (congenital or acquired) or injury (from trauma or iatrogenic); vessels involved may include, but are not limited to femoral artery, femoral vein, iliac artery, brachial artery, etc.
2260	Complication of cardiovascular catheterization procedure	Unspecified complication of cardiovascular catheterization procedure. <u>Coding Notes</u>: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses: • (2270) Complication of cardiovascular

Code:	Value:	Definition:
		catheterization procedure, Device embolization • (2280) Complication of cardiovascular catheterization procedure, Device malfunction • (2290) Complication of cardiovascular catheterization procedure, Perforation *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2270	Complication of cardiovascular catheterization procedure, Device embolization	Migration or movement of device introduced during a cardiac catheterization procedure to an unintended location. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2280	Complication of cardiovascular catheterization procedure, Device malfunction	Malfunction of a device introduced during a cardiac catheterization procedure. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2290	Complication of cardiovascular catheterization procedure, Perforation	Perforation or puncture caused by a device introduced during a cardiac catheterization procedure. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2300	Complication of interventional radiology procedure	Unspecified complication of interventional radiology procedure. Coding Notes: Only use this diagnosis if it is *not* known if the patient has one of the following more specific diagnoses:

Code:	Value:	Definition:
		• (2310) Complication of interventional radiology procedure, Device embolization • (2320) Complication of interventional radiology procedure, Device malfunction • (2330) Complication of interventional radiology procedure, Perforation *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2310	Complication of interventional radiology procedure, Device embolization	Migration or movement of device introduced during an interventional radiology procedure to an unintended location. Coding Notes: Note: This diagnosis CANNOT be the fundamental diagnosis.
2320	Complication of interventional radiology procedure, Device malfunction	Malfunction of a device introduced during an interventional radiology procedure. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2330	Complication of interventional radiology procedure, Perforation	Perforation or puncture caused by a device introduced during an interventional radiology procedure. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2340	Foreign body, Intracardiac foreign body	Presence of a foreign body within the heart.
2350	Foreign body,	Presence of a foreign body within an artery or vein.

Code:	Value:	Definition:
	Intravascular foreign body	
2360	Open sternum with closed skin	Sternotomy edges not re-approximated prior to closure of skin incision. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2370	Open sternum with open skin (includes membrane placed to close skin)	Sternotomy and skin incision left open following surgery, covered with a membrane or dressing. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2380	Retained sternal wire causing irritation	Surgically placed wire causing soft tissue irritation, pain or swelling (not infected). Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
2390	Syncope	A transient, self-limited loss of consciousness with an inability to maintain postural tone that is followed by spontaneous recovery. The term syncope excludes seizures, coma, shock, or other states of altered consciousness.
2400	Trauma, Blunt	Injury (ies) sustained from blunt force, caused by motor vehicle accidents, falls, blows or crush injuries.
2410	Trauma, Penetrating	Injury (ies) sustained as a result of sharp force, including cutting or piercing instruments or objects, bites, or firearm injuries from projectiles.
2560	Cardio-respiratory failure not secondary	Heart-lung failure in a patient without structural heart disease.

Code:	Value:	Definition:
	to known structural heart disease	
2570	Myocarditis	Inflammation of the myocardium (heart muscle).
2590	Protein-losing enteropathy	Serum protein loss from the gastrointestinal tract or the inability to absorb protein. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis
2600	Plastic bronchitis	Lymphatic flow disorder impacting the lungs; lymphatic fluid builds up in the lungs and forms plugs (casts) blocking the airways. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.
7000	Normal heart	Normal heart. Coding Notes: Use this diagnosis if there is no other more specific diagnosis included in this list.
7777	Miscellaneous, Other	Any disease (congenital or acquired) not specifically delineated in other diagnostic codes. Coding Notes: *Note*: This diagnosis CANNOT be the fundamental diagnosis.

Long Name: Primary Diagnosis

SeqNo:	1070
Short Name:	PrimaryDiagnosis
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the diagnosis of primary importance for this surgical procedure.

Harvest Codes:

Code:	Value:
10	PFO
20	ASD, Secundum
30	ASD, Sinus venosus
40	ASD, Coronary sinus
50	ASD, Common atrium (single atrium)
2150	ASD, Postoperative interatrial communication
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)
73	VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)
75	VSD, Type 3 (Inlet) (AV canal type)
77	VSD, Type 4 (Muscular)
79	VSD, Type: Gerbode type (LV-RA communication)
80	VSD, Multiple
100	AVC (AVSD), Complete (CAVSD)
2610	AVC (AVSD), Complete (CAVSD), Left dominant
2620	AVC (AVSD), Complete (CAVSD), Rightdominant
2630	AVC (AVSD), Complete (CAVSD), Balanced
110	AVC (AVSD), Intermediate (transitional)
2640	AVC (AVSD), Intermediate (transitional), Left dominant
2650	AVC (AVSD), Intermediate (transitional), Right dominant
2660	AVC (AVSD), Intermediate (transitional), Balanced
120	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)
2670	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Left dominant
2680	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Right dominant
2690	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Balanced
2580	Common AV valve insufficiency
2970	Common AV valve stenosis
830	Single ventricle, Unbalanced AV canal
140	AP window (aortopulmonary window)
150	Pulmonary artery origin from ascending aorta (hemitruncus)
160	Truncus arteriosus
2010	Truncus arteriosus + Interrupted aortic arch
180	Partial anomalous pulmonary venous connection (PAPVC)
190	Partial anomalous pulmonary venous connection (PAPVC), scimitar

200 Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)
210 Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)
220 Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)
230 Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)
250 Cor triatriatum
260 Pulmonary venous stenosis
2480 Pulmonary venous stenosis, Acquired
2490 Pulmonary venous stenosis, Spontaneous
270 Systemic venous anomaly
280 Systemic venous obstruction
290 TOF
2140 TOF, Pulmonary stenosis
300 TOF, AVC (AVSD)
310 TOF, Absent pulmonary valve
320 Pulmonary atresia
330 Pulmonary atresia, IVS
340 Pulmonary atresia, VSD (Including TOF, PA)
350 Pulmonary atresia, VSD-MAPCA
360 MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)
370 Ebstein's anomaly
2700 Dysplastic Tricuspid or non-systemic atrioventricular valve, non-Ebstein's
410 Tricuspid or non-systemic atrioventricular valve, Other
420 Pulmonary stenosis, pulmonary or neo-pulmonary Valvar
430 Pulmonary artery stenosis (hypoplasia), Main (trunk)
440 Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)
450 Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)
470 Pulmonary artery, Discontinuous
490 Pulmonary stenosis, Subvalvar
500 DCRV
510 Pulmonary or neo-pulmonary valve, Other
530 Pulmonary or neo-pulmonary valve insufficiency
540 Pulmonary or neo-pulmonary valve insufficiency and stenosis
2130 Shunt failure
2730 Shunt Problem
2740 Shunt Problem, Excess pulmonary blood flow (pulmonary overcirculation)
2750 Shunt Problem, Inadequate pulmonary blood flow
520 Conduit failure
550 Aortic stenosis, Subvalvar
2500 Aortic stenosis, Subvalvar, Discrete
2510 Aortic stenosis, Subvalvar, IHSS
2520 Aortic stenosis, Subvalvar, Tunnel-like
560 Aortic stenosis, aortic, neo-aortic, or truncal, Valvar
570 Aortic stenosis, Supravalvar
590 Aortic valve atresia

600 Aortic, neo-aortic or truncal valve insufficiency
610 Aortic, neo-aortic or truncal valve insufficiency and stenosis
620 Aortic, neo-aortic or truncal valve, Other
630 Sinus of Valsalva aneurysm
640 LV to aorta tunnel
650 Mitral or systemic AV valve stenosis, Supravalvar ring
660 Mitral or systemic AV valve stenosis, Valvar
670 Mitral or systemic AV valve stenosis, Subvalvar
680 Mitral or systemic AV valve stenosis, Subvalvar, Parachute
700 Mitral or systemic AV valve insufficiency and stenosis
710 Mitral or systemic AV valve insufficiency
720 Mitral or systemic AV valve, Other
730 Hypoplastic left heart syndrome (HLHS)
2760 Hypoplastic left heart syndrome (HLHS), AA+MA
2770 Hypoplastic left heart syndrome (HLHS), AA+MS
2780 Hypoplastic left heart syndrome (HLHS), AS+MA
2790 Hypoplastic left heart syndrome (HLHS), AS+MS
740 Cardiomyopathy (including dilated, restrictive, and hypertrophic)
750 Cardiomyopathy, End-stage congenital heart disease
760 Pericardial effusion
770 Pericarditis
780 Pericardial disease, Other
790 Single ventricle, DILV
800 Single ventricle, DIRV
810 Single ventricle, Mitral atresia
820 Single ventricle, Tricuspid atresia
840 Single ventricle, Heterotaxia syndrome
850 Single ventricle, Other
851 Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)
870 Congenitally corrected TGA
872 Congenitally corrected TGA, IVS
874 Congenitally corrected TGA, IVS-LVOTO
876 Congenitally corrected TGA, VSD
878 Congenitally corrected TGA, VSD-LVOTO
2800 Congenitally corrected TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2810 Congenitally corrected TGA, VSD + Coarctation or arch hypoplasia or arch interruption
880 TGA, IVS
890 TGA, IVS-LVOTO
900 TGA, VSD
910 TGA, VSD-LVOTO
2820 TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2830 TGA, VSD + Coarctation or arch hypoplasia or arch interruption

930 DORV, VSD type
940 DORV, TOF type
950 DORV, TGA type
960 DORV, Remote VSD (uncommitted VSD)
2030 DORV + AVSD (AV Canal)
975 DORV, IVS
980 DOLV
990 Coarctation of aorta
1000 Aortic arch hypoplasia
92 VSD + Aortic arch hypoplasia
94 VSD + Coarctation of aorta
1010 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA)
2840 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Left coronary artery from right sinus
2850 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Right coronary artery from left sinus
2860 Coronary artery Anomaly, Intramural coronary
1020 Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
1030 Coronary artery anomaly, Fistula
1040 Coronary artery anomaly, Aneurysm
2420 Coronary artery anomaly, Ostial Atresia
1050 Coronary artery anomaly, Other
1070 Interrupted aortic arch
2020 Interrupted aortic arch + VSD
2000 Interrupted aortic arch + AP window (aortopulmonary window)
1080 Patent ductus arteriosus
1090 Vascular ring
1100 Pulmonary artery sling
2870 Esophageal compression by vessel
2880 Tracheal compression by vessel
1110 Aortic aneurysm (including pseudoaneurysm)
1120 Aortic dissection
1130 Lung disease, Benign
1140 Lung disease, Malignant
1160 Tracheal stenosis
2430 Tracheomalacia
1170 Airway disease, Other
1430 Pleural disease, Benign
1440 Pleural disease, Malignant
1450 Pneumothorax
1460 Pleural effusion
1470 Chylothorax
1480 Empyema
1490 Esophageal disease, Benign

1500 Esophageal disease, Malignant
1505 Mediastinal disease
1510 Mediastinal disease, Benign
1520 Mediastinal disease, Malignant
1540 Diaphragm paralysis
1550 Diaphragm disease, Other
2160 Rib tumor, Benign
2170 Rib tumor, Malignant
2180 Rib tumor, Metastatic
2190 Sternal tumor, Benign
2200 Sternal tumor, Malignant
2210 Sternal tumor, Metastatic
2220 Pectus carinatum
2230 Pectus excavatum
2240 Thoracic outlet syndrome
1180 Arrhythmia
2440 Arrhythmia, Atrial, Atrial fibrillation
2450 Arrhythmia, Atrial, Atrial flutter
2460 Arrhythmia, Atrial, Other
2050 Arrhythmia, Junctional
2060 Arrhythmia, Ventricular
1185 Arrhythmia, Heart block
1190 Arrhythmia, Heart block, Acquired
1200 Arrhythmia, Heart block, Congenital
1220 Arrhythmia, Pacemaker, Indication for replacement
2530 Short QT syndrome
2540 Long QT Syndrome (Ward Romano syndrome)
2550 Wolff-Parkinson-White syndrome (WPWsyndrome)
1250 Aneurysm, Ventricular, Right (including pseudoaneurysm)
1260 Aneurysm, Ventricular, Left (including pseudoaneurysm)
1270 Aneurysm, Pulmonary artery
1280 Aneurysm, Other
1290 Hypoplastic RV
1300 Hypoplastic LV
2070 Postoperative bleeding
1310 Mediastinitis
2910 ~~Mediastinitis,~~ Wound infection, Deep
2920 ~~Mediastinitis,~~ Wound infection, Superficial
1320 Endocarditis
1330 Prosthetic valve failure
1340 Myocardial infarction
1350 Cardiac tumor, Unspecified
2930 Cardiac tumor, Ventricular fibroma
2940 Cardiac tumor, Ventricular rhabdomyoma

2950 Cardiac tumor, Atrial myxoma
2960 Pericardial teratoma
1360 Pulmonary AV fistula
1370 Pulmonary embolism
1385 Pulmonary vascular obstructive disease
1390 Pulmonary vascular obstructive disease (Eisenmenger's)
1400 Primary pulmonary hypertension
1410 Persistent fetal circulation
1420 Meconium aspiration
2250 Kawasaki disease
1560 Cardiac, Other
1570 Thoracic and/or mediastinal, Other
1580 Peripheral vascular, Other
2260 Complication of cardiovascular catheterization procedure
2270 Complication of cardiovascular catheterization procedure, Device embolization
2280 Complication of cardiovascular catheterization procedure, Device malfunction
2290 Complication of cardiovascular catheterization procedure, Perforation
2300 Complication of interventional radiology procedure
2310 Complication of interventional radiology procedure, Device embolization
2320 Complication of interventional radiology procedure, Device malfunction
2330 Complication of interventional radiology procedure, Perforation
2340 Foreign body, Intracardiac foreign body
2350 Foreign body, Intravascular foreign body
2360 Open sternum with closed skin
2370 Open sternum with open skin (includes membrane placed to close skin)
2380 Retained sternal wire causing irritation
2390 Syncope
2400 Trauma, Blunt
2410 Trauma, Penetrating
2560 Cardio-respiratory failure not secondary to known structural heart disease
2570 Myocarditis
2590 Protein-losing enteropathy
2600 Plastic bronchitis
7000 Normal heart
7777 Miscellaneous, Other

Intent/Clarification:

Indicate the primary diagnosis for this operation. The primary diagnosis is the principal diagnostic reason for performing the operation. Refer to the diagnosis definitions and intent/clarifications in SeqNo 1065. Not all diagnoses are eligible to be the primary diagnosis.

The primary diagnosis can be any of the following:

(1) the anatomic diagnosis for which a palliative or reparative surgery is indicated and planned, e.g., *Tetralogy of Fallot, Pulmonary stenosis*

(2) the physiologic derangement or hemodynamic abnormality to be addressed by the planned operation, e.g., *Mitral or systemic AV valve insufficiency* following AVC (AVSD) , Complete (CAVSD) repair

(3) postoperative bleeding following any surgical procedure.

Status post diagnosis(es) cannot be used as the primary diagnosis.

The primary diagnosis is indicated by the participant; if no primary diagnosis is indicated by the participant, the primary diagnosis is missing.

Long Name: Fundamental Diagnosis

SeqNo:	1075
Short Name:	FundDiagnosis
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	The fundamental diagnosis is a diagnosis that is carried with a patient throughout life, through all operations and hospitalizations. The fundamental diagnosis is the most complex cardiac anomaly or condition (congenital or acquired) of the patient. Most frequently, the primary diagnosis will also be the fundamental diagnosis. For some operations, however, the fundamental diagnosis and primary diagnosis will be different. For example, consider a child who underwent repair of subaortic stenosis, subsequently develops complete atrioventricular (AV) block, and undergoes pacemaker placement within the same hospitalization. The primary diagnosis for the pacemaker surgery is “Arrhythmia, Heart block, Acquired”, while the fundamental diagnosis is “Aortic stenosis, Subvalvar”. Similarly, a patient who has a complete AV canal defect and undergoes either palliation or repair of the defect has a primary and fundamental diagnosis of “AVC (AVSD), Complete CAVSD”. Subsequently, the child develops mitral insufficiency and is re-hospitalized for mitral valve replacement. The primary diagnosis for the mitral valve replacement operation is “Mitral

regurgitation", but the fundamental diagnosis is "AVC (AVSD), Complete CAVSD."

The utilization of the fundamental diagnosis field, it is hoped, will clarify designation of a primary diagnosis, and enable greater specificity in the lesion specific report analyses.

Harvest Codes:

Code:	Value:
10	PFO
20	ASD, Secundum
30	ASD, Sinus venosus
40	ASD, Coronary sinus
50	ASD, Common atrium (single atrium)
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)
73	VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)
75	VSD, Type 3 (Inlet) (AV canal type)
77	VSD, Type 4 (Muscular)
79	VSD, Type: Gerbode type (LV-RA communication)
80	VSD, Multiple
100	AVC (AVSD), Complete (CAVSD)
2610	AVC (AVSD), Complete (CAVSD), Left dominant
2620	AVC (AVSD), Complete (CAVSD), Rightdominant
2630	AVC (AVSD), Complete (CAVSD), Balanced
110	AVC (AVSD), Intermediate (transitional)
2640	AVC (AVSD), Intermediate (transitional), Left dominant
2650	AVC (AVSD), Intermediate (transitional), Right dominant
2660	AVC (AVSD), Intermediate (transitional), Balanced
120	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)
2670	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Left dominant
2680	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Right dominant
2690	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum), Balanced
2580	Common AV valve insufficiency
2970	Common AV valve stenosis
830	Single ventricle, Unbalanced AV canal
140	AP window (aortopulmonary window)
150	Pulmonary artery origin from ascending aorta (hemitruncus)
160	Truncus arteriosus
2010	Truncus arteriosus + Interrupted aortic arch
180	Partial anomalous pulmonary venous connection (PAPVC)
190	Partial anomalous pulmonary venous connection (PAPVC), scimitar
200	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)
210	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)
220	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)
230	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)

250 Cor triatriatum
260 Pulmonary venous stenosis
2480 Pulmonary venous stenosis, Acquired
2490 Pulmonary venous stenosis, Spontaneous
280 Systemic venous obstruction
290 TOF
2140 TOF, Pulmonary stenosis
300 TOF, AVC (AVSD)
310 TOF, Absent pulmonary valve
320 Pulmonary atresia
330 Pulmonary atresia, IVS
340 Pulmonary atresia, VSD (Including TOF, PA)
350 Pulmonary atresia, VSD-MAPCA
360 MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)
370 Ebstein's anomaly
2700 Dysplastic Tricuspid or non-systemic atrioventricular valve, non-Ebstein's
410 Tricuspid or non-systemic atrioventricular valve, Other
420 Pulmonary stenosis, pulmonary or neo-pulmonary Valvar
430 Pulmonary artery stenosis (hypoplasia), Main (trunk)
440 Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)
450 Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)
470 Pulmonary artery, Discontinuous
490 Pulmonary stenosis, Subvalvar
500 DCRV
510 Pulmonary or neo-pulmonary valve, Other
530 Pulmonary or neo-pulmonary valve insufficiency
540 Pulmonary or neo-pulmonary valve insufficiency and stenosis
550 Aortic stenosis, Subvalvar
2500 Aortic stenosis, Subvalvar, Discrete
2510 Aortic stenosis, Subvalvar, IHSS
2520 Aortic stenosis, Subvalvar, Tunnel-like
560 Aortic stenosis, aortic, neo-aortic, or truncal, Valvar
570 Aortic stenosis, Supravalvar
590 Aortic valve atresia
600 Aortic, neo-aortic or truncal valve insufficiency
610 Aortic, neo-aortic or truncal valve insufficiency and stenosis
620 Aortic, neo-aortic or truncal valve, Other
630 Sinus of Valsalva aneurysm
640 LV to aorta tunnel
650 Mitral or systemic AV valve stenosis, Supravalvar ring
660 Mitral or systemic AV valve stenosis, Valvar
670 Mitral or systemic AV valve stenosis, Subvalvar
680 Mitral or systemic AV valve stenosis, Subvalvar, Parachute
700 Mitral or systemic AV valve insufficiency and stenosis

710 Mitral or systemic AV valve insufficiency
720 Mitral or systemic AV valve, Other
730 Hypoplastic left heart syndrome (HLHS)
2760 Hypoplastic left heart syndrome (HLHS), AA+MA
2770 Hypoplastic left heart syndrome (HLHS), AA+MS
2780 Hypoplastic left heart syndrome (HLHS), AS+MA
2790 Hypoplastic left heart syndrome (HLHS), AS+MS
740 Cardiomyopathy (including dilated, restrictive, and hypertrophic)
750 Cardiomyopathy, End-stage congenital heart disease
760 Pericardial effusion
770 Pericarditis
780 Pericardial disease, Other
790 Single ventricle, DILV
800 Single ventricle, DIRV
810 Single ventricle, Mitral atresia
820 Single ventricle, Tricuspid atresia
840 Single ventricle, Heterotaxia syndrome
850 Single ventricle, Other
851 Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)
870 Congenitally corrected TGA
872 Congenitally corrected TGA, IVS
874 Congenitally corrected TGA, IVS-LVOTO
876 Congenitally corrected TGA, VSD
878 Congenitally corrected TGA, VSD-LVOTO
2800 Congenitally corrected TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2810 Congenitally corrected TGA, VSD + Coarctation or arch hypoplasia or arch interruption
880 TGA, IVS
890 TGA, IVS-LVOTO
900 TGA, VSD
910 TGA, VSD-LVOTO
2820 TGA, IVS + Coarctation or arch hypoplasia or arch interruption
2830 TGA, VSD + Coarctation or arch hypoplasia or arch interruption
930 DORV, VSD type
940 DORV, TOF type
950 DORV, TGA type
960 DORV, Remote VSD (uncommitted VSD)
2030 DORV + AVSD (AV Canal)
975 DORV, IVS
980 DOLV
990 Coarctation of aorta
1000 Aortic arch hypoplasia
92 VSD + Aortic arch hypoplasia

94 VSD + Coarctation of aorta
1010 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA)
2840 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Left coronary artery from right sinus
2850 Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA), Right coronary artery from left sinus
2860 Coronary artery Anomaly, Intramural coronary
1020 Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
1030 Coronary artery anomaly, Fistula
1040 Coronary artery anomaly, Aneurysm
2420 Coronary artery anomaly, Ostial Atresia
1050 Coronary artery anomaly, Other
1070 Interrupted aortic arch
2020 Interrupted aortic arch + VSD
2000 Interrupted aortic arch + AP window (aortopulmonary window)
1080 Patent ductus arteriosus
1090 Vascular ring
1100 Pulmonary artery sling
2870 Esophageal compression by vessel
2880 Tracheal compression by vessel
1110 Aortic aneurysm (including pseudoaneurysm)
1120 Aortic dissection
1130 Lung disease, Benign
1140 Lung disease, Malignant
1160 Tracheal stenosis
2430 Tracheomalacia
1170 Airway disease, Other
1430 Pleural disease, Benign
1440 Pleural disease, Malignant
1450 Pneumothorax
1460 Pleural effusion
1470 Chylothorax
1480 Empyema
1490 Esophageal disease, Benign
1500 Esophageal disease, Malignant
1505 Mediastinal disease
1510 Mediastinal disease, Benign
1520 Mediastinal disease, Malignant
1540 Diaphragm paralysis
1550 Diaphragm disease, Other
2160 Rib tumor, Benign
2170 Rib tumor, Malignant
2180 Rib tumor, Metastatic
2190 Sternal tumor, Benign

2200 Sternal tumor, Malignant
2210 Sternal tumor, Metastatic
2220 Pectus carinatum
2230 Pectus excavatum
2240 Thoracic outlet syndrome
1180 Arrhythmia
2440 Arrhythmia, Atrial, Atrial fibrillation
2450 Arrhythmia, Atrial, Atrial flutter
2460 Arrhythmia, Atrial, Other
2050 Arrhythmia, Junctional
2060 Arrhythmia, Ventricular
1185 Arrhythmia, Heart block
1190 Arrhythmia, Heart block, Acquired
1200 Arrhythmia, Heart block, Congenital
2530 Short QT syndrome
2540 Long QT Syndrome (Ward Romano syndrome)
2550 Wolff-Parkinson-White syndrome (WPWsyndrome)
1230 Atrial Isomerism, Left
1240 Atrial Isomerism, Right
1250 Aneurysm, Ventricular, Right (including pseudoaneurysm)
1260 Aneurysm, Ventricular, Left (including pseudoaneurysm)
1270 Aneurysm, Pulmonary artery
1280 Aneurysm, Other
1310 Mediastinitis
2910 ~~Mediastinitis,~~ Wound infection, Deep
2920 ~~Mediastinitis,~~ Wound infection,Superficial
1320 Endocarditis
1350 Cardiac tumor, Unspecified
2930 Cardiac tumor, Ventricular fibroma
2940 Cardiac tumor, Ventricular rhabdomyoma
2950 Cardiac tumor, Atrial myxoma
2960 Pericardial teratoma
1360 Pulmonary AV fistula
1370 Pulmonary embolism
1385 Pulmonary vascular obstructive disease
1390 Pulmonary vascular obstructive disease (Eisenmenger's)
1400 Primary pulmonary hypertension
1410 Persistent fetal circulation
1420 Meconium aspiration
2250 Kawasaki disease
1560 Cardiac, Other
1570 Thoracic and/or mediastinal, Other
1580 Peripheral vascular, Other
2340 Foreign body, Intracardiac foreign body

2350 Foreign body, Intravascular foreign body
2390 Syncope
2400 Trauma, Blunt
2410 Trauma, Penetrating
2560 Cardio-respiratory failure not secondary to known structural heart disease
2570 Myocarditis
7000 Normal heart

Intent/Clarification:

Indicate the patient's fundamental diagnosis. The fundamental diagnosis is a diagnosis that is carried with a patient throughout life, through all operations and hospitalizations. Refer to the diagnosis definitions and intent/clarifications in SeqNo 1065. Not all diagnoses are eligible to be the fundamental diagnosis.

The fundamental diagnosis is the most complex cardiac anomaly or condition (congenital or acquired) of the patient.

The fundamental diagnosis may also be the primary diagnosis, but it may differ from the primary diagnosis depending on the scenario.

Example: A patient is born with TOF, Pulmonary stenosis and undergoes TOF repair in infancy. The primary and fundamental diagnoses are both TOF, Pulmonary stenosis for the TOF repair. Years later, the patient returns with pulmonary insufficiency and undergoes placement of an RV to PA conduit. The primary diagnosis in this scenario is Pulmonary or neo-pulmonary valve insufficiency while the fundamental diagnosis remains TOF, Pulmonary stenosis.

VALVE DIAGNOSES PATIENTS ≥ 18 -YEARS

General Information Echo Findings / Hemodynamics

All hemodynamic values for ejection fraction, pulmonary artery pressure, valve insufficiency and stenosis etc. should be captured from studies done as described below. Any test that provides hemodynamic measurements may be used.

Source Document Priority and Timeframe for Coding:

If multiple sources of documentation exist, use the following to determine which data source to use first:

1. Preop results captured from objective studies (cath, echo, nuclear study, cardiac

MRI, etc.) closest and prior to OR entry date/time, within 6-months of surgery date **(while it is preferred that the cath and echo be done within 6-months of surgery date, they can be used for up to one year prior to surgery date).**

2. Use the OR pre-incision results if pre-incision results change the planned surgery. For example, if pre-op MV regurgitation was mild and pre-incision MV regurgitation is severe, and the surgeon decides to do a MV repair – code severe for MV regurgitation.

3. Use the OR pre-incision results if no other values are available or if the valves were not visualized on any of the pre-operative exams regardless of whether the planned surgery was changed or not.

4. If no other results are available, then surgeon documentation should be used.

Example: Patient to undergo planned mitral valve repair

- Echo 3-months prior to procedure has all needed results – abstract these results.
- Repeat echo 1-month prior to procedure has updated EF but no other results changed – use the EF from this echo but use the previous echo findings for the other results.
- Preoperative TEE reveals increased mitral valve insufficiency and the planned surgery was changed based on these findings – Abstract ONLY the degree of mitral insufficiency from this study since the planned surgery was changed because of this finding.

Capturing of Hemodynamic/Cath/ECHO Results:

- Use numerical values if available; only use a descriptive term (e.g., normal) if a numerical result is not available.
- If the cath findings use both a descriptive term and a numerical value, use the numerical values first.
- For database audits, include all the cath, echo, TEE, and TTE results from 6-months pre-procedure.

General Concepts Valve Disease and Regurgitation

- Overall regurgitation is assessed by a combination of paravalvular regurgitation, central regurgitation (transvalvular/intravalvular) or valvular regurgitation. Code the highest value of regurgitation. For example, TEE documents mild paravalvular regurgitation present, and trace intravalvular regurgitation present, code regurgitation as mild.

- If the valve was not visualized on the preop echo but was visualized on the intra-op pre-incision echo, you may use the intra-op pre-incision echo for the value of that valve only, not for all the valves if they were visualized on the pre-op echo.

- If valve regurgitation is dictated from echocardiogram as "no significant regurgitation," code as none.

- If valve regurgitation is dictated as "minimal," code trace.

- If the echo indicates that the native valve has physiological insufficiency, code as none.

- For echos that provide insufficiency in terms of +1, +2, +3, and +4, you cannot assume that +1 equals trace etc... Please work with your echo dept to develop a protocol that clearly defines what the scoring system equals in terms of descriptive terminology. Have this protocol available in the event of an audit.

- If the only documentation available states the valve is "structurally normal" (no documentation of stenosis or insufficiency), code no to valve disease and no to regurgitation. This documentation implies that the valve is normal without disease or regurgitation.

- The valve should be coded as being diseased if there is mild, moderate, or severe insufficiency or stenosis. For prior valve repairs and replacements, "once diseased – always diseased" does not apply to valves. The valve is not considered diseased unless there is disease present on the repaired or prosthetic valve.

- If there are multiple values for the valve regurgitation within the same echo, such as under the mitral value is says moderate regurgitation and under the impression is states mild regurgitation, use the value on the final impression or conclusion.

- You can use values from earlier echos to complete data variables unavailable on the echo closet to surgery preop. For example, an echo 1-day prior to the procedure does not address aortic insufficiency (AI). An echo from 30-days prior to the procedure documents trace AI. Code trace AI as the echo closest to surgery did not address the AI and the next closest echo (done within 6-months prior to the

procedure) did address the AI.

- If the cath findings use both a descriptive term and a numerical value, use the numerical values first.
- For database audits, include all the cath, echo, TEE, and TTE results from 6-months pre-procedure.

General Concepts for Hemodynamic/Cath/ECHO Values and Measurements/Dimensions/Valve Area

- Hemodynamic/cath/echo values that are recorded as greater than/less than a value, code the value just below or above the reported value. For example, if echo reports a mean AV gradient of < 5, code 4; if documented as > 5, code 6.
- When a range is reported for the mean valve gradient, code the highest mean in the range.
- When a range for valve area is documented, code the lowest valve area in the range.
- If there are multiple values for the same measurement within the echo report, use the vale on the final impression/conclusion/summary from the reading physician. For example, under the AV measurement section the AV mean is 42 and under the impression, the AV mean is 45. Code the AV mean as 45.

AORTIC / NEO-AORTIC / TRUNCAL VALVE (PATIENTS ≥ 18-YEARS)

Long Name: Aortic / Neo-aortic / Truncal Valve Insufficiency Degree

SeqNo:	1080
Short Name:	VDInsufA
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of aortic / neo-aortic / truncal valve insufficiency/regurgitation. See TM for time frame and source document priority.

ParentLongName: Diagnoses - Multi-Select

ParentShortName: DiagnosisMulti

ParentHarvestCodes: contains(600|610|620)

ParentValue: Contains ("Aortic, neo-aortic or truncal valve insufficiency", "Aortic, neo-aortic or truncal valve insufficiency and stenosis" or "Aortic, neo-aortic or truncal valve, Other")

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code:	Value:
1	None/Trivial/Trace
2	Mild
3	Moderate
4	Severe
5	Not documented

Intent/Clarification:

If age ≥ 18-years and aortic/neo-aortic/truncal valve insufficiency, insufficiency and stenosis, or other, indicate the degree of valve insufficiency/regurgitation prior to surgery.

Coding Notes:

Use provider documentation of regurgitation/insufficiency severity and code even if the patient is not scheduled for valve repair/replacement.

If valve dysfunction is reported in a range, code the *highest* level of valve dysfunction in the range. For example, for mild to moderate, code (3) Moderate.

Overall regurgitation is assessed by a combination of paravalvular regurgitation, central regurgitation (transvalvular/intravalvular), or valvular regurgitation. Code the *highest* value of regurgitation. For example, TEE documents mild paravalvular regurgitation present and trace intravalvular regurgitation present. Code regurgitation as (2) Mild.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Aortic / Neo-aortic / Truncal Valve Stenosis Degree

SeqNo: 1085

Short Name: AVStenosis

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of aortic / neo-aortic / truncal valve stenosis prior to surgery. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(550|2500|2510|2520|560|570|610|620)
ParentValue:	Contains ("Aortic stenosis, Subvalvar", "Aortic stenosis, Subvalvar, Discrete", "Aortic stenosis, Subvalvar, IHSS", "Aortic stenosis, Subvalvar, Tunnel-like", "Aortic stenosis, aortic, neo-aortic, or truncal, Valvar", "Aortic stenosis, Supravalvar", "Aortic, neo-aortic or truncal valve insufficiency and stenosis" or "Aortic, neo-aortic or truncal valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
5	None
1	Mild
2	Moderate
3	Severe
4	Not Documented

Intent/Clarification:

If age ≥ 18-years and aortic/neo-aortic/truncal valve stenosis, indicate the degree of aortic/neo-aortic/truncal valve stenosis prior to surgery. Sclerosis does not mean stenosis.

Coding Notes:

Capture the degree of aortic/neo-aortic/truncal valve stenosis present, even if the patient is not scheduled for valve replacement. Use the provider documentation of severity.

Code the highest severity of aortic/neo-aortic/truncal valve stenosis documented. For example, if aortic stenosis is documented as mild to moderate, code (2) Moderate.

- Code (3) Severe for documented critical aortic/neo-aortic/truncal valve stenosis.
- Code (5) None for documented trace/trivial or minimal stenosis

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Aortic / Neo-aortic / Truncal Hemodynamic Data Available

SeqNo:	1090
Short Name:	AoHemoDatAvail
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether aortic / neo-aortic / truncal valve hemodynamic measurements are available. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(550|2500|2510|2520|560|570|610|620)
ParentValue:	Contains ("Aortic stenosis, Subvalvar", "Aortic stenosis, Subvalvar, Discrete", "Aortic stenosis, Subvalvar, IHSS", "Aortic stenosis, Subvalvar, Tunnel-like", "Aortic stenosis, aortic, neo-aortic, or truncal, Valvar", "Aortic stenosis, Supravalvar", "Aortic, neo-aortic or truncal valve insufficiency and stenosis" or "Aortic, neo-aortic or truncal valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and aortic/neo-aortic/truncal valve stenosis, indicate if hemodynamic measurements are available.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Aortic / Neo-aortic / Truncal Valve Area

SeqNo:	1095
Short Name:	VDAoVA
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the aortic / neo-aortic / truncal valve area (in cm squared). See TM for time frame and source document priority.
Low Value:	0.20
High Value:	10.00
ParentLongName:	Aortic / Neo-aortic / Truncal Hemodynamic Data Available
ParentShortName:	AoHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Intent/Clarification:

If hemodynamic measurements available, indicate the aortic/neo-aortic/truncal valve area.

Coding Notes:

If there are multiple aortic/neo-aortic/truncal valve areas on the study closest to surgery, use the aortic/neo-aortic/truncal valve area calculated using the velocity time integral (VTI) as priority source for coding if available.

Aortic/neo-aortic/truncal valve areas may be displayed in other ways on echo (AVA, AV area, AoV, AoV - cm^2). Refer to your echo department if unclear which measurement is the aortic valve area.

When a range for aortic/neo-aortic/truncal valve area is documented, code the *lowest* area in the range.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Description: The normal adult aortic valve opening is 3.0 - 4.0 cm^2. Aortic stenosis becomes hemodynamically significant when the area decreases to less than 2.0 cm^2 as the systolic flow is impeded across the valve.

Long Name: Aortic / Neo-aortic / Truncal Gradient-Mean

SeqNo:	1100
Short Name:	VDGradA

Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the MEAN gradient (in mmHg) across the aortic / neo-aortic / truncal valve. See TM for time frame and source document priority.
Low Value:	0.00
High Value:	200.00
ParentLongName:	Aortic / Neo-aortic / Truncal Hemodynamic Data Available
ParentShortName:	AoHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Intent/Clarification:

If hemodynamic measurements available, indicate the aortic/neo-aortic/truncal valve mean gradient.

The aortic/neo-aortic/truncal valve mean gradient may be displayed other ways on echo (Ao mean PG, AV mPG, AV mnPG). Refer to your echo department if unclear which measurement is the aortic valve mean.

Coding Notes:

When a range for aortic/neo-aortic/truncal valve mean gradient is documented, code the *highest* mean in the range.

If the conclusion of the echo report provides values for mean gradient and peak velocity both under stress and at rest, code the at rest values.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Description: When the aortic valve becomes stenotic, it causes a pressure gradient between the left ventricle (LV) and the aorta. The more constricted the valve, the higher the gradient between the LV and the aorta. In individuals with aortic stenosis (AS), the LV must work harder to overcome the increased afterload caused by the stenotic aortic valve and eject blood out of the LV. The more severe the AS, the higher the gradient is between the left ventricular systolic pressures and the aortic systolic pressures.

Long Name: Aortic / Neo-aortic / Truncal Jet Velocity (Vmax)

SeqNo:	1105
Short Name:	VDVMax
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the maximum aortic / neo-aortic / truncal jet velocity in m/s. See TM for time frame and source document priority.
Low Value:	0.00
High Value:	8.00
ParentLongName:	Aortic / Neo-aortic / Truncal Hemodynamic Data Available
ParentShortName:	AoHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Intent/Clarification:

If hemodynamic measurements available, indicate the aortic/neo-aortic/truncal valve jet velocity.

Coding Notes:

Measurement is in meters per second (m/s). If the value is reported in centimeters per second (cm/s), divide the value by 100 to obtain m/s.

Enter the entire aortic/neo-aortic/truncal valve jet velocity (for example, 4.73 m/s).

The aortic/neo-aortic/truncal valve jet velocity (Vmax) may be displayed other ways on echo (AV Peak Velocity, AoV2 Peak, AV Peak Vel). Refer to your echo department if unclear which measurement is the aortic/neo-aortic/truncal valve (Vmax).

If the conclusion of the echo report provides values for mean gradient and peak velocity both under stress and at rest, code the rest values.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Description: The antegrade systolic velocity across the narrowed aortic valve, or aortic jet velocity, is measured using continuous wave (CW) Doppler ultrasound. Velocity increases as stenosis severity increases.

Long Name: Aortic / Neo-aortic / Truncal Valve Disease

SeqNo:	1110
Short Name:	VDAort
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether aortic / neo-aortic / truncal valve disease is present.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(550|2500|2510|2520|560|570|600|610|620)
ParentValue:	Contains ("Aortic stenosis, Subvalvar", "Aortic stenosis, Subvalvar, Discrete", "Aortic stenosis, Subvalvar, IHSS", "Aortic stenosis, Subvalvar, Tunnel-like", "Aortic stenosis, aortic, neo-aortic, or truncal, Valvar", "Aortic stenosis, Supravalvar", "Aortic, neo-aortic or truncal valve insufficiency", "Aortic, neo-aortic or truncal valve insufficiency and stenosis" or "Aortic, neo-aortic or truncal valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and aortic/neo-aortic/truncal valve insufficiency and/or stenosis, indicate if valve disease is present.

Coding Notes:

Aortic/neo-aortic/truncal valve disease is defined as having mild, moderate, or severe insufficiency or stenosis of the valve.

- Code (1) Yes if the aortic/neo-aortic/truncal valve has mild, moderate, or severe insufficiency or stenosis.
- Code (1) Yes if a patient with trace aortic valve regurgitation and no stenosis but undergoes aortic valve repair as the patient has aortic valve disease requiring repair of the valve.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Aortic / Neo-aortic / Truncal Valve Disease Primary Etiology

SeqNo:	1115
Short Name:	VDAoPrimEt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary etiology of aortic / neo-aortic / truncal valve disease.
ParentLongName:	Aortic / Neo-aortic / Truncal Valve Disease
ParentShortName:	VDAort
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Harvest Codes:

Code:	Value:
1	Bicuspid valve disease
34	Unicuspid valve disease
35	Quadricuspid valve disease
2	Congenital (other than Bicuspid, Unicuspid, or Quadricuspid)
3	Degenerative- Calcified
4	Degenerative- Leaflet prolapse with or without annular dilation
5	Degenerative- Pure annular dilation without leaflet prolapse
6	Degenerative - Commissural Rupture
7	Degenerative - Extensive Fenestration
8	Degenerative - Leaflet perforation / hole
9	Endocarditis, native valve with root abscess
10	Endocarditis, native valve without root abscess
36	Endocarditis, prosthetic valve with root abscess
37	Endocarditis, prosthetic valve without root abscess
11	LV Outflow Tract Pathology, HOCM
12	LV Outflow Tract Pathology, Sub-aortic membrane
13	LV Outflow Tract Pathology, Sub-aortic tunnel
14	LV Outflow Tract Pathology, Other
15	Primary Aortic Disease, Aortic Dissection
16	Primary Aortic Disease, Atherosclerotic Aneurysm
17	Primary Aortic Disease, Ehler-Danlos Syndrome
18	Primary Aortic Disease, Hypertensive Aneurysm
19	Primary Aortic Disease, Idiopathic Root dilation
20	Primary Aortic Disease, Inflammatory
21	Primary Aortic Disease, Loeys-Dietz Syndrome

22 Primary Aortic Disease, Marfan Syndrome
23 Primary Aortic Disease, Other Connective tissue disorder
38 Radiation induced heart disease
24 Reoperation - Failure of previous aortic / neo- aortic / truncal repair or replacement
25 Rheumatic
26 Supravalvular Aortic / Neo-aortic - Truncal Stenosis
27 Trauma
28 Carcinoid
29 Tumor, Myxoma
30 Tumor, Papillary Fibroelastoma
31 Tumor, Other
32 Mixed Etiology
33 Other / Unknown / Not documented

Intent/Clarification:

If aortic/neo-aortic/truncal valve disease, indicate the primary cause of the valve disease.

There is no hierarchy, select the primary etiology documented in the medical record. Primary etiology may also be identified at the time of the surgical procedure.

Coding Notes:

- Code (3) Degenerative- Calcified for functional bicuspid disease.
- Code (20) Primary Aortic Disease, Inflammatory for patients with Marantic endocarditis or nonbacterial thrombotic endocarditis (NBTE).
- Code (33) Other / Unknown / Not documented for a patient that have a documented etiology not included on the list. For example, a patient with documented thrombotic mass on the aortic valve from an antiphospholipid syndrome.

MITRAL VALVE OR ATRIOVENTRICULAR VALVE OF SYSTEMIC VENTRICLE PATIENTS ≥ 18-YEARS

Long Name: Mitral Or Systemic Atrioventricular Valve Insufficiency

SeqNo:	1120
Short Name:	VDInsufM
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of mitral or systemic atrioventricular valve insufficiency/regurgitation. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(700|710|720)
ParentValue:	Contains ("Common AV valve insufficiency", "Mitral or systemic AV valve insufficiency and stenosis", "Mitral or systemic AV valve insufficiency" or "Mitral or systemic AV valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None/Trivial/Trace
2	Mild
3	Moderate
4	Severe
5	Not documented

Intent/Clarification:

If age ≥ 18-years and common AV valve insufficiency, mitral or systemic AV valve insufficiency, insufficiency and stenosis, or valve other, indicate the degree of mitral/systemic atrioventricular valve insufficiency or regurgitation.

Coding Notes:

If the results are reported as a range, code the highest level of valve dysfunction. For example, mild – moderate, code (3) Moderate.

Overall regurgitation is assessed by a combination of paravalvular regurgitation, central regurgitation (transvalvular / intravalvular) or valvular regurgitation. Code the highest value of regurgitation. For example, TEE reports mild paravalvular regurgitation, and trace intravalvular regurgitation, code regurgitation (2) Mild.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Stenosis Degree

SeqNo:	1125
Short Name:	MVStenDeg
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of mitral or systemic atrioventricular valve stenosis prior to surgery. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(650|660|670|680|700|720)
ParentValue:	Contains ("Common AV valve stenosis", "Mitral or systemic AV valve stenosis, Supravalvar ring", "Mitral or systemic AV valve stenosis, Valvar", "Mitral or systemic AV valve stenosis, Subvalvar", "Mitral or systemic AV valve stenosis, Subvalvar, Parachute", "Mitral or systemic AV valve insufficiency and stenosis" or "Mitral or systemic AV valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code: Value:

Code:	Value:
5	None
1	Mild
2	Moderate
3	Severe
4	Not documented

Intent/Clarification:

If age ≥ 18-years and common AV valve stenosis, mitral or systemic AV valve stenosis, insufficiency and stenosis, or valve other, indicate whether there is evidence of mitral/systemic atrioventricular valve stenosis prior to surgery.

Coding Notes:

- Code the degree of mitral/systemic AV valve stenosis present, even if the patient is not scheduled for valve replacement. Use provider documentation of stenosis severity.
- If the stenosis is reported as a range, code the highest severity documented. For example, if mitral stenosis is documented as mild - moderate, code (2) Moderate.

- Code (5) None for trace or minimal mitral/systemic atrioventricular stenosis.
- Code (3) Severe for critical mitral/systemic atrioventricular stenosis.
- Code (4) Not documented if the mitral/systemic atrioventricular stenosis is not documented.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Hemodynamic Data Available

SeqNo:	1130
Short Name:	MiHemoDatAvail
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether mitral or Systemic Atrioventricular valve hemodynamic measurements are available. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(650|660|670|680|700|720)
ParentValue:	Contains ("Common AV valve stenosis", "Mitral or systemic AV valve stenosis, Supravalvar ring", "Mitral or systemic AV valve stenosis, Valvar", "Mitral or systemic AV valve stenosis, Subvalvar", "Mitral or systemic AV valve stenosis, Subvalvar, Parachute", "Mitral or systemic AV valve insufficiency and stenosis" or "Mitral or systemic AV valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and common AV valve stenosis, mitral or systemic AV valve insufficiency, insufficiency and stenosis, or other, indicate if hemodynamic measurements are available.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Area

SeqNo:	1135
Short Name:	VDMVA
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the mitral or systemic atrioventricular valve area (in cm squared). See TM for time frame and source document priority.
Low Value:	0.60
High Value:	6.00
ParentLongName:	Mitral Or Systemic Atrioventricular Hemodynamic Data Available
ParentShortName:	MiHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If mitral or systemic atrioventricular (AV) valve hemodynamic measurements available, indicate the valve area.

Coding Notes:

Priority sources for coding in order (if multiple valve areas reported on the study closest to the surgery date):

1. mitral/systemic atrioventricular valve area by planimetry
2. mitral/systemic atrioventricular valve velocity time integral (VTI) ratio
3. mitral/systemic atrioventricular valve area using P1/2t (PHT)

When a range for mitral/systemic atrioventricular valve area is documented, code the lowest area in the range.

The mitral/systemic atrioventricular valve area may be displayed other ways on echo, e.g., MVA or MV area). Refer to your echo department if unclear which measurement is the mitral/systemic atrioventricular valve area.

Description: The normal area of the mitral valve orifice is about 4.0 to 6.0 cm^2. Under normal conditions, a normal mitral valve will not impede the flow of blood from the left atrium to the

left ventricle during (ventricular) diastole, and the pressures in the left atrium and the left ventricle during ventricular diastole will be equal. When the mitral valve area goes below 2.0 cm^2, the valve causes impediment of the blood flow into the left ventricle, creating a pressure gradient across the mitral valve.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Long Name: Mitral Or Systemic Atrioventricular Mean Gradient

SeqNo:	1140
Short Name:	VDGradM
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the mean gradient (in mm Hg) across the mitral or systemic atrioventricular valve. See TM for time frame and source document priority.
Low Value:	0.00
High Value:	30.00
ParentLongName:	Mitral Or Systemic Atrioventricular Hemodynamic Data Available
ParentShortName:	MiHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Intent/Clarification:

If mitral or systemic atrioventricular (AV) valve hemodynamic measurements available, indicate the mean gradient across the mitral or systemic AV valve.

Coding Notes:

- When a range for mitral/systemic atrioventricular valve mean gradient is documented, code the highest mean in the range.
- There are other ways the mitral/systemic atrioventricular valve mean gradient may be displayed on echo, e.g., MV mean PG, MV mPG, or MV mnPG, refer to your echo department if unclear which measurement is the mitral/systemic atrioventricular valve mean gradient

Description: Mitral valve stenosis results from a narrowing of the mitral valve orifice when the valve is open. The high resistance across the stenotic mitral valve causes blood to back up into

the left atrium thereby increasing LA pressure. This results in the left atrial (LA) pressure being much greater than left ventricular (LV) pressure during diastolic filling. The gradient is highest during early diastole when the flow across the valve is highest. Normally, the pressure gradient across the valve is exceedingly small (a few mmHg); however, the pressure gradient can become quite high during severe stenosis (10-30 mmHg).

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease and General Concepts for Valve Area for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease

SeqNo:	1145
Short Name:	VDMit
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether mitral or systemic atrioventricular valve disease is present.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(650|660|670|680|700|710|720)
ParentValue:	Contains ("Common AV valve insufficiency", "Common AV valve stenosis", "Mitral or systemic AV valve stenosis, Supravalvar ring", "Mitral or systemic AV valve stenosis, Valvar", "Mitral or systemic AV valve stenosis, Subvalvar", "Mitral or systemic AV valve stenosis, Subvalvar, Parachute", "Mitral or systemic AV valve insufficiency and stenosis", "Mitral or systemic AV valve insufficiency" or "Mitral or systemic AV valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and common AV valve insufficiency or stenosis, mitral or systemic AV valve insufficiency, insufficiency and stenosis, or other, indicate if mitral or systemic AV valve disease is present.

Coding Notes:

- Code (1) Yes if there is documented mild, moderate, or severe mitral/systemic atrioventricular valve insufficiency or stenosis.
- In the event the echo reports the mitral valve appears normal but also reports mild regurgitation, code (1) Yes as there is mild insufficiency.

Description: The mitral valve is made up of the annulus, anterior and posterior leaflets, and chordae, which attach the leaflets to their respective papillary muscles. A normally functioning valve allows blood to flow unimpeded from the left atrium to the left ventricle during diastole and prevents regurgitation during systole. Normal mitral valve function is dependent not only on the integrity of the underlying valvular structure, but on that of the adjacent myocardium as well. Mitral valve disease is the most common form of heart valve disease in the United States, affecting 5 percent of the population and resulting in over 500,000 hospital admissions per year. There are two general forms of mitral valve disease: mitral regurgitation/insufficiency and mitral stenosis.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease Etiology

SeqNo:	1150
Short Name:	VDMitDis
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary etiology of mitral or systemic atrioventricular valve disease.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease
ParentShortName:	VDMit
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Harvest Codes:

Code:	Value:
1	Carpentier Class I - Normal Leaflet Mobility
2	Carpentier Class II - Increased Leaflet Mobility

3 Carpentier Class III A - Restricted Leaflet Mobility (systole and diastole)
4 Carpentier Class III B - Restricted Leaflet Mobility (systole only)
5 Mixed Lesion (Type II and Type III A)
6 Acute Papillary muscle rupture
7 Reoperative-Failure of previous mitral or systemic atrioventricular valve repair or replacement
8 Other / Unknown / Not Available

Intent/Clarification:

If mitral or systemic AV valve disease, indicate the primary etiology of the valve disease.

Carpentier functional classification of mitral/systemic atrioventricular valve disease is used to describe the mechanism of valvular dysfunction. This classification is based on the opening and closing motions of the valve leaflets.

Coding Notes:

- There is no hierarchy, choose the primary etiology documented in the medical record. Primary etiology may also be identified at the time of the surgical procedure.
- If there is a conflict in documentation, for example the provider documents the Carpentier class and documents a lesion that is not included in the description for that Carpentier Class, clarify with the provider.
- The provider does not have to document the Carpentier class. If the data manager can infer the functional class of the mitral/systemic atrioventricular valve based on documentation in the medical record, then code as such. For more complicated scenarios where the documentation is unclear or an etiology can fall into more than one class, then seek clarification from the provider.
- If the echo reports 'normal leaflet motion,' code (1) Carpentier Class I - Normal Leaflet Mobility.
- In the event the patient has endocarditis of their native mitral/systemic atrioventricular valve, consult with the surgeon as endocarditis is included as an etiology of Carpentier Class I and II.
- In the event the patient has annulus calcification (MAC) of their native mitral/systemic atrioventricular valve, consult with the surgeon as MAC is included as an etiology of Carpentier Class III-A and Mixed Lesion.
- In the event the patient has Congenital disease of their native mitral/systemic atrioventricular valve, consult with the surgeon as Congenital is included as an etiology of Carpentier Class III-A and Mixed Lesion.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification - Class I - Type

SeqNo:	1155
Short Name:	VDMitDisClsITy
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate type of Carpentier Class I mitral or systemic atrioventricular valve disease.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease Etiology
ParentShortName:	VDMitDis
ParentHarvestCodes:	1
ParentValue:	= "Carpentier Class I - Normal Leaflet Mobility"

Harvest Codes:

Code:	Value:
1	Pure Annular Dilation
2	Endocarditis, Native Valve
3	Other / Unknown / Not Available

Intent/Clarification:

If Carpentier Class I valve disease etiology, indicate the etiology/type of Carpentier Class I mitral or systemic AV valve disease. This classification is for native valves only.

Coding Notes:

- In the event the patient has endocarditis of their native mitral/systemic atrioventricular valve, consult with the surgeon as endocarditis is included as an etiology of Carpentier class I and II.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification - Class II - Type

SeqNo:	1160
Short Name:	VDMitDisClsIITy
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of Carpentier Class II mitral or systemic atrioventricular valve disease.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease Etiology
ParentShortName:	VDMitDis
ParentHarvestCodes:	2
ParentValue:	= "Carpentier Class II - Increased Leaflet Mobility"

Harvest Codes:

Code:	Value:
1	Myxomatous degenerative prolapse/flail
2	Endocarditis
3	Other / Unknown / Not Available

Intent/Clarification:

If Carpentier Class II valve disease etiology, indicate the etiology/type of Carpentier Class II mitral or systemic AV valve disease. This classification is for native valves only.

Coding Notes:

- Myxomatous degenerative prolapse/flail includes chordal elongation and/or rupture with leaflet prolapse.
- In the event the patient has endocarditis of their native mitral/systemic atrioventricular valve, consult with the surgeon as endocarditis is included as an etiology of Carpentier class I and II.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification - Class II - Involved Leaflets

SeqNo:	1165
Short Name:	VDMitDisClsIIMyo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the leaflets involved in the myxomatous degenerative prolapse/flail.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification - Class II - Type

ParentShortName: VDMitDisClsIITy

ParentHarvestCodes: 1

ParentValue: = "Myxomatous degenerative prolapse/flail"

Harvest Codes:

Code:	Value:
1	Posterior Leaflet
2	Anterior Leaflet
3	Both

Intent/Clarification:

If Carpentier Class II valve disease etiology, indicate the involved leaflets.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification – Class III A Type

SeqNo: 1170

Short Name: VDMitDisClsIIIATy

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of Carpentier Class IIIA mitral or systemic atrioventricular valve disease.

ParentLongName: Mitral Or Systemic Atrioventricular Valve Disease Etiology

ParentShortName: VDMitDis

ParentHarvestCodes: 3

ParentValue: = "Carpentier Class III A - Restricted Leaflet Mobility (systole and diastole)"

Harvest Codes:

Code:	Value:
1	Rheumatic
2	Tumor (Carcinoid or Other)
3	Radiation Induced Heart Disease
4	MAC
5	Congenital
6	Other / Unknown / Not Available

Intent/Clarification:

If Carpentier Class III A valve disease etiology, indicate the primary etiology/type of Carpentier Class III A mitral or systemic AV valve disease. This classification is meant for native valves only.

Coding Notes:

- In the event the patient has annulus calcification (MAC) of their native mitral/systemic atrioventricular valve, consult with the surgeon as MAC is included as an etiology of Carpentier Class III-A and Mixed Lesion.
- In the event the patient has Congenital disease of their native mitral/systemic atrioventricular valve, consult with the surgeon as Congenital is included as an etiology of Carpentier Class III-A and Mixed Lesion.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Carpentier Classification - Class III B - Type

SeqNo:	1175
Short Name:	VDMitDisClsIIIBTy
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of Carpentier Class IIIB mitral or systemic atrioventricular valve disease.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease Etiology
ParentShortName:	VDMitDis
ParentHarvestCodes:	4
ParentValue:	= "Carpentier Class III B - Restricted Leaflet Mobility (systole only)"

Harvest Codes:

Code:	Value:
1	Ischemic (acute/chronic)
2	Non-ischemic Cardiomyopathy
3	HOCM
4	Other / Unknown / Not Available

Intent/Clarification:

If Carpentier Class III B valve disease etiology, indicate the primary etiology/type of Carpentier Class III B mitral or systemic AV valve disease. This classification is meant for native valves only.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Mitral Or Systemic Atrioventricular Valve Disease - Mixed Lesion - Type

SeqNo:	1180
Short Name:	VDMitDisMixedTy
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the mixed lesion type of mitral or systemic atrioventricular valve disease.
ParentLongName:	Mitral Or Systemic Atrioventricular Valve Disease Etiology
ParentShortName:	VDMitDis
ParentHarvestCodes:	5
ParentValue:	= "Mixed Lesion (Type II and Type III A)"

Harvest Codes:

Code:	Value:
1	Mixed leaflet lesion (prolapse/flail and restriction)
2	Congenital
3	MAC
4	Other / Unknown / Not Available

Intent/Clarification:

If mixed lesion (type II and Type III A) valve disease etiology, indicate the primary etiology/type of mixed lesion mitral or systemic AV valve disease. This classification is meant for native valves only.

Coding Notes:

- In the event the patient has annulus calcification (MAC) of their native mitral/systemic atrioventricular valve, consult with the surgeon as MAC is included as an etiology of Carpentier Class III-A and Mixed Lesion.
- In the event the patient has Congenital disease of their native mitral/systemic atrioventricular valve, consult with the surgeon as Congenital is included as an etiology of Carpentier Class III-A and Mixed Lesion.

Description: Carpentier Class Mixed Lesion (Type II and Type III-A) is increased/excess leaflet motion and restricted leaflet motion, systolic and diastolic. Indicate the primary etiology/type of the Carpentier class mixed lesion mitral/systemic atrioventricular disease. This classification is meant for native valves.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

TRICUSPID VALVE OR ATRIOVENTRICULAR VALVE OF NON-SYSTEMIC VENTRICLE PATIENTS ≥ 18-YEARS

Long Name: Tricuspid Or Non-systemic Atrioventricular Valve Insufficiency

SeqNo:	1185
Short Name:	VDInsufT
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of tricuspid or non-systemic atrioventricular valve insufficiency/regurgitation. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(2700|410)
ParentValue:	Contains ("Dysplastic Tricuspid or non-systemic atrioventricular valve, non- Ebstein's" or "Tricuspid or non-systemic atrioventricular valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None/Trivial/Trace
2	Mild
3	Moderate
4	Severe
5	Not documented

Intent/Clarification:

If age ≥ 18-years and dysplastic tricuspid or non-systemic AV valve or tricuspid or non-systemic AV valve other, indicate the degree of tricuspid/non-systemic atrioventricular valve regurgitation/ insufficiency.

Coding Notes:

- Use provider documentation of regurgitation/insufficiency severity and code even if the patient is not scheduled for valve repair/replacement.
- If the valve regurgitation/insufficiency is reported as a range, code the highest value of the range. For example, valve insufficiency reported as mild – moderate, code (3) Moderate.
- Overall regurgitation is assessed by a combination of paravalvular, central (transvalvular / intravalvular), or valvular regurgitation. Code the highest value of regurgitation. For example, TEE documents mild paravalvular regurgitation and trace intravalvular regurgitation, code (2) Mild.
- Code (4) Severe for patients with prior tricuspid/non-systemic atrioventricular valvectomy.

Description: Tricuspid/Non-systemic atrioventricular valve regurgitation/insufficiency creates a backwards flow of blood across the tricuspid valve and causes enlargement of the right atrium and possibly atrial fibrillation.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Tricuspid Or Non-systemic Atrioventricular Valve Stenosis Degree

SeqNo:	1190
Short Name:	TricuspidValveSten
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of tricuspid or non-systemic atrioventricular valve stenosis.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(2700|410)
ParentValue:	Contains ("Dysplastic Tricuspid or non-systemic atrioventricular valve, non- Ebstein's" or "Tricuspid or non-systemic atrioventricular valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575
Harvest Codes:	

Code: Value:
- 5 None
- 1 Mild
- 2 Moderate
- 3 Severe
- 4 Not Documented

Intent/Clarification:

If age ≥ 18-years and dysplastic tricuspid or non-systemic AV valve or tricuspid or non-systemic AV valve other, indicate the degree of tricuspid/non-systemic atrioventricular valve stenosis prior to surgery. Sclerosis does not mean stenosis.

Coding Notes:

- Use provider documentation of stenosis severity.
- Code the highest severity documented. For example, if tricuspid/non-systemic atrioventricular valve stenosis is documented as mild-moderate, code (2) Moderate.
- Code the degree of stenosis present, even if the patient is not scheduled for valve repair or replacement.
- Code (5) None for trace or minimal tricuspid/non-systemic atrioventricular valve stenosis.
- Code (3) Severe for critical tricuspid/non-systemic atrioventricular valve stenosis.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Description: The tricuspid valve is the largest of the four valves. Over time, stenosis may create an enlarged right atrium, reducing the amount of blood flow into the right ventricle thereby reducing cardiac output. Prolonged or chronic tricuspid stenosis may cause systemic vascular congestion, manifested primarily in the liver.

Long Name: Tricuspid Or Non-systemic Atrioventricular Valve Disease

SeqNo:	1195
Short Name:	VDTr
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether tricuspid or non-systemic atrioventricular valve disease is present.
ParentLongName:	Diagnoses - Multi-Select

ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(2700|410)
ParentValue:	Contains ("Dysplastic Tricuspid or non-systemic atrioventricular valve, non- Ebstein's" or "Tricuspid or non-systemic atrioventricular valve, Other")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and dysplastic tricuspid or non-systemic AV valve or tricuspid or non-systemic AV valve other, indicate if tricuspid or non-systemic AV valve disease is present.

Coding Notes:

- Code (1) Yes if there is documented mild, moderate, or severe tricuspid/non-systemic atrioventricular valve insufficiency or stenosis.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Tricuspid Or Non-systemic Atrioventricular Annular ECHO Measurement Available

SeqNo:	1200
Short Name:	VDTrAnnMeas
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a tricuspid or non-systemic atrioventricular annular diameter measurement is available. See TM for time frame and source 379document priority.
ParentLongName:	Tricuspid Or Non-systemic Atrioventricular Valve Disease
ParentShortName:	VDTr
ParentHarvestCodes:	1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If tricuspid or non-systemic AV valve disease is present, indicate if annular diameter measurement is available.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Tricuspid Or Non-systemic Atrioventricular Annulus Size (Diameter)

SeqNo: 1205

Short Name: VDTrAnnSize

Database Table Name: Operations

Data Source: User

Format: Real

Definition: Indicate the tricuspid or non-systemic atrioventricular annular diameter in cm. See TM for time frame and source document priority.

Low Value: 1.50

High Value: 20.00

ParentLongName: Tricuspid Or Non-systemic Atrioventricular Annular ECHO Measurement Available

ParentShortName: VDTrAnnMeas

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If tricuspid or non-systemic AV valve annular diameter measurement available, indicate the annular diameter in centimeters (cm).

Normal values for tricuspid/non-systemic atrioventricular valve annular diameter 2.0 - 4.0 cm

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Tricuspid Or Non-systemic Atrioventricular Valve Disease Primary Etiology

SeqNo:	1210
Short Name:	VDTrPrimEt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary etiology of tricuspid or non-systemic atrioventricular valve disease.
ParentLongName:	Tricuspid Or Non-systemic Atrioventricular Valve Disease
ParentShortName:	VDTr
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Functional / secondary
2	Endocarditis, Native Valve
13	Endocarditis, Prosthetic Valve
3	Carcinoid
15	Ebstein's Anomaly
16	Non-Ebstein's Anomaly
17	Dysplastic tricuspid or non-systemic atrioventriuclar valve
18	Congenital, other
5	Degenerative
7	Rheumatic
8	Tumor
14	Radiation induced heart disease
9	Trauma
10	Reoperation - Failure of previous tricuspid or non- systemic atrioventricular repair or replacement
11	Mixed Etiology
6	Pacing wire/catheter induced dysfunction
12	Other / Unknown / Not documented

Intent/Clarification:

If tricuspid or non-systemic AV valve disease is present, indicate the primary etiology of the valve disease.

Coding Notes:

- There is no hierarchy, choose the primary etiology noted in the medical record. The primary etiology may be identified at the time of the surgical procedure.
- Code (12) Other / Unknown / Not documented if patient has a documented etiology not included in the list.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

PULMONIC OR NEO_PULMONIC VALVE PATIENTS ≥ 18-YEARS

Long Name: Pulmonic Or Neo-pulmonic Valve Insufficiency Degree

SeqNo:	1215
Short Name:	VDInsufP
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of pulmonic or neo-pulmonic valve insufficiency/regurgitation. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(510|530|540)
ParentValue:	Contains ("Pulmonary or neo-pulmonary valve, Other", "Pulmonary or neo- pulmonary valve insufficiency" or "Pulmonary or neo-pulmonary valve insufficiency and stenosis" or “Conduit failure”)
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	None/Trivial/Trace
2	Mild
3	Moderate
4	Severe

5 Not documented

Intent/Clarification:

If age ≥ 18-years and pulmonary or neo-pulmonary valve insufficiency, insufficiency and stenosis, valve other, or conduit failure, indicate the degree/severity of the valve insufficiency or regurgitation.

Coding Notes:

- Use provider documentation of regurgitation/insufficiency severity and code even if the patient is not scheduled for valve repair/replacement.
- If the valve regurgitation/insufficiency is reported as a range, code the highest value of the range. For example, valve insufficiency reported as mild – moderate, code (3) Moderate.
- Overall regurgitation is assessed by a combination of paravalvular, central (transvalvular or intravalvular), or valvular regurgitation. Code the highest value of regurgitation. For example, TEE documents mild paravalvular regurgitation and trace intravalvular regurgitation, code (2) Mild.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Description: Most common cause is from chronic pulmonary hypertension (PA pressures > 30 mm Hg). Incompetent pulmonary leaflets allow blood to flow back into the right ventricle. This may be a chronic or an acute condition.

Long Name: Pulmonic Or Neo-pulmonic Valve Stenosis Degree

SeqNo:	1220
Short Name:	PulmValveSten
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the degree of pulmonic or neo-pulmonic valve stenosis prior to surgery. See TM for time frame and source document priority.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(420|490|510|540)
ParentValue:	Contains ("Pulmonary stenosis, pulmonary or neo-pulmonary Valvar", "Pulmonary stenosis, Subvalvar", "Pulmonary or neo-

pulmonary valve, Other" or "Pulmonary or neo-pulmonary valve insufficiency and stenosis" or “Conduit failure”)

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code:	Value:
5	None
1	Mild
2	Moderate
3	Severe
4	Not Documented

Intent/Clarification:

If age ≥ 18-years and pulmonary or neo-pulmonary valve insufficiency, insufficiency and stenosis, valve other, or conduit failure, indicate the degree of pulmonary/neo-pulmonary valve stenosis prior to surgery.

Coding Notes:

- Use provider documentation of stenosis severity.
- Code the highest severity documented. For example, if pulmonary/neo-pulmonary valve stenosis is documented as mild - moderate, code (2) Moderate.
- Code the degree of stenosis present, even if the patient is not scheduled for valve repair or replacement.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Description: Pulmonary/neo-pulmonary stenosis is often due to congenital malformation of the valve. As it restricts blood flow from the right ventricle into the pulmonary artery, patients experience extreme fatigue and palpitations. Severe pulmonary/neo-pulmonary stenosis may create a bluish tint to skin and is life threatening.

Long Name: Pulmonic Or Neo-pulmonic Hemodynamic Data Available

SeqNo: 1225

Short Name: PuHemoDatAvail

Database Table Name: Operations

Data Source: User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether pulmonary or neo-pulmonic valve gradient is available.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(420|490|510|530|540)
ParentValue:	Contains ("Pulmonary stenosis, pulmonary or neo-pulmonary Valvar", "Pulmonary stenosis, Subvalvar", "Pulmonary or neo-pulmonary valve, Other", "Pulmonary or neo-pulmonary valve insufficiency" or "Pulmonary or neo-pulmonary valve insufficiency and stenosis" or “Conduit failure”)
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and pulmonary or neo-pulmonary valve insufficiency, insufficiency and stenosis, valve other, or conduit failure, indicate if the valve gradient is available.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Pulmonic Or Neo-pulmonic Gradient-Highest Mean

SeqNo:	1230
Short Name:	VDGradP
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the mean gradient (in mm Hg) across the pulmonic or neo-pulmonic valve. See TM for time frame and source document priority.
Low Value:	0.00
High Value:	200.00

ParentLongName:	Pulmonic Or Neo-pulmonic Hemodynamic Data Available
ParentShortName:	PuHemoDatAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If valve gradient is available, indicate the mean gradient in mmHg across the pulmonary/neo-pulmonary valve.

Coding Notes:

- The pulmonary/neo-pulmonary valve mean gradient may be displayed in other ways on echo, e.g., PV mPG or PV mnPG. Refer to your echo department if unclear which measurement is the pulmonary/neo-pulmonary mean gradient.

- When a range for pulmonary/neo-pulmonary valve mean gradient is documented, code the highest mean in the range.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Long Name: Pulmonic Or Neo-pulmonic Valve Disease

SeqNo:	1235
Short Name:	VDPulm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether pulmonic or neo-pulmonic valve disease is present.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(420|490|510|530|540)
ParentValue:	Contains ("Pulmonary stenosis, pulmonary or neo-pulmonary Valvar", "Pulmonary stenosis, Subvalvar", "Pulmonary or neo-pulmonary valve, Other", "Pulmonary or neo-pulmonary valve insufficiency" or "Pulmonary or neo-pulmonary valve insufficiency and stenosis" or “Conduit failure”))
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575

ParentValue2: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years and pulmonary or neo-pulmonary valve insufficiency, insufficiency and stenosis, valve other, or conduit failure, indicate whether pulmonary or neo-pulmonary valve disease is present.

Coding Notes:

- Code (1) Yes if there is documented mild, moderate, or severe pulmonary/neo-pulmonary valve insufficiency or stenosis.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

Description: The pulmonary valve is a valve between the heart and the artery that leads to the lungs. If valve regurgitation or insufficiency is present, blood can flow from the artery and back into the heart. Pulmonary stenosis reduces blood flow to the lungs and makes the right ventricle work harder. The condition can cause the right sided heart failure. Pulmonary valve disease mostly occurs as a congenital abnormality, but it can also be caused by conditions such as pulmonary hypertension, infective endocarditis or Marfan syndrome.

Long Name: Pulmonic Or Neo-pulmonic Valve Disease Etiology

SeqNo: 1240

Short Name: VDPuEt

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the primary etiology of pulmonic or neo-pulmonic valve disease.

ParentLongName: Pulmonic Or Neo-pulmonic Valve Disease

ParentShortName: VDPulm

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:

1 Acquired
10 Radiation induced heart disease
3 Congenital, no prior Tetralogy of Fallot (TOF) repair
7 Reoperation - Failure of previous pulmonic or neo- pulmonic valve repair or replacement
11 Endocarditis, Native Valve
12 Endocarditis, Prosthetic Valve
8 Mixed Etiology
5 Other
9 Not Documented

Intent/Clarification:

If pulmonary or neo-pulmonary valve disease present, indicate the primary etiology of the valve disease.

Coding Notes:

- There is no hierarchy, choose the primary etiology documented in the medical record. Primary etiology may also be identified at the time of the surgical procedure.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and General Concepts for Valve Disease for additional information.

STATUS POST DIAGNOSIS FETAL INTERVENTION

Long Name: Location Of Fetal Intervention

SeqNo:	1241
Short Name:	LocFetalInt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the fetal intervention.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(11776|11775)
ParentValue:	Contains ("Status post - Fetal Intervention, Open, Maternal Laparotomy with Hysterotomy" or "Status post- Fetal Intervention, Percutaneous Transcatheter")

Harvest Codes:

Code: Value:

1 This hospital
2 Different hospital

Intent/Clarification:

If status post fetal intervention, indicate if the fetal intervention occurred at this hospital or at a different hospital.

Coding Notes:

- Code (1) This hospital if the fetal intervention occurred at the hospital where this surgical intervention is being performed.
- Code (2) Different hospital if the fetal intervention occurred at any other hospital outside of the hospital where this surgical procedure is being performed.

Long Name: Fetal Intervention Information Known

SeqNo:	1242
Short Name:	FetalIntInfoKn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether information about the fetal procedure is known.
ParentLongName:	Diagnoses - Multi-Select
ParentShortName:	DiagnosisMulti
ParentHarvestCodes:	contains(11776|11775)
ParentValue:	Contains ("Status post - Fetal Intervention, Open, Maternal Laparotomy with Hysterotomy" or "Status post- Fetal Intervention, Percutaneous Transcatheter")

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If status post fetal intervention, indicate if information about the fetal intervention performed is known.

Coding Notes:

Code (1) Yes if any one or more of the following are known:

- number of fetal interventions performed

- gestational age of the fetus at the time of the last fetal intervention
- primary procedure of the last open fetal intervention
- type of procedure of the last transcatheter fetal intervention

Code this field for every operation the patient undergoes after birth.

Long Name: Number Of Fetal Interventions Performed

SeqNo:	1243
Short Name:	FetalIntCount
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of fetal interventions performed.
Low Value:	1
High Value:	10
ParentLongName:	Fetal Intervention Information Known
ParentShortName:	FetalIntInfoKn
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If fetal intervention information known, indicate the number of fetal interventions performed. Include both open, maternal laparototomy with hysterotomy and percutaneous transcatheter fetal interventions.

If unknown, leave blank.

Long Name: Gestational Age At Last Fetal Intervention

SeqNo:	1244
Short Name:	FetalIntGestAge
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the age in weeks at the last fetal intervention.
Low Value:	16

High Value:	44
ParentLongName:	Fetal Intervention Information Known
ParentShortName:	FetalIntInfoKn
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If fetal intervention information known, indicate the gestational age (in weeks) of the fetus at the time of the last (most recent) fetal intervention.

If unknown, leave blank.

Long Name: Fetal Intervention Primary Procedure

SeqNo:	1245
Short Name:	FetalIntPrimProc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary fetal intervention procedure performed .
ParentLongName:	Fetal Intervention Information Known
ParentShortName:	FetalIntInfoKn
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Diagnoses - Multi-Select
ParentShortName2:	DiagnosisMulti
ParentHarvestCodes2:	contains(11776)
ParentValue2:	Contains ("Status post - Fetal Intervention, Open, Maternal Laparotomy with Hysterotomy")

Intent/Clarification:

If status post – fetal intervention, open, maternal laparotomy with hysterotomy, indicate the primary fetal intervention procedure performed.

Select the primary fetal procedure from the Procedures list.

If unknown, leave blank.

Long Name: Last Fetal Intervention Type

SeqNo: 1246
Short Name: FetalIntLastType
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the last type of fetal intervention performed.
ParentLongName: Fetal Intervention Information Known
ParentShortName: FetalIntInfoKn
ParentHarvestCodes: 1
ParentValue: = "Yes"
ParentLongName2: Diagnoses - Multi-Select
ParentShortName2: DiagnosisMulti
ParentHarvestCodes2: contains(11775)
ParentValue2: Contains ("Status post- Fetal Intervention, Percutaneous Transcatheter")

Harvest Codes:

Code:	Value:
1	On interatrial septum
2	On aortic valve
3	On pulmonary valve
4	Other

Intent/Clarification:

If status post – fetal intervention, percutaneous transcatheter procedure, indicate the type/location of the last (most recent) fetal transcatheter procedure.

HEMODYNAMICS / CATH / ECHO (PATIENTS ≥ 18-YEARS)

Long Name: Cardiac Catheterization Performed

SeqNo: 1249
Short Name: CarCathPer
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether cardiac catheterization and/or CT angio was performed.
ParentLongName: Patient Age In Days

ParentShortName: AgeDays

ParentHarvestCodes: >=6575

ParentValue: >=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate whether the patient underwent a cardiac catheterization or in the absence of a cardiac catheterization, a computed tomography angiography (CTA) prior to the procedure.

Includes coronary angiogram either done with or without right and/or left heart pressures.

Do not include stand-alone right heart catheterization in this field.

Timeframe: Preference to use a cardiac catheterization completed within 6-months of the procedure, however a cardiac catheterization completed within 1-year of the procedure is acceptable.

Long Name: Cardiac Catheterization Date

SeqNo: 1250

Short Name: CarCathDt

Database Table Name: Operations

Data Source: User

Format: Date - mm/dd/yyyy

Definition: Indicate the date cardiac catheterization was performed.

ParentLongName: Cardiac Catheterization Performed

ParentShortName: CarCathPer

ParentHarvestCodes: ParentValue:

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If cardiac catheterization completed (or CT angiography if a cath was not completed), enter the date of the cardiac catheterization closest to OR entry date/time.

Timeframe: Capture the date of the diagnostic cardiac catheterization that is closest and prior to the surgery date.

If more than one cardiac catheterization was performed, capture the date of the cardiac catheterization closest to the surgery date.

Coding Notes:

Missing date components:

- If only the month and year are known, code month/01/year.
- If only the year is known, code 01/01/Year.
- Leave this field blank if you have no information on any one of the date fields (month, day, or year) of the cath.

Do not include the date of stand-alone right heart catheterization in this field.

Include the date of coronary angiogram either done with or without right and/or left heart pressures.

Long Name: Previous PCI-Within This Episode of Care

SeqNo:	1255
Short Name:	POCPCIWhen
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a previous Percutaneous Cardiac Intervention (PCI) was performed. Timeframe includes procedures performed at previous hospitals prior to transfer to this hospital.
ParentLongName:	Cardiac Catheterization Performed
ParentShortName:	CarCathPer
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes, at this facility
2	Yes, at some other acute care facility
3	No

Intent/Clarification:

If cardiac catheterization completed, indicate whether a percutaneous cardiac intervention (PCI) was performed.

Timeframe: Capture PCIs that occurred during the hospitalization for this surgical intervention (prior to OR entry date/time) including those that occurred at another facility prior to transfer to the surgical hospital for this procedure.

Coding Notes:

Do not include PCIs performed after the surgical procedure in this field.

Do not include PCIs performed at another facility if the patient was discharged to home prior to admission to the surgical hospital for this procedure.

Long Name: Previous PCI-Indication For Surgery

SeqNo: 1260
Short Name: POCPCIndSurg
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Select the indication for surgery following the Percutaneous Coronary Intervention (PCI).
ParentLongName: Previous PCI-Within This Episode of Care
ParentShortName: POCPCIWhen
ParentHarvestCodes: 1|2
ParentValue: = "Yes, at this facility" or "Yes, at some other acute care facility"
Harvest Codes:

Code: Value:
- 1 PCI Complication
- 5 PCI Failure with Clinical Deterioration
- 2 PCI Failure without Clinical Deterioration
- 3 PCI/Surgery Staged Procedure (not STEMI)
- 4 PCI for STEMI, Multivessel disease
- 9 Other

Intent/Clarification:

If previous percutaneous cardiac intervention (PCI) performed, indicate the reason for this surgical procedure as related to PCI intervention or some other reason.

Indicate whether surgery was required due to:

Code:	Value:	Definition:
1	PCI Complication	Complication during PCI necessitating surgical

Code:	Value:	Definition:
		intervention such as dissection or acute occlusion.
5	PCI failure with clinical deterioration	PCI failed to yield expected and/or desired results, patient condition deteriorated, includes attempts to cross with the wire but unsuccessful.
2	PCI failure without clinical deterioration	PCI failed to yield expected and/or desired results, patient condition did not deteriorate, includes attempts to cross with the wire but unsuccessful
3	PCI/Surgery staged procedure (not STEMI)	PCI and surgical procedures performed in a staged fashion in a patient not experiencing STEMI.
4	PCI for STEMI, Multivessel disease	STEMI with primary PCI of culprit lesion and multi-vessel disease requiring coronary artery bypass graft (CABG).
9	Other	Other indication for surgery not otherwise listed.

Long Name: Previous PCI-Stent

SeqNo: 1265
Short Name: POCPCISt
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether an intracoronary stent was used during any of the previous Percutaneous Coronary Interventions (PCI).
ParentLongName: Previous PCI-Within This Episode of Care
ParentShortName: POCPCIWhen
ParentHarvestCodes: 1|2
ParentValue: = "Yes, at this facility" or "Yes, at some other acute care facility"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If previous percutaneous cardiac intervention (PCI) performed, indicate if an intracoronary stent was placed during the PCI.

Description: A coronary stent is a tube-shaped device placed in the coronary arteries that supply blood to the heart to keep the arteries open in the treatment of coronary heart disease. It is used in a procedure called percutaneous coronary intervention (PCI).

Long Name: Previous PCI-Interval

SeqNo: 1270
Short Name: POCPCIIn
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the interval of time between the most recent PCI and the current surgical procedure.
ParentLongName: Previous PCI-Within This Episode of Care
ParentShortName: POCPCIWhen
ParentHarvestCodes: 1|2
ParentValue: = "Yes, at this facility" or "Yes, at some other acute care facility"
Harvest Codes:

Code: Value:
1 <= 6 Hours
2 > 6 Hours

Intent/Clarification:

If previous percutaneous cardiac intervention (PCI) performed, indicate the interval of time between the PCI and this surgical procedure.

Description: The timing of surgery after percutaneous coronary intervention (PCI) may influence outcomes such as renal failure due to contrast given

Code:	Value:	Definition:
1	<= 6 hours	Most recent PCI occurred within 6-hours prior to OR entry date/time.
2	> 6 hours	Most recent PCI occurred greater than 6-hours prior to OR entry date/time.

General Information Coronary Artery Stenosis

Please refer to the General Information regarding timeframe

- For cath reports that have a descriptive term such as 'normal' documented in the impression/conclusion/summary and the detail portion of the report says 70%, use the numerical values first and capture as 70%. Use descriptive terms when you have no numerical values available.
- The following descriptive terms and associated percentages can be used to quantify the % stenosis in any coronary artery. Code the highest descriptive term if a range is documented. For example, if the cath report for the RCA describes mild to moderate distal stenosis, code as moderate since that is the highest descriptive term noted.

Stenosis ≥50%		
▪ Borderline obstructive/obstruction	▪ Borderline disease	50%
▪ Moderate disease	▪ Intermediate disease	
Stenosis ≥70%		
▪ Significant	▪ Obstructive disease	70%
▪ Flow-limiting		
Stenosis ≥ 90%		
▪ Critical	▪ Subtotaled	90%
▪ Severe	▪ Tight	
▪ Occlusive		
Stenosis 100%		
▪ Total occlusion	▪ Chronic Total Occlusion (CTO)	100%
▪ Occluded		

- In instances where multiple lesions are present, capture the highest percent stenosis noted in that vessel. When ranges are reported, such as 45 - 50% stenosis, report as the highest percent in range, in this case 50%.
- Stenosis at the ostia of the LAD and circumflex is not considered left main disease for the purpose of ACSD. Stenosis needs to be in the left main artery.
- If the cath report states 40% disease but the intravascular ultrasound (IVUS) shows 70%, code 70%.

- Code atretic vessels as 100%.
- Code coronary dissections without documented stenosis in cath report as 100%

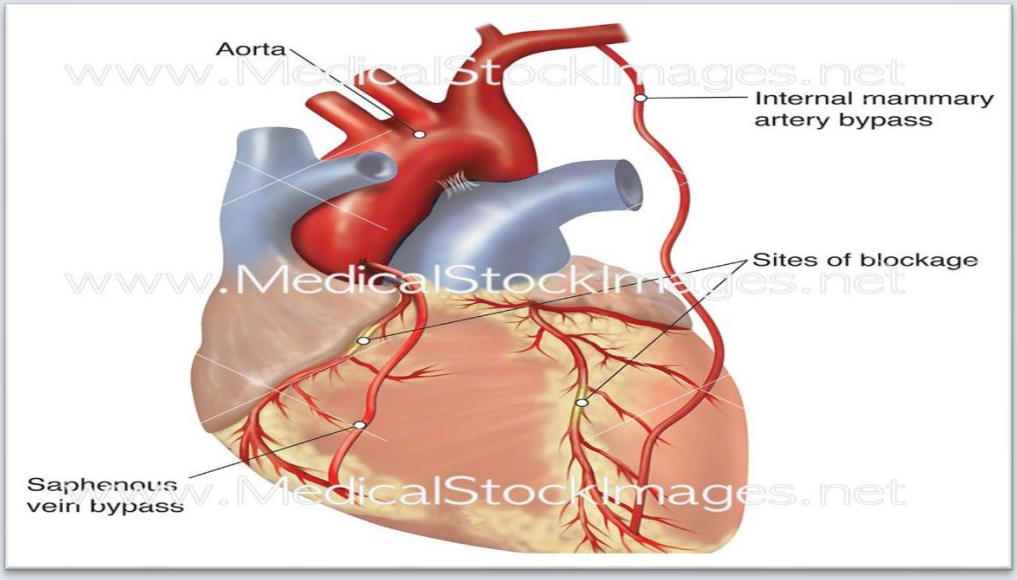
Coding of Native Vessel Stenosis in Patients who have had prior CAB Surgery

- If all grafts are patent bypassing stenosis in the native vessels, then capture right coronary artery (RCA), left anterior descending (LAD), circumflex (CX) artery, and left main distribution >/= 50% as no. The goal is to capture new disease of the vessel supplying blood to the myocardium. The database is specifically looking for stenosis of vessels that are not bypassed, or stenosis in the bypass graft, or stenosis in a native artery with a graft that may be obstructing flow to the myocardium. See examples below:

  Example: Patient had prior CAB x 3, most recent cath shows 90% stenosis in the native mid-LAD (mLAD), 80% stenosis in the native CX, and 95% stenosis in native distal RCA. The posterior descending artery (PDA) originates from the RCA. Bypass grafts to mLAD, the first obtuse marginal artery (OM1), and right PDA are patent. The provider documents there is no obstructive disease, and no bypass grafts are performed. Code the LAD, CX, and RCA distribution as no to stenosis ≥ 50%.

  Example: Patient had prior CAB x 2, most recent cath shows 90% stenosis in native mLAD, 80% stenosis in native OM1, and 95% stenosis in native distal RCA. Bypass grafts to mLAD and right PDA are patent, and the provider is planning to perform a bypass of the native OM1. Code the LAD and RCA distribution as no to ≥ 50% and code the CX distribution as > 70% stenosis.

- Code N/A in situations where the patient does not anatomically have the vessel such as no ramus, and in situations where the vessel or any part of the vessel distribution has not been addressed in the medical record. For example, there is no mention of the LAD in the cath report or any of the other documentation in the medical record, code the LAD distribution ≥50% as N/A'.



Long Name: Coronary Anatomy/Disease Known

SeqNo:	1275
Short Name:	CorAnatDisKnown
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether coronary artery anatomy and/or disease is documented and available prior to surgery.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575
Harvest Codes:	

Code: Value:
1 Yes
2 No

Intent/Clarification:

If age ≥ 18-years, indicate if coronary artery anatomy and/or disease is documented or confirmed by testing prior to surgery.

Coding Notes:

Code (1) yes in the event the results are known and verbally communicated to the surgeon prior to the surgery, but the cath lab report is not yet documented in the medical record. This may occur with emergent cases. This can be captured even if dictation was not completed until after the surgery. Results dictated following the procedure may be used.

In the event a patient is going to the OR for isolated CAB after a STEMI treated with PCI 13-months prior – Code (1) Yes if coronary artery anatomy and/or disease is documented and available prior to surgery. However, code 'No' to field (1249) Cardiac Catheterization Performed because the cath was not performed within 1-year of the OR date.

Long Name: Number of Diseased Vessel Systems

SeqNo:	1280
Short Name:	NumDisV
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the number of diseased major native coronary vessel systems. A vessel that has ever been considered diseased, should always be considered diseased. See TM for time frame and source document priority.
ParentLongName:	Coronary Anatomy/Disease Known
ParentShortName:	CorAnatDisKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes"

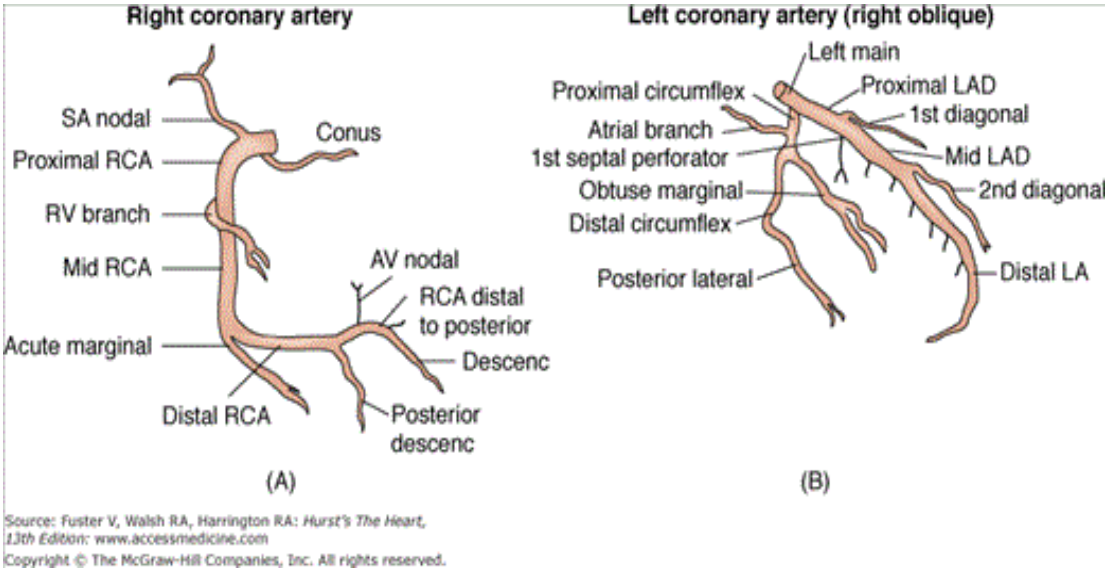
Harvest Codes:

Code: Value:
1 None
2 One
3 Two
4 Three

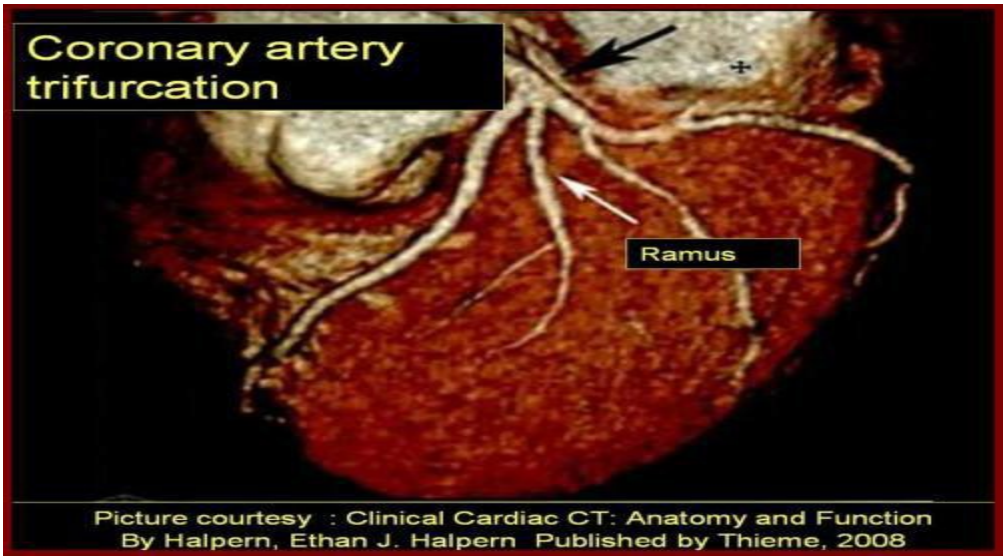
Intent/Clarification:

If coronary artery disease is present, indicate the number of diseased major native coronary vessel systems: Left anterior descending (LAD) system, circumflex system, and/or right coronary system with ≥ 50% narrowing of any vessel preoperatively.

There are three (3) major coronary systems; left anterior descending (LAD), circumflex, and right coronary system (RCA). Each system has "branches" that are considered part of their corresponding system. Vessel stenosis or narrowing is measured in percentages (%), most often expressed as a range of "stenosis." See images below.



The ramus intermedius is a vessel that can function as part of the LAD system or circumflex system depending on its course.



Left main disease (≥ 50%) is counted as TWO vessels (LAD and circumflex, which may include a ramus intermedius). For example, disease in the left main coronary and RCA would count as three vessel disease.

The ramus intermedius is a vessel that can function as part of the LAD system or circumflex system depending on its course.

- If the ramus is part of the LAD and functions much like a diagonal, code as (2) One vessel disease.
- If the Ramus is part of the circumflex system and functions much like an obtuse marginal AND the patient has LAD disease, code (3) Two vessel disease.
- If there is ONLY ramus disease, the ramus should count as a single vessel disease.
- If there is any confusion about the distribution of the Ramus as it relates to the LAD or circumflex coronary artery, consult with your surgeon.

A patient may never have more than three vessel disease. Once a coronary artery is found to be diseased, for the purposes of the ACSD, the vessel is considered diseased for the remainder of the patient's life and all subsequent reoperations regardless of previous interventions.

The number of diseased vessels may not necessarily match the number of bypass grafts performed.

If bypass is performed for an anomalous, kinked/damaged vessel, or myocardial bridging, this vessel is counted as one diseased or abnormal vessel.

Long Name: Left Main Stenosis >= 50% Known

SeqNo:	1285
Short Name:	StenLeftMain
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether left main stenosis greater or equal to 50% is known.
ParentLongName:	Number of Diseased Vessel Systems
ParentShortName:	NumDisV
ParentHarvestCodes:	2|3|4
ParentValue:	= "One", "Two" or "Three"
Harvest Codes:	

Code: Value:
1 Yes
2 No
3 N/A

Intent/Clarification:

If coronary artery disease present, indicate if there is ≥ 50% stenosis of the left main coronary artery.

Stenosis at the ostia of the left anterior descending (LAD) and circumflex (CX) is not considered left main disease for the purpose of the STS database. The stenosis needs to be in the left main artery.

Please refer to General Information on Coronary Artery Stenosis for more information.

Long Name: LAD distribution stenosis >= 50% Known

SeqNo:	1290
Short Name:	LADDistSten
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the LAD distribution has equal to or greater than 50% stenosis.
ParentLongName:	Number of Diseased Vessel Systems
ParentShortName:	NumDisV
ParentHarvestCodes:	2|3|4
ParentValue:	= "One", "Two" or "Three"

Harvest Codes:

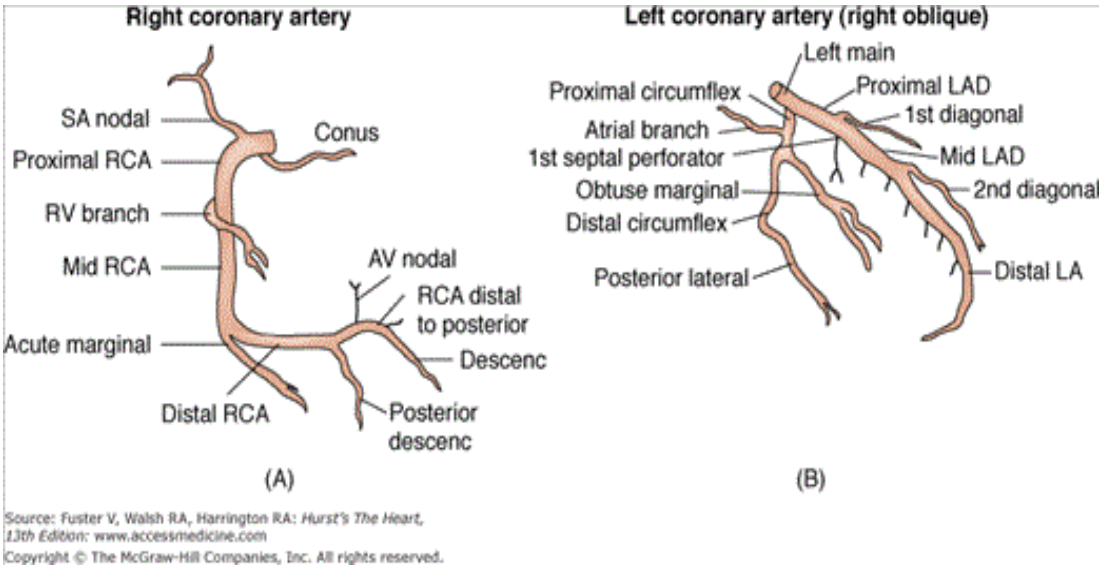
Code: Value:
1 Yes
2 No
3 N/A

Intent/Clarification:

If coronary artery disease present, indicate if there is ≥ 50% stenosis of the left anterior descending (LAD) distribution.

The LAD distribution includes the LAD, septal perforator, and diagonal branches.

Please refer to General Information on Coronary Artery Stenosis for more information.



Source: Fuster V, Walsh RA, Harrington RA: *Hurst's The Heart, 13th Edition*: www.accessmedicine.com
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General Information Ejection Fraction (EF)

Please refer to the General Information regarding timeframe

- If a percentage range is reported, report a whole number using the "mean." For example, a range of 55-60 is coded as 58%.
- If you have a 3D mode, it will take precedence over 2D or M mode. If you have 2D mode and M mode, the 2D mode will take precedence over the M mode.
- If there are multiple values for the EF within the echo closest to surgery, use the value on the final impression/conclusion/summary from the reading physician. For example, the report states under the Left Ventricle, the EF is 35% and under impression, the report states the LVEF is 35 - 40%.
- Priority sources for EF - If multiple methods of measurement of EF occur within in the same final impression/conclusion/summary on the echo report closest to surgery, use the following to determine priority:
    1. 3D calculated EFs
    2. Simpsons or biplane calculated EF
    3. 2D calculated EF
    4. Visual EF

https://www.asecho.org/wp-

content/uploads/2015/01/ChamberQuantification2015.pdf

- For echo reports that have a descriptive term such as 'normal' documented in the impression/conclusion/summary for EF and the measurement portion of the report says 60-70% by visual estimate, use the numerical values first and capture as 65%. Use descriptive terms when you have no numerical values.
- If only a descriptive term is reported, code as below:
  - Hyperdynamic: code 71%
  - Normal: code 60%
  - Mild dysfunction: code 45%
  - Moderate dysfunction: code 35%
  - Severe dysfunction: code 29%
- ACCF/AHA 2013 - If the EF closest to surgery is on a nuclear stress test with a post-stress and rest EF documented, use the rest EF.

Long Name: Hemo Data-EF Done

SeqNo:	1295
Short Name:	HDEFD
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the Ejection Fraction was measured. See TM for time frame and source document priority.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate if an ejection fraction (EF) was measured.

EF and hemodynamic pressures may be obtained from other sources other than coronary angiogram, such as echo, or multi-gated acquisition (MUGA) scan.

Because anesthesia administration can alter the values to be collected, do not collect data from the intra- operative transesophageal echo (TEE) after the induction of anesthesia, unless you have no other source to collect the information.

If the patient has an echo and cardiac catheterization done on the same day and you are not able to determine which study was performed closest to surgery, use the EF from the left heart catheterization.

Long Name: Hemo Data-EF

SeqNo:	1300
Short Name:	HDEF
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the Ejection Fraction (percentage of the blood emptied from the left ventricle at the end of the contraction). See TM for time frame and source document priority.
Low Value:	1.0
High Value:	99.0
ParentLongName:	Hemo Data-EF Done
ParentShortName:	HDEFD
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If an ejection fraction was measured, indicate the EF%. EF is typically reported as a percentage (1.0 – 99.0 %) or described

If the EF is reported as < 10%, code the EF as 10%.

Description: Ejection fraction (EF) indicates the efficiency of the left ventricle (ability to pump blood sufficiently to the rest of the body). It compares the amount of blood in the left ventricle at the end of systole (when the ventricle is fuller) to the end ofdiastole (after the ventricle contracted and should be less full). Issues effecting the left ventricles pumping ability include preload (the amount of blood deposited into the ventricle prior to diastole), afterload (amount of pressure the ventricle has to pump against typically high as a result of elevated systemic venous pressure), ventricular hypertrophy (the enlargement of the ventricle which results in

stretching of the ventricle causing decreased contractility and is a usually a result of congestive heart failure), and valvular insufficiency.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and the General Information for EF for additional information.

Long Name: Hemo Data-Dimensions Available

SeqNo:	1305
Short Name:	DimAvail
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether intracardiac dimensions are available. See TM for time-frame and source document priority.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate if intracardiac dimensions are available, left ventricular end systolic dimension and/or left ventricular end diastolic dimension.

Long Name: Hemo Data-LV End Systolic Dimension

SeqNo:	1310
Short Name:	LVSD
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate LV End -Systolic Dimension in mm. LV end systolic dimension is the same as left ventricular internal dimension in end systole (LVIDs)

Low Value:	0.00
High Value:	90.00
ParentLongName:	Hemo Data-Dimensions Available
ParentShortName:	DimAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If intracardiac dimensions available, indicate the left ventricular end-systolic dimension in mm.

Coding Notes:

If reported in cm, convert to mm by multiplying the value by 10.

If multiple modes of measurements exist within the report closest to OR entry date/time, use the following to determine the priority source for dimensions:

- 3D mode takes precedence over 2D or M mode
- 2D mode takes precedence over M mode

The LV End Systolic dimension (LVSD) and LV End Diastolic dimension (LVDD) may be displayed in other ways on echo reports, i.e., LVESD and LVEDD, LVIDs and LVIDd, LV(S) and LV(D), LVSD Plax and LVDD Plax. Refer to your echo department if it is unclear which measurement is the LVSD or LVDD:

Please refer to the General Information regarding timeframe for collecting hemodynamic results and measurements.

Description: During systole, the left ventricle contracts pumping blood through the body. During diastole, the left ventricle relaxes and fills with blood again. The systolic dimension of the left ventricle demonstrates ventricular emptying and when compared to the end diastolic dimension, left ventricular performance is calculated.

Long Name: Hemo Data-LV End-Diastolic Dimension

SeqNo:	1315
Short Name:	LVEDD
Database Table Name:	Operations
Data Source:	User
Format:	Real

Definition:	Indicate the Left Ventricular End-Diastolic Dimension in mm. LV end diastolic dimension is the same as left ventricular internal dimension in end diastole (LVIDs)
Low Value:	20.00
High Value:	100.00
ParentLongName:	Hemo Data-Dimensions Available
ParentShortName:	DimAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If intracardiac dimensions available, indicate the left ventricular end-diastolic dimension in mm.

Coding Notes:

If reported in cm, convert to mm by multiplying the value by 10.

If multiple modes of measurements exist within the report closest to OR entry date/time, use the following to determine the priority source for dimensions:

- 3D mode takes precedence over 2D or M mode
- 2D mode takes precedence over M mode

The LV End Systolic dimension (LVSD) and LV End Diastolic dimension (LVDD) may be displayed in other ways on echo reports, i.e., LVESD and LVEDD, LVIDs and LVIDd, LV(S) and LV(D), LVSD Plax and LVDD Plax. Refer to your echo department if it is unclear which measurement is the LVSD or LVDD:

Please refer to the General Information regarding timeframe for collecting hemodynamic results and measurements.

Description: During systole, the left ventricle contracts pumping blood through the body. During diastole, the left ventricle relaxes and fills with blood again. The end-diastolic dimension of the left ventricle demonstrates ventricular filling and when compared to the end systolic dimension, left ventricular performance is calculated.

Long Name: Hemo Data-PA Systolic Pressure Measured

SeqNo:	1320
Short Name:	PASYSMeas
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the PA systolic pressure was measured. See TM for time frame and source document priority.
ParentLongName:	Patient Age In Days
ParentShortName:	AgeDays
ParentHarvestCodes:	>=6575
ParentValue:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If age ≥ 18-years, indicate if pulmonary artery (PA) systolic pressure was measured.

Coding Notes:

If no PA pressures are recorded or available pre-op from cardiac cath or echo, you can obtain the PA pressure values from a Swan-Ganz catheter inserted for surgery *prior to induction of anesthesia.* Do not use pre-incision values.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and measurements.

Long Name: Hemo Data-PA Systolic Pressure

SeqNo:	1325
Short Name:	PASYS
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the PA systolic pressure. See TM for time frame and source document priority.
Low Value:	10.00
High Value:	150.00
ParentLongName:	Hemo Data-PA Systolic Pressure Measured
ParentShortName:	PASYSMeas
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the pulmonary artery (PA) systolic pressure was measured, indicate the pressure in mmHg.

Coding Notes:

If no PA pressures are recorded or available pre-op from cardiac cath or echo, you can obtain the PA pressure values from a Swan-Ganz catheter inserted for surgery *prior to induction of anesthesia.* Do not use pre-incision values.

For a PA pressure that is documented as a range value, use the *highest* value in the range. For example, PA pressure is documented as 30 – 35 mm Hg, code 35.

If PA systolic pressure is not available, it is acceptable to code the peak right ventricle systolic pressure (RVSP). RVSP and PA systolic pressures will be the same if there is no pulmonary valve disease or outflow obstruction. *Do not use the RVSP when the pulmonary regurgitation is mild, moderate, or severe as this will affect the RVSP***.** Note: a RVSP cannot be obtained if there is no tricuspid regurgitation present.

Description: Elevated pulmonary artery (PA) pressures are indicative of pulmonary hypertension, mitral valve disease, and other pulmonary/cardiac diseases. Normal systolic PA pressure readings are between 15-30 mm Hg.

Please refer to the General Information regarding timeframe for collecting hemodynamic results and measurements.

J. PROCEDURES

Long Name: Procedures - Multi-Select

SeqNo:	1350
Short Name:	ProcedureMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate ALL procedures that were performed during this surgical procedure.

Harvest Codes:

Code:	Value:
10	PFO, Primary closure
20	ASD repair, Primary closure
30	ASD repair, Patch

40 ASD repair, Device
50 ASD, Common atrium (single atrium), Septation
60 ASD creation/enlargement
70 ASD partial closure
80 Atrial septal fenestration
85 Atrial fenestration closure
100 VSD repair, Primary closure
110 VSD repair, Patch
120 VSD repair, Device
130 VSD, Multiple, Repair
5001 VSD repair, Patch + ASD repair, Primary closure
140 VSD creation/enlargement
150 Ventricular septal fenestration
170 AVC (AVSD) repair, Complete (CAVSD)
180 AVC (AVSD) repair, Intermediate (Transitional)
190 AVC (AVSD) repair, Partial (Incomplete) (PAVSD)
5022 AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch
2300 Valvuloplasty, Common atrioventricular valve
2250 Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve
2230 Valve replacement, Common atrioventricular valve
5027 AVC (AVSD) repair, Complete (CAVSD) +Vascular ring repair
5034 AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended
3480 AVC (AVSD) repair, Complete (CAVSD) + Arch repair
210 AP window repair
220 Pulmonary artery origin from ascending aorta (hemitruncus) repair
230 Truncus arteriosus repair
2220 Truncus + Interrupted aortic arch repair (IAA) repair
260 PAPVC repair
5007 PAPVC repair + ASD repair, Primary closure
270 PAPVC, Scimitar, Repair
2120 PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage)
2110 ASD repair, Patch + PAPVC repair
5024 VSD repair, Patch + PAPVC repair
5028 VSD repair, Patch + ASD repair, Patch + PAPVC repair
280 TAPVC repair
2200 TAPVC repair + Shunt - systemic-to-pulmonary
5006 TAPVC repair + Shunt - systemic-to-pulmonary + PDA closure, Surgical
290 Cor triatriatum repair
300 Pulmonary venous stenosis repair
5019 Pulmonary venous stenosis repair + ASD partial closure
310 Atrial baffle procedure (non-Mustard, non-Senning)
330 Anomalous systemic venous connection repair

340 Systemic venous stenosis repair
350 TOF repair, No ventriculotomy
5004 TOF repair, No Ventriculotomy + ASD repair, Primary closure
360 TOF repair, Ventriculotomy, Nontransanular patch
370 TOF repair, Ventriculotomy, Transanular patch
3330 TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction
3340 TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve
380 TOF repair, RV-PA conduit
390 TOF - AVC (AVSD) repair
400 TOF - Absent pulmonary valve repair
5018 TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair
420 Pulmonary atresia - VSD (including TOF, PA) repair
5031 Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical
2700 Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
2710 Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])
2720 Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
2730 Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated)
2740 Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated)
2750 Unifocalization MAPCA(s), Unilateral pulmonary unifocalization
440 Unifocalization MAPCA(s)
5011 Unifocalization MAPCA(s) + Conduit placement, RV to PA
5014 Unifocalization MAPCA(s) + Shunt, Systemic to pulmonary, Central (shunt from aorta)
450 Occlusion of MAPCA(s)
460 Valvuloplasty, Tricuspid
2280 Valvuloplasty converted to valve replacement in the same operation, Tricuspid
465 Ebstein's repair
5030 Ebstein's repair + PDA closure, Surgical
470 Valve replacement, Tricuspid (TVR)
480 Valve closure, Tricuspid (exclusion, univentricular approach)
490 Valve excision, Tricuspid (without replacement)
500 Valve surgery, Other, Tricuspid
510 RVOT procedure
520 1 1/2 ventricular repair

530 PA, reconstruction (plasty), Main (trunk)
540 PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)
5003 PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
550 PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch)
3350 PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, proximal to first segmental branch)
3360 PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, beyond the first segmental branch)
570 DCRV repair
3370 RV Rehabilitation, Endocardial Resection
590 Valvuloplasty, Pulmonic
2270 Valvuloplasty converted to valve replacement in the same operation, Pulmonic
600 Valve replacement, Pulmonic (PVR)
5015 ASD repair, Patch + Valve replacement, Pulmonary or neo-pulmonary (PVR)
5023 VSD repair, Patch + Valve replacement, Pulmonary or neo-pulmonary (PVR)
5033 Valve replacement, Pulmonary or neo-pulmonary (PVR) + explantation of pacing system
630 Valve excision, Pulmonary or neo-pulmonary (without replacement)
640 Valve closure, Semilunar
650 Valve surgery, Other, Pulmonary or neo- pulmonary
5025 Valve replacement, Pulmonary or neo-pulmonary (PVR) + Valve replacement, Aortic/neo- aortic~~/truncal~~ (AVR), Mechanical
610 Conduit placement, RV to PA
3520 Conduit placement, RV to PA, Valved
3530 Conduit placement, RV to PA, Non-valved
620 Conduit placement, LV to PA
1774 Conduit placement, Ventricle to aorta
1772 Conduit placement, Other
5013 Conduit placement, RV to PA + PDA closure, Surgical
5035 Conduit placement, RV to PA + Aortic root replacement, Mechanical
580 Conduit reoperation
5016 VSD repair, Patch + Conduit reoperation
5020 Conduit reoperation + Valve replacement, Aortic/neo-aortic~~/truncal~~ (AVR), Mechanical
240 Valvuloplasty, Truncal valve
3490 Valvuloplasty, Truncal valve, Reduction of number of cusps/sinus resection
3500 Valvuloplasty, Truncal valve, Augmentation of valve leaflet (one or more)
3510 Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
2290 Valvuloplasty converted to valve replacement in the same operation, Truncal valve
250 Valve replacement, Truncal valve

3790 Valve replacement, Truncal, Mechanical
3800 Valve replacement, Truncal, Bioprosthetic
3810 Valve replacement, Truncal, Homograft
660 Valvuloplasty, Aortic/neo-aortic
3540 Valvuloplasty, Aortic/neo-aortic valve, Reduction of number of cusps/sinus resection
3550 Valvuloplasty, Aortic/neo-aortic valve, Augmentation of valve leaflet (one or more)
3560 Valvuloplasty, Aortic/neo-aortic valve, Neo- cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)
2240 Valvuloplasty converted to valve replacement in the same operation, Aortic/neo-aortic
2310 Valvuloplasty converted to valve replacement in the same operation, Aortic/neo-aortic – with Ross procedure
2320 Valvuloplasty converted to valve replacement in the same operation, Aortic/neo-aortic – with Ross- Konno procedure
670 Valve replacement, Aortic/neo-aortic (AVR)
680 Valve replacement, Aortic/neo-aortic (AVR), Mechanical
690 Valve replacement, Aortic/neo-aortic (AVR), Bioprosthetic
700 Valve replacement, Aortic/neo-aortic (AVR), Homograft
715 Aortic root replacement, Bioprosthetic
720 Aortic root replacement, Mechanical
730 Aortic root replacement, Homograft
735 Aortic root replacement, Valve sparing
740 Ross procedure
750 Konno procedure
760 Ross-Konno procedure
5026 Ross-Konno procedure + Valve replacement, Mitral or systemic atrioventricular valve (MVR)
770 Other annular enlargement procedure
780 Aortic stenosis, Subvalvar, Repair
2100 Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS
790 Aortic stenosis, Supravalvar, Repair
800 Valve surgery, Other, Aortic/neo-aortic/truncal valve
3380 Extended Ventricular Septoplasty (modified Konno, VSD creation and patch enlargement of LVOT, sparing aortic valve) for tunnel type sub aortic stenosis
810 Sinus of Valsalva, Aneurysm repair
820 LV to aorta tunnel repair
830 Valvuloplasty, Mitral or systemic atrioventricular valve
5005 Mitral or systemic atrioventricular Valvuloplasty + Valvuloplasty, Aortic/neo-aortic~~/truncal~~
2260 Valvuloplasty converted to valve replacement in the same operation, Mitral or systemic atrioventricular valve
840 Mitral or systemic atrioventricular valve stenosis, Supravalvar ring repair

850 Valve replacement, Mitral or systemic atrioventricular valve (MVR)
860 Valve surgery, Other, Mitral or systemic atrioventricular valve
870 Norwood procedure
5012 Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA
880 Biventricular repair for hypoplastic left ventricle
3390 LV Endocardial Fibroelastosis resection
2755 Conduit insertion right ventricle to pulmonary artery + Intraventricular tunnel left ventricle to neoaorta + Arch reconstruction (Rastelli and Norwood type arch reconstruction) (Yasui)
2160 Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency
2170 Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
2180 Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands
2140 Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)
2150 Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair
2760 Hybrid Approach, Transcardiac balloon dilation
2770 Hybrid Approach, Transcardiac transcatheter device placement
890 Transplant, Heart
5002 PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Transplant, Heart
900 Transplant, Heart and lung (Combined procedure)
3570 Transplant, Heart and Liver (Combined procedure)
3580 Transplant, Heart and Kidney (Combined procedure)
3590 Transplant, Heart and Liver and Kidney (Combined procedure)
910 Partial left ventriculectomy (LV volume reduction surgery) (Batista)
920 Pericardial drainage procedure
930 Pericardiectomy
940 Pericardial procedure, Other
950 Fontan, Atrio-pulmonary connection
960 Fontan, Atrio-ventricular connection
970 Fontan, TCPC, Lateral tunnel, Fenestrated
980 Fontan, TCPC, Lateral tunnel, Nonfenestrated
1000 Fontan, TCPC, External conduit, Fenestrated
5010 Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure
1010 Fontan, TCPC, External conduit, Nonfenestrated
2780 Fontan, TCPC, Intra/extracardiac conduit, Fenestrated
2790 Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated
3310 Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated

3320 Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated
1025 Fontan revision or conversion (Re-do Fontan)
1030 Fontan, Other
3600 Fontan, Takedown
2340 Fontan + Atrioventricular valvuloplasty
1035 Ventricular septation
3610 Ventricular septation, Following superior cavopulmonary anastomosis or hemifontan
3620 Ventricular septation, Following prior total cavopulmonary connection
3630 Ventricular septation, Following prior Hybrid Stage 1
3640 Ventricular septation, Following prior Norwood or DKS procedure
1050 Congenitally corrected TGA repair, Atrial switch and ASO (double switch)
1060 Congenitally corrected TGA repair, Atrial switch and Rastelli
1070 Congenitally corrected TGA repair, VSD closure
1080 Congenitally corrected TGA repair, VSD closure and LV to PA conduit
1090 Congenitally corrected TGA repair, Other
1110 Arterial switch operation (ASO)
1120 Arterial switch operation (ASO) and VSD repair
1123 Arterial switch procedure + Aortic arch repair
1125 Arterial switch procedure and VSD repair + Aortic arch repair
1130 Senning
1140 Mustard
1145 Atrial baffle procedure, Mustard or Senning revision
1150 Rastelli
1160 REV
2190 Aortic root translocation over left ventricle (Including Nikaidoh procedure)
2210 TGA, Other procedures (Kawashima, LV-PA conduit, other)
3400 Double root translocation
1180 DORV, Intraventricular tunnel repair
3410 DORV repair, No Ventriculotomy
3420 DORV repair, Ventriculotomy, Nontransannular patch
3430 DORV repair, Ventriculotomy, Transannular patch
3440 DORV repair, RV-PA conduit
3450 DORV - AVC (AVSD) repair
1200 DOLV repair
1210 Coarctation repair, End to end
1220 Coarctation repair, End to end, Extended
3460 Coarctation repair, Descending aorta anastomosed to Ascending aorta
1230 Coarctation repair, Subclavian flap
1240 Coarctation repair, Patch aortoplasty
1250 Coarctation repair, Interposition graft
3470 Coarctation repair, Extra-anatomic Bypass graft
1260 Coarctation repair, Other

1275 Coarctation repair + VSD repair
1280 Aortic arch repair
1285 Aortic arch repair + VSD repair
5008 Aortic arch repair + VSD repair + ASD repair, Patch
1290 Coronary artery fistula ligation
1291 Anomalous origin of coronary artery from pulmonary artery repair
1300 Coronary artery bypass
1305 Anomalous aortic origin of coronary artery from aorta (AAOCA) repair
1310 Coronary artery procedure, Other
1320 Interrupted aortic arch repair
1330 PDA closure, Surgical
1340 PDA closure, Device
1360 Vascular ring repair
1365 Aortopexy
3650 Division with or without reimplantation of aberrant subclavian artery
1370 Pulmonary artery sling repair
5009 Pulmonary artery sling repair + Tracheal procedure
1380 Aortic aneurysm repair
1390 Aortic dissection repair
3655 Aorta, Other
1400 Lung biopsy
1410 Transplant, Lung(s)
1420 Lung procedure, Other
1440 Tracheal procedure
2800 Muscle flap, Trunk (i.e. intercostal, pectus, or serratus muscle)
2810 Muscle flap, Trunk (i.e. latissimus dorsi)
2820 Removal, Sternal wire
2830 Rib excision, Complete
2840 Rib excision, Partial
2850 Sternal fracture - open treatment
2860 Sternal resection, Radical resection of sternum
2870 Sternal resection, Radical resection of sternum with mediastinal lymphadenectomy
2880 Tumor of chest wall - Excision including ribs
2890 Tumor of chest wall - Excision including ribs, With reconstruction
2900 Tumor of soft tissue of thorax - Excision of deep subfascial or intramuscular tumor
2910 Tumor of soft tissue of thorax - Excision of subcutaneous tumor
2920 Tumor of soft tissue of thorax - Radical resection
2930 Hyoid myotomy and suspension
2940 Muscle flap, Neck
2950 Procedure on neck
2960 Tumor of soft tissue of neck - Excision of deep subfascial or intramuscular tumor
2970 Tumor of soft tissue of neck - Excision of subcutaneous tumor

2980 Tumor of soft tissue of neck - Radical resection
2990 Pectus bar removal
3000 Pectus bar repositioning
3010 Pectus repair, Minimally invasive repair (Nuss), With thoracoscopy
3020 Pectus repair, Minimally invasive repair (Nuss), Without thoracoscopy
3030 Pectus repair, Open repair
3040 Division of scalenus anticus, With resection of a cervical rib
3050 Division of scalenus anticus, Without resection of a cervical rib
3060 Rib excision, Excision of cervical rib
3070 Rib excision, Excision of cervical rib, With sympathectomy
3080 Rib excision, Excision of first rib
3090 Rib excision, Excision of first rib, With sympathectomy
3100 Procedure on thorax
1450 Pacemaker implantation, Permanent
1460 Pacemaker procedure
2350 Explantation of pacing system
1470 ICD (AICD) implantation
1480 ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure
1490 Arrhythmia surgery - atrial, Surgical Ablation
1500 Arrhythmia surgery - ventricular, Surgical Ablation
2500 Cardiovascular catheterization procedure, Diagnostic
2520 Cardiovascular catheterization procedure, Diagnostic, Angiographic data obtained
2550 Cardiovascular catheterization procedure, Diagnostic, Electrophysiology alteration
2540 Cardiovascular catheterization procedure, Diagnostic, Hemodynamic alteration
2510 Cardiovascular catheterization procedure, Diagnostic, Hemodynamic data obtained
2530 Cardiovascular catheterization procedure, Diagnostic, Transluminal test occlusion
2410 Cardiovascular catheterization procedure, Therapeutic
2670 Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy
1540 Cardiovascular catheterization procedure, Therapeutic, Balloon dilation
2590 Cardiovascular catheterization procedure, Therapeutic, Balloon valvotomy
1580 Cardiovascular catheterization procedure, Therapeutic, Coil implantation
1560 Cardiovascular catheterization procedure, Therapeutic, Device implantation
3110 Cardiovascular catheterization procedure, Therapeutic, Device implantation attempted
2690 Cardiovascular catheterization procedure, Therapeutic, Electrophysiological ablation.
3120 Cardiovascular catheterization procedure, Therapeutic, Intravascular foreign body removal
2640 Cardiovascular catheterization procedure, Therapeutic, Perforation (establishing interchamber and/or intervessel communication)

2580 Cardiovascular catheterization procedure, Therapeutic, Septostomy
1550 Cardiovascular catheterization procedure, Therapeutic, Stent insertion
2630 Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation
2650 Cardiovascular catheterization procedure, Therapeutic, Transcatheter Fontan completion
2660 Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve
3660 Open chest exposure for transcatheter/per- ventricular/per-atrial procedure
3670 Peripheral vascular access for transcatheter procedures
1590 Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS)
5000 Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS) + PDA closure, Surgical
1600 Shunt, Systemic to pulmonary, Central (shunt from aorta)
3130 Shunt, Systemic to pulmonary, Central (shunt from aorta), Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta (i.e. Mee shunt)
3230 Shunt, Systemic to pulmonary, Potts - Smith type (descending aorta to pulmonary artery)
1610 Shunt, Systemic to pulmonary, Other
3680 RV to PA Shunt (e.g., Sano Shunt or palliative RV- PA non-valved conduit to augment pulmonary blood flow)
1630 Shunt, Ligation and takedown
2095 Shunt, Reoperation
1640 PA banding (PAB), placement of main pulmonary band
3860 PA banding (PAB), Placement of unilateral or bilateral branch pulmonary artery band(s) without the need for concomitant PGE and/or ductal stent
5037 PA banding (PAB) + Valvuloplasty, Common atrioventricular valve
1650 PA debanding
3200 PA band adjustment
1660 Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)
5017 Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction) + Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS)
1670 Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)
1680 Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
1690 Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
1700 HemiFontan
2330 Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty
2130 Superior Cavopulmonary anastomosis(es) + PA reconstruction
3300 Takedown of superior cavopulmonary anastomosis
3140 Hepatic vein to azygous vein connection, Direct

3150 Hepatic vein to azygous vein connection, Interposition graft
3160 Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)
1710 Palliation, Other
2360 ECMO cannulation
2370 ECMO decannulation
1910 ECMO procedure
1900 Intraaortic balloon pump (IABP) insertion
3820 Right/Left heart temporary assist device, Implant
3830 Right/Left heart temporary assist device, Explant
3840 Right/Left heart temporary assist device, Procedure
2390 VAD, Explant
2380 VAD, Implant
3170 VAD, Change out
3850 VAD, Procedure
2420 Echocardiography procedure, Sedated transesophageal echocardiogram
2430 Echocardiography procedure, Sedated transthoracic echocardiogram
2435 Non-cardiovascular, Non-thoracic procedure on cardiac patient with cardiac anesthesia
2440 Radiology procedure on cardiac patient, Cardiac Computerized Axial Tomography (CT Scan)
2450 Radiology procedure on cardiac patient, Cardiac Magnetic Resonance Imaging (MRI)
2460 Radiology procedure on cardiac patient, Diagnostic radiology
2470 Radiology procedure on cardiac patient, Non- Cardiac Computerized Tomography (CT) on cardiac patient
2480 Radiology procedure on cardiac patient, Non- cardiac Magnetic Resonance Imaging (MRI) on cardiac patient
2490 Radiology procedure on cardiac patient, Therapeutic radiology
1720 Aneurysm, Ventricular, Right, Repair
1730 Aneurysm, Ventricular, Left, Repair
1740 Aneurysm, Pulmonary artery, Repair
1760 Cardiac tumor resection
3690 Cardiac tumor resection, Resection of ventricular fibroma
3700 Cardiac tumor resection, Resection of ventricular rhadbomyoma
3710 Cardiac tumor resection, Resection of atrial myxoma
3720 Cardiac tumor resection, Resection of Other tumor
5021 Cardiac tumor resection + PDA closure, Surgical
3730 Cardiac tumor resection + PDA closure, Surgical, Resection of ventricular fibroma
3740 Cardiac tumor resection + PDA closure, Surgical, Resection of ventricular rhadbomyoma
3750 Cardiac tumor resection + PDA closure, Surgical, Resection of Atrial myxoma
3760 Cardiac tumor resection + PDA closure, Surgical, Resection of Other tumor
3770 Resection of pericardial teratoma

3780 Anterior PA translocation (not performed as part of an arterial switch operation) (Le Compte)
1780 Pulmonary AV fistula repair/occlusion
1790 Ligation, Pulmonary artery
1802 Pulmonary embolectomy, Acute pulmonary embolus
1804 Pulmonary embolectomy, Chronic pulmonary embolus
1810 Pleural drainage procedure
1820 Pleural procedure, Other
1830 Ligation, Thoracic duct
1840 Decortication
1850 Esophageal procedure
1860 Mediastinal procedure
1870 Bronchoscopy
1880 Diaphragm plication
1890 Diaphragm procedure, Other
1930 VATS (video-assisted thoracoscopic surgery)
1940 Minimally invasive procedure
1950 Bypass for noncardiac lesion
1960 Delayed sternal closure
1970 Mediastinal exploration
1980 Sternotomy wound drainage
3180 Intravascular stent removal
3220 Removal of transcatheter-delivered device from heart
3210 Removal of transcatheter-delivered device from blood vessel
1990 Thoracotomy, Other
2000 Cardiotomy, Other
2010 Cardiac procedure, Other
2020 Thoracic and/or mediastinal procedure, Other
2030 Peripheral vascular procedure, Other
2040 Miscellaneous procedure, Other
2050 Organ procurement
7777 Other procedure
7800 Operation canceled before skin incision
7810 Operation aborted after skin incision

Intent/Clarification:

Code ***all*** procedures completed during the operation including those done by other surgeons and interventionalists.

When coding combination procedures, **also code the individual procedures that make up the combination procedure.** Exceptions will be noted in the definitions for the combination procedure (see coding notes for each procedure). This will be important as then the primary procedure mismatch report can look for all potential combinations for the procedures completed and identify the correct primary procedure.

Code all procedures completed even in the event the procedure is taken down prior to the patient exiting the OR. For example, the surgeon completes a bidirectional cavopulmonary anastomosis (Glenn procedure) and prior to leaving the OR and due to the patient's hemodynamic state, the cavopulmonary shunt is removed and a systemic to pulmonary shunt is replaced. Code the Glenn procedure and the takedown along with the new shunt placement.

Code the most specific procedure available. For example, when coding a truncal valve replacement, if known, code the type of prosthetic valve inserted (mechanical, bioprosthetic, homograft) and only code procedure (3790) Valve replacement, Truncal valve if the type of valve inserted is unknown.

Please note the combination procedure and the procedure codes that specifically make up those combination procedures. For example, procedure (5001) VSD repair, Patch and ASD repair, Primary closure only include procedures (110) VSD repair, Patch and (20) ASD repair, Primary closure. This combination procedure does not include any other VSD or ASD repair types or combination of repair types.

Code:	Value:	Definition:
10	PFO, Primary closure	Suture closure of patent foramen ovale (PFO).
20	ASD repair, Primary closure	Suture closure of secundum (most frequently), coronary sinus, sinus venosus or common atrium atrial septal defect (ASD).
30	ASD repair, Patch	Patch closure (using any type of patch material) of secundum, coronary sinus, or sinus venosus atrial septal defect (ASD).
40	ASD repair, Device	Closure of any type atrial septal defect (ASD), including PFO, using a device.
50	ASD, Common atrium (single atrium), Septation	Septation of common (single) atrium using any type patch material.
60	ASD creation/enlargement	Creation of an atrial septal defect (ASD) or enlargement of an existing ASD using a variety of modalities including balloon septostomy, blade septostomy, or surgical septectomy. Creation may be accomplished with or without use of cardiopulmonary bypass. Coding Notes:

Code:	Value:	Definition:
		Do *not* use this code when the creation of the ASD (and subsequent repair) is part of the surgical approach to repair other defects.
70	ASD partial closure	Intentional partial closure of any type atrial septal defect (ASD) with partial suture or fenestrated patch closure.
80	Atrial septal fenestration	Creation of a fenestration (window) in the septum between the atrial chambers performed when the atrial septum is intact/restrictive. Usually performed using a hole punch, creating a specifically sized communication in patch material placed on the atrial septum. A patch can be used to create the atrial septal defect (ASD) fenestration. Coding Notes: Do *not* use this code for a fenestrated patch closure of an ASD; instead, code procedure (70) ASD partial closure.
85	Atrial fenestration closure	Closure of previously created atrial fenestration using any method including device, primary suture, or patch.
100	VSD repair, Primary closure	Suture closure of any type ventricular septal defect (VSD).
110	VSD repair, Patch	Patch closure (using any type of patch material) of any type ventricular septal defect (VSD).
120	VSD repair, Device	Closure of any type ventricular septal defect (VSD) using a device.
130	VSD, Multiple, Repair	Closure of more than one ventricular septal defect (VSD) using any method or combination of methods. Coding Notes: Further information regarding each type of VSD closed and method of closure can be provided by

Code:	Value:	Definition:
		additionally listing specifics for each VSD closed. In the event multiple VSDs are present where only one VSD is closed, the procedure should be coded as closure of a single VSD. The fundamental and primary diagnoses is VSD, Multiple with a secondary diagnosis of the correct single VSD repair type (i.e., 100 Primary closure, 110 Patch, 120 Device).
5001	VSD repair, Patch + ASD repair, Primary closure	During the same operation, procedure (110) VSD repair, Patch, *and* procedure (20) ASD repair, Primary closure. Coding Notes: See the individual procedure codes for more detail.
140	VSD creation/enlargement	Creation of a ventricular septal defect (VSD) or enlargement of an existing VSD. Coding Notes: Do *not* use this code for a fenestrated patch closure of an VSD; instead, code (150) ventricular septal fenestration.
150	Ventricular septal fenestration	Creation of a fenestration (window) in the septum between the ventricular chambers. Usually performed using a hole punch, creating a specifically sized communication in patch material placed on the ventricular septum. Coding Notes: Includes fenestrated patch closure of a ventricular septal defect (VSD).
170	AVC (AVSD) repair, Complete (CAVSD)	Repair of complete atrioventricular canal (CAVSD) using one- or two-patch or other technique, with or without mitral valve cleft repair.
180	AVC (AVSD) repair, Intermediate (Transitional)	Repair of intermediate atrioventricular canal (AVSD) using an ASD and VSD patch, or ASD patch and VSD

Code:	Value:	Definition:
		suture, or other technique, with or without mitral valve cleft repair. Coding Notes: Do *not* include the repair of the mitral valve (if completed) as a separate procedure.
190	AVC (AVSD) repair, Partial (Incomplete) (PAVSD)	Repair of partial atrioventricular canal defect (primum ASD), any technique, with or without repair of cleft mitral valve. Coding Notes: Do *not* include the repair of the mitral valve if completed as a separate procedure.
5022	AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch	During the same operation, procedure (190) AVC (AVSD) repair, Partial (Incomplete) (PAVSD) *and* procedure (110) VSD repair, Patch. Coding Notes: Do *not* include the repair of the mitral valve if completed as a separate procedure. See the individual procedure codes for more detail.
2300	Valvuloplasty, Common atrioventricular valve	Common atrioventricular (AV) valve repair, any type Coding Notes: Only code this repair in the setting of single ventricle physiology or in the presence of an unseptated valve, e.g., in the setting of an unrepaired complete AV septal defect.
2250	Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve	Common atrioventricular (AV) valve repair attempted, converted to valve replacement with prosthetic valve during the same operation. Coding Notes: Only code this repair in the setting of single ventricle physiology or in the presence of an unseptated valve,

Code:	Value:	Definition:
		e.g., in the setting of an unrepaired complete AV septal defect.
2230	Valve replacement, Common atrioventricular valve	Replacement of the common atrioventricular (AV) valve with a prosthetic valve. Coding Notes: Only code this repair in the setting of single ventricle physiology or in the presence of an unseptated valve, e.g., in the setting of an unrepaired complete AV septal defect.
5027	AVC (AVSD) repair, Complete (CAVSD) +Vascular ring repair	During the same operation, procedure (170) AVC (AVSD) repair, Complete (CAVSD) *and* procedure (1360) Vascular ring repair. Coding Notes: See the individual procedure codes for more detail.
5034	AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended	During the same operation, procedure (170) AVC (AVSD) repair, Complete (CAVSD) *and* procedure (1220) Coarctation repair, End to end, Extended. Coding Notes: See the individual procedure codes for more detail.
3480	AVC (AVSD) repair, Complete (CAVSD) + Arch repair	During the same operation, procedure (170) AVC (AVSD) repair, Complete (CAVSD) *and* procedure (1280) Aortic arch repair. Coding Notes: See the individual procedure codes for more detail.
210	AP window repair	Repair of aortopulmonary (AP) window using one- or two-patch technique with cardiopulmonary bypass (CPB), or without cardiopulmonary bypass, using transcatheter device or surgical closure.
220	Pulmonary artery origin	Repair of pulmonary artery origin from the ascending

Code:	Value:	Definition:
	from ascending aorta (hemitruncus) repair	aorta by direct reimplantation, autogenous flap, or conduit, with or without use of cardiopulmonary bypass.
230	Truncus arteriosus repair	Truncus arteriosus repair that most frequently includes patch VSD closure and placement of a conduit from RV to PA. In some cases, a conduit is not placed but an RV to PA connection is made by direct association. Very rarely, there is no VSD to be closed. Coding Notes: If completed, truncal valve repair or replacement should be coded as separate procedures utilizing the appropriate Valvuloplasty, Truncal valve or Valve replacement, Truncal procedure codes.
2220	Truncus + Interrupted aortic arch repair (IAA) repair	During the same operation, procedure (230) Truncus arteriosus repair *and* procedure (1320) Interrupted aortic arch repair. Coding Notes: If completed, truncal valve repair or replacement should be coded as separate procedures utilizing the appropriate Valvuloplasty, Truncal valve or Valve replacement, Truncal procedure codes. See the individual procedure codes for more detail.
260	PAPVC repair	Partial anomalous pulmonary venous connection (PAPVC) repair revolves around whether an intracardiac baffle is created to redirect pulmonary venous return to the left atrium or if the anomalous pulmonary vein is translocated and connected to the left atrium directly. Coding Notes: Do *not* code this procedure if PAPVC repair is completed with primary closure of an ASD, instead, code procedure (5007) PAPVC repair + ASD repair, Primary closure.

Code:	Value:	Definition:
		Do not code this procedure if PAPVC repair is completed with patch closure of an ASD, instead use procedure (2110) ASD repair, Patch + PAPVC repair.
5007	PAPVC repair + ASD repair, Primary closure	During the same operation, procedure (260) PAPVC repair *and* procedure (20) ASD repair, Primary closure. Coding Notes: Includes all ASD types (i.e., secundum, coronary sinus, sinus venosus). Excludes Warden procedure. If a Warden procedure is completed in addition to ASD repair, primary closure, code procedure (2120) PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage) and list the ASD repair as a separate procedure. Excludes PAPVC Scimitar repairs; instead, code procedure (270) PAPVC, Scimitar, Repair.
270	PAPVC, Scimitar, Repair	In scimitar syndrome, PAPVC repair also revolves around whether an intracardiac baffle is created to redirect pulmonary venous return to the left atrium or if the anomalous pulmonary vein is translocated and connected to the left atrium directly. Coding Notes: Code repairs of other associated defects as separate procedures, including but not limited to atrial septal defect (ASD) repair, ASD creation, and thoracic procedures, i.e., lobectomy, pneumonectomy.
2120	PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden)	An intracardiac baffle is created to redirect pulmonary venous return to the left atrium and SVC sewn to right atrial appendage)

Code:	Value:	Definition:
	(SVC sewn to right atrial appendage)	
2110	ASD repair, Patch + PAPVC repair	During the same operation, procedure (30) ASD repair, Patch *and* procedure (260) PAPVC repair. Coding Notes: Includes all atrial septal defect (ASD) types (i.e., secundum, coronary sinus, sinus venosus) and any type of patch material. Excludes Warden procedure. If a Warden procedure is completed in addition to ASD repair, code procedure (2120) PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage) and list the ASD repair as a separate procedure. See the individual procedure codes for more detail.
5024	VSD repair, Patch + PAPVC repair	During the same operation, procedure (110) VSD repair, Patch, *and* procedure (260) PAPVC repair. Coding Notes: Includes all ventricular septal defect (VSD) types. See the individual procedure codes for more detail.
5028	VSD repair, Patch + ASD repair, Patch + PAPVC repair	During the same operation, procedure • (110) VSD repair, Patch *and* procedure • (2110) ASD repair, Patch + PAPVC repair **OR** During the same operation, procedure • (110) VSD repair, Patch *and* procedure • (30) ASD repair, Patch

Code:	Value:	Definition:
		and procedure • (260) PAPVC repair **OR** During the same operation, procedure • (5024) VSD repair, Patch + PAPVC repair *and* procedure • (30) ASD repair, Patch <u>Coding Notes</u>: See the individual procedure codes for more detail.
280	TAPVC repair	Repair of TAPVC, any type. Issues surrounding TAPVC repair involve how the main pulmonary venous confluence anastomosis is fashioned, whether an associated atrial septal defect (ASD) is closed, left open, or enlarged, and whether, particularly in mixed type TAPVC repair, an additional anomalous pulmonary vein is repaired surgically. <u>Coding Notes</u>: Code repairs of other associated defects as separate procedures, including but not limited to ASD closure or enlargement.
2200	TAPVC repair + Shunt – systemic-to-pulmonary	During the same operation, procedure • (280) TAPVC repair *and* procedure • (1590) Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) • *or* (1600) Shunt, Systemic to pulmonary, Central (shunt from aorta) • *or* (3130) Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending

Code:	Value:	Definition:
		aorta (i.e., Mee shunt) • *or* (3230) Shunt, Systemic to pulmonary, Potts – Smith type (descending aorta to pulmonary artery) • *or* (1610) Shunt, Systemic to pulmonary, Other • *or* (2095) Shunt, Reoperation Coding Notes: See the individual procedure codes for more detail.
5006	TAPVC repair + Shunt - systemic-to-pulmonary + PDA closure, Surgical	During the same operation, procedure • (280) TAPVC repair *and* procedure • (1590) Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) • *or* (1600) Shunt, Systemic to pulmonary, Central (shunt from aorta) • *or* (3130) Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta (i.e., Mee shunt) • *or* (3230) Shunt, Systemic to pulmonary, Potts – Smith type (descending aorta to pulmonary artery) • *or* (1610) Shunt, Systemic to pulmonary, Other • *or* (2095) Shunt, Reoperation *and* procedure • (1330) PDA closure, Surgical. **OR** During the same operation, procedure • (2200) TAPVC repair + Shunt – systemic-to-pulmonary

Code:	Value:	Definition:
		and procedure • (1330) PDA closure, Surgical. Coding Notes: See the individual/included combo procedure codes for more detail.
290	Cor triatriatum repair	Repair of cor triatriatum; surgical decision making revolves around the approach to the membrane creating the cor triatriatum defect, how any associated atrial septal defect (ASD) is closed, and how any associated anomalous pulmonary vein connection is addressed. Coding Notes: Code repairs of other associated defects as separate procedures, including but not limited to ASD closure and anomalous pulmonary venous connection repairs.
300	Pulmonary venous stenosis repair	Repair of pulmonary venous stenosis, whether congenital or acquired. Repair can be accomplished with a variety of approaches: sutureless, patch venoplasty, stent placement, etc.
5019	Pulmonary venous stenosis repair + ASD partial closure	During the same operation, procedure (300) Pulmonary venous stenosis repair *and* procedure (70) ASD partial closure. Coding Notes: See the individual procedure codes for more detail.
310	Atrial baffle procedure (non-Mustard, non-Senning)	The atrial baffle procedure code is used primarily for repair of systemic venous anomalies, as in redirection of left superior vena cava drainage to the right atrium.
330	Anomalous systemic	Repair includes a range of surgical approaches

Code:	Value:	Definition:
	venous connection repair	including but not limited to ligation of anomalous vessels, reimplantation of anomalous vessels (with or without use of a conduit). Coding Notes: Excludes atrial baffle procedures, i.e., procedure (310) Atrial baffle procedure (non-Mustard, non-Senning).
340	Systemic venous stenosis repair	Stenosis or obstruction of a systemic vein, most commonly superior vena cava (SVC) or inferior vena cava (IVC) may be relieved with patch or conduit placement, excision of the stenotic area with primary reanastomosis, or direct reimplantation.

General Information Tetralogy of Fallot (TOF) Repair

Code the most accurate and descriptive TOF repair code available.

- For instance, if TOF is repaired without a ventriculotomy (no incision crossing the annulus onto the ventricle), use TOF repair, No ventriculotomy.
- However, if the main pulmonary artery incision is extended proximally through the pulmonary annulus, this must be considered transannular and thus a ventricular incision (ventriculotomy), though the length of the incision onto the ventricle itself may be minimal. In these cases, choose from the TOF repair codes including a ventriculotomy procedure.

'Pink' TOF Repairs

TOF repair for a 'pink' TOF (diagnosis remains TOF, Pulmonary stenosis) is dependent on the completed repair. If the repair included:

- a ventriculotomy, infundibular patch, dilator in the valve, any procedure in the outflow tract, the primary procedure is the appropriate TOF repair code.
- only a VSD repair completed via a transatrial approach, the procedure should be coded as the appropriate type of VSD repair and do not include a TOF repair procedure.

Pulmonary Artery Repairs with TOF Repairs

Concomitant repairs performed to the main pulmonary artery (PA), branch PAs ***within***

the hilar bifurcation, or the right ventricular outflow track (RVOT) are included as part of the TOF repair.

Procedures to the branch PAs ***beyond*** the hilar bifurcation should be coded as a separate PA reconstruction procedure. Again, list the most specific appropriate PA, reconstruction (plasty), Branch, Peripheral code(s) in addition to the TOF repair.

Pulmonary Atresia – VSD (including TOF, PA) Repairs

It is important to distinguish the difference between Pulmonary Atresia and other types of TOF; as such, TOF repair codes ***do not*** include the repair of Pulmonary atresia – VSD, including TOF, PA. Instead, utilize the appropriate Pulmonary atresia – VSD repair procedure code even if a tetralogy-type or Rastelli-type repair is completed. See additional information below on PA-VSD repairs.

General Information PA-VSD Repairs

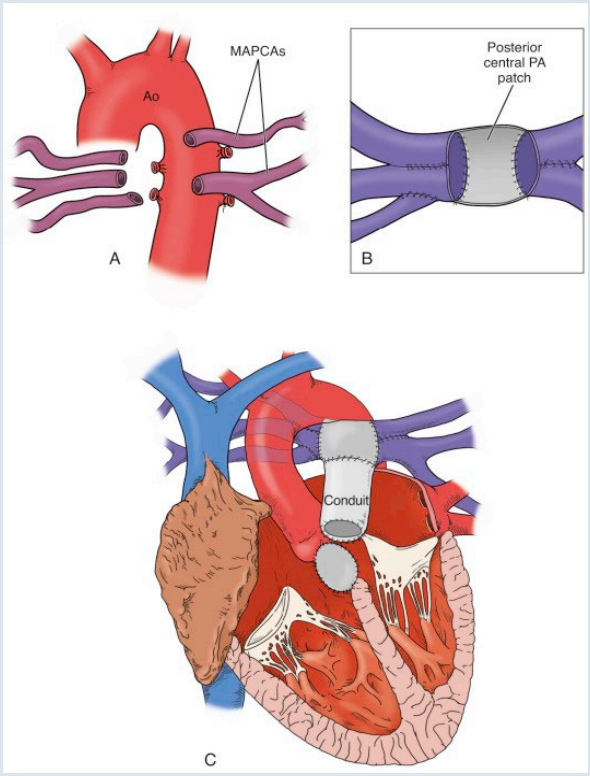
This is a disease specific repair, thus do not code the individual repairs that make up the components of the PA-VSD repairs, i.e., do not code the Rastelli or tetralogy-like repair procedures.

TOF repairs do not include repair of Pulmonary atresia – VSD, including TOF, PA. Instead, utilize the appropriate Pulmonary atresia – VSD repair procedure code even if a tetralogy-type or Rastelli-type repair is completed.

PA-VSD-MAPCA may be repaired with unifocalization which means to reroute the collateral arteries into a single vessel or the pulmonary artery. This repair does not include the unifocalization of the pulmonary arteries (i.e., repair of a discontinuous pulmonary artery).

Procedure codes for the repair of PA –VSD – MAPCA repair should be utilized for patients with pulmonary atresia, ventricular septal defect, and MAPCAs. These repair codes are designed to be used independently or in succession. For instance, if the patient presents for a complete repair (in one operation), then use the code PA – VSD – MAPCA repair, Complete, single stage repair. If, however, the patient presents for repair of PA – VSD after having a complete or incomplete unifocalization of MAPCAs, then choose the appropriate PA – VSD – MAPCA repair, status post prior (in)complete unifocalization.

For MAPCA(s) repair prior to PA – VSD – MAPCA repair, use the most appropriate Unifocalization MAPCA(s) repair code (bilateral complete, bilateral incomplete, or unilateral). Only select Unifocalization MAPCA(s) if more specific procedure details are unknown.



A. MAPCAs B. Unifocalization using match material to reconstruct the central PA confluence

C. Completed repair with VSD patch and RV to PA conduit

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Code:	Value:	Definition:
350	TOF repair, No ventriculotomy	Tetralogy of Fallot (TOF) repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), without use of an incision in the infundibulum of the right ventricle for exposure. In most cases this would be a transatrial and transpulmonary artery approach to repair the VSD and relieve the pulmonary stenosis. Coding Notes: If the main pulmonary artery incision is extended proximally through the pulmonary annulus, this must be considered transannular and thus a ventricular incision (ventriculotomy), though the length of the incision onto the ventricle itself may be minimal;

Code:	Value:	Definition:
		instead code the appropriate TOF repair, Ventriculotomy procedure. See General information TOF repair for additional information.
5004	TOF repair, No Ventriculotomy + ASD repair, Primary closure	During the same operation, procedure (350) TOF repair, No ventriculotomy *and* procedure (20) ASD repair, Primary closure. Coding Notes: Includes all atrial septal defect (ASD) types. See the individual procedure codes for more detail. See General information TOF repair for additional information.
360	TOF repair, Ventriculotomy, Nontransanular patch	Tetralogy of Fallot (TOF) repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with use of a ventriculotomy incision, but without placement of a transpulmonary annulus patch. Coding Notes: See General information TOF repair for additional information.
370	TOF repair, Ventriculotomy, Transanular patch	Tetralogy of Fallot (TOF) repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with use of a ventriculotomy incision and placement of a trans-pulmonary annulus patch. Coding Notes: See General information TOF repair for additional information.
3330	TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction	During the same operation, procedure (370) TOF repair, Ventriculotomy, Transanular patch *and* reconstruction of the native pulmonary/RVOT valve.

Code:	Value:	Definition:
		Coding Notes: See the individual procedure codes for more detail. See General information TOF repair for additional information.
3340	TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve	During the same operation, procedure (370) TOF repair, Ventriculotomy, Transanular patch *and* placement of a monocusp valve or other surgically created RVOT valve. Coding Notes: See the individual procedure codes for more detail. See General information TOF repair for additional information.
380	TOF repair, RV-PA conduit	Tetralogy of Fallot (TOF) repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with placement of a right ventricle-to-pulmonary artery (RV - PA) conduit. In this procedure the major components of pulmonary stenosis are relieved with placement of the RV-PA conduit. Coding Notes: See General information TOF repair for additional information.
390	TOF - AVC (AVSD) repair	Tetralogy of Fallot (TOF) repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with repair of associated AV canal defect. Coding Notes: Repair of associated atrial septal defect (ASD) or atrioventricular valve repair(s) should be listed as additional or secondary procedures. See General information TOF repair for additional information.
400	TOF - Absent pulmonary	Repair of tetralogy of Fallot (TOF) with absent

Code:	Value:	Definition:
	valve repair	pulmonary valve complex. In most cases this repair will involve pulmonary valve replacement (pulmonary or aortic homograft, porcine, other) and reduction pulmonary artery arterioplasty. Coding Notes: See General information TOF repair for additional information.
5018	TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair	During the same operation, procedure (370) TOF repair, Ventriculotomy, Transanular patch *and* procedure (1360) Vascular ring repair. Coding Notes: See the individual procedure codes for more detail. See General information TOF repair for additional information.
420	Pulmonary atresia - VSD (including TOF, PA) repair	For patients with pulmonary atresia with ventricular septal defect (VSD) without major aortopulmonary collateral arteries (MAPCA)(s), including those with tetralogy of Fallot (TOF) with pulmonary atresia. Repair may entail either a tetralogy-like repair with transannular patch placement, a VSD closure with placement of an RV-PA conduit, or an intraventricular tunnel VSD closure with transannular patch or RV-PA conduit placement. Coding Notes: The repair codes for pulmonary atresia-VSD (including TOF, PA repair) require the diagnosis of pulmonary atresia-VSD (including TOF, PA repair). Utilize this code for repair of pulmonary atresia-VSD (including TOF, PA repair) even if a tetralogy-type or Rastelli-type repair is used. **Do not code the individual procedures included in the pulmonary atresia repair (Rastelli or tetralogy-like repairs).**

Code:	Value:	Definition:
		See General information PA-VSD repair for additional information.
5031	Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical	During the same operation, procedure (420) Pulmonary atresia - VSD (including TOF, PA) repair *and* procedure (20) ASD repair, Primary closure, *and* procedure (1330) PDA closure, Surgical. Coding Notes: Includes all atrial septal defect (ASD) types with primary closure. See the individual procedure codes and General information PA-VSD repair for additional information.
2700	Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])	Single or 1-stage repair that includes bilateral pulmonary unifocalization of major aortopulmonary collateral artery(ies) (MAPCA)(s), ventricular septal defect (VSD) closure, and RV to PA connection, with or without conduit placement. Coding Notes: Includes all types of VSD closure. RV to PA connection may include direct anastomosis or placement of a valved or non-valved conduit. The repair codes for pulmonary atresia-VSD-MAPCA (including TOF, PA repair) require the diagnosis of pulmonary atresia-VSD-MAPCA (including TOF, PA repair). Utilize this code for repair of pulmonary atresia-VSD-MAPCA (including TOF, PA repair) even if a tetralogy-type or Rastelli-type repair is used. **Do not code the individual procedures included in the pulmonary atresia repair (Rastelli or tetralogy-like repairs).**

Code:	Value:	Definition:
		See General information PA-VSD repair for additional information.
2710	Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])	Ventricular septal defect (VSD) closure and RV to PA connection, with or without conduit in a patient who underwent prior complete unifocalization of major aortopulmonary collateral artery(ies) (MAPCA)(s). Coding Notes: MAPCA(s) were *completely* unifocalized in a separate and previous procedure/operation. Includes all types of VSD closure. RV to PA connection may include direct anastomosis or placement of a valved or non-valved conduit. The repair codes for pulmonary atresia-VSD-MAPCA (including TOF, PA repair) require the diagnosis of pulmonary atresia-VSD-MAPCA (including TOF, PA repair). Utilize this code for repair of pulmonary atresia-VSD-MAPCA (including TOF, PA repair) even if a tetralogy-type or Rastelli-type repair is used. **Do not code the individual procedures included in the pulmonary atresia repair (Rastelli or tetralogy-like repairs).** See General information PA-VSD repair for additional information.
2720	Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA	Completion of pulmonary unifocalization, ventricular septal defect (VSD) closure, and RV to PA connection (with or without conduit) in a patient who underwent prior incomplete unifocalization of major aortopulmonary collateral artery(ies) (MAPCA)(s). Coding Notes:

Code:	Value:	Definition:
	connection [with or without conduit])	MAPCA(s) were *incompletely* unifocalized in a separate and previous procedure/operation. Includes all types of VSD closure. RV to PA connection may include direct anastomosis or placement of a valved or non-valved conduit. The repair codes for pulmonary atresia-VSD-MAPCA (including TOF, PA repair) require the diagnosis of pulmonary atresia-VSD-MAPCA (including TOF, PA repair). Utilize this code for repair of pulmonary atresia-VSD-MAPCA (including TOF, PA repair) even if a tetralogy-type or Rastelli-type repair is used. **Do not code the individual procedures included in the pulmonary atresia repair (Rastelli or tetralogy-like repairs).** See General information PA-VSD repair for additional information.
2730	Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated)	Complete bilateral unifocalization, the anastomosis of major aortopulmonary collateral artery(ies) (MAPCA)(s) into the left, right, or main pulmonary artery or into a tube graft or other type of confluence) where *all* usable MAPCA(s) are incorporated. The unifocalization procedure may be done on or off cardiopulmonary bypass. Coding Notes: Unifocalization of MAPCAs does not include unifocalization of discontinuous pulmonary arteries; instead code the appropriate PA Reconstruction procedure.
2740	Unifocalization MAPCA(s),	Incomplete bilateral unifocalization, the anastomosis

Code:	Value:	Definition:
	Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated)	of major aortopulmonary collateral artery(ies) (MAPCA)(s) into the left, right, or main pulmonary artery or into a tube graft or other type of confluence) where ***not all*** usable MAPCA(s) are incorporated. The unifocalization procedure may be done on or off cardiopulmonary bypass. Coding Notes: Unifocalization of MAPCAs does not include unifocalization of discontinuous pulmonary arteries; instead code the appropriate PA Reconstruction procedure.
2750	Unifocalization MAPCA(s), Unilateral pulmonary unifocalization	Unilateral (one side) pulmonary unifocalization, the anastomosis of major aortopulmonary collateral artery(ies) (MAPCA)(s) into the left, right, or main pulmonary artery or into a tube graft or other type of confluence. The unifocalization procedure may be done on or off bypass. Coding Notes: Unifocalization of MAPCAs does not include unifocalization of discontinuous pulmonary arteries; instead code the appropriate PA Reconstruction procedure.
440	Unifocalization MAPCA(s)	Anastomosis of major aortopulmonary collateral artery(ies) (MAPCA)(s) into the left, right, or main pulmonary artery or into a tube graft or other type of confluence. The unifocalization procedure may be done on or off cardiopulmonary bypass. Coding Notes: This procedure code was retained for legacy purposes and should not be coded. Please work with your surgeons to identify which more specific MAPCA unifocalization procedure was completed:

Code:	Value:	Definition:
		• (2730) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization • (2740) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization • (2750) Unifocalization MAPCA(s), Unilateral pulmonary unifocalization Unifocalization of MAPCAs does not include unifocalization of discontinuous pulmonary arteries; instead code the appropriate PA Reconstruction procedure.
5011	Unifocalization MAPCA(s) + Conduit placement, RV to PA	During the same operation, procedure • (610) Conduit placement, RV to PA *and* procedure • (440) Unifocalization MAPCA(s) • *or* (2730) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization • *or* (2740) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization • *or* (2750) Unifocalization MAPCA(s), Unilateral pulmonary unifocalization <u>Coding Notes</u>: See the individual procedure codes for more detail.
5014	Unifocalization MAPCA(s) + Shunt, Systemic to pulmonary, Central (shunt from aorta)	During the same operation, procedure • (1600) Shunt, Systemic to pulmonary, Central (shunt from aorta) *and* procedure • (440) Unifocalization MAPCA(s)

Code:	Value:	Definition:
		• *or* (2730) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization • *or* (2740) Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization • *or* (2750) Unifocalization MAPCA(s), Unilateral pulmonary unifocalization Coding Notes: See the individual procedure codes for more detail.
450	Occlusion of MAPCA(s)	Occlusion, or closing off, of major aortopulmonary collateral artery(ies) (MAPCA)(s). This may be done with a transcatheter occluding device, usually a coil, or by surgical techniques.
460	Valvuloplasty, Tricuspid or non-systemic atrioventricular valve	Reconstruction of the tricuspid or non-systemic atrioventricular (AV) valve may include but not be limited to a wide range of techniques including leaflet patch extension, artificial chordae placement, and papillary muscle translocation with or without detachment. Annuloplasty techniques that may be done solely or in combination with leaflet, chordae or muscle repair to achieve a competent valve include eccentric annuloplasty, Kay annular plication, purse-string annuloplasty (including semicircular annuloplasty), sliding annuloplasty, and annuloplasty with ring placement. Coding Notes: Includes subsequent tricuspid/non-systemic AV valve repairs following an Ebstein's repair. For example, a patient with a previous Ebstein's repair returns and undergoes repair for tricuspid/non-systemic AV valve insufficiency. Code procedure (460) Valvuloplasty, Tricuspid or non-systemic atrioventricular valve. Do not use this code if the repair to the tricuspid/non-

Code:	Value:	Definition:
		systemic AV valve is the initial Ebstein's anomaly repair; instead, code procedure (465) Ebstein's repair.
2280	Valvuloplasty converted to valve replacement in the same operation, Tricuspid or non-systemic atrioventricular valve	Tricuspid or non-systemic atrioventricular (AV) valve repair attempted and converted to valve replacement with prosthetic valve during the same operation
465	Ebstein's repair	Repair of Ebstein's anomaly may include, among other techniques, repositioning of the tricuspid valve, plication of the atrialized right ventricle, or right reduction atrioplasty. To assure an accurate count of repairs of Ebstein's anomaly of the tricuspid valve, this procedure code was included. Coding Notes: Includes the initial Ebstein's anomaly repair only. Subsequent repairs to the valve following initial Ebstein's repairs should be coded as procedure (460) Valvuloplasty, Tricuspid or non-systemic atrioventricular valve. If completed, repair of associated atrial septal defect(s) (ASD)(s) and arrhythmias addressed with surgical ablation procedures should be entered as separate procedure codes. Do not use this code for Starnes procedure; instead, use procedure (480) Valve closure, Tricuspid (exclusion, univentricular approach).
5030	Ebstein's repair + PDA closure, Surgical	During the same operation, procedure (465) Ebstein's repair *and* procedure (1330) PDA closure, Surgical. Coding Notes: See the individual procedure codes for more detail.
470	Valve replacement, Tricuspid or Non-systemic	Replacement of the tricuspid or non-systemic atrioventricular valve with a prosthetic valve.

Code:	Value:	Definition:
	Atrioventricular Valve	
480	Valve closure, Tricuspid or Non-systemic Atrioventricular Valve (exclusion, univentricular approach)	In a functional single ventricle heart, the tricuspid or non-systemic atrioventricular (AV) valve may be closed using a patch, thereby excluding the right ventricle (RV). Tricuspid or non-systemic AV valve closure may be used for infants with Ebstein's anomaly and severe tricuspid regurgitation or in patients with pulmonary atresia-intact ventricular septum with sinusoids. Coding Notes: Code this procedure for Starnes or modified Starnes procedure.
490	Valve excision, Tricuspid or Non-systemic Atrioventricular Valve (without replacement)	Excision of the tricuspid or non-systemic atrioventricular (AV) valve without placement of a prosthetic valve.
500	Valve surgery, Other, Tricuspid or Non-systemic Atrioventricular Valve	Other tricuspid or non-systemic atrioventricular (AV) valve surgery not specified in the listed procedure codes.
510	RVOT procedure	Included in this procedural code would be all right ventricular outflow tract (RVOT) procedures not elsewhere specified in the procedure list nomenclature system. These include but are not limited to resection of subvalvar pulmonary stenosis (not DCRV type; may be localized fibrous diaphragm or high infundibular stenosis), right ventricular patch augmentation. Coding Notes: Do not utilize this procedure to code reduction pulmonary artery (PA) arterioplasty procedures without any other intervention in the RVOT/right ventricle; instead use procedure (530) PA, reconstruction (plasty), Main (trunk) to code main PA

Code:	Value:	Definition:
		reduction arterioplasty; code reduction arterioplasty procedures in the branch pulmonary arteries as PA reconstruction (plasty), Branch utilizing the most appropriate PA reconstruction code available.
520	1 1/2 ventricular repair	Partial biventricular or 1 ½ ventricular repair includes intracardiac repair with bidirectional cavopulmonary anastomosis to volume unload a small or poorly functioning sub-pulmonary ventricle.
530	PA, reconstruction (plasty), Main (trunk)	Reconstruction of the main pulmonary artery (MPA) trunk commonly using patch material. Includes reduction main pulmonary arterioplasty. Coding Notes: If balloon angioplasty is performed or a stent is placed in the main pulmonary artery intraoperatively, this code may be used in addition to the balloon dilation or stent placement procedure codes. If performed with PA debanding, code procedure (1650) PA debanding as a separate procedure.
540	PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)	Reconstruction of the right or left branch (or both right and left) pulmonary arteries (within the hilar bifurcation) commonly using patch material. Coding Notes: If balloon angioplasty is performed or a stent is placed in the right or left (or both) pulmonary artery(ies) intraoperatively, this code may be used in addition to the balloon dilation or stent placement procedure codes. This procedure includes the unifocalization of branch pulmonary arteries into the main pulmonary artery (non-MAPCA) (e.g., in the setting of TOF with discontinuous pulmonary arteries) and reduction pulmonary arterioplasty procedures.

Code:	Value:	Definition:
		If performed with PA debanding, code procedure (1650) PA debanding as a separate procedure.
5003	PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)	During the same operation, procedure (540) PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) *and* procedure (1590) Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS). Coding Notes: See the individual procedure codes for more detail.
550	PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch)	Reconstruction of the peripheral right or left branch (or both right and left) pulmonary arteries (at or beyond the hilar bifurcation) commonly using patch material. Coding Notes: If balloon angioplasty is performed or a stent is placed in the right or left (or both) peripheral pulmonary artery intraoperatively, this code may be used in addition to the balloon dilation or stent placement code. Includes reduction pulmonary arterioplasty procedures. Only use this procedure if it is not known if the patient underwent a more specific branch peripheral PA reconstruction: • PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, proximal to first segmental branch) • PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, beyond the first segmental branch)
3350	PA, reconstruction (plasty),	Reconstruction of the peripheral right or left branch

Code:	Value:	Definition:
	Branch, Peripheral (at or beyond the first lobar branch, proximal to first segmental branch)	(or both right and left) pulmonary arteries (at or beyond the hilar bifurcation) up to a point proximal to the first segmental branch; commonly using patch material. If balloon angioplasty is performed or a stent is placed in the right or left (or both) peripheral pulmonary artery intraoperatively, this code may be used in addition to the balloon dilation or stent placement code. Coding Notes: Includes reduction pulmonary arterioplasty procedures.
3360	PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, beyond the first segmental branch)	Reconstruction of the peripheral right or left branch (or both right and left) pulmonary arteries beyond the take-off of the first segmental branch; commonly using patch material. If balloon angioplasty is performed or a stent is placed in the right or left (or both) peripheral pulmonary artery intraoperatively, this code may be used in addition to the balloon dilation or stent placement code. Coding Notes: Includes reduction pulmonary arterioplasty procedures.
570	DCRV repair	Surgical repair of DCRV combines relief of the low infundibular stenosis (via muscle resection) and closure of a ventricular septal defect (VSD) when present. A ventriculotomy may be required and is repaired by patch enlargement of the infundibulum. Coding Notes: If VSD repair completed, include as a separate procedure code.
3370	RV Rehabilitation, Endocardial Resection	Typically used in patients who were born with pulmonary valvar atresia or severe pulmonary valvar stenosis and severe right ventricular hypertrophy to

Code:	Value:	Definition:
		describe extensive resection of fibroelastic tissue from the endocardium of the right ventricle (RV), usually as part of RV "rehabilitation." Coding Notes: Should not be used to describe resection of isolation RV outflow tract stenosis as may be found in double chamber right ventricle (DCRV) or isolated infundibular stenosis. Use this code in addition to other RV rehabilitation codes, as appropriate.
590	Valvuloplasty, Pulmonary or neo-pulmonary	Valvuloplasty of the pulmonary/neo-pulmonary valve may include a range of techniques including but not limited to: valvotomy with or without bypass, commissurotomy, and valvuloplasty.
2270	Valvuloplasty converted to valve replacement in the same operation, Pulmonary or neo-pulmonary	Pulmonary/neo-pulmonary valve repair attempted and subsequently converted to valve replacement with prosthetic valve during the same operation
600	Valve replacement, Pulmonary or neo-pulmonary (PVR)	Replacement of the pulmonary/neo-pulmonary valve with a prosthetic valve. Coding Notes: Do not use this code for pulmonary valve replacement via a valved conduit; use procedure (3520) Conduit placement, RV to PA, Valved.
5015	ASD repair, Patch + Valve replacement, Pulmonary or neo-pulmonary (PVR)	During the same operation, procedure (30) ASD repair, Patch *and* procedure (600) Valve replacement, Pulmonary or neo-pulmonary (PVR). Coding Notes: See the individual procedure codes for more detail.
5023	VSD repair, Patch + Valve	During the same operation, procedure (110) VSD

Code:	Value:	Definition:
	replacement, Pulmonary or neo-pulmonary (PVR)	repair, Patch *and* procedure (600) Valve replacement, Pulmonary or neo-pulmonary (PVR). Coding Notes: See the individual procedure codes for more detail.
5033	Valve replacement, Pulmonary or neo-pulmonary (PVR) + explantation of pacing system	During the same operation, procedure (600) Valve replacement, Pulmonary or neo-pulmonary (PVR) *and* procedure (2350) Explantation of pacing system. Coding Notes: See the individual procedure codes for more detail.
630	Valve excision, Pulmonary or neo-pulmonary (without replacement)	Excision of the pulmonary or neo-pulmonary valve without placement of a prosthetic valve.
640	Valve closure, Semilunar	Closure of a semilunar valve (pulmonary/neo-pulmonary or aortic/neo-aortic/truncal) by any technique.
650	Valve surgery, Other, Pulmonary or neo-pulmonary	Other pulmonic valve surgery not specified in procedure codes.
5025	Valve replacement, Pulmonary or neo-pulmonary (PVR) + Valve replacement, Aortic/neo-aortic~~/Truncal~~ (AVR), Mechanical	During the same operation, procedure • (600) Valve replacement, Pulmonary or neo-pulmonary (PVR) *and* procedure • (680) Valve replacement, Aortic/neo-aortic (AVR), Mechanical Coding Notes: See the individual procedure codes for more detail.
610	Conduit placement, RV to PA	Placement of a conduit, any type, from right ventricle (RV) to pulmonary artery (PA). Coding Notes:

Code:	Value:	Definition:
		This procedure includes *initial* RV to PA conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of the RV to PA conduit. Only use this procedure if it is not known if the patient underwent placement of a more specific RV to PA conduit placement: • (3530) Conduit placement, RV to PA, Valved • (3530) Conduit placement, RV to PA, Non-valved
3520	Conduit placement, RV to PA, Valved	Placement of a valved conduit, any type, from right ventricle (RV) to pulmonary artery (PA). Coding Notes: This procedure includes *initial* RV to PA valved conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of the RV to PA conduit (valved or non-valved).
3530	Conduit placement, RV to PA, Non-valved	Placement of a non-valved conduit, any type, from right ventricle (RV) to pulmonary artery (PA). Coding Notes: This procedure includes *initial* non-valved RV to PA conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of the RV to PA conduit (valved or non-valved). Do not use this code for placement of a Sano shunt to augment pulmonary blood flow; instead, use code (3680) RV to PA Shunt (e.g., Sano Shunt or palliative RV- PA non-valved conduit to augment pulmonary blood flow).
620	Conduit placement, LV to PA	Placement of a conduit, any type, from the left ventricle (LV) to pulmonary artery (PA).

Code:	Value:	Definition:
		Coding Notes: This procedure includes *initial* LV to PA conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of the LV to PA conduit.
1774	Conduit placement, Ventricle to aorta	Placement of a conduit from the right or left ventricle to the aorta. Coding Notes: This procedure includes *initial* ventricle to aorta conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of ventricle to aorta conduit.
1772	Conduit placement, Other	Placement of a conduit from any chamber or vessel to any vessel, valved or valveless, not listed elsewhere. Coding Notes: This procedure includes *initial* Other conduit placement only; instead, code procedure (580) Conduit reoperation for replacement of Other conduits.
5013	Conduit placement, RV to PA + PDA closure, Surgical	During the same operation, procedure • (1330) PDA closure, Surgical *and* procedure • (610) Conduit placement, RV to PA • *or* (3520) Conduit placement, RV to PA, Valved • *or* (3530) Conduit placement, RV to PA, Non-valved Coding Notes: Do not use for conduit reoperations or replacements. See the individual procedure codes for more detail.

Code:	Value:	Definition:
5035	Conduit placement, RV to PA + Aortic root replacement, Mechanical	During the same operation, procedure • (720) Aortic root replacement, Mechanical *and* procedure • (610) Conduit placement, RV to PA • *or* (3520) Conduit placement, RV to PA, Valved • *or* (3530) Conduit placement, RV to PA, Non-valved Coding Notes: Do not use for conduit reoperations or replacements. See the individual procedure codes for more detail.
580	Conduit reoperation	A reoperation on a previously placed conduit in any position (LV to aorta, LV to PA, RA to RV, RV to aorta, RV to PA, etc.) for any reason (e.g., somatic growth, stenosis, insufficiency, infection, etc.). Coding Notes: Includes revisions, repairs, or replacements of previously placed conduits in any position.
5016	VSD repair, Patch + Conduit reoperation	During the same operation, procedure (110) VSD repair, Patch *and* procedure (580) Conduit reoperation. Coding Notes: Do not use for initial conduit placements. See the individual procedure codes for more detail.
5020	Conduit reoperation + Valve replacement, Aortic/neo-aortic~~/Truncal~~ (AVR), Mechanical	During the same operation, procedure • (580) Conduit reoperation *and* procedure • (680) Valve replacement, Aortic/neo-aortic (AVR), Mechanical

Code:	Value:	Definition:
		Coding Notes: Do not use for initial conduit placements. See the individual procedure codes for more detail.
240	Valvuloplasty, Truncal valve	Truncal valve repair, any type. Coding Notes: Only use this procedure if it is not known if the patient underwent placement of a more specific truncal valve repair: • (3490) Valvuloplasty, Truncal valve, Reduction of number of cusps/sinus resection • (3500) Valvuloplasty, Truncal valve, Augmentation of valve leaflet (one or more) • (3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.) In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
3490	Valvuloplasty, Truncal valve, Reduction of number of cusps/sinus resection	Truncal valve repair by reducing the number of cusps and resection of a truncal sinus of Valsalva. Coding Notes: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
3500	Valvuloplasty, Truncal valve, Augmentation of	Truncal valve repair by augmenting one or more of the valve leaflets with autologous or prosthetic

Code:	Value:	Definition:
	valve leaflet (one or more)	material. Coding Notes: For Ozaki type repairs, code procedure (3510) Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.) In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
3510	Valvuloplasty, Truncal valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)	Truncal valve repair by replacing the truncal valve leaflet(s) with new leaflet(s) created using autologous or prosthetic material, effectively creating a new valve. Intent/Clarification: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
2290	Valvuloplasty converted to valve replacement in the same operation, Truncal valve	Truncal valve repair attempted and subsequently converted to valve replacement with prosthetic valve during the same operation. Coding Notes: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.

Code:	Value:	Definition:
250	Valve replacement, Truncal valve	Replacement of the truncal valve with a prosthetic valve. Coding Notes: Only use this procedure if it is not known if the patient underwent placement of a more specific truncal valve replacement: • (3790) Valve replacement, Truncal, Mechanical • (3800) Valve replacement, Truncal, Bioprosthetic • (3810) Valve replacement, Truncal, Homograft In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
3790	Valve replacement, Truncal, Mechanical	Replacement of the truncal valve with a mechanical prosthetic valve. Coding Notes: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
3800	Valve replacement, Truncal, Bioprosthetic	Replacement of the truncal valve with a bioprosthetic valve. Coding Notes: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these

Code:	Value:	Definition:
		as aortic valvuloplasty or aortic valve replacement procedures.
3810	Valve replacement, Truncal, Homograft	Replacement of the truncal valve with a prosthetic valve homograft. Coding Notes: In patients with truncus arteriosus, subsequent valve repairs and replacements are to be coded as the most accurate Valvuloplasty, Truncal or Valve replacement, Truncal valve procedure codes. Do not include these as aortic valvuloplasty or aortic valve replacement procedures.
660	Valvuloplasty, Aortic/neo-aortic	Valvuloplasty of the aortic/neo-aortic valve for stenosis and/or insufficiency, including but not limited to the following techniques: valvotomy (open or closed), commissurotomy, aortic valve suspension, leaflet (left, right or noncoronary) partial resection, reduction, or leaflet shaving, extended valvuloplasty (freeing of leaflets, commissurotomy, and extension of leaflets using autologous or bovine pericardium), or annuloplasty (partial - interrupted or noncircumferential sutures, or complete - circumferential sutures). Coding Notes: Only use this procedure if it is not known if the patient underwent placement of a more specific aortic/neo-aortic valve repair: • (3540) Valvuloplasty, Aortic/neo-aortic valve, Reduction of number of cusps/sinus resection • (3550) Valvuloplasty, Aortic/neo-aortic valve, Augmentation of valve leaflet (one or more) • (3560) Valvuloplasty, Aortic/neo-aortic valve, Neo- cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)

Code:	Value:	Definition:
		Does not include aortic stenosis subvalvar or supravalvar repairs; instead, code as procedure (780) Aortic stenosis, Subvalvar, Repair, (2100) Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS, (790) Aortic stenosis, Supravalvar, Repair, or (3380) Extended Ventricular Septoplasty (modified Konno, VSD creation and patch enlargement of LVOT, sparing aortic valve) for tunnel type sub aortic stenosis as appropriate.
3540	Valvuloplasty, Aortic/neo-aortic valve, Reduction of number of cusps/sinus resection	Aortic/neo-aortic valve repair by reducing the number of cusps or resection of an aortic/neo-aortic sinus of Valsalva.
3550	Valvuloplasty, Aortic/neo-aortic valve, Augmentation of valve leaflet (one or more)	Aortic/neo-aortic valve repair by augmenting one or more of the valve leaflets with autologous or prosthetic material.
3560	Valvuloplasty, Aortic/neo-aortic valve, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)	Aortic/neo-aortic valve repair by replacing the aortic valve leaflet(s) with new leaflet(s) created using autologous or prosthetic material, effectively creating a new valve.
2240	Valvuloplasty converted to valve replacement in the same operation, Aortic/neo-aortic	Aortic/neo-aortic valve repair attempted and subsequently converted to valve replacement with prosthetic valve during the same operation.
2310	Valvuloplasty converted to valve replacement in the same operation, Aortic/neo-aortic – with Ross procedure	Aortic/neo-aortic valve repair attempted, converted to valve replacement with a pulmonary autograft and replacement of the pulmonary valve with a homograft conduit during the same operation.
2320	Valvuloplasty converted to valve replacement in the same operation,	Aortic/neo-aortic valve repair attempted and subsequently converted to Konno aortoventriculoplasty using a pulmonary autograft

Code:	Value:	Definition:
	Aortic/neo-aortic – with Ross- Konno procedure	root for the aortic root replacement.
670	Valve replacement, Aortic/neo-aortic (AVR)	Replacement of the aortic/neo-aortic valve with a prosthetic valve. Coding Notes: Only use this procedure if it is not known if the patient underwent replacement of a more specific aortic/neo-aortic valve: • (680) Valve replacement, Aortic/neo-aortic (AVR), Mechanical • (690) Valve replacement, Aortic/neo-aortic (AVR), Bioprosthetic • (700) Valve replacement, Aortic/neo-aortic (AVR), Homograft Autograft valve replacement should be coded as a Ross procedure.
680	Valve replacement, Aortic/neo-aortic (AVR), Mechanical	Replacement of the aortic/neo-aortic valve with a mechanical prosthetic valve.
690	Valve replacement, Aortic/neo-aortic (AVR), Bioprosthetic	Replacement of the aortic/neo-aortic valve with a bioprosthetic prosthetic valve.
700	Valve replacement, Aortic/neo-aortic (AVR), Homograft	Replacement of the aortic/neo-aortic valve with a homograft prosthetic valve.
715	Aortic root replacement, Bioprosthetic	Replacement of the aortic root (that portion of the aorta attached to the heart; it gives rise to the coronary arteries) with a bioprosthetic valve (e.g., porcine) in a conduit, often composite.
720	Aortic root replacement, Mechanical	Replacement of the aortic root (that portion of the aorta attached to the heart; it gives rise to the

Code:	Value:	Definition:
		coronary arteries) with a mechanical valve prosthesis in a composite conduit.
730	Aortic root replacement, Homograft	Replacement of the aortic root (that portion of the aorta attached to the heart; it gives rise to the coronary arteries) with a valved homograft.
735	Aortic root replacement, Valve sparing	Replacement of the aortic root (that portion of the aorta attached to the heart; it gives rise to the coronary arteries) without replacing the aortic valve (using a tube graft).
740	Ross procedure	Replacement of the aortic valve with a pulmonary autograft and replacement of the pulmonary valve with a homograft conduit. Coding Notes: Do not list the pulmonary homograft conduit placement as a separate procedure. The conduit related details can be included in the valve section of the database.
750	Konno procedure	Relief of left ventricular outflow tract obstruction associated with aortic annular hypoplasia, aortic valvar stenosis and/or insufficiency via Konno aortoventriculoplasty. Components of the surgery include a longitudinal incision in the aortic septum, a vertical incision in the outflow tract of the right ventricle to join the septal incision, aortic valve replacement, and patch reconstruction of the outflow tracts of both ventricles.
760	Ross-Konno procedure	Relief of left ventricular outflow tract obstruction associated with aortic annular hypoplasia, aortic valvar stenosis and/or aortic valvar insufficiency via Konno aortoventriculoplasty using a pulmonary autograft root for the aortic root replacement. Coding Notes:

Code:	Value:	Definition:
		Do not list the pulmonary homograft conduit placement as a separate procedure. The conduit related details can be included in the valve section of the database.
5026	Ross-Konno procedure + Valve replacement, Mitral or systemic atrioventricular valve (MVR)	During the same operation, procedure (760) Ross-Konno procedure *and* procedure (850) Valve replacement, Mitral or systemic atrioventricular valve (MVR). Coding Notes: See the individual procedure codes for more detail.
770	Other annular enlargement procedure	Techniques included under this procedure code include those designed to effect aortic annular enlargement that are not included in other procedure codes. These include the Manouguian, Nicks, and Bo Yang aortic annular enlargement procedures.
780	Aortic stenosis, Subvalvar, Repair	Subvalvar aortic stenosis repair by a range of techniques including any of the following excision, excision and myotomy, excision and myomectomy, myotomy, myomectomy, initial placement of apical-aortic conduit (LV to aorta conduit replacement would be coded as conduit reoperation), Vouhé aortoventriculoplasty (aortic annular incision at commissure of left and right coronary cusps is carried down to the septum and RV infundibulum; septal muscle is resected, incisions are closed, and the aortic annulus is reconstituted), or other aortoventriculoplasty techniques. Intent/Clarification: Does not include subvalvar aortic stenosis repair for idiopathic hypertrophic subaortic stenosis (IHSS); instead, code procedure (2100) Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS.

Code:	Value:	Definition:
2100	Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS	Subvalvar aortic stenosis repair including excision and myectomy for idiopathic hypertrophic subaortic stenosis (IHSS). Coding Notes: Includes subvalvar aortic stenosis repair for IHSS only.
790	Aortic stenosis, Supravalvar, Repair	Repair of supravalvar aortic stenosis involving all techniques of patch aortoplasty and aortoplasty involving the use of all autologous tissue. In simple patch aortoplasty a diamond- shaped patch may be used, in the Doty technique an extended patch is placed (Y-shaped patch, incision carried into two sinuses), and in the Brom repair the ascending aorta is transected, any fibrous ridge is resected, and the three sinuses are patched separately.
800	Valve surgery, Other, Aortic/neo-aortic/truncal valve	Other aortic valve surgery not specified in other procedure codes.
3380	Extended Ventricular Septoplasty (modified Konno, VSD creation and patch enlargement of LVOT, sparing aortic valve) for tunnel type sub aortic stenosis	Repair consisting of a modified Konno procedure, VSD creation, and patch enlargement of the LVOT with sparing of the aortic valve.
810	Sinus of Valsalva, Aneurysm repair	Sinus of Valsalva aneurysm repair can be organized by site of aneurysm (left, right or noncoronary sinus), type of repair (suture, patch graft, or root repair by tube graft or valved conduit), and approach used (from chamber of origin (aorta) or from chamber of penetration (LV, RV, PA, left or right atrium, etc.). Coding Notes: Additional procedures also performed at the time of sinus of Valsalva aneurysm repair may include but are

Code:	Value:	Definition:
		not limited to VSD closure, repair or replacement of aortic valve, sinus of Valsalva aneurysm, and coronary reconstruction; if completed, code as separate procedures.
820	LV to aorta tunnel repair	Left ventricle (LV) to aorta tunnel repair can be accomplished by suture, patch, or both, and may require reimplantation of the right coronary artery. Coding Notes: If completed, code any additional coronary artery procedures including reimplantation as separate procedures.
830	Valvuloplasty, Mitral or systemic atrioventricular valve	Repair of mitral/systemic atrioventricular (AV) valve including, but not limited to: valvotomy (closed or open heart), cleft repair, annuloplasty with or without ring, chordal reconstruction, commissurotomy, leaflet repair, or papillary muscle repair. Coding Notes: In the setting of a single ventricle, use this code to describe repair of the systemic AV valve.
5005	Mitral or systemic atrioventricular Valvuloplasty + Valvuloplasty, Aortic/neo-aortic~~/Truncal~~	During the same operation, procedure • (830) Mitral or systemic atrioventricular Valvuloplasty *and* procedure • (660) Valvuloplasty, Aortic/neo-aortic • *or* (3540) Valvuloplasty, Aortic/neo-aortic, reduction of number of cusps/sinus resection • *or* (3550) Valvuloplasty, Aortic/neo-aortic, Augmentation of valve leaflet (one or more) • *or* (3560) Valvuloplasty, Aortic/neo-aortic, Neo-cuspidization (including one or more leaflet – 'Ozaki' type repair etc.)

Code:	Value:	Definition:
		Coding Notes: See the individual procedure codes for more detail.
2260	Valvuloplasty converted to valve replacement in the same operation, Mitral or systemic atrioventricular valve	Mitral or systemic atrioventricular valve repair attempted and subsequently converted to valve replacement with prosthetic valve during the same operation.
840	Mitral or systemic atrioventricular valve stenosis, Supravalvar ring repair	Supravalvar mitral or systemic atrioventricular (AV) valve stenosis ring repair. Coding Notes: In the setting of a single ventricle, use this code to describe supravalvar ring repair of the systemic AV valve.
850	Valve replacement, Mitral or systemic atrioventricular valve (MVR)	Replacement of mitral or systemic atrioventricular (AV) valve with prosthetic valve, any kind, in suprannular or annular position. Coding Notes: In the setting of a single ventricle, use this code to describe replacement of the systemic AV valve in suprannular or annular position.
860	Valve surgery, Other, Mitral or systemic atrioventricular valve	Other mitral or systemic atrioventricular (AV) valve surgery not specified in the listed procedure codes.
870	Norwood procedure	The Norwood operation is synonymous with the term Norwood (Stage 1) and is defined as an aortopulmonary connection and neo-aortic arch construction resulting in univentricular physiology and pulmonary blood flow controlled with a calibrated systemic-to-pulmonary artery shunt, or a right ventricle to pulmonary artery conduit, or rarely, a cavopulmonary connection.

Code:	Value:	Definition:
		Coding Notes: When coding the procedure Norwood procedure, the primary procedure of the operation should be (870) Norwood procedure. The source of pulmonary blood flow must be included in the procedure list as a secondary procedure and be chosen from the following choices: • (1590) Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) • (1600) Shunt, Systemic to pulmonary, Central (shunt from aorta) • (1610) Shunt, Systemic to pulmonary, Other • (610) Conduit placement, RV to PA • (620) Conduit placement, LV to PA • (1774) Conduit placement, Ventricle to aorta • (1670) Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn) • (1680) Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn) • (1690) Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn) • (1700) HemiFontan
5012	Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA	During the same operation, procedure • (870) Norwood procedure *and* procedure • (830) Valvuloplasty, Mitral or Systemic Atrioventricular Valve *and* procedure • (610) Conduit placement, RV to PA • *or* (3680) RV to PA Shunt (e.g., Sano shunt or

Code:	Value:	Definition:
		palliative RV-PA non-valved conduit to augment pulmonary blood flow) Coding Notes: See the individual procedure codes for more detail. In prior versions, code (460) Valvuloplasty, Tricuspid/Non-systemic AV valve may have been coded as part of this combination procedure. Do not use this code for version 6.23.2 forward.
880	Biventricular repair for hypoplastic left ventricle	Primary biventricular repair consists of extensive aortic arch and ascending aorta enlargement with a patch, closure of interventricular and interatrial communications, and conservative approach for left ventricular outflow tract obstruction (which may include mitral stenosis at any level, subaortic stenosis, aortic stenosis, aortic arch hypoplasia, coarctation, or interrupted aortic arch). Performed in patients who have small but adequately sized ventricles to support systemic circulation. These patients usually have small, but not stenotic, aortic and/or mitral valves. Intent/Clarification: If completed, concomitant procedures (e.g., coarctation repair, aortic valve repair or replacement, etc.) should be coded as separate procedures.
3390	LV Endocardial Fibroelastosis resection	Typically used in patients with multiple left heart obstructive lesions (shone-like) to describe extensive resection of endocardial fibroelastic tissue from the endocardium of the left ventricle (LV). Coding Notes: Should not be used for isolated, limited resection of endocardial fibrous tissue from the LV outflow tract. Use this code in addition to other LV rehabilitation

Code:	Value:	Definition:
		codes, as appropriate.
2755	Conduit insertion right ventricle to pulmonary artery + Intraventricular tunnel left ventricle to neoaorta + Arch reconstruction (Rastelli and Norwood type arch reconstruction) (Yasui)	Aortopulmonary amalgamation with intraventricular tunneling of left ventricle to the amalgamation, aortic arch reconstruction, and insertion of valved or non-valved conduit from right ventricle to pulmonary artery.

General Information on Hybrid Procedures

The group of procedures listed as hybrid approach stage I encompasses both interventional catheterization techniques and surgical techniques. An interventional cardiologist and surgeon must be involved in the procedure to code these procedures. These procedures include:

- (2160) Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency
- (2170) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
- (2180) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands

Comprehensive Stage II procedures are also termed hybrid approach but do not involve any interventional cardiology techniques. Only code these procedures listed below if the patient previously underwent one of the hybrid approach stage 1 procedures listed above.

- (2140) Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)
- (2150) Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair

The hybrid approach procedures can be coded for any patient diagnosis and are not exclusive to hypoplastic left heart syndrome (HLHS).

Primary Procedure Determination

Some of the hybrid approach procedures cannot be the primary procedure of an operation. If completed with another procedure, follow the rules for determining the primary procedure (insert link). The following hybrid approach procedures cannot be listed as the primary procedure of an operation:

- (2170) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
- (2760) Hybrid Approach, Transcardiac balloon dilation
- (2770) Hybrid Approach, Transcardiac transcatheter device placement

When one of the above listed hybrid approach procedures is completed (2170, 2760, & 2770), the surgical/procedural access provided by the surgeon should also be included as a procedure. The surgical access provided will not determine the operation type for the operation. The surgical access procedures are:

- (3660) Open chest exposure for transcatheter/per-ventricular/per-atrial procedure
- (3670) Peripheral vascular access for transcatheter procedures

Operation Type

For the above listed hybrid approach procedures (2170, 2760, & 2770), the Operation Type (SeqNo 1755) is (777) Other, unless the procedure was done concomitantly with another procedure (excluding the above listed surgical access procedures). The operation type would then be determined by the concomitant procedure performed.

Please see the individual procedure definitions for specific operation type and surgical access procedure information.

Code:	Value:	Definition:
2160	Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency	Application of bilateral pulmonary artery bands (right and left branch pulmonary arteries) with ductal patency maintained with prostaglandin (PGE) infusion and/or ductal stent. Coding Notes: Application of bilateral PA bands *without* the

Code:	Value:	Definition:
		concomitant use of PGE or ductal stent to maintain ductal patency should be coded as procedure (3860) PA banding (PAB), Placement of unilateral or bilateral branch pulmonary artery band(s) without the need for concomitant PGE and/or ductal stent. See General information Hybrid Procedures for additional information.
2170	Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)	Placement of a stent in the arterial duct (PDA stent). Coding Notes: Code this procedure is a stent was placed in the arterial duct (PDA stent) to facilitate pulmonary to systemic blood flow in a patient with ductal dependent systemic circulation such as HLHS, IAA, etc. This procedure cannot be the primary procedure of the operation. Include the surgical/procedure access provided by the surgeon as a separate procedure: • (3660) Open chest exposure for transcatheter/per-ventricular/per-atrial procedure • (3670) Peripheral vascular access for transcatheter procedures. Code the Operation type (SeqNo 1755) for this procedure as (777) Other *unless* the procedure was performed concomitantly with another procedure (excluding the procedure for surgical access). The concomitant procedure performed will then determine the operation type. Do not use this procedure to capture stenting of the arterial duct in a patient with ductal dependent pulmonary circulation; instead, code procedure (1550) Cardiovascular catheterization procedure,

Code:	Value:	Definition:
		Therapeutic, Stent insertion. See General information Hybrid Procedures for additional information.
2180	Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands	During the same operation, procedure stent placement in arterial duct (PDA) and application of bilateral (right and left) pulmonary artery (PA) bands. Coding Notes: See General information Hybrid Procedures for additional information.
2140	Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)	During the same operation, aortopulmonary amalgamation, superior cavopulmonary anastomosis(es), pulmonary artery (PA) debanding, and aortic arch repair. Coding Notes: See General information Hybrid Procedures for additional information.
2150	Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair	During the same operation, aortopulmonary amalgamation, superior cavopulmonary anastomosis(es), and pulmonary artery (PA) debanding. Does not include aortic arch repair. Coding Notes: See General information Hybrid Procedures for additional information.
2760	Hybrid Approach, Transcardiac balloon dilation	Transcardiac balloon dilation of a vessel or structure. Coding Notes: Code this procedure if a transcardiac dilation of a vessel or structure was performed with the surgeon providing procedural access.

Code:	Value:	Definition:
		Include procedure (3660) Open chest exposure for transcatheter/per-ventricular/per-atrial procedure to denote the surgical access provided. This procedure cannot be the primary procedure of the operation. Code the Operation type (SeqNo 1755) for this procedure as (777) Other *unless* the procedure was performed concomitantly with another procedure (excluding the procedure for surgical access). The concomitant procedure performed will then determine the operation type. See General information Hybrid Procedures for additional information.
2770	Hybrid Approach, Transcardiac transcatheter device placement	Transcardiac transcatheter device placement. Coding Notes: Code this procedure if a transcardiac transcatheter device was placed with the surgeon providing procedural access. Include procedure (3660) Open chest exposure for transcatheter/per-ventricular/per-atrial procedure to denote the surgical access provided. This procedure cannot be the primary procedure of the operation. Code the Operation type (SeqNo 1755) for this procedure as (777) Other *unless* the procedure was performed concomitantly with another procedure (excluding the procedure for surgical access). The concomitant procedure performed will then determine the operation type. See General information Hybrid Procedures for additional information.

Code:	Value:	Definition:
890	Transplant, Heart	Heart transplantation, any technique, allograft or xenograft.
5002	PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Transplant, Heart	During the same operation, procedure (540) PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) *and* procedure (890) Transplant, Heart. Coding Notes: See the individual procedure codes for more detail.
900	Transplant, Heart and lung (Combined procedure)	During the same operation, procedure (890) Transplant, Heart *and* procedure (1410) Transplant, Lung(s). Coding Notes: See the individual procedure codes for more detail.
3570	Transplant, Heart and Liver (Combined procedure)	During the same operation, procedure (890) Transplant, Heart, *and* liver transplant. Coding Notes: See the individual procedure codes for more detail.
3580	Transplant, Heart and Kidney (Combined procedure)	During the same *episode of care*, procedure (890) Transplant, Heart, *and* intended kidney (single or double) transplant. Coding Notes: The kidney transplant may be performed during a separate operation but during the same episode of care. Must be listed for both a kidney and heart transplant at the time of OR entry date/time for the heart transplant or in the event the kidney transplant was performed first, listed for both at the time of the kidney transplant.

Code:	Value:	Definition:
		Includes patient who were listed for both heart and kidney transplants at the time of the heart transplant who did not go on to receive the kidney transplant for any reason. See the individual procedure codes for (890) Transplant, Heart for more detail.
3590	Transplant, Heart and Liver and Kidney (Combined procedure)	During the same *episode of care*, procedure (890) Transplant, Heart, liver transplant, and kidney (single or double) transplant. Coding Notes: The kidney transplant may be performed during a separate operation but during the same episode of care. Must be listed for kidney, liver, and heart transplant at the time of OR entry date/time for the heart transplant or in the event the kidney transplant was performed first, listed for all 3 organs at the time of the kidney transplant. Includes patient who were listed for heart and kidney transplants at the time of the heart transplant who did not go on to receive the kidney transplant for any reason. See the individual procedure codes for (890) Transplant, Heart for more detail.
910	Partial left ventriculectomy (LV volume reduction surgery) (Batista)	Wedge resection of LV muscle, with suturing of cut edges together, to reduce LV volume.
920	Pericardial drainage procedure	Pericardial drainage can include a range of therapies including, but not limited to: pericardiocentesis, pericardiostomy tube placement, pericardial window creation, and open pericardial drainage

Code:	Value:	Definition:
		(pericardiotomy). Coding Notes: Does not include the opening of the pericardium (pericardial window creation) to repair intracardiac defects.
930	Pericardiectomy	Surgical removal of the pericardium.
940	Pericardial procedure, Other	Other pericardial procedures that include but are not limited to pericardial reconstruction for congenital absence of the pericardium, pericardial biopsy, pericardial mass, or cyst excision.
950	Fontan, Atrio-pulmonary connection	The atrio-pulmonary Fontan is a type of Fontan with connection of the atrium to the pulmonary artery. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart.
960	Fontan, Atrio-ventricular connection	The atrio-ventricular Fontan is a type of Fontan with atrio- ventricular connection, either direct or with RA-RV conduit, valved or non-valved. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart.
970	Fontan, TCPC, Lateral tunnel, Fenestrated	The lateral tunnel Fontan is a total cavopulmonary connection (TCPC) type of Fontan procedure created with anastomosis of SVC and right atrium to the branch pulmonary artery and an intra-atrial baffle to direct IVC flow to pulmonary artery, with fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart.

Code:	Value:	Definition:
		A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.
980	Fontan, TCPC, Lateral tunnel, Nonfenestrated	The lateral tunnel Fontan is a total cavopulmonary connection (TCPC) type of Fontan procedure created with anastomosis of SVC and right atrium to the branch pulmonary artery and an intra-atrial baffle to direct IVC flow to pulmonary artery, without fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.
1000	Fontan, TCPC, External conduit, Fenestrated	The external conduit Fontan is a total cavopulmonary connection (TCPC) type of Fontan operation created with anastomosis of SVC to the branch pulmonary artery a conduit outside of the heart to connect the infradiaphragmatic systemic venous return to the pulmonary artery, with fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and

Code:	Value:	Definition:
		lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.
5010	Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure	During the same operation, procedure (1000) Fontan, TCPC, External conduit, Fenestrated *and* procedure (1460) Pacemaker, Procedure. <u>Coding Notes</u>: See the individual procedure codes for more detail.
1010	Fontan, TCPC, External conduit, Nonfenestrated	The external conduit Fontan is a total cavopulmonary connection (TCPC) type of Fontan operation created with anastomosis of SVC to the branch pulmonary artery a conduit outside of the heart to connect the infradiaphragmatic systemic venous return to the pulmonary artery, without fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.

Code:	Value:	Definition:
2780	Fontan, TCPC, Intra/extracardiac conduit, Fenestrated	The total cavopulmonary connection (TCPC) with Intra/extracardiac conduit is a TCPC type of Fontan operation created with a tube where the tube is attached to the inferior caval vein inside of the heart, and then the tube passes outside of the heart and is attached to the pulmonary artery outside of the heart, with fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.
2790	Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated	The total cavopulmonary connection (TCPC) with Intra/extracardiac conduit is a TCPC type of Fontan operation created with a tube where the tube is attached to the inferior caval vein inside of the heart, and then the tube passes outside of the heart and is attached to the pulmonary artery outside of the heart, without fenestration. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways. A fenestration of a Fontan is defined as a

Code:	Value:	Definition:
		communication that is created to allow flow of blood between the systemic and pulmonary venous chambers.
3310	Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated	During the same operation, Fontan, total cavopulmonary connection (TCPC), External conduit with fenestration (a communication created to allow the flow of blood between the systemic and pulmonary venous champers) with inclusion of hepatic venous return to the pulmonary circulation. The external conduit Fontan is a TCPC type of Fontan operation created with anastomosis of SVC to the branch pulmonary artery a conduit outside of the heart to connect the infradiaphragmatic systemic venous return to the pulmonary artery. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways.
3320	Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated	During the same operation, Fontan, total cavopulmonary connection (TCPC), External conduit without fenestration (a communication created to allow the flow of blood between the systemic and pulmonary venous champers) with inclusion of hepatic venous return to the pulmonary circulation. The external conduit Fontan is a TCPC type of Fontan operation created with anastomosis of SVC to the branch pulmonary artery a conduit outside of the heart to connect the infradiaphragmatic systemic venous return to the pulmonary artery. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a

Code:	Value:	Definition:
		patient with a functionally univentricular heart. A TCPC is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways.
1025	Fontan revision or conversion (Re-do Fontan)	An operation where a previously created Fontan circuit is either modified or taken down and changed into a different type of Fontan. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. A total cavopulmonary connection (TCPC) is a Fontan where both the superior caval vein and the inferior caval vein are connected to the pulmonary circulation through separate connections that are either direct connections or tubular pathways.
1030	Fontan, Other	Other Fontan procedure not specified in procedure codes. The Fontan is defined as an operation or intervention that results in caval flow from both the upper and lower body draining to the pulmonary circulation in a patient with a functionally univentricular heart. Coding Notes: Does not include takedown of a Fontan procedure; instead, code procedure (3600) Fontan, Takedown.
3600	Fontan, Takedown	Takedown of previous Fontan circulation often completed for Fontan failure.
2340	Fontan + Atrioventricular valvuloplasty	An operation to repair the systemic atrioventricular valve combined with a Fontan operation. During the same operation, procedure • (950) Fontan, Atrio-pulmonary connection

Code:	Value:	Definition:
		• *or* (960) Fontan, Atrio-ventricular connection • *or* (970) Fontan, TCPC, Lateral tunnel, Fenestrated • *or* (980) Fontan, TCPC, Lateral tunnel, Nonfenestrated • *or* (1000) Fontan, TCPC, External conduit, Fenestrated • *or* (1010) Fontan, TCPC, External conduit, Nonfenestrated • *or* (2780) Fontan, TCPC, Intra/extracardiac conduit, Fenestrated • *or* (2790) Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated • *or* (3310) Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Fenestrated • *or* (3320) Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Nonfenestrated • *or* (1025) Fontan revision or conversion (Re-do Fontan) • *or* (1030) Fontan, Other *and procedure* • (2300) Valvuloplasty, Common atrioventricular valve • *or* (830) Valvuloplasty, Mitral/Systemic AV valve <u>Intent/Clarification</u>: See the individual procedure codes for more detail. Code the specific type of Fontan operation performed as a secondary procedure during this operation.

Code:	Value:	Definition:
		In prior versions, code (460) Valvuloplasty, Tricuspid/Non-systemic AV valve may have been coded as part of this combination procedure. Do not use this code for version 6.23.2 forward.
1035	Ventricular septation	Creation of a prosthetic ventricular septum. A surgical procedure used to septate univentricular hearts with two atrioventricular valves. Coding Notes: If completed, additional procedures, such as resection of subpulmonic stenosis, should be listed as separate procedures. Only use this procedure if it is *not* known if the patient underwent ventricular septation following a specified cardiac repair: • (3610) Ventricular septation, Following superior cavopulmonary anastomosis or hemi-Fontan • (3620) Ventricular septation, Following prior total cavopulmonary connection • (3630) Ventricular septation, Following prior Hybrid Stage 1 • (3640) Ventricular septation, Following prior Norwood or DKS procedure
3610	Ventricular septation, Following superior cavopulmonary anastomosis or HemiFontan	Creation of a prosthetic ventricular septum. A surgical procedure used to septate univentricular hearts with two atrioventricular valves in a patient who underwent prior superior cavopulmonary anastomosis(es) or HemiFontan.
3620	Ventricular septation, Following prior total cavopulmonary connection	Creation of a prosthetic ventricular septum. A surgical procedure used to septate univentricular hearts with two atrioventricular valves in a patient who underwent prior total cavopulmonary connection.

Code:	Value:	Definition:
3630	Ventricular septation, Following prior Hybrid Stage 1	Creation of a prosthetic ventricular septum. A surgical procedure used to septate univentricular hearts with two atrioventricular valves in a patient who underwent prior Hybrid Stage 1 procedure.
3640	Ventricular septation, Following prior Norwood or DKS procedure	Creation of a prosthetic ventricular septum. A surgical procedure used to septate univentricular hearts with two atrioventricular valves in a patient who underwent prior Norwood or DKS procedure.

General Information on TGA vs. CCTGA Repairs

Congenitally Corrected Transposition of the Great Arteries

Congenitally corrected TGA (CCTGA) (or 'corrected transposition') describes patients with discordant atrio-ventricular connections ***as well as*** discordant ventriculo-arterial connections. To code the diagnosis of CCTGA, patients must meet **both** criteria.

Using the definitions below, select the most appropriate procedure code for the repair of CCTGA in a patient with the diagnosis of CCTGA. Only CCTGA repair codes should be used for CCTGA patients. **Do not list the individual procedures included in the CCTGA repair procedures.**

Transposition of the Great Arteries

Patients with Transposition of the Great Arteries (TGA) have discordant ventriculo-arterial connections. There may be an intact ventricular septum (IVS) with or without left ventricular outflow tract obstruction (LVOTO) or a ventricular septal defect(s) (VSD) with or without LVOTO; choose the most appropriate, best descriptive diagnosis.

TGA repairs may consist of an arterial switch operation (ASO) with or without aortic arch repair and/or VSD closure, an atrial baffle procedure (Mustard or Senning), or (most commonly for patients with TGA, VSD-LVOTO) a Rastelli. These procedures are generally not done in combination with one another for patients with TGA.

Code:	Value:	Definition:

Code:	Value:	Definition:
1050	Congenitally corrected TGA repair, Atrial switch and ASO (double switch)	Repair of congenitally corrected transposition of the great arteries (CCTGA) by concomitant atrial switch (Mustard or Senning) and arterial switch operation. Coding Notes: The repair codes for CCTGA require the diagnosis of CCTGA. Likewise, if a patient has the underlying diagnosis of CCTGA, only use the CCTGA procedure codes for repair of CCTGA. **Do not code the individual procedures included in the CCTGA repair procedures (atrial switch and arterial switch).** If completed, ventricular septal defect (VSD) closure should be listed as a separate procedure. See General Information CCTGA vs. TGA Repairs for additional information.
1060	Congenitally corrected TGA repair, Atrial switch and Rastelli	Repair of congenitally corrected transposition of the great arteries (CCTGA) by concomitant atrial switch (Mustard or Senning) and ventricular septal defect (VSD) closure to the aortic valve with placement of an RV-to-PA conduit. Coding Notes: The repair codes for CCTGA require the diagnosis of CCTGA. Likewise, if a patient has the underlying diagnosis of CCTGA, only use the CCTGA procedure codes for repair of CCTGA. **Do not code the individual procedures included in the CCTGA repair procedures (atrial switch and Rastelli).** If completed, ventricular septal defect (VSD) closure should be listed as a separate procedure. See General Information CCTGA vs. TGA Repairs for additional information.

Code:	Value:	Definition:
1070	Congenitally corrected TGA repair, VSD closure	Repair of congenitally corrected transposition of the great arteries (CCTGA) by ventricular septal defect (VSD) closure only. Coding Notes: The repair codes for CCTGA require the diagnosis of CCTGA. Likewise, if a patient has the underlying diagnosis of CCTGA, only use the CCTGA procedure codes for repair of CCTGA. Use this procedure code to describe the repair of CCTGA by VSD closure only. See General Information CCTGA vs. TGA Repairs for additional information.
1080	Congenitally corrected TGA repair, VSD closure and LV to PA conduit	Repair of congenitally corrected transposition of the great arteries (CCTGA) by VSD closure and placement of an LV-to-PA conduit. Coding Notes: The repair codes for CCTGA require the diagnosis of CCTGA. Likewise, if a patient has the underlying diagnosis of CCTGA, only use the CCTGA procedure codes for repair of CCTGA. **Do not code the individual procedures included in the CCTGA repair procedure (LV to PA conduit).** The VSD repair can be listed as a separate procedure so one knows how the VSD was repaired, e.g., patch. See General Information CCTGA vs. TGA Repairs for additional information.
1090	Congenitally corrected TGA repair, Other	Any procedures for correction of congenitally corrected transposition of the great arteries (CCTGA) not otherwise specified in other listed procedure codes. Coding Notes:

Code:	Value:	Definition:
		The repair codes for CCTGA require the diagnosis of CCTGA. Likewise, if a patient has the underlying diagnosis of CCTGA, only use the CCTGA procedure codes for repair of CCTGA. **Do not code the individual procedures included in the CCTGA repair procedure.** See General Information CCTGA vs. TGA Repairs for additional information.
1110	Arterial switch operation (ASO)	Arterial switch operation (ASO) is used for repair of transposition of the great arteries (TGA). The pulmonary artery and aorta are transected and translocated so that the pulmonary artery arises from the right ventricle and the aorta from the left ventricle. Coronary artery transfer is also accomplished. Coding Notes: Do not code the Le Compte procedure separately as this is part of the ASO. See General Information CCTGA vs. TGA Repairs for additional information.
1120	Arterial switch operation (ASO) and VSD repair	Arterial switch operation (ASO) is used for repair of transposition of the great arteries (TGA). The pulmonary artery and aorta are transected and translocated so that the pulmonary artery arises from the right ventricle and the aorta from the left ventricle. Coronary artery transfer is also accomplished. The ventricular septal defect (VSD) is closed, usually with a patch. During the same operation, procedure • (1110) Arterial switch operation (ASO) *and procedure* • (100) VSD repair, Primary closure

Code:	Value:	Definition:
		• *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device • *or* (130) VSD, Multiple, Repair Coding Notes: Do not code the LeCompte procedure separately. See General Information CCTGA vs. TGA Repairs for additional information.
1123	Arterial switch procedure + Aortic arch repair	During the same operation, procedure (1110) Arterial switch operation (ASO) *and* procedure (1280) Aortic arch repair in a patient with transposition of the great arteries (TGA) without VSD repair and associated hypoplastic aortic arch. Coding Notes: See the individual procedure codes for more detail.
1125	Arterial switch procedure and VSD repair + Aortic arch repair	During the same operation, procedure (1110) Arterial switch operation (ASO) *and* procedure (1280) Aortic arch repair *and* procedure ventricular septal defect (VSD) repair in a patient with transposition of the great arteries (TGA) with associated VSD and hypoplastic aortic arch. During the same operation, procedure • (1110) Arterial switch operation (ASO) *and* procedure • (100) VSD repair, Primary closure • *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device • *or* (130) VSD, Multiple, Repair *and* procedure • (1280) Aortic arch repair ***or***

Code:	Value:	Definition:
		During the same operation, procedure • (1120) Arterial switch operation (ASO) and VSD repair *and* procedure • (1280) Aortic arch repair ***or*** During the same operation, procedure • (1123) Arterial switch procedure + Aortic arch repair *and procedure* • (100) VSD repair, Primary closure • *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device • *or* (130) VSD, Multiple, Repair ***or*** During the same operation, procedure • (1285) Aortic arch repair + VSD repair *and procedure* • (1110) Arterial switch operation (ASO) <u>Coding Notes</u>: See the individual procedure codes for more detail.
1130	Senning	Atrial baffle procedure for rerouting of venous flow in transposition of the great arteries (TGA) resulting in a 'physiological repair.' The caval flow is directed behind the baffle to the mitral valve, left ventricle, and pulmonary artery while the pulmonary venous flow is directed in front of the baffle to the tricuspid valve, right ventricle, and aorta. The Senning procedure uses atrial wall to construct the baffle.
1140	Mustard	Atrial baffle procedure for rerouting of venous flow in transposition of the great arteries (TGA) resulting

Code:	Value:	Definition:
		in a 'physiological repair.' The caval flow is directed behind the baffle to the mitral valve, left ventricle, and pulmonary artery while pulmonary venous flow is directed in front of the baffle to the tricuspid valve, right ventricle, and aorta. The Mustard procedure uses patch material to construct the baffle.
1145	Atrial baffle procedure, Mustard or Senning revision	Revision of a previous atrial baffle procedure (either Mustard or Senning), for any reason (e.g., obstruction, baffle leak etc.).
1150	Rastelli	Most often used for patients with transposition of the great arteries (TGA) with ventricular septal defect (VSD) and significant left ventricular outflow tract obstruction (LVOTO), the Rastelli operation consists of an LV-to-aorta intraventricular baffle closure of the VSD and placement of an RV-to-PA conduit. Coding Notes: Do not use this code for patients with a diagnosis of double outlet right ventricle (DORV); instead, code procedure (3440) DORV repair, RV-PA conduit.
1160	REV	The Lecompte (REV) intraventricular repair is designed for patients with abnormalities of ventriculoarterial connection in whom a standard intraventricular tunnel repair cannot be performed. It is also suitable for patients in whom an arterial switch procedure with tunneling of the ventricular septal defect (VSD) to the pulmonary artery (PA) cannot be performed because of pulmonary (left ventricular outflow tract) stenosis. A right ventriculotomy incision is made. The infundibular (conal) septum, located between the two semilunar valves, is aggressively resected if its presence interferes with the construction of a tunnel from the VSD to the aorta. The VSD is then tunneled

Code:	Value:	Definition:
		to the aorta. The decision to perform or not to perform the Lecompte maneuver should be made at the beginning of the operation. If the Lecompte maneuver is not performed the pulmonary artery is translocated to the right ventricular outflow tract on the side of the aorta that provides the shortest route. When the decision to perform the Lecompte maneuver has been made, the great vessels are transected, and this maneuver is performed at the beginning of the operation. The PA orifice is then closed. The aorta, if it had been transected during the performance of the Lecompte maneuver, is then reconstructed. A vertical incision is made on the anterior aspect of the main PA. The posterior margin of the PA is sutured to the superior aspect of the vertical right ventriculotomy incision. A generous patch of autologous pericardium is used to close the inferior portion of the right ventriculotomy and the anterior portion of the PA. A monocusp pericardial valve is inserted extemporaneously.
2190	Aortic root translocation over left ventricle (Including Nikaidoh procedure)	Translocation of the aortic root from the right ventricle to the left ventricular outflow tract.
2210	TGA, Other procedures (Kawashima, LV-PA conduit, other)	Other procedures to repair transposition of the great arteries (TGA) not otherwise listed. Coding Notes: Do not use this procedure code for a Kawashima Glenn procedure.
3400	Double root translocation	Translocation of the aortic root and pulmonary trunk and reimplantation onto the appropriate ventricles.

General Information Double Outlet Right Ventricle (DORV) Repair

For patients with DORV, use only the appropriate DORV repair code(s) and be as specific as possible. These procedure codes are diagnosis specific and should only be used for repairs for patients with DORV diagnoses.

If a repair is completed without a ventriculotomy (no incision crossing the annulus onto the ventricle, then use DORV repair, No ventriculotomy.

However, if the main pulmonary artery incision extends proximally through the annulus, this is considered "transannular" and thus, a ventricular incision (ventriculotomy). In these cases, choose from the DORV repair codes which include a ventriculotomy.

For patients with DORV, use only DORV repair codes. For instance, in a patient with DORV, do not use Rastelli, instead use DORV repair, RV-PA conduit. Rastelli should be used for patients who have a diagnosis of TGA-VSD (non-DORV).

For patients with CCTGA, only use CCTGA repair codes; *do not* include DORV repair codes.

As always, data managers are encouraged to work with their clinical teams to ensure the most specific description of the patient's diagnoses and procedures.

Code:	Value:	Definition:
1180	DORV, Intraventricular tunnel repair	Repair of double outlet right ventricle (DORV), VSD type using a tunnel closure of the ventricular septal defect (VSD) to the aortic valve. This also includes the posterior straight tunnel repair of Kawashima. Coding Notes: Only use this procedure code if the patient has diagnosis (930) DORV, VSD type. See General information DORV repair for additional information.
3410	DORV repair, No Ventriculotomy	Repair of double outlet right ventricle (DORV), TOF type using a tunnel closure of the ventricular septal defect (VSD) to the aortic valve without a

Code:	Value:	Definition:
		ventriculotomy. Coding Notes: Only use this procedure code if the patient has diagnosis (940) DORV, TOF type. See General information DORV repair for additional information.
3420	DORV repair, Ventriculotomy, Nontransannular patch	Repair of double outlet right ventricle (DORV), TOF type using a tunnel closure of the ventricular septal defect (VSD) to the aortic valve with a ventriculotomy and non-transannular patch. Coding Notes: Only use this procedure code if the patient has diagnosis (940) DORV, TOF type. See General information DORV repair for additional information.
3430	DORV repair, Ventriculotomy, Transannular patch	Repair of double outlet right ventricle (DORV), TOF type using a tunnel closure of the ventricular septal defect (VSD) to the aortic valve with a ventriculotomy and transannular patch. Coding Notes: Only use this procedure code if the patient has diagnosis (940) DORV, TOF type. See General information DORV repair for additional information.
3440	DORV repair, RV-PA conduit	Repair of double outlet right ventricle (DORV) with placement of an RV-PA conduit. Coding Notes: See General information DORV repair for additional information.

Code:	Value:	Definition:
3450	DORV - AVC (AVSD) repair	Repair of double outlet right ventricle (DORV) and complete atrioventricular septal defect repair. During the same operation, procedure • (1180) DORV, Intraventricular tunnel repair • *or* (3410) DORV repair, No Ventriculotomy • *or* (3420) DORV repair, Ventriculotomy, Nontransannular patch • *or* (3430) DORV repair, Ventriculotomy, Transannular patch • *or* (3440) DORV repair, RV-PA conduit *and* procedure • (170) AVC (AVSD) repair, Complete (CAVSD) Coding Notes: See the individual procedure codes for more detail. See General information DORV repair for additional information.
1200	DOLV repair	Because of the morphologic variability of double outlet left ventricle (DOLV), there are many approaches to repair, including: intraventricular tunnel repair directing the ventricular septal defect (VSD) to the pulmonary valve, the REV procedure, or the Rastelli procedure. Coding Notes: In the setting of DOLV, use this code for tunnel closure to the pulmonary valve. If the REV or Rastelli procedures are performed, then use those respective codes.
1210	Coarctation repair, End to end	Repair of coarctation of aorta by excision of the coarctation segment and end-to-end circumferential anastomosis of the aorta.

Code:	Value:	Definition:
1220	Coarctation repair, End to end, Extended	Repair of coarctation of the aorta by excision of the coarctation segment and end-to-end anastomosis of the oblique ends of the aorta, creating an extended anastomosis.
3460	Coarctation repair, Descending aorta anastomosed to Ascending aorta	Repair of coarctation of the aorta by anastomosis of the ascending aorta to the descending aorta.
1230	Coarctation repair, Subclavian flap	Repair of coarctation of the aorta by ligating, dividing, and opening the subclavian artery, incising the coarctation site, and folding down the subclavian artery onto the incision in the aorta, suturing the subclavian "flap" in place, creating a roof over the area of the previous coarctation.
1240	Coarctation repair, Patch aortoplasty	Repair of coarctation of the aorta by incising the coarctation site with placement of a patch sutured in place longitudinally along the aortotomy edge.
1250	Coarctation repair, Interposition graft	Repair of coarctation of the aorta by resection of the coarctation segment and placement of a prosthetic tubular interposition graft anastomosed circumferentially to the cut ends of the aorta.
3470	Coarctation repair, Extra-anatomic Bypass graft	Repair of coarctation of the aorta by anastomosis of a conduit from the ascending aorta or subclavian artery to the descending aorta.
1260	Coarctation repair, Other	Any repair of coarctation of the aorta not specified in procedure codes. This may include, for example, a combination of two approaches for coarctation repair or extra-anatomic bypass graft, etc.
1275	Coarctation repair + VSD repair	Coarctation of aorta repair, any technique, and simultaneous ventricular septal defect (VSD) repair, any type VSD, any type repair.

Code:	Value:	Definition:
		During the same operation, procedure • (1210) Coarctation repair, End to end • *or* (1220) Coarctation repair, End to end, Extended • *or* (1230) Coarctation repair, Subclavian flap • *or* (1240) Coarctation repair, Patch aortoplasty • *or* (1250) Coarctation repair, Interposition graft • *or* (1260) Coarctation repair, other *and* procedure • (100) VSD repair, Primary closure • *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device • *or* (130) VSD, Multiple, Repair Coding Notes: See the individual procedure codes for more detail.
1280	Aortic arch repair	Repair of the aortic arch by any technique. Coding Notes: Includes aortic uncrossing procedures.
1285	Aortic arch repair + VSD repair	Repair of the aortic arch by any technique and simultaneous ventricular septal defect (VSD) repair, any type VSD, any type repair. During the same operation, procedure • (1280) Aortic arch repair *and* procedure • (100) VSD repair, Primary closure • *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device

Code:	Value:	Definition:
		• *or* (130) VSD, Multiple, Repair Coding Notes: Does not include repair of interrupted aortic arch (IAA) + VSD repair; instead, code procedure (1320) Interrupted aortic arch repair and include the VSD repair as a separate procedure. See the individual procedure codes for more detail.
5008	Aortic arch repair + VSD repair + ASD repair, Patch	Repair of the aortic arch by any technique, and simultaneous ventricular septal defect (VSD) repair, any type VSD, any type repair, and simultaneous atrial septal defect (ASD) repair, any type ASD, Patch repair. During the same operation, procedure • (1285) Aortic arch repair + VSD repair *and* procedure • (30) ASD repair, Patch **OR** During the same operation, procedure • (1280) Aortic arch repair *and* procedure • (100) VSD repair, Primary closure • *or* (110) VSD repair, Patch • *or* (120) VSD repair, Device • *or* (130) VSD, Multiple, Repair *and* procedure • (30) ASD repair, Patch Coding Notes: See the individual procedure codes for more detail.

Code:	Value:	Definition:
1290	Coronary artery fistula ligation	Repair of a coronary artery fistula using any technique. Coding Notes: If additional technique information may be supplied by another procedure code, please list separately, e.g., procedure (1300) Coronary artery bypass.
1291	Anomalous origin of coronary artery from pulmonary artery repair	Repair of anomalous origin of the coronary artery (any) from the pulmonary artery, by any technique (ligation, translocation with aortic implantation, Takeuchi operation, or bypass graft). Coding Notes: If additional technique information may be supplied by another procedure code, please list separately, e.g., procedure (1300) Coronary artery bypass.
1300	Coronary artery bypass	Coronary artery bypass graft (CABG) procedure, any technique (venous or arterial graft, one or more grafts, etc.), for any coronary artery pathology (coronary arterial fistula, aneurysm, coronary bridging, atresia of left main, acquired coronary artery disease, etc.). May be completed without or without cardiopulmonary bypass (CPB).
1305	Anomalous aortic origin of coronary artery from aorta (AAOCA) repair	Repair of anomalous aortic origin of coronary artery from aorta (AAOCA), any type.
1310	Coronary artery procedure, Other	Any coronary artery procedure not specifically listed in the procedure codes.
1320	Interrupted aortic arch repair	Repair of interrupted aortic arch (IAA) of any type by any technique (direct anastomosis, prosthetic graft, etc.). Coding Notes:

Code:	Value:	Definition:
		Includes repair of IAA with concomitant ventricular septal defect (VSD) repair. Code the specific type of VSD repair as a separate procedure.
1330	PDA closure, Surgical	Closure of a patent ductus arteriosus (PDA) by any surgical technique (ligation, division, clip) using any approach (i.e., thoracotomy, thoracoscopic, etc.).
1340	PDA closure, Device	Closure of a patent ductus arteriosus (PDA) by device using transcatheter techniques.
1360	Vascular ring repair	Repair of vascular ring (any type, except pulmonary artery sling) by any technique.
1365	Aortopexy	Surgical fixation of the aorta to another structure (usually the posterior aspect of the sternum) to relieve compression on another vessel or structure (e.g., trachea).
3650	Division with or without reimplantation of aberrant subclavian artery	Surgical division of an aberrant subclavian artery, with or without reimplantation of the vessel. Coding Notes: Code this procedure as the primary procedure when done in absence of a vascular ring, e.g., in the treatment of dysphagia lusoria. This procedure can be coded if a vascular ring repair is also completed but should not be the primary procedure of the operation.
1370	Pulmonary artery sling repair	Pulmonary artery sling repair by any technique.
5009	Pulmonary artery sling repair + Tracheal procedure	During the same operation, procedure (1370) Pulmonary artery sling repair *and* procedure (1440) Tracheal procedure. Coding Notes: See the individual procedure codes for more detail.

Code:	Value:	Definition:
1380	Aortic aneurysm repair	Repair of an aortic aneurysm by any technique.
1390	Aortic dissection repair	Repair of an aortic dissection by any technique.
3655	Aorta, Other	Other aorta repairs not otherwise included in this list.
1400	Lung biopsy	Lung biopsy, any technique.
1410	Transplant, Lung(s)	Lung or lobe transplantation of any type.
1420	Lung procedure, Other	Any lung procedure other than lung transplant, including but not limited to pneumonectomy (left or right), lobectomy (any lobe), bilobectomy (two lobes), segmental lung resection (any segment), or wedge resection.
1440	Tracheal procedure	Any tracheal procedure, including but not limited to relief of tracheal stenosis (any means including pericardial graft, autograft insertion, homograft insertion, resection with reanastomosis, rib cartilage insertion, or slide tracheoplasty). Coding Notes: Tracheal stent placement or balloon dilation of the trachea should be coded separately.
2800	Muscle flap, Trunk (i.e., intercostal, pectus, or serratus muscle)	A trunk muscle flap (intercostal, pectus, or serratus muscle) is rotated to buttress or augment a suture line, anastomosis or fill the pleural space.
2810	Muscle flap, Trunk (i.e., latissimus dorsi)	A trunk muscle flap (latissimus dorsi) is rotated to buttress or augment a suture line, anastomosis or fill the pleural space.
2820	Removal, Sternal wire	Excision of wire used to approximate sternum from a previous sternotomy.
2830	Rib excision, Complete	Complete excision of rib(s). Coding Notes:

Code:	Value:	Definition:
		Do not use for excision of a first rib/cervical rib for the treatment of thoracic outlet syndrome; instead, code procedure (3060) Rib excision, Excision of cervical rib or (3070) Rib excision, Excision of cervical rib, With sympathectomy, as appropriate. Do not use for excision of a first rib for any condition other than thoracic outlet syndrome; instead, code procedure (3080) Rib excision, Excision of first rib or (3030) Rib excision, Excision of first rib, With sympathectomy, as appropriate.
2840	Rib excision, Partial	Partial excision of rib(s).
2850	Sternal fracture – open treatment	Repair of a sternal fracture with sutures, wires, plates, or bars.
2860	Sternal resection, Radical resection of sternum	Removal of the sternum with complex reconstructive requirements for either a tumor or severe sternal infection.
2870	Sternal resection, Radical resection of sternum with mediastinal lymphadenectomy	Involves resection of the sternum and mediastinal lymph node dissection.
2880	Tumor of chest wall – Excision including ribs	Excision of ribs and attached muscles for a benign or malignant tumor of the chest wall. When three or less ribs are taken or if the defect is covered by the scapula, reconstruction may not be necessary. <u>Coding Notes</u>: Does not include excision with reconstruction; instead, code (2890) Tumor of chest wall – Excision including ribs, With reconstruction.
2890	Tumor of chest wall – Excision including ribs, With reconstruction	Resection of the chest wall tumor with reconstruction of the defect, usually with plastic mesh (marlex, prolene), methylmethracralate/mesh

Code:	Value:	Definition:
		sandwich or a muscle flap.
2900	Tumor of soft tissue of thorax – Excision of deep subfascial or intramuscular tumor	Excision of a deep chest wall tumor that involves the muscles but not the ribs. These are usually benign tumors such as a fibroma or a deep lipoma.
2910	Tumor of soft tissue of thorax – Excision of subcutaneous tumor	Excision of tumor in the skin/fat of the chest wall, typically a lipoma.
2920	Tumor of soft tissue of thorax – Radical resection	En-bloc, radical excision of a cancer of the chest wall muscles, involving the skin, fat, and muscles. Typically, a desmoid tumor or a sarcoma (malignant fibrous histiocytoma or rhabdomyosarcoma).
2930	Hyoid myotomy and suspension	Typically done as a suprahyoid laryngeal release to reduce tension on a cervical tracheal resection anastomosis. The hyoid bone is cut laterally on both sides to allow it to drop down and thus lower the larynx and trachea.
2940	Muscle flap, Neck	A neck muscle flap is rotated to buttress or augment a suture line, anastomosis or fill a space. Commonly used neck muscles are strap muscles, sternocleidomastoid muscle, and levator scapulae.
2950	Procedure on neck	Procedure of the neck not otherwise listed in the procedure codes.
2960	Tumor of soft tissue of neck – Excision of deep subfascial or intramuscular tumor	Excision of a tumor that involves the muscles of the neck. These are typically benign tumors such as a fibroma or a deep lipoma.
2970	Tumor of soft tissue of neck – Excision of subcutaneous tumor	Excision of a tumor in the skin/fat of the neck, typically a lipoma.
2980	Tumor of soft tissue of neck – Radical resection	A surgical procedure in which the fibrofatty contents of the neck are removed for the treatment of cervical

Code:	Value:	Definition:
		lymphatic metastases. Neck dissection is most commonly used in the management of cancers of the upper aerodigestive tract. It is also used for malignancies of the skin of the head and neck area, the thyroid, and the salivary glands.
2990	Pectus bar removal	Removal of a previously implanted chest wall bar.
3000	Pectus bar repositioning	Repositioning of a previously implanted chest wall bar.
3010	Pectus repair, Minimally invasive repair (Nuss), With thoracoscopy	Placement of a Nuss transverse chest wall bar to push the sternum forward to repair a pectus deformity, with thoracoscopy.
3020	Pectus repair, Minimally invasive repair (Nuss), Without thoracoscopy	Placement of a Nuss transverse chest wall bar to push the sternum forward to repair a pectus deformity, without thoracoscopy.
3030	Pectus repair, Open repair	Resection of several costal cartilages, a partial osteotomy of the sternum, and often placement of a temporary bar for stabilization of pectus chest wall deformity.
3040	Division of scalenus anticus, With resection of a cervical rib	Repair of thoracic outlet syndrome variant where the scalenus anticus muscle (or a band from it) impinges on the brachial plexus along with resection of the abnormal cervical rib.
3050	Division of scalenus anticus, Without resection of a cervical rib	Repair of thoracic outlet syndrome variant where the scalenus anticus muscle (or a band from it) impinges on the brachial plexus along without resection of the abnormal cervical rib.
3060	Rib excision, Excision of cervical rib	Removal of the first rib or a cervical rib for treatment of thoracic outlet syndrome. <u>Coding Notes</u>: Only code this procedure if the rib excision was for the treatment of thoracic outlet syndrome; instead,

Code:	Value:	Definition:
		code procedure (3080) Rib excision, Excision of first rib for first rib excisions for treatment of any other condition.
3070	Rib excision, Excision of cervical rib, With sympathectomy	Removal of the first rib or a cervical rib and sympathectomy for treatment of thoracic outlet syndrome. Coding Notes: Only code this procedure if the rib excision and sympathectomy was for the treatment of thoracic outlet syndrome; instead, code procedure (3090) Rib excision, Excision of first rib, With sympathectomy for treatment of any other condition.
3080	Rib excision, Excision of first rib	Removal of the first rib for any condition excluding thoracic outlet syndrome. Coding Notes: Do not use this code if the first rib excision is for thoracic outlet syndrome; instead, code procedure (3060) Rib excision, Excision of cervical rib. Do not use this code if more than the first rib is excised; instead, code procedure (2830) Rib excision, Complete or procedure (2840) Rib excision, Partial, as appropriate.
3090	Rib excision, Excision of first rib, With sympathectomy	Removal of the first rib and sympathectomy any condition excluding thoracic outlet syndrome. Coding Notes: Do not use this code if the first rib excision and sympathectomy is for thoracic outlet syndrome; instead, code procedure (3070) Rib excision, Excision of cervical rib, With sympathectomy. Do not use this code if more than the first rib is excised; instead, code procedure (2830) Rib excision, Complete or procedure (2840) Rib excision, Partial, as

Code:	Value:	Definition:
		appropriate.
3100	Procedure on thorax	Procedure on thorax not otherwise listed in the procedure codes.
1450	Pacemaker implantation, Permanent	Implantation of a permanent pacemaker of any type (e.g., single-chamber, dual-chamber, atrial anti-tachycardia), with any lead configuration or type (atrial, ventricular, atrial and ventricular, transvenous, epicardial, transmural), by any technique (sternotomy, thoracotomy etc.). Coding Notes: Includes the following: • initial permanent pacemaker implant • *both* the pacemaker generator is replaced and at least one lead was placed without the removal of an existing lead. In the event only a pacemaker generator is replaced, use procedure (1460) Pacemaker procedure. In the event only a lead is placed/replaced, use procedure (1460) Pacemaker procedure.
1460	Pacemaker procedure	Any revision to a previously placed pacemaker system including revisions to leads, generators, pacemaker pockets. Coding Notes: Includes the following: • explantation/replacement of pacemaker generator *without* concomitant lead removal. • explantation/replacement of pacemaker generator *without* concomitant lead placement/replacement • lead removal/replacement *without* concomitant generator explantation

Code:	Value:	Definition:
		• lead removal/replacement *without* concomitant generator placement/replacement • placement of temporary pacing wires. • revision of an existing generator and/or leads
2350	Explantation of pacing system	Removal of pacemaker generator and concomitant removal of at least one pacemaker lead. Coding Notes: If generator and a lead were both removed, code this as the primary procedure. If another generator and at least one lead were subsequently replaced following the explantation of pacing system, code procedure (1450) Pacemaker implantation, Permanent as a secondary procedure.
1470	ICD (AICD) implantation	Implantation of an automatic implantable cardioverter defibrillator (AICD) system.
1480	ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure	Any revision to a previously placed automatic implantable cardioverter defibrillator (AICD) including revisions to leads, pads, generators, pockets. Includes explantation procedures.
1490	Arrhythmia surgery – atrial, Surgical Ablation	Surgical ablation (any type) of any atrial arrhythmia. Coding Notes: Includes Maze procedures.
1500	Arrhythmia surgery – ventricular, Surgical Ablation	Surgical ablation (any type) of any ventricular arrhythmia.
2500	Cardiovascular catheterization procedure, Diagnostic	Invasive diagnostic procedure involving the heart and great vessels

Code:	Value:	Definition:
2520	Cardiovascular catheterization procedure, Diagnostic, Angiographic data obtained	Invasive diagnostic procedure involving the heart and great vessels using angiography
2550	Cardiovascular catheterization procedure, Diagnostic, Electrophysiology alteration	Invasive diagnostic procedure involving the heart and great vessels using angiography for a patient with an electrophysiology (EP) alteration.
2540	Cardiovascular catheterization procedure, Diagnostic, Hemodynamic alteration	Invasive diagnostic procedure involving pressure or flow alteration in the cardiovascular system
2510	Cardiovascular catheterization procedure, Diagnostic, Hemodynamic data obtained	Invasive diagnostic procedure involving pressure and flow assessment of the heart and great vessels
2530	Cardiovascular catheterization procedure, Diagnostic, Transluminal test occlusion	Invasive diagnostic procedure involving the heart and great vessels where a vessel is temporarily blocked.
2410	Cardiovascular catheterization procedure, Therapeutic	Invasive therapeutic procedure involving the heart and great vessels not otherwise listed.
2670	Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy	Invasive therapeutic procedure involving the heart and great vessels with adjunctive therapy(ies). Adjunctive therapy may include concomitant use of medications or cooling strategies during an invasive procedure.
1540	Cardiovascular catheterization	Invasive therapeutic procedure involving balloon dilatation of a cardiovascular structure.

Code:	Value:	Definition:
	procedure, Therapeutic, Balloon dilation	
2590	Cardiovascular catheterization procedure, Therapeutic, Balloon valvotomy	Invasive therapeutic procedure involving balloon dilatation of a valve.
1580	Cardiovascular catheterization procedure, Therapeutic, Coil implantation	Invasive therapeutic procedure involving implantation of a coil.
1560	Cardiovascular catheterization procedure, Therapeutic, Device implantation	Invasive therapeutic procedure involving implantation of a device.
3110	Cardiovascular catheterization procedure, Therapeutic, Device implantation attempted	Invasive therapeutic procedure involving attempted but unsuccessful implantation of a device.
2690	Cardiovascular catheterization procedure, Therapeutic, Electrophysiological ablation.	Invasive therapeutic procedure involving Catheter based creation of lesions in the heart with radiofrequency energy, cryotherapy, or ultrasound energy to cure or control arrhythmias.
3120	Cardiovascular catheterization procedure, Therapeutic, Intravascular foreign body removal	Invasive therapeutic procedure involving removal of an intravascular foreign body.
2640	Cardiovascular catheterization procedure, Therapeutic, Perforation (establishing interchamber and/or	Invasive therapeutic procedure establishing interchamber and/or intervessel communication.

Code:	Value:	Definition:
	intervessel communication)	
2580	Cardiovascular catheterization procedure, Therapeutic, Septostomy	Invasive therapeutic procedure establishing an intracardiac septa communication.
1550	Cardiovascular catheterization procedure, Therapeutic, Stent insertion	Invasive therapeutic procedure involving implantation of a stent. Coding Notes: Code this procedure if a stent was placed in the arterial duct to facilitate systemic to pulmonary blood flow in a patient with ductal dependent pulmonary circulation, such as PA-VSD, PA-IVS, etc. This procedure *cannot* be the primary procedure of the operation. Include the surgical/procedure access provided by the surgeon as a separate procedure: • (3660) Open chest exposure for transcatheter/per-ventricular/per-atrial procedure • (3670) Peripheral vascular access for transcatheter procedures. Code the Operation type (SeqNo 1755) for this procedure as (777) Other *unless* the procedure was performed concomitantly with another procedure (excluding the procedure for surgical access). The concomitant procedure performed will then determine the operation type. Do not use this procedure to capture stenting of the arterial duct in a patient with ductal dependent systemic circulation; instead, code procedure (2170) Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA).

Code:	Value:	Definition:
2630	Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation	Invasive therapeutic procedure involving dilatation of a previously implanted stent.
2650	Cardiovascular catheterization procedure, Therapeutic, Transcatheter Fontan completion	Invasive therapeutic procedure to complete Fontan circulation.
2660	Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve	Invasive therapeutic procedure involving deployment/ implantation of a valve.
3660	Open chest exposure for transcatheter/per-ventricular/per-atrial procedure	Open chest exposure for transcatheter/per-ventricular/per-atrial procedure. Coding Notes: Code this procedure if the surgeon provided open chest exposure for a transcatheter intervention. Code the Operation type (SeqNo 1755) for this procedure as (777) Other unless the procedure was performed concomitantly with another cardiac procedure.
3670	Peripheral vascular access for transcatheter procedures	Peripheral vascular access for transcatheter procedures. Coding Notes: Code this procedure if the surgeon provided vascular access for a transcatheter intervention, such carotid, femoral, or axillary artery exposure. Code the Operation type (SeqNo 1755) for this procedure as (777) Other unless the procedure was performed concomitantly with another cardiac

Code:	Value:	Definition:
		procedure.
1590	Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS)	Placement of a tube graft from a branch of the aortic arch to the pulmonary artery with or without bypass, from any approach (thoracotomy, sternotomy).
5000	Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS) + PDA closure, Surgical	During the same operation, procedure (1590) Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS) *and* procedure (1330) PDA closure, Surgical. Coding Notes: See the individual procedure codes for more detail.
1600	Shunt, Systemic to pulmonary, Central (shunt from aorta)	A direct anastomosis or placement of a tube graft from the aorta to the pulmonary artery with or without bypass, from any approach (thoracotomy, sternotomy).
3130	Shunt, Systemic to pulmonary, Central (shunt from aorta), Central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta (i.e. Mee shunt)	Creation of a central shunt with an end-to-side connection between the transected main pulmonary artery and the side of the ascending aorta.
3230	Shunt, Systemic to pulmonary, Potts – Smith type (descending aorta to pulmonary artery)	Creation of a shunt through a side-to-side connection from the left pulmonary artery to the descending aorta.
1610	Shunt, Systemic to pulmonary, Other	Placement of any other systemic-to-pulmonary artery shunt, with or without bypass, from any approach (thoracotomy, sternotomy) that is not otherwise

Code:	Value:	Definition:
		coded. Includes classic Blalock-Taussig systemic-to-pulmonary artery shunt.
3680	RV to PA Shunt (e.g., Sano Shunt or palliative RV- PA non-valved conduit to augment pulmonary blood flow)	Placement of an extracardiac non-valved shunt (conduit) between the right ventricle (RV) and the stump of the main pulmonary artery (PA) to divert blood from the right blood to the pulmonary circulation. Coding Notes: Do not use this code for valved RV to PA conduits.
1630	Shunt, Ligation and takedown	Takedown of any type shunt. Coding Notes: Do not use this code for removal or revision of RV to PA conduits.
2095	Shunt, Reoperation	Revision or replacement of a previously created shunt. Coding Notes: Includes placement or removal of clips on previously created shunts (i.e., clip placed on a Sano shunt).
1640	PA banding (PAB), placement of main pulmonary band	Placement of a main pulmonary artery band, any type.
3860	PA banding (PAB), Placement of unilateral or bilateral branch pulmonary artery band(s) without the need for concomitant PGE and/or ductal stent	Placement of unilateral or bilateral bands on the branch pulmonary arteries *without* the concomitant use of prostaglandin (PGE) and/or ductal stenting to maintain ductal patency.
5037	PA banding (PAB) + Valvuloplasty, Common	During the same operation, procedure (1640) PA banding *and* procedure (2300) Valvuloplasty,

Code:	Value:	Definition:
	atrioventricular valve	Common atrioventricular valve. Coding Notes: See the individual procedure codes for more detail.
1650	PA debanding	Debanding of pulmonary artery (PA) including main or branch PA band(s). Coding Notes: If completed, include any concomitant PA reconstruction as a separate procedure.
3200	PA band adjustment	Adjustment of previously placed band(s) on the main or branch pulmonary arteries.
1660	Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)	In the Damus-Kaye-Stansel (DKA) procedure the proximal transected main pulmonary artery is connected by varying techniques to the aorta.
5017	Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction) + Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS)	During the same operation, procedure (1660) Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction) *and* procedure (1590) Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS). Coding Notes: See the individual procedure codes for more detail.
1670	Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)	Superior vena cava to pulmonary artery anastomosis allowing flow to both pulmonary arteries with an end-to-side superior vena-to-pulmonary artery anastomosis.
1680	Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)	Superior vena cava (SVC) to ipsilateral pulmonary artery (PA) anastomosis (i.e., LSVC to LPA, RSVC to RPA).

Code:	Value:	Definition:
1690	Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)	Bilateral superior vena cava (SVC) to pulmonary artery (PA) anastomoses (requires bilateral SVCs).
1700	HemiFontan	An operation that includes a bidirectional superior vena cava (SVC) to pulmonary artery (PA) anastomosis and the connection of this "SVC-pulmonary artery amalgamation" to the atrium, with a "dam" between this "SVC-pulmonary artery amalgamation" and the atrium. This operation can be accomplished with a variety of operative strategies including the following two techniques and other techniques that combine elements of both approaches: 1. augmenting both branch pulmonary arteries with a patch and suturing the augmented branch pulmonary arteries to an incision in the medial aspect of the superior vena cava. (With this approach, the pulmonary artery patch forms a roof over the SVC-to-pulmonary artery anastomosis and also forms a "dam" between the SVC-pulmonary artery amalgamation and the right atrium.) 2. anastomosing both ends of the divided SVC to incisions in the top and bottom of the right pulmonary artery and using a separate patch to close junction of the SVC and the right atrium.
2330	Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty	During the same operation, procedure • (1670) Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn) • *or* (1680) Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn) • *or* (1690) Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional

Code:	Value:	Definition:
		Glenn) • *or* (1700) HemiFontan • *or* (2130) Superior cavopulmonary anastomosis(es) + PA reconstruction. • *or* (3160) Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation) *and* procedure • (2300) Valvuloplasty, Common atrioventricular valve • *or* (830) Valvuloplasty, Mitral or systemic atrioventricular valve <u>Coding Notes</u>: See the individual procedure codes for more detail. In prior versions, code (460) Valvuloplasty, Tricuspid/Non-systemic AV valve may have been coded as part of this combination procedure. Do not use this code for version 6.23.2 forward.
2130	Superior Cavopulmonary anastomosis(es) + PA reconstruction	During the same operation, procedure • (1670) Bidirectional cavopulmonary anastomosis (BDCPA) (Bidirectional Glenn) • *or* (1680) Glenn (Unidirectional cavopulmonary anastomosis) (Unidirectional Glenn) • *or* (1690) Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (Bilateral bidirectional Glenn) *and* procedure • (530) PA, reconstruction (Plasty), Main (Trunk) • *or* (540) PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) • *or* (550) PA, reconstruction (Plasty), Branch, Peripheral (At or beyond the hilar bifurcation)

Code:	Value:	Definition:
		Coding Notes: See the individual procedure codes for more detail.
3300	Takedown of superior cavopulmonary anastomosis	Take down of a previously performed superior cavopulmonary anastomosis.
3140	Hepatic vein to azygous vein connection, Direct	Redirection of the hepatic venous return to the pulmonary circulation via direct anastomosis of the hepatic vein to the azygous vein.
3150	Hepatic vein to azygous vein connection, Interposition graft	Redirection of the hepatic venous return to the pulmonary circulation via creation of a graft between the hepatic and azygous vein.
3160	Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)	Superior cavopulmonary connection in setting of interrupted IVC with azygous continuation.
1710	Palliation, Other	Any other palliative procedure not specifically listed.
2360	ECMO cannulation	Insertion of cannulas for extracorporeal membrane oxygenation (ECMO).
2370	ECMO decannulation	Removal of cannulas for extracorporeal membrane oxygenation (ECMO).
1910	ECMO procedure	Any extracorporeal membrane oxygenation (ECMO) procedure excluding cannulation and decannulation.
1900	Intraaortic balloon pump (IABP) insertion	Insertion of intraaortic balloon pump by any technique.
3820	Right/Left heart temporary assist device, Implant	Insertion of a left or right temporary assist device. A temporary device is an assist device implanted *without* the intent of providing prolonged durable

Code:	Value:	Definition:
		support. Coding Notes: Examples include percutaneous Impella and Tandem Heart catheter-based devices. If this procedure is coded, complete the VAD section questions in the database. If durable cannulas are used, code procedure (2380) VAD, Implant regardless of the device it is connected to. For example, utilizing Berlin heart cannulas with a Centrimag device. Code VAD, Implant. If not clear in the medical record, confirm with your surgeon if the intent of the implanted device is to provide short-term vs. durable long-term support.
3830	Right/Left heart temporary assist device, Explant	Removal of a previously implanted left or right temporary assist device. A temporary device is an assist device implanted *without* the intent of providing prolonged durable support. Coding Notes: If this procedure is coded, complete the VAD section questions in the database.
3840	Right/Left heart temporary assist device, Procedure	A procedure completed on a previously inserted right/left heart temporary assist device excluding implant and explant of the assist device. Coding Notes: Includes change out of a previously implanted right/left heart temporary assist device.
2390	VAD, Explant	Removal of a previously implanted ventricular assist device (VAD). A VAD is an assist device implanted *with* the intent of providing prolonged durable support.

Code:	Value:	Definition:
		Coding Notes: If this procedure is coded, complete the VAD section questions in the database.
2380	VAD, Implant	Insertion of a ventricular assist device (VAD). A VAD is an assist device implanted *with* the intent of providing prolonged durable support. Coding Notes: If this procedure is coded, complete the VAD section questions in the database.
3170	VAD, Change out	Removal of previously inserted ventricular assist device (VAD) and insertion of a new VAD.
3850	VAD, Procedure	Procedure completed on a previously inserted ventricular assist device (VAD), except for VAD removal. Coding Notes: Example may include the washout of a VAD pocket.
2420	Echocardiography procedure, Sedated transesophageal echocardiogram	Procedural sedation for echocardiogram
2430	Echocardiography procedure, Sedated transthoracic echocardiogram	Procedural sedation for echocardiogram, transthoracic
2435	Non-cardiovascular, Non-thoracic procedure on cardiac patient with cardiac anesthesia	Anesthesia provided by cardiac anesthesiologist for patient with congenital heart disease undergoing a non-cardiovascular, non-thoracic procedure.
2440	Radiology procedure on cardiac patient, Cardiac	A patient with congenital heart disease undergoing cardiac CT scan.

Code:	Value:	Definition:
	Computerized Axial Tomography (CT Scan)	
2450	Radiology procedure on cardiac patient, Cardiac Magnetic Resonance Imaging (MRI)	A patient with congenital heart disease undergoing cardiac MRI.
2460	Radiology procedure on cardiac patient, Diagnostic radiology	A patient with congenital heart disease undergoing a diagnostic radiology procedure.
2470	Radiology procedure on cardiac patient, Non-Cardiac Computerized Tomography (CT) on cardiac patient	A patient with congenital heart disease undergoing a non-cardiac CT scan.
2480	Radiology procedure on cardiac patient, Non-cardiac Magnetic Resonance Imaging (MRI) on cardiac patient	A patient with congenital heart disease undergoing non-cardiac MRI.
2490	Radiology procedure on cardiac patient, Therapeutic radiology	A patient with congenital heart disease undergoing a therapeutic radiology procedure.
1720	Aneurysm, Ventricular, Right, Repair	Repair of right ventricular aneurysm, any technique.
1730	Aneurysm, Ventricular, Left, Repair	Repair of left ventricular aneurysm, any technique.
1740	Aneurysm, Pulmonary artery, Repair	Repair of pulmonary artery aneurysm, any technique.
1760	Cardiac tumor resection	Resection of cardiac tumor, any type, where the specific tumor type is unknown. Coding Notes:

Code:	Value:	Definition:
		Only use this procedure if it is *not* known if the patient underwent resection of a more specific tumor type: • (3690) Cardiac tumor resection, Resection of ventricular fibroma • (3700) Cardiac tumor resection, Resection of ventricular rhabdomyoma • (3710) Cardiac tumor resection, Resection of atrial myxoma Do *not* use this procedure to capture cardiac tumor types that are known but not listed; instead, code procedure (3720) Cardiac tumor resection, Resection of Other tumor. Do *not* use this procedure to capture the excision of cardiac thrombus or vegetation; instead, code procedure (2010) Cardiac procedure, Other.
3690	Cardiac tumor resection, Resection of ventricular fibroma	Resection of ventricular fibroma.
3700	Cardiac tumor resection, Resection of ventricular rhadbomyoma	Resection of ventricular rhabdomyoma.
3710	Cardiac tumor resection, Resection of atrial myxoma	Resection of atrial myxoma
3720	Cardiac tumor resection, Resection of Other tumor	Resection of cardiac tumor where the type of tumor is known, but not listed. Coding Notes: Do *not* use this procedure to code cardiac tumor resections where the tumor type is unknown; instead, code procedure (1760) Cardiac tumor resection.

Code:	Value:	Definition:
		Do *not* use this procedure to code the resection of the following types of cardiac tumors: ventricular fibroma, ventricular rhabdomyoma, or atrial myxoma; instead, code procedures (3690, 3700, 3710) respectively. Do *not* use this procedure to capture the excision of cardiac thrombus or vegetation; instead, code procedure (2010) Cardiac procedure, Other.
5021	Cardiac tumor resection + PDA closure, Surgical	During the same operation, procedure • (1330) PDA closure, Surgical *and* procedure • (1760) Cardiac tumor resection • *or* (3690) Cardiac tumor resection, Resection of ventricular fibroma • *or* (3700) Cardiac tumor resection, Resection of ventricular rhadbomyoma • *or* (3710) Cardiac tumor resection, Resection of atrial myxoma <u>Coding Notes</u>: Do *not* use this procedure to capture cardiac tumor types that are known but not listed; instead, code procedure (3760) Cardiac tumor resection + PDA closure, Surgical, Resection of Other tumor. See the individual procedure codes for more detail.
3730	Cardiac tumor resection + PDA closure, Surgical, Resection of ventricular fibroma	During the same operation, procedure (3690) Cardiac tumor resection, Resection of ventricular fibroma *and* procedure (1330) PDA closure, Surgical. <u>Coding Notes</u>: See the individual procedure codes for more detail.
3740	Cardiac tumor resection	During the same operation, procedure (3700) Cardiac

Code:	Value:	Definition:
	+ PDA closure, Surgical, Resection of ventricular rhadbomyoma	tumor resection, Resection of ventricular rhabdomyoma *and* procedure (1330) PDA closure, Surgical. Coding Notes: See the individual procedure codes for more detail.
3750	Cardiac tumor resection + PDA closure, Surgical, Resection of Atrial myxoma	During the same operation, procedure (3710) Cardiac tumor resection, Resection of atrial myxoma *and* procedure (1330) PDA closure, Surgical. Coding Notes: See the individual procedure codes for more detail.
3760	Cardiac tumor resection + PDA closure, Surgical, Resection of Other tumor	During the same operation, procedure (3720) Cardiac tumor resection, Resection of Other tumor, *and* procedure (1330) PDA closure, Surgical. Coding Notes: Do *not* use this procedure to code cardiac tumor resections where the tumor type is unknown; instead, code procedure (5021) Cardiac tumor resection + PDA closure, Surgical. See the individual procedure codes for more detail.
3770	Resection of pericardial teratoma	Resection of pericardial teratoma.
3780	Anterior PA translocation (not performed as part of an arterial switch operation) (Le Compte)	Transection and repositioning of the main pulmonary artery anterior to the aorta, exclusive of LeCompte procedures performed during arterial switch operations (ASO).
1780	Pulmonary AV fistula repair/occlusion	Repair or occlusion of a pulmonary arteriovenous fistula.
1790	Ligation, Pulmonary artery	Ligation or division of the pulmonary artery. Most often performed as a secondary procedure.

Code:	Value:	Definition:
1802	Pulmonary embolectomy, Acute pulmonary embolus	Acute pulmonary embolism (clot) removal, through catheter or surgery.
1804	Pulmonary embolectomy, Chronic pulmonary embolus	Chronic pulmonary embolism (clot) removal, through catheter or surgery.
1810	Pleural drainage procedure	Pleural drainage procedure via thoracocentesis, tube thoracostomy, or open surgical drainage.
1820	Pleural procedure, Other	Other pleural procedures not specifically listed; may include pleurodesis (mechanical, talc, antibiotic or other), among others.
1830	Ligation, Thoracic duct	Ligation of the thoracic duct; most commonly for persistent chylothorax.
1840	Decortication	Decortication of the lung by any technique.
1850	Esophageal procedure	Any procedure performed on the esophagus.
1860	Mediastinal procedure	Any non-cardiovascular mediastinal procedure not otherwise listed.
1870	Bronchoscopy	Bronchoscopy, rigid or flexible, for diagnostic, biopsy, or treatment purposes (laser, stent, dilation, lavage).
1880	Diaphragm plication	Plication of the diaphragm; most often for diaphragm paralysis due to phrenic nerve injury.
1890	Diaphragm procedure, Other	Any diaphragm procedure not specifically listed.
1930	VATS (video-assisted thoracoscopic surgery)	Video-assisted thoracoscopic surgery (VATS) utilized should be used in addition to the specific procedure code. Coding Notes: *Example:* if PDA ligated using VATS technique, PDA

Code:	Value:	Definition:
		ligation should be primary procedure, VATS should be listed as a secondary procedure.
1940	Minimally invasive procedure	Any procedure using minimally invasive technique; this code should be used in addition to the specific procedure code. Coding Notes: *Example:* if an ASD is closed using minimally invasive technique, ASD repair should be primary procedure, minimally invasive procedure should be listed as a secondary procedure.
1950	Bypass for noncardiac lesion	Use of cardiopulmonary bypass (CPB) for noncardiac lesion; this code may be used in addition to the specific procedure code if one is available. Coding Notes: *Example:* tracheal procedures done using CPB; the tracheal procedure should be the primary procedure and use of CPB for noncardiac lesion should be listed as a secondary procedure.
1960	Delayed sternal closure	Sternal closure completed sometime after patient left operating room with the sternum open, either because of swelling or electively after complex heart procedures. Coding Notes: This procedure should be operative type No CPB Cardiovascular unless completed with VAD/ECMO support in place
1970	Mediastinal exploration	Mediastinal exploration, most often for postoperative control of bleeding or tamponade, but may be exploration to assess mediastinal mass, etc.
1980	Sternotomy wound drainage	Drainage of the sternotomy wound.

Code:	Value:	Definition:
3180	Intravascular stent removal	Removal of a previously placed intravascular stent. Coding Notes: May include previously placed transcatheter or surgically placed stents (i.e., aortic stents for coarctation of the aorta or pulmonary artery stents).
3220	Removal of transcatheter-delivered device from heart	Removal of a previously placed transcatheter delivered device. Coding Notes: This procedure includes removal of septal occluder devices or transcatheter placed valves (i.e., Melody valves) from the heart.
3210	Removal of transcatheter-delivered device from blood vessel	Removal of previously transcatheter delivered device from a blood vessel, excluding intravascular stent. Coding Notes: Do not utilize for intravascular stent removal; instead, code procedure (3180) Intravascular stent removal.
1990	Thoracotomy, Other	Any procedure performed through a thoracotomy incision not otherwise listed.
2000	Cardiotomy, Other	Any procedure involving an incision in the heart that is not otherwise listed.
2010	Cardiac procedure, Other	Any cardiac procedure, bypass or non-bypass that is not otherwise listed.
2020	Thoracic and/or mediastinal procedure, Other	Any thoracic and/or mediastinal procedure not otherwise listed.
2030	Peripheral vascular procedure, Other	Any peripheral vascular procedure; may include procedures such as femoral artery repair, iliac artery repair, etc.

Code:	Value:	Definition:
2040	Miscellaneous procedure, Other	Any miscellaneous procedure not otherwise listed.
2050	Organ procurement	Procurement of an organ for transplant (most likely, heart, lungs, or heart and lungs).
7777	Other procedure	Any procedure on any organ system not otherwise listed.
7800	Operation canceled before skin incision	Surgical procedure canceled after patient enters the operating room but prior to skin incision, for any reason. Coding Notes: When this is the primary procedure of an operation, complete the following fields for the case: (890) Diagnosis and (900) Primary diagnosis, (940) Primary procedure – which in this scenario is procedure (7800) Operation canceled before skin incision, (1056) Operation type which in this scenario is Other, (310) Date of birth, and (850) Preoperative factors.
7810	Operation aborted after skin incision	Surgical procedure canceled after skin incision made, for any reason. Coding Notes: When this is the primary procedure of an operation, complete the following fields for the case: (890) Diagnosis and (900) Primary diagnosis, (940) Primary procedure - which in this scenario is procedure (7800) Operation canceled before skin incision, (1056) Operation type which in this scenario is Other, (310) Date of birth, and (850) Preoperative factors.

Long Name: Primary Procedure

SeqNo: 1355

Short Name:	PrimaryProcedure
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the one procedure that is considered the PRIMARY Procedure performed during this operation. Note that the primary procedure is determined at the data warehouse using the methodology published in the Journal of Thoracic and Cardiovascular Surgery ("An empirically based tool for analyzing mortality associated with congenital heart surgery" Sean M. O'Brien, David R. Clarke, Jeffrey P. Jacobs, Marshall L. Jacobs, Francois G. Lacour-Gayet, Christian Pizarro, Karl F. Welke, Bohdan Maruszewski, Zdzislaw Tobota, Weldon J. Miller, Leslie Hamilton, Eric D. Peterson, Constantine Mavroudis and Fred H. Edwards J Thorac Cardiovasc Surg 2009;138:1139-1153 DOI: 10.1016/j.jtcvs.2009.03.071). If the above methodology does not return a primary procedure, this field will be used to designate primary procedure.
Harvest Codes:	Refer to the procedure list in SeqNo 1350 (Procedures - Multi-Select)

Intent/Clarification:

In a multiple procedure operation, the guiding principle for determination of primary procedure is to select the procedure with the highest STAT Mortality Score (STAT score). There are exceptions to this guidance noted below.

If there is a tie for highest STAT score, the procedure indicated as primary by the participant will become the primary procedure. If no procedure was selected as primary by the participant, the first procedure appearing in the dataset will be used as the primary procedure.

If an operation does not have any procedures with an assigned STAT score, the primary procedure designated by the participant is used. If no procedure was selected as primary by the participant, the first procedure appearing in the dataset will be used as the primary procedure.

STAT Score Exceptions:

1. Procedure Specific Factor Rule:

   If a multiple procedure operation includes as a component procedure any one of the following procedures with associated procedure specific factors (except for VSD repairs), then that procedure will be designated as the primary procedure for the operation.

   If two listed procedures are completed in a multiple procedure operation, then the eligible procedure with the highest STAT Score will be designated as the primary procedure for that operation.

- (390) TOF - AVC (AVSD) repair
- (350) TOF repair, No ventriculotomy
- (5004) (350 + 20) TOF repair, no ventriculotomy + ASD repair, Primary closure
- (360) TOF repair, Ventriculotomy, Nontransanular patch
- (370) TOF repair, ventriculotomy, Transanular patch
- (3330) TOF repair, ventriculotomy, Transanular patch, plus native valve reconstruction
- (3340) TOF repair, ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve
- (5018) (370 + 1360) TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair
- (380) TOF repair, RV-PA conduit
- (400) TOF - Absent pulmonary valve repair
- (2700) Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair
- (2710) Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization
- (2720) Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization
- (420) Pulmonary atresia - VSD (including TOF, PA) repair
- (5031) (420 + 20 + 1330) Pulmonary atresia – VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical
- (170) AVC (AVSD) repair, Complete (CAVSD)
- (3480) AVC (AVSD) repair, Complete (CAVSD) + Arch repair
- (5027) (170 + 1360) AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair
- (5034) (170 + 1220) AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended
- (1670) Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)
- (1680) Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
- (1690) Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
- (1700) HemiFontan
- (2330) Superior Cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty
- (2130) Superior Cavopulmonary anastomosis(es) + PA reconstruction
- (3160) Kawashima operation
- (950) Fontan, Atrio-pulmonary connection
- (960) Fontan, Atrio-ventricular connection
- (970) Fontan, TCPC, Lateral tunnel, Fenestrated
- (980) Fontan, TCPC, Lateral tunnel, Nonfenestrated
- (1000) Fontan, TCPC, External conduit, Fenestrated
- (5010)) (1000 + 1460) Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure
- (1010) Fontan, TCPC, External conduit, Nonfenestrated
- (2780) Fontan, TCPC, Intra/extracardiac conduit, Fenestrated

- (2790) Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated
- (3310) Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Fenestrated
- (3320) Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, Nonfenestrated
- (1030) Fontan, Other
- (2340) Fontan + Atrioventricular valvuloplasty
- (1025) Fontan revision or conversion (Re-do Fontan)
- (1110) Arterial switch operation (ASO)
- (1123) Arterial switch procedure + Aortic arch repair
- (1120) Arterial switch operation (ASO) and VSD repair
- (1125) Arterial switch procedure and VSD repair + Aortic arch repair
- (230) Truncus arteriosus repair
- (2220) Truncus + Interrupted aortic arch repair (IAA) repair
- (870) Norwood procedure
- (5012) (870 + 460 + 610) Norwood procedure + Valvuloplasty, Systemic atrioventricular valve + Conduit placement, RV to PA or (870 + 460 + 3680) Norwood procedure + Valvuloplasty, Systemic atrioventricular valve + RV to PA shunt
- (2160) Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency
- (2170) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
- (2180) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands
- (465) Ebstein's Repair

Additional guidance for the following Glenn/HemiFontan procedures:

1. (1670) Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)
2. (1680) Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
3. (1690) Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
4. (1700) HemiFontan
5. (2330) Superior Cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty
6. (2130) Superior Cavopulmonary anastomosis(es) + PA reconstruction
7. (3160) Kawashima operation

- If any multiple component operation includes one of the above listed Glenn/HemiFontan procedures *and* includes procedure (1660) DKS *or* (1280) Aortic arch repair, the primary procedure will be determined to be the pertinent one of the DKS or Aortic arch repair.

- If any multiple component operation includes one of the above listed Glenn/HemiFontan procedures *and includes both* procedure (1660) DKS *and* (1280) Aortic arch repair, the primary procedure will be (1660) DKS.

- Other component procedures, exclusive of those listed under the PSF rule and the four VSD repair procedures, will not alter the determination of the primary procedure of a multiple component operation that includes one of the above listed Glenn/HemiFontan procedures regardless of the STAT score.

2. PAPVC/ASD Rule: In the event of a primary diagnosis of (30) ASD, Sinus venosus with procedures (260) PAPVC repair and (30) ASD repair, Patch, the primary procedure is combined procedure (2110) ASD repair, Patch + PAPVC repair.

3. Tricuspid or Non-systemic AV Valvuloplasty/VSD Rule: In the event of simultaneous tricuspid/non-systemic AV valvuloplasty with VSD repair, the tricuspid non-systemic AV valvuloplasty will not be considered the primary procedure.

   If procedure (460) Valvuloplasty, Tricuspid or Non-systemic Atrioventricular Valve is performed with procedure (100) VSD repair, Primary closure, (110) VSD repair, Patch, (120) VSD repair, Device, or (130) VSD, Multiple, Repair, the primary procedure will be the VSD repair unless a procedure with a higher STAT score is also performed or a procedure from the PSF rule is completed (the component procedure with the higher STAT score or procedure from the PSF rule would then be the primary procedure.

4. Heart/Lung Transplant Rule: If an operation contains any of the following transplant procedures, the listed transplant procedure is the primary procedure.
   - (890) Transplant, Heart
   - (900) Transplant, Heart and lung
   - (1410) Transplant, Lung(s)
   - (3570) Transplant, Heart and Liver (Combined procedure)
   - (3580) Transplant, Heart and Kidney (Combined procedure)
   - (3590) Transplant, Heart and Liver and Kidney (Combined procedure)
   - (5002) (540 + 890) PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation) + Transplant, Heart

5. PDA Closure Rule: If procedure (1330) PDA closure, Surgical is completed with any other procedure with an assigned STAT score, procedure (1330) PDA closure, Surgical will not be the primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

6. Shunt, Ligation and Takedown Rule: If procedure (1630) Shunt, Ligation and takedown is completed with any other procedure with an assigned STAT score, procedure (1630) Shunt, Ligation and takedown will not be the primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

7. PA Debanding Rule: If procedure (1650) PA debanding is completed with any other procedure with an assigned STAT score, procedure (1650) PA debanding will not be the

primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

8. ASD Partial Closure Rule: If procedure (70) ASD, partial closure is completed with any other procedure with an assigned STAT score, procedure (70) ASD, partial closure will not be the primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

9. ASD Creation/Enlargement Rule: If procedure (60) ASD creation/enlargement is completed with any other procedure with an assigned STAT score, procedure (60) ASD creation/enlargement will not be the primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

10. Atrial Septal Fenestration Rule: If procedure (80) ASD septal fenestration is completed with any other procedure with an assigned STAT score, procedure (80) ASD septal fenestration will not be the primary procedure. Of the remaining procedures, the one with the highest STAT score will be designated as primary.

11. ASD/PDA Ligation Rule: If any of the following three procedures (70) ASD, partial closure, (60) ASD creation/enlargement, 80) ASD septal fenestration is completed with procedure (1330) PDA closure, Surgical, one of the ASD procedures will supersede the PDA closure as the primary procedure.

12. Additional Exception Rule: If two or more of the six exception procedures is performed and no additional component procedures have an assigned STAT score, the primary procedure is the exception procedure with the highest STAT score: (1330) PDA closure, Surgical, (1630) Shunt, Ligation and takedown, (1650) PA debanding, (70) ASD, partial closure, (60) ASD creation/enlargement, (80) ASD septal fenestration.

13. Kawashima Rule: if procedure (3160) Kawashima operation is performed with the previously listed Glenn/HemiFontan procedure (see rule #1), the Kawashima is the primary procedure.

14. Reminder Double Switch: For patients undergoing a 'double switch' type of procedure (Senning/Mustard + arterial switch or Senning/Mustard + Rastelli procedure for the diagnosis of CCTGA (L-TGA) (atrioventricular discordance and ventriculoarterial discordance) which also includes the creation of a bidirectional cavopulmonary anastomosis (Bidirectional Glenn), the double switch is the primary procedure and the bidirectional cavopulmonary shunt should be coded as procedure (520) 1 ½ ventricular repair preventing the bidirectional cavopulmonary shunt from being the primary procedure.

15. Glenn/HemiFontan and Transplant/Hybrid/DKS/Aortic Arch Rule: If any of the previously listed Glenn/HemiFontan procedures (See rule #1) is completed with any of

the following procedures, the primary procedure will be the pertinent one from the the following listed procedures and not the Glenn/HemiFontan procedure.

- (890) Transplant, Heart
- (900) Transplant, Heart and lung
- (1410) Transplant, Lung(s)
- (2180) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands
- (2140) Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair
- (2150) Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair
- (1660) Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction
- (1280) Aortic arch repair

16. Pulmonary/Neo-pulmonary Valve Replacement Rule: if any multiple component operation includes one of the following pulmonary/neo-pulmonary valve replacement (PVR) procedures:

    - (2270) Valvuloplasty converted to valve replacement in the same operation, Pulmonary or Neo-Pulmonary
    - (600) Valve replacement, Pulmonary or Neo-Pulmonary (PVR)

    and includes procedure (530) PA, Reconstruction (plasty), Main (trunk); the primary procedure is the PVR procedure and not the PA reconstruction unless the operation contains an additional procedure with a higher STAT score or a procedure with associated with PSFs except for the four VSD repair procedures.

17. Ross Procedure Rule: in the event procedure (610) is completed with any of the following procedures:

    - (740) Ross procedure
    - (760) Ross-Konno procedure

    The primary procedure is the Ross or Ross-Konno procedure unless the operation contains an additional procedure with a higher STAT score or a procedure with associated with PSFs except for the four VSD repair procedures.

J2. PROCEDURE SPECIFIC FACTORS

General Information Procedure Specific Factors

Procedure specific factors (PSFs) provide additional information about the primary procedure completed. Complete the PSFs for the primary procedure of the operation only.

Long Name: Procedure-Specific Factors - Apical VSD

SeqNo:	1365
Short Name:	PSFApicalVSD
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Apical VSD was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	100|110|1120|1125|120|130|5001|5016|5024|5028
ParentValue:	= "VSD repair, Primary closure", "VSD repair, Patch", "Arterial switch operation (ASO) and VSD repair", "Arterial switch procedure and VSD repair + Aortic arch repair", "VSD repair, Device", "VSD, Multiple, Repair", "VSD repair, Patch + ASD repair, Primary closure", "VSD repair, Patch + Conduit reoperation", "VSD repair, Patch + PAPVC repair" or "VSD repair, Patch + ASD repair, Patch + PAPVC repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Straddling AV valve

SeqNo:	1370

Short Name:	PSFStradAVVal
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Straddling AV valve was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	100|110|1120|1125|120|130|5001|5016|5024|5028
ParentValue:	= "VSD repair, Primary closure", "VSD repair, Patch", "Arterial switch operation (ASO) and VSD repair", "Arterial switch procedure and VSD repair + Aortic arch repair", "VSD repair, Device", "VSD, Multiple, Repair", "VSD repair, Patch + ASD repair, Primary closure", "VSD repair, Patch + Conduit reoperation", "VSD repair, Patch + PAPVC repair" or "VSD repair, Patch + ASD repair, Patch + PAPVC repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Major coronary crossing RVOT - Coronary anomaly restricting RVOT enlargement, (LAD from RCA etc.)

SeqNo:	1375
Short Name:	PSFMajCorRVOT
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Major coronary crossing RVOT - Coronary anomaly restricting RVOT enlargement, (LAD from RCA etc.) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	350|5004|360|370|3330|3340|380|390|400|5018|420|5031|2700| 2710|2720

ParentValue:	= "TOF repair, No ventriculotomy", "TOF repair, No Ventriculotomy + ASD repair, Primary closure", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction", "TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve", "TOF repair, RV- PA conduit", "TOF - AVC (AVSD) repair", "TOF - Absent pulmonary valve repair", "TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair", "Pulmonary atresia - VSD (including TOF, PA) repair", "Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical", "Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])", "Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - VSD, Multiple, Repair

SeqNo:	1380
Short Name:	PSFVSDMultRep
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether VSD, Multiple, Repair was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure

ParentHarvestCodes: 350|5004|360|370|3330|3340|380|390|400|5018|420|5031|2700|2710|2720

ParentValue: = "TOF repair, No ventriculotomy", "TOF repair, No Ventriculotomy + ASD repair, Primary closure", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction", "TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve", "TOF repair, RV- PA conduit", "TOF - AVC (AVSD) repair", "TOF - Absent pulmonary valve repair", "TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair", "Pulmonary atresia - VSD (including TOF, PA) repair", "Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical", "Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])", "Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Restrictive VSD

SeqNo: 1385

Short Name: PSFRestrictVSD

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Restrictive VSD was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 350|5004|360|370|3330|3340|380|390|400|5018|420|5031|2700|2710|2720

ParentValue: = "TOF repair, No ventriculotomy", "TOF repair, No Ventriculotomy + ASD repair, Primary closure", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction", "TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve", "TOF repair, RV- PA conduit", "TOF - AVC (AVSD) repair", "TOF - Absent pulmonary valve repair", "TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair", "Pulmonary atresia - VSD (including TOF, PA) repair", "Pulmonary atresia - VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical", "Pulmonary atresia - VSD - MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])", "Pulmonary atresia - VSD - MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Hypoplastic branch pulmonary arteries (diminished pulmonary vascular bed)

SeqNo: 1390

Short Name: PSFHypoBrPulmArt

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition:	Indicate whether Hypoplastic branch pulmonary arteries (diminished pulmonary vascular bed) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	350|5004|360|370|3330|3340|380|390|400|5018|420|5031|2700|2710|2720|950|960|970|980|1000|5010|1010|2780|2790|3310|3320|1025|1030|2340|1670|1680|1690|1700|2330|2130|3160
ParentValue:	= “TOF repair, No ventriculotomy”, “TOF repair, No Ventriculotomy + ASD repair, Primary closure”, “TOF repair, Ventriculotomy, Nontransanular patch”, “TOF repair, Ventriculotomy, Transanular patch”, “TOF repair, Ventriculotomy, Transanular patch, plus native valve reconstruction”, “TOF repair, Ventriculotomy, Transanular patch, with monocusp or other surgically fashioned RVOT valve”, “TOF repair, RV- PA conduit”, “TOF – AVC (AVSD) repair”, “TOF – Absent pulmonary valve repair”, “TOF repair, Ventriculotomy, Transanular patch + Vascular ring repair”, “Pulmonary atresia – VSD (including TOF, PA) repair”, “Pulmonary atresia – VSD (including TOF, PA) repair + ASD repair, Primary closure + PDA closure, Surgical”, “Pulmonary atresia – VSD – MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])”, “Pulmonary atresia – VSD – MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])”, “Pulmonary atresia – VSD – MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])”, “Fontan, Atrio-pulmonary connection”, “Fontan, Atrio-ventricular connection”, “Fontan, TCPC, Lateral tunnel, Fenestrated”, “Fontan, TCPC, Lateral tunnel, Nonfenestrated”, “Fontan, TCPC, External conduit, Fenestrated”, “Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure”, “Fontan, TCPC, External conduit, Nonfenestrated”, “Fontan, TCPC, Intra/extracardiac conduit, Fenestrated”, “Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated”, “Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated”, “Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated”, “Fontan revision or conversion (Re-do Fontan)”, “Fontan, Other”, “Fontan + Atrioventricular valvuloplasty”, “Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectionalGlenn)”,

"Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)", "Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)", "HemiFontan", "Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior Cavopulmonary anastomosis(es) + PA reconstruction" or "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Systemic AV Valve regurgitation grade 3 and 4 (Severe Systemic AV Valve regurgitation)

SeqNo:	1395
Short Name:	PSFAVRegurg34
Database Table Name:	Operations Data Source: User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Systemic AV Valve regurgitation grade 3 and 4 (Severe Systemic AV Valve regurgitation) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1000|1010|1025|1030|1670|1680|1690|170|1700|2130|2160|2170|2180|2330|2340|2780|2790|3160|3310|3320|3480|390|5010|5012|5022|5027|5034|870|950|960|970|980
ParentValue:	= "Fontan, TCPC, External conduit, Fenestrated", "Fontan, TCPC, External conduit, Nonfenestrated", "Fontan revision or conversion (Re-do Fontan)", "Fontan, Other", "Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)", "Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)", "Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)", "AVC (AVSD) repair, Complete (CAVSD)", "HemiFontan", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Hybrid Approach "Stage

1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands", "Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Fontan + Atrioventricular valvuloplasty", "Fontan, TCPC, Intra/extracardiac conduit, Fenestrated", "Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure", "Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended", "Norwood procedure", "Fontan, Atrio-pulmonary connection", "Fontan, Atrio-ventricular connection", "Fontan, TCPC, Lateral tunnel, Fenestrated" or "Fontan, TCPC, Lateral tunnel, Nonfenestrated"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Double orifice left atrioventricular valve

SeqNo:	1400
Short Name:	PSFDoubOrif
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether Double orifice left atrioventricular valve was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	170|3480|390|5022|5027|5034
ParentValue:	= "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Single papillary muscle in the left ventricle and/or parachute left atrioventricular valve

SeqNo:	1405
Short Name:	PSFSingPap
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Single papillary muscle in the left ventricle and/or parachute left atrioventricular valve was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	170|3480|390|5022|5027|5034
ParentValue:	= "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Hypoplastic posterior mural leaflet

SeqNo:	1410
Short Name:	PSFHypoPostMLeaf
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Hypoplastic posterior mural leaflet was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	170|3480|390|5022|5027|5034
ParentValue:	= "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Atrioventricular septal defect with ventricular imbalance: dominant left ventricle, hypoplastic right ventricle

SeqNo:	1415
Short Name:	PSFASDDomLeft
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Atrioventricular septal defect with ventricular imbalance: dominant left ventricle and hypoplastic right ventricle was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	170|3480|390|5022|5027|5034
ParentValue:	= "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Atrioventricular septal defect with ventricular imbalance: dominant right ventricle, hypoplastic left ventricle

SeqNo:	1420
Short Name:	PSFASDDomRight
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Atrioventricular septal defect with ventricular imbalance: dominant right ventricle and hypoplastic left ventricle was present.
ParentLongName:	Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 170|3480|390|5022|5027|5034

ParentValue: = "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Common atrioventricular valve with unbalanced commitment of valve to left ventricle

SeqNo: 1425

Short Name: PSFCAVLeft

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Common atrioventricular valve with unbalanced commitment of valve to left ventricle was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 170|3480|390|5022|5027|5034

ParentValue: = "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes

2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Common atrioventricular valve with unbalanced commitment of valve to right ventricle

SeqNo:	1430
Short Name:	PSFCAVRight
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Common atrioventricular valve with unbalanced commitment of valve to right ventricle was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	170|3480|390|5022|5027|5034
ParentValue:	= "AVC (AVSD) repair, Complete (CAVSD)", "AVC (AVSD) repair, Complete (CAVSD) + Arch repair", "TOF - AVC (AVSD) repair", "AVC (AVSD) repair, Partial (Incomplete) (PAVSD) + VSD repair, Patch", "AVC (AVSD) repair, Complete (CAVSD) + Vascular ring repair", or "AVC (AVSD) repair, Complete (CAVSD) + Coarctation repair, End to end, Extended"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Moderate to severe systemic ventricular dysfunction

SeqNo:	1435
Short Name:	PSFModSevSVD

Database Table Name:	Operations Data Source: User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Moderate to severe systemic ventricular dysfunction was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1000|1010|1025|1030|1670|1680|1690|1700|2130|2330|2340|2780|2790|3160|3310|3320|5010|950|960|970|980
ParentValue:	= "Fontan, TCPC, External conduit, Fenestrated", "Fontan, TCPC, External conduit, Nonfenestrated", "Fontan revision or conversion (Re-do Fontan)", "Fontan, Other", "Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)", "Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)", "Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)", "HemiFontan", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Fontan + Atrioventricular valvuloplasty", "Fontan, TCPC, Intra/extracardiac conduit, Fenestrated", "Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated", "Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure", "Fontan, Atrio-pulmonary connection", "Fontan, Atrio-ventricular connection", "Fontan, TCPC, Lateral tunnel, Fenestrated" or "Fontan, TCPC, Lateral tunnel, Nonfenestrated"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Systemic ventricular outflow tract obstruction (subaortic obstruction)

SeqNo:	1440
Short Name:	PSFSysVentObs
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Systemic ventricular outflow tract obstruction (subaortic obstruction) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1000|1010|1025|1030|1670|1680|1690|1700|2130|2330|2340|2780|2790|3160|3310|3320|5010|950|960|970|980
ParentValue:	= "Fontan, TCPC, External conduit, Fenestrated", "Fontan, TCPC, External conduit, Nonfenestrated", "Fontan revision or conversion (Re-do Fontan)", "Fontan, Other", "Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)", "Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)", "Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)", "HemiFontan", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Fontan + Atrioventricular valvuloplasty", "Fontan, TCPC, Intra/extracardiac conduit, Fenestrated", "Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated", "Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure", "Fontan, Atrio-pulmonary connection", "Fontan, Atrio-ventricular connection", "Fontan, TCPC, Lateral tunnel, Fenestrated" or "Fontan, TCPC, Lateral tunnel, Nonfenestrated"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Ventricular dominance

SeqNo:	1445
Short Name:	PSFVentDom
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate ventricular dominance.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1000|1010|1025|1030|1670|1680|1690|1700|2130|2160 |2170|2180|2330|2340|2780|2790|3160|3310|3320|5010| 5012|870|950|960|970|980
ParentValue:	= "Fontan, TCPC, External conduit, Fenestrated", "Fontan, TCPC, External conduit, Nonfenestrated", "Fontan revision or conversion (Re-do Fontan)", "Fontan, Other", "Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)", "Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)", "Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)", "HemiFontan", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands", "Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Fontan + Atrioventricular valvuloplasty", "Fontan, TCPC, Intra/extracardiac conduit, Fenestrated", "Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Fenestrated", "Fontan, TCPC, External conduit, Hepatic veins to pulmonary artery, Nonfenestrated", "Fontan, TCPC, External conduit, Fenestrated + Pacemaker procedure", "Norwood procedure+Valvuloplasty, Systemic atrioventricular valve + Conduit placement, RV to PA", "Norwood procedure", "Fontan, Atrio-pulmonary connection", "Fontan, Atrio-ventricular connection", "Fontan, TCPC, Lateral tunnel, Fenestrated" or "Fontan, TCPC, Lateral tunnel, Nonfenestrated"
Harvest Codes:	

Code: Value:

1 Left ventricular dominance
2 Right ventricular dominance
3 Balanced
4 Indeterminate ventricular morphology
5 Unknown

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Posterior coronary loop: circumflex arising from the RCA

SeqNo:	1450
Short Name:	PSFPostLoopCirc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Posterior coronary loop: circumflex arising from the RCA was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code: Value:

1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Posterior Coronary Loop: left trunk arising from the RCA

SeqNo:	1455
Short Name:	PSFPostLoopLeftTrunc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Posterior Coronary Loop: left trunk arising from the RCA was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Double Coronary Loops

SeqNo:	1460
Short Name:	PSFDoubleLoops
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Double Coronary Loops (inverted origin of right and left coronary arteries) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Single Coronary Ostium

SeqNo:	1465
Short Name:	PSFSingOst
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Single coronary ostium was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Intramural coronary

SeqNo:	1470
Short Name:	PSFIntramuralCor
Database Table Name:	Operations
Data Source:	User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Intramural coronary was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 1110|1120|1123|1125

ParentValue: = “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Take down of a commissure

SeqNo: 1485

Short Name: PSFTakeDownComm

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Take down of a commissure was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 1110|1120|1123|1125

ParentValue: = “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Diameter Of Neo-Aortic Valve Annulus

SeqNo:	1490
Short Name:	PSFDiamNeoaort
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the diameter of the neo-aortic valve annulus in millimeters.
Low Value:	0.1
High Value:	30.0
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Diameter Of Neo-Pulmonary Valve Annulus

SeqNo:	1495
Short Name:	PSFDiamNeopulm
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the diameter of the neo-pulmonary valve annulus in millimeters.
Low Value:	0.1
High Value:	30.0

ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Side by side vessels

SeqNo:	1505
Short Name:	PSFSideBySide
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Side by side vessels was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Posterior native aorta

SeqNo:	1510

Short Name:	PSFPostNatAorta
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS) Definition: Indicate whether Posterior native aorta was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Subaortic obstruction/ conal septum malalignment

SeqNo:	1515
Short Name:	PSFSubAObs
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Subaortic obstruction / conal septum malalignment was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch

repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Bicuspid native aortic valve (Bicuspid neopulmonary valve)

SeqNo:	1520
Short Name:	PSFBicusNatAortic
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Bicuspid native aortic valve (Bicuspid neopulmonary valve) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= "Arterial switch operation (ASO)", "Arterial switch operation (ASO) and VSD repair", "Arterial switch procedure + Aortic arch repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Bicuspid native pulmonary valve (Bicuspid neoaortic valve)

SeqNo:	1525
Short Name:	PSFBicusNatPulm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Bicuspid native pulmonary valve (Bicuspid neoaortic valve) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	1110|1120|1123|1125
ParentValue:	= “Arterial switch operation (ASO)”, “Arterial switch operation (ASO) and VSD repair”, “Arterial switch procedure + Aortic arch repair” or “Arterial switch procedure and VSD repair + Aortic arch repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Truncus type 3 (PA Branches from PDA or descending aorta)

SeqNo:	1530
Short Name:	PSFTruncType3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Truncus type 3 (PA Branches from PDA or descending aorta) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2220|230

ParentValue: = “Truncus + Interrupted aortic arch repair (IAA) repair” or “Truncus arteriosus repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Truncal valve regurgitation (moderate to severe)

SeqNo: 1540

Short Name: PSFTruncValRegurg

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Truncal valve regurgitation (moderate to severe) was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 230|2220

ParentValue: = “Truncus arteriosus repair” or “Truncus + Interrupted aortic arch repair (IAA) repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Truncal Valve stenosis (moderate to severe)

SeqNo: 1545

Short Name:	PSFTruncValSten
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Truncal valve stenosis (moderate to severe) was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	230|2220
ParentValue:	= “Truncus arteriosus repair” or “Truncus + Interrupted aortic arch repair (IAA) repair”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Ascending aorta < 2 mm

SeqNo:	1570
Short Name:	PSFAscAortaLT2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Ascending aorta < 2 mm was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2160|2170|2180|5012|870
ParentValue:	= “Hybrid Approach “Stage 1”, Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA)”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA) + application of RPA & LPA bands”, “Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA” or “Norwood procedure”

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Sinusoids

SeqNo: 1595

Short Name:	PSFSinusoids
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the presence of sinusoids was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2160|2170|2180|5012|870
ParentValue:	= “Hybrid Approach “Stage 1”, Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA)”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA) + application of RPA & LPA bands”, “Norwood procedure + Valvuloplasty, Systemic atrioventricular valve + Conduit placement, RV to PA” or “Norwood procedure”

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Intact atrial septum

SeqNo:	1600
Short Name:	PSFIntactAtrSep

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Intact atrial septum was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2160|2170|2180|5012|870
ParentValue:	= “Hybrid Approach “Stage 1”, Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA)”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA) + application of RPA & LPA bands”, “Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA” or “Norwood procedure”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Obstructed pulmonary venous return with severely restrictive ASD

SeqNo:	1605
Short Name:	PSFObsPulVenRet
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Obstructed pulmonary venous return with severely restrictive ASD was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2160|2170|2180|5012|870
ParentValue:	= “Hybrid Approach “Stage 1”, Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency”, “Hybrid Approach “Stage 1”, Stent placement in arterial duct (PDA)”,

	"Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands", "Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA" or "Norwood procedure"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – Aberrant right subclavian artery

SeqNo:	1610
Short Name:	PSFAberrantRtSubclav
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Aberrant right subclavian artery was present.
ParentLongName:	Primary Procedure
ParentShortName:	PrimaryProcedure
ParentHarvestCodes:	2160|2170|2180|5012|870
ParentValue:	= "Hybrid Approach "Stage 1", Application of RPA & LPA bands with concomitant use of PGE to maintain ductal patency", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands", "Norwood procedure+Valvuloplasty, Systemic atrioventricular valve+Conduit placement, RV to PA" or "Norwood procedure"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – TV Repair

SeqNo: 1615
Short Name: PSFTVRep
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether TV Repair was present.
ParentLongName: Primary Procedure
ParentShortName: PrimaryProcedure
ParentHarvestCodes: 465|5030
ParentValue: = “Ebstein’s repair” or “Ebstein’s repair + PDA closure, Surgical”
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – TV Repair – Monocusp

SeqNo: 1620
Short Name: PSFTVRepMono
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether TV Repair – Monocusp was present.
ParentLongName: Procedure-Specific Factors – TV Repair
ParentShortName: PSFTVRep
ParentHarvestCodes: 1
ParentValue: = “Yes”
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors – TV Repair – Bileaflet Repair

SeqNo:	1625
Short Name:	PSFTVRepBileaf
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether TV Repair - Bileaflet Repair was present.
ParentLongName:	Procedure-Specific Factors - TV Repair
ParentShortName:	PSFTVRep
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - TV Repair - Cone Repair - 360 Degrees Leaflet Approximation

SeqNo:	1630
Short Name:	PSFTVRepCone
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether TV Repair - Cone Repair - 360 Degrees Leaflet Approximation was present.
ParentLongName:	Procedure-Specific Factors - TV Repair
ParentShortName:	PSFTVRep

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Sebening Stitch (Anterior RV Papillary Muscle To Ventricular Septum)

SeqNo: 1635

Short Name: PSFSebening

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Sebening Stitch (Anterior RV Papillary Muscle To Ventricular Septum) was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 465|5030

ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Annular Reduction

SeqNo: 1640

Short Name: PSFAnnRed

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Annular Reduction was present.
ParentLongName: Primary Procedure
ParentShortName: PrimaryProcedure
ParentHarvestCodes: 465|5030
ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Annular Reduction - Plication

SeqNo: 1645
Short Name: PSFAnnRedPlic
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Annular Reduction - Plication was present.
ParentLongName: Procedure-Specific Factors - Annular Reduction
ParentShortName: PSFAnnRed
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Annular Reduction - Partial Ring (C-Shaped Anterior And Inferior Annulus)

SeqNo:	1650
Short Name:	PSFAnnRedPartial
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Annular Reduction - Partial Ring (C-Shaped Anterior And Inferior Annulus) was present.
ParentLongName:	Procedure-Specific Factors - Annular Reduction
ParentShortName:	PSFAnnRed
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Annular Reduction - Eccentric Ring (Inferior Annulus)

SeqNo:	1655
Short Name:	PSFAnnRedEccent
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Annular Reduction - Eccentric Ring (Inferior Annulus) was present.
ParentLongName:	Procedure-Specific Factors - Annular Reduction
ParentShortName:	PSFAnnRed
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Atrialized RV Plication

SeqNo: 1660
Short Name: PSFAtrialRVPlic
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Atrialized RV Plication was present.
ParentLongName: Primary Procedure
ParentShortName: PrimaryProcedure
ParentHarvestCodes: 465|5030
ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"
Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Atrialized RV Resection

SeqNo: 1665
Short Name: PSFAtrialRVRes
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Atrialized RV Resection was present.
ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 465|5030

ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - ASD/PFO Closure

SeqNo: 1670

Short Name: PSFASDPFO

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether ASD/PFO Closure was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 465|5030

ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Subtotal

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Reduction Atrioplasty

SeqNo: 1675

Short Name: PSFRedAtrio

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Reduction Atrioplasty was present.
ParentLongName: Primary Procedure
ParentShortName: PrimaryProcedure
ParentHarvestCodes: 465|5030
ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Arrhythmia Surgery

SeqNo: 1680
Short Name: PSFArrSurg
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Arrhythmia Surgery was present.
ParentLongName: Primary Procedure
ParentShortName: PrimaryProcedure
ParentHarvestCodes: 465|5030
ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Cavotricuspid Isthmus Ablation

SeqNo:	1685
Short Name:	PSFArrSurgCavo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Arrhythmia Surgery - Cavotricuspid Isthmus Ablation was present.
ParentLongName:	Procedure-Specific Factors - Arrhythmia Surgery
ParentShortName:	PSFArrSurg
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Modified Right Atrial Maze

SeqNo:	1690
Short Name:	PSFArrSurgModMaze
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether Arrhythmia Surgery - Modified Right Atrial Maze was present.
ParentLongName:	Procedure-Specific Factors - Arrhythmia Surgery
ParentShortName:	PSFArrSurg
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Left Atrial Cox Maze

SeqNo: 1695
Short Name: PSFArrSurgCoxMaze
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether Arrhythmia Surgery - Left Atrial Cox Maze was present.
ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery
ParentShortName: PSFArrSurg
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Pulmonary Vein Isolation

SeqNo: 1700
Short Name: PSFArrSurgPulmIso
Database Table Name: Operations
Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Arrhythmia Surgery - Pulmonary Vein Isolation was present.

ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery

ParentShortName: PSFArrSurg

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: Procedure-Specific Factors - Bidirectional Cavopulmonary Anastomosis

SeqNo: 1705

Short Name: PSFBiCavoAnast

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether Bidirectional Cavopulmonary Anastomosis was present.

ParentLongName: Primary Procedure

ParentShortName: PrimaryProcedure

ParentHarvestCodes: 465|5030

ParentValue: = "Ebstein's repair" or "Ebstein's repair + PDA closure, Surgical"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the Primary Procedure is listed in the harvest codes above, answer this procedure specific factor.

Long Name: ECMO Cannulation Type

SeqNo: 1710
Short Name: CannulationType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of ECMO cannulation that was performed during this procedure.
ParentLongName: Procedures - Multi-Select
ParentShortName: ProcedureMulti
ParentHarvestCodes: contains(2360)
ParentValue: Contains ("ECMO cannulation")
Harvest Codes:

Code: Value:
1 Arterial
2 Venous
3 Both arterial and venous

Intent/Clarification:

If ECMO cannulation, indicate the ECMO cannulation type/location.

Code:	Value:	Definition:
1	Arterial	Arterial cannula placement only
2	Venous	Venous cannula placement only
3	Both arterial and venous	Arterial and venous cannula placement

Long Name: Arterial Cannulation Location

SeqNo: 1715
Short Name: CannArtLoc

Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the location of the arterial ECMO cannulation.
ParentLongName: ECMO Cannulation Type
ParentShortName: CannulationType
ParentHarvestCodes: 1|3
ParentValue: = "Arterial" or "Both arterial and venous"
Harvest Codes:

Code: Value:
1 Carotid
2 Central
3 Femoral
4 Other

Intent/Clarification:

If arterial cannulation, select the location(s) of the arterial cannulation site:

Code:	Value:	Definition:
1	Carotid	Arterial cannulation into carotid artery
2	Central	Central arterial cannulation via sternotomy
3	Femoral	Arterial cannulation into femoral artery
4	Other	Arterial cannulation into another artery not otherwise listed

Long Name: Venous Cannulation Location

SeqNo: 1720
Short Name: CannVenLoc
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the location of the venous ECMO cannulation.
ParentLongName: ECMO Cannulation Type

ParentShortName: CannulationType

ParentHarvestCodes: 2|3

ParentValue: = "Venous" or "Both arterial and venous"

Harvest Codes:

Code: Value:

1 Central
2 Jugular
3 Femoral
4 Other

Intent/Clarification:

If venous cannulation, select the location(s) of the venous cannulation site:

Code:	Value:	Definition:
1	Central	Central venous cannulation via sternotomy
2	Jugular vein	Venous cannulation into jugular vein
3	Femoral	Venous cannulation into femoral vein
4	Other	Venous cannulation into another vein not otherwise listed

Long Name: Pulmonary Venous Return Decompression

SeqNo: 1725

Short Name: PulVenRetDecomp

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate how pulmonary venous return decompression occurred. If no pulmonary venous return decompression, select None.

ParentLongName: Procedures - Multi-Select

ParentShortName: ProcedureMulti

ParentHarvestCodes: contains(2360)

ParentValue: Contains ("ECMO cannulation")

Harvest Codes:

Code: Value:

1 None
2 Pre-existing atrial septal defect
3 Surgical creation of atrial septal defect
4 Transcatheter creation of atrial septal defect

Intent/Clarification:

If ECMO cannulation, indicate how decompression of the pulmonary venous return occurred.

Select (1) None if there is no pulmonary venous return decompression.

Long Name: ECMO Decannulation Type

SeqNo:	1730
Short Name:	DecannulationType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of ECMO decannulation that was performed during this procedure.
ParentLongName:	Procedures - Multi-Select
ParentShortName:	ProcedureMulti
ParentHarvestCodes:	contains(2370)
ParentValue:	Contains ("ECMO decannulation")

Harvest Codes:

Code: Value:
1 Arterial
2 Venous
3 Both arterial and venous

Intent/Clarification:

If ECMO decannulation, indicate the ECMO decannulation type/location.

Long Name: Arterial ECMO Decannulation Location

SeqNo:	1735
Short Name:	DecanArtLoc
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select

Definition: Indicate the location of the arterial ECMO decannulation.

ParentLongName: ECMO Decannulation Type

ParentShortName: DecannulationType

ParentHarvestCodes: 1|3

ParentValue: = "Arterial" or "Both arterial and venous"

Harvest Codes:

Code:	Value:
1	Carotid ligation
2	Carotid repair
3	Central
4	Femoral ligation
5	Femoral repair
6	Other ligation
7	Other repair

Intent/Clarification:

If arterial decannulation, indicate the arterial location(s) and additional arterial vessel ligations/repairs completed.

Long Name: Venous ECMO Decannulation Location

SeqNo: 1740

Short Name: DecanVenLoc

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate the location of the venous ECMO decannulation.

ParentLongName: ECMO Decannulation Type

ParentShortName: DecannulationType

ParentHarvestCodes: 2|3

ParentValue: = "Venous" or "Both arterial and venous"

Harvest Codes:

Code:	Value:
1	Central
2	Jugular ligation
3	Jugular repair
4	Femoral ligation
5	Femoral repair
6	Other ligation
7	Other repair

Intent/Clarification:

If venous decannulation, indicate the venous location(s) and additional venous vessel ligations/repairs completed.

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Long Name: Procedure Location

SeqNo: 1745

Short Name: ProcLoc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the location where the operation/procedure was performed.

Harvest Codes:

Code:	Value:
9	Cardiac OR
10	General OR
3	Hybrid Suite
2	Cath lab
11	ICU
4	CVICU
5	NICU
6	PICU
7	SICU
12	Radiology Suite
13	Procedure Room
8	Other

Intent/Clarification:

Indicate the location the operation/procedure took place:

Code:	Value:	Definition:
9	Cardiac OR	Procedure performed in the cardiac operating room (OR)
10	General OR	Procedure performed in the general operating room (OR)

Code:	Value:	Definition:
3	Hybrid Suite	Procedure performed in the Hybrid Suite, a room designed for both surgical and transcatheter interventional procedures.
2	Cath Lab	Procedure performed in the cardiac catheterization laboratory 'lab'
11	ICU	Procedure performed in the intensive care unit (ICU)
4	CVICU	Procedure performed in the cardiac/cardiovascular intensive care unit (CVICU)
5	NICU	Procedure performed in the neonatal intensive care unit (NICU)
6	PICU	Procedure performed in the pediatric intensive care unit (PICU)
7	SICU	Procedure performed in the surgical intensive care unit (SICU)
12	Radiology Suite	Procedure performed in the radiology suite
13	Procedure Room	Procedure performed in a procedure room
8	Other:	Any other location not contained in this list

Long Name: Status

SeqNo: 1750
Short Name: Status
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the clinical status of the patient prior to entering the operating room.

Harvest Codes:

Code: Value:
1 Elective

2 Urgent
3 Emergent
4 Salvage

Intent/Clarification:

Indicate the status of the patient's procedure.

Code:	Value:	Definition:
1	Elective	The patient's cardiac function has been stable in the days or weeks prior to the operation. The procedure could be deferred without increased risk of compromised cardiac outcome.
2	Urgent	Procedure required during same hospitalization to minimize chance of further clinical deterioration. Examples include but are not limited to: • delayed sternal closure • residual lesions or other anatomic lesions • ECMO/VAD decannulation because of clinical improvement (as the only procedure) • procedures for congestive heart failure • worsening or sudden chest pain, • acute myocardial infarction • IABP • unstable angina with intravenous nitroglycerin or rest angina Also includes conditions that require that the patient remain in the hospital until surgery can take place, but the patient is able to wait for surgery until the next available OR schedule time. Delay in the operation may be necessitated by attempts to improve the patient's condition, availability of a spouse or parent for informed consent, availability of blood products, or the availability of results of essential laboratory procedures or tests. *Example:* a patient is brought in for an elective cardiac cath and kept in the hospital for surgery.
3	Emergent	Patients requiring emergency operations will have ongoing, refractory, severe cardiovascular compromise, with or

Code:	Value:	Definition:
		without hemodynamic instability, not responsive to any form of therapy except cardiac surgery. An emergency operation is one in which there should be no delay in providing operative intervention. Examples include but are not limited to the following scenarios: • hemodynamic picture of shock that is being chemically or mechanically supported. (IV inotrope or IABP to maintain cardiac output) • requires intubation and ventilation for pulmonary edema • acute myocardial infarction and requires immediate surgery • signs of ongoing ischemia, i.e., EKG changes. • acute native valve dysfunction i.e., acute papillary muscle rupture or torn leaflet. • prosthetic valve dysfunction defined as a structural failure of valve, e.g., fractured, or torn leaflet, thrombus formation, pannus development which impedes flow through the valve orifice, or valvular dehiscence (coming loose or disconnected at the suture line). • acute dissection secondary to trauma or dissection secondary to progression of disease. • rupture or dissection during cardiac cath; perforation, tamponade following cardiac cath. If a patient presents with a scenario that does not fit into a definite category; it is reasonable to code the reason that most closely matches the patient's presentation.
4	Salvage	The patient is undergoing CPR en route to the OR or prior to anesthesia induction or has ongoing ECMO/VAD support to maintain life. Do not code (4) salvage if the patient on ECMO/VAD support is to undergo decannulation due to clinical improvement (as the sole procedure); instead code (2) Urgent.

Additional information for heart transplant operations:

- Code (3) Emergent if the patient is in-house (hospitalized) on ECMO/VAD support.
- Code (2) Urgent if the patient is in-house (hospitalized) but not on ECMO/VAD support.
- Code (2) Urgent if the patient comes in from home for transplant and is on a VAD and/or continuous inotrope infusion.
- Code (1) Elective if the patient comes in from home and is not on VAD support or continuous inotrope infusion.

Long Name: Operation Type

SeqNo: 1755
Short Name: OpType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of surgical procedure performed.
Harvest Codes:

Code:	Value:
1	CPB Cardiovascular
2	No CPB Cardiovascular
9	CPB Non-Cardiovascular
3	ECMO
4	Thoracic
6	VAD Operation Done With CPB
7	VAD Operation Done Without CPB
777	Other

Intent/Clarification:

Indicate the procedure type.

Code:	Value:	Definition:
1	CPB Cardiovascular	Cardiovascular procedure (includes the heart, great vessels, or any branches of the great vessels), and cardiopulmonary bypass (CPB) is used. Do not choose this case category for non-cardiac operations even if CPB is used, code as OpType (9) CPB Non-cardiovascular.

Code:	Value:	Definition:
		Other examples include but are not limited to CPB used for: • intracardiac tumor resection/removal • lung transplant procedures (as most involve anastomosis to the left atrium as well as anastomosis to distal main PA/central branch PA) See additional information below for coding OpType CPB Cardiovascular when patients are receiving mechanical circulatory support.
2	No CPB Cardiovascular	Cardiovascular procedure (includes the heart, great vessels, or any branches of the great vessels), and cardiopulmonary bypass (CPB) is ***not*** used. Examples include but are not limited to: • coarctation of the aorta repair • pacemaker insertion/removal and pacemaker procedures • creation of a systemic-to-pulmonary artery shunt • patent ductus arteriosus ligation • delayed sternal closure/sternal reopening • wound drainage/debridement procedures involving the mediastinum • vascular ring repair
9	CPB Non-Cardiovascular	Procedure done with cardiopulmonary bypass (CPB) support that do not involve a concomitant cardiovascular procedure. Examples include but are not limited to the following procedures when done without a concomitant cardiovascular procedure: • tracheal procedures (i.e., tracheal reconstruction, slide tracheoplasty, or tracheal patch plasty) • thoracic procedures • neurosurgical procedures • resuscitation and rewarming of drowning

Code:	Value:	Definition:
		victims If the operation also includes a cardiovascular procedure (e.g., operation for PA sling with both tracheal repair and division/reimplantation of pulmonary artery) the procedure is cardiac, code the OpType as (1) CPB Cardiovascular.
3	ECMO	Procedures where extracorporeal membrane oxygenation (ECMO) cannulation or decannulation is the primary procedure. Includes procedures completed on ECMO if there are no major structural repair(s) done on the heart, great vessels, or any branches of the great vessels unless the repair is done to support/facilitate the ECMO circuit. If heart or great vessel repair done on ECMO is in support of or is facilitating the ECMO circuit, code OpType ECMO (i.e., application of main PA band to control the pulmonary blood flow while on ECMO). If ECMO is initiated following a cardiovascular operation (i.e., inability to separate from cardiopulmonary bypass (CPB) following systemic to pulmonary shunt creation), code OpType (1) CPB Cardiovascular as CPB was used for the cardiovascular procedure. See additional information below for coding OpType for patients are receiving mechanical circulatory support.
4	Thoracic	Procedure performed on a structure within the chest cavity but does not involve the cardiac chambers or vessels and cardiopulmonary bypass (CPB) is not used. Examples include but are not limited to: • sternal wire removal • pleural drainage procedures • diaphragm plication • wound drainage/debridement procedures superficial to the sternum • lobectomy • pectus excavatum/carinatum repair • anterior spine exposure

Code:	Value:	Definition:
		For thoracic cases requiring CPB, code OpType (9) CPB Non-Cardiovascular.
6	VAD Operation Done With CPB	Procedures where ventricular assist device (VAD) insertion or removal is the primary procedure where cardiopulmonary bypass (CPB) support is utilized. Includes procedures completed on VAD support if there are no major structural repair(s) done on the heart, great vessels, or any branches of the great vessels unless the repair is supporting/facilitating the VAD circuit. If heart or great vessel repair done with VAD support is facilitating or supporting the VAD circuit and CPB is used, code OpType (6) VAD Operation Done without CPB. If the VAD is inserted following a cardiovascular operation (i.e., inability to separate from CPB following systemic to pulmonary shunt creation), code OpType (1) CPB Cardiovascular as CPB was used for the cardiovascular procedure. See additional information below for coding OpType for patients are receiving mechanical circulatory support.
7	VAD Operation Done Without CPB	Procedures where ventricular assist device (VAD) insertion or removal is the primary procedure and cardiopulmonary bypass (CPB) support is not utilized. Includes procedures completed on VAD support if there are no major structural repair(s) done on the heart, great vessels, or any branches of the great vessels unless the procedure is facilitating the VAD circuit. If heart or great vessel repair done with VAD support is facilitating or supporting the VAD circuit and CPB is not used, code OpType (7) VAD Operation Done without CPB. If the VAD is inserted following a cardiovascular operation (i.e., inability to separate from CPB following systemic to pulmonary shunt creation), code OpType (1) CPB Cardiovascular as CPB was used for the cardiovascular procedure. See additional information below for coding OpType for patients are receiving mechanical circulatory support.

Code:	Value:	Definition:
777	Other	All other procedures that do not fall within the above definitions should be coded as (777) Other. This includes but is not limited to supportive minor procedures (e.g., line placements) or procedures (7810) Operation aborted after skin incision or (7800) Operation canceled before skin incision.

Additional information for pericardial drainage procedures:

- When isolated pericardial drainage procedures are completed as part of or as a direct result of intervention to address congenital or acquired heart disease (including heart failure), code either operation type (1) CPB Cardiovascular or (2) No CPB Cardiovascular as appropriate.
- Code other instances of pericardial drainage procedures as operation type (4) Thoracic including pericardial drainage procedures for cancer or trauma.

Additional information for procedures completed on mechanical circulatory support (MCS) including VAD and/or ECMO:

- Code major structural repairs done on the heart and/or great vessels while the patient is receiving MCS as operation type (1) CPB Cardiovascular as the VAD/ECMO circuit is providing circulatory support unless the repair is done to support the VAD/ECMO circuit. See examples below:
    - Patient already on ECMO/VAD support undergoes surgical palliation with a BT Shunt while on ECMO/VAD support. *Code OpType (1) CPB Cardiovascular as the ECMO/VAD circuit is functioning as a CPB circuit.*
    - Patient already on ECMO/VAD support undergoes shunt reoperation while on ECMO/VAD support. *OpType depends on whether the shunt reoperation is required to support ECMO/VAD, may be OpType CPB Cardiovascular or ECMO/VAD depending on the scenario.*
    - Patient arrives in the OR on ECMO support, is transitioned to CPB for a procedure, and then cannulated for ECMO at the end of the procedure. Code *OpType CPB Cardiovascular.*
    - AVC repair done while on ECMO. Code *OpType CPB Cardiovascular as the ECMO circuit is functioning as a CPB circuit for a major structural repair.*
    - Patient undergoes ECMO decannulation/VAD removal followed by delayed sternal closure. *Code OpType ECMO/VAD as the case may be.*

- Pacemaker insertion/temporary wire placement/pacemaker procedure done to support the ECMO/VAD circuit. Code OpType ECMO/VAD as the case may be.
- ECMO decannulation/VAD removal followed by permanent/temporary pacemaker placement. *Code OpType No CPB Cardiovascular as the pacemaker was placed following cessation of circulatory support and not in support of the circuit.*

- Code minor repairs including but not limited to sternal closure, mediastinal explorations, mediastinal explorations for bleeding, and cannula repositioning etc. as operation type (3) ECMO, (6) VAD Operation done with CPB, or (7) VAD Operation done without CPB as appropriate.
- VAD circuits with oxygenators are ECMO thus, procedures done on VAD circuits with oxygenators are OpType (3) ECMO.
- When converting from VAD to ECMO, code OpType (3) ECMO. When converting from ECMO to VAD, code OpType (6) VAD Operation done with CPB, or (7) VAD Operation done without CPB as appropriate.

Long Name: CAB - Adult

SeqNo:	1760
Short Name:	OpCAB18
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether coronary artery bypass grafting was done.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2
ParentValue:	= "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
3	Yes, planned
4	Yes, unplanned due to surgical complication
5	Yes, unplanned due to unsuspected disease or anatomy
2	No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedures with operation types CPB Cardiovascular or No CPB Cardiovascular, indicate if coronary bypass grafting (CABG) was completed and whether the procedure was planned. The intent is to capture procedures where distal bypass grafts were constructed to native coronary arteries.

Code a bypass graft for myocardial bridge as a CABG.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example:* the operative consent lists CABG with possible aortic valve replacement. The CABG is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example:* during aortic valve replacement, the coronary artery is perforated and requires CABG during the procedure. The CABG is unplanned and related to the perforation of the coronary artery (operative complication).
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example:* during aortic valve replacement, the intraoperative TEE reveals previously undiagnosed severe coronary artery stenosis requiring CABG during the procedure. The CABG is unplanned as the coronary stenosis was a previously undiagnosed problem requiring repair and not related to an operative

Code:	Value:	Definition:
		complication.
2	No	CABG was not performed during this procedure.

Long Name: Aorta Procedure Performed

SeqNo: 1765
Short Name: AortProc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a procedure was performed on the aorta.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|2
ParentValue: = "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
3	Yes, planned
4	Yes, unplanned due to surgical complication
5	Yes, unplanned due to unsuspected disease or anatomy
2	No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedures with operation types CPB Cardiovascular or No CPB Cardiovascular, indicate if a procedure was performed on or involving the aorta and whether the procedure was planned. Aorta procedures for the purpose of the database refers to actual aorta procedures, not stand-alone head or visceral vessel management without an additional aorta or planned staged aorta procedure performed.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example*: the operative consent lists aortic aneurysm repair. The aorta procedure is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example:* during a CABG, the patient experiences an aortic dissection requiring repair during the procedure. The aorta procedure was unplanned and related to the operative complication of aortic dissection.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example:* during CABG, the initial intraoperative TEE reveals previously undiagnosed aortic aneurysm requiring repair during the procedure. The aortic aneurysm repair is unplanned as it was previously undiagnosed and not related to an operative complication.
2	No	No aorta procedure performed during this procedure.

The following do not constitute an aorta procedure:

- Aortic root procedures where the surgeon performs only an annular enlargement with no other aortic root procedure; code annular enlargements in section M3. Aortic, Neo-Aortic, or Truncal Valve without Concomitant Aorta Procedure section (Seq 2955).

- Aortoplasty done in conjunction with CABG, aortic/neo-aortic/truncal valve replacement, and/or mitral/systemic AV valve replacement to reduce the size of the ascending aorta as this is considered part of the procedure.
- Aortic endarterectomy as part of CABG, aortic/neo-aortic/truncal valve replacement, and/or mitral/systemic AV valve replacement procedure(s).
- Wrapping the dilated portion of the aorta to reinforce it done in conjunction with CABG, aortic/neo-aortic/truncal valve replacement, and/or mitral/systemic AV valve replacement.
- Aortic resection to merely remove excessive aortic tissue prior to aortoplasty as this is considered part of the closure.

Aortic procedures do include repair of Kommerell diverticulum with descending thoracic aorta repair as an aorta procedure.

Long Name: Valve - Adult

SeqNo:	1770
Short Name:	OpValve18
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a surgical procedure was done on the Aortic, Mitral, Tricuspid or Pulmonic valves.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2
ParentValue:	= "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedures with operation types CPB Cardiovascular or No CPB Cardiovascular, indicate if a procedure was performed on or involving the aortic/neo-aortic/truncal, mitral/common AV/systemic AV, tricuspid/non-systemic AV, and/or pulmonic/neo-pulmonic valves.

Long Name: Valve Prosthesis Explant

SeqNo:	1775
Short Name:	ValExp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a prosthetic valve or annuloplasty was explanted during this procedure.
ParentLongName:	Valve - Adult
ParentShortName:	OpValve18
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If valve procedure completed, indicate if a prosthetic valve or annuloplasty was explanted during this procedure. Device explantation information assists with post market device surveillance and provides information on device longevity and assists surgeons and patients make informed decisions on device selection.

Code the valve explant even if the sewing cuff is retained.

Do not code valve explant if a valve is surgically implanted and subsequently explanted during the same operation due to the fact the valve did not work or fit.

During a failed transcatheter aortic valve replacement (TAVR) or during a planned transcatheter valve in valve procedure, the original transcatheter valve may be left in place although it is not functional. Capture the original transcatheter valve as an explant, regardless of whether it is explanted, so the valve can be tracked in the database.

Long Name: VS-Aortic / Neo-Aortic / Truncal Valve

SeqNo: 1780
Short Name: VSAV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether an aortic / neo-aortic / truncal valve procedure was performed.
ParentLongName: Valve - Adult
ParentShortName: OpValve18
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
- 3 Yes, planned
- 4 Yes, unplanned due to surgical complication
- 5 Yes, unplanned due to unsuspected disease or anatomy
- 2 No

Intent/Clarification:

If valve procedure performed, indicate if a procedure was performed on the aortic/neo-aortic/truncal valve and whether the procedure was planned.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example*: the operative consent lists CABG with possible aortic valve replacement. The aortic/neo-aortic/truncal valve procedure is planned.

Code:	Value:	Definition:
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example*: following cardiac surgery, the postoperative TEE reveals severe aortic insufficiency requiring repair prior to leaving the OR. The aortic/neo-aortic/truncal valve procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example*: during CABG, the initial intraoperative TEE reveals previously undiagnosed aortic valve insufficiency requiring repair during the procedure. The aortic/neo-aortic/truncal valve procedure is unplanned and not related to an operative complication.
2	No	No aortic/neo-aortic/truncal valve procedure performed during this procedure.

Long Name: AV-Aorta Procedure Performed

SeqNo:	1785
Short Name:	AVAortaProcPerf
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a patient who underwent a procedure on the aortic valve also had a procedure on the thoracic aorta during this same procedure.
ParentLongName:	VS-Aortic / Neo-Aortic / Truncal Valve
ParentShortName:	VSAV
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve procedure performed, indicate if a procedure was completed on the thoracic aorta.

Does include repair of Kommerell diverticulum with descending thoracic aorta repair as an aorta procedure.

The following do not constitute aorta procedures:

- Aortic root procedures where the surgeon performs only an annular enlargement with no other aortic root procedure; code annular enlargements in section M3. Aortic, Neo-Aortic, or Truncal Valve without Concomitant Aorta Procedure section (Seq 2955).
- Wrapping the dilated portion of the aorta to reinforce it done in conjunction with aortic/neo-aortic valve replacement.
- Aortoplasty done in conjunction with aortic/neo-aortic/truncal valve replacement to reduce the size of the ascending aorta as this is considered part of the procedure.
- Aortic endarterectomy as part of aortic/neo-aortic/truncal valve replacement
- Aortic resection to merely remove excessive aortic tissue prior to aortoplasty as this is considered part of the closure.

Long Name: VS-Mitral / Common AV / Systemic AV Valve Procedure Performed

SeqNo:	1790
Short Name:	VSMV
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a mitral / common AV / Systemic AV valve procedure was performed.
ParentLongName:	Valve - Adult
ParentShortName:	OpValve18
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	

Code: Value:
- 3 Yes, planned
- 4 Yes, unplanned due to surgical complication
- 5 Yes, unplanned due to unsuspected disease or anatomy
- 2 No

Intent/Clarification:

If valve procedure performed, indicate if a procedure was performed on the mitral/common AV/systemic AV valve and whether the procedure was planned.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example*: the operative consent lists CABG with possible common AV valve replacement. The mitral/common AV/systemic AV valve procedure is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example:* following cardiac surgery, the postoperative TEE reveals severe systemic AV valve insufficiency requiring repair prior to leaving the OR. The mitral/common AV/systemic AV valve procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example:* during CABG, the initial intraoperative TEE reveals previously undiagnosed mitral valve insufficiency requiring repair during the procedure. The

Code:	Value:	Definition:
		mitral/common AV/systemic AV valve procedure is unplanned and not related to an operative complication.
2	No	No mitral/common AV/systemic AV valve procedure performed during this procedure.

The following should not be coded as mitral/common AV/systemic AV valve procedures:

- Anterior mitral leaflet endarterectomy/decalcification in conjunction with aortic valve replacement as this is considered part of the aortic valve replacement.
- Unroofing of the mitral valve subannular abscess in conjunction with aortic valve replacement for endocarditis as this is considered part of the aortic valve replacement.

Long Name: VS-Tricuspid / Non-Systemic AV Valve

SeqNo: 1795
Short Name: VSTV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a tricuspid / non-systemic AV valve procedure was performed.
ParentLongName: Valve - Adult
ParentShortName: OpValve18
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
3 Yes, planned
4 Yes, unplanned due to surgical complication
5 Yes, unplanned due to unsuspected disease or anatomy
2 No

Intent/Clarification:

If valve procedure performed, indicate if a procedure was performed on the tricuspid/non-systemic AV valve and whether the procedure was planned.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example*: the operative consent lists CABG with possible tricuspid valve repair. The tricuspid/non-systemic AV valve procedure is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example*: following cardiac surgery, the postoperative TEE reveals severe non-systemic AV valve insufficiency requiring repair prior to leaving the OR. The tricuspid/non-systemic AV valve procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example*: during CABG, the initial intraoperative TEE reveals previously undiagnosed tricuspid valve insufficiency requiring repair during the procedure. The tricuspid/non-systemic AV valve procedure is unplanned and not related to an operative complication.
2	No	No tricuspid/non-systemic AV valve procedure performed during this procedure.

Long Name: VS-Pulmonary / Neo-Pulmonary Valve

SeqNo: 1800
Short Name: VSPV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a pulmonary / neo-pulmonary valve procedure was performed.
ParentLongName: Valve - Adult
ParentShortName: OpValve18
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
- 3 Yes, planned
- 4 Yes, unplanned due to surgical complication
- 5 Yes, unplanned due to unsuspected disease or anatomy
- 2 No

Intent/Clarification:

If valve procedure performed, indicate if a procedure was performed on the pulmonary/neo-pulmonary valve and whether the procedure was planned.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example*: the operative consent lists CABG with possible pulmonary valvuloplasty. The pulmonary/neo-pulmonary valve procedure is planned.
4	Yes, unplanned due to	Unplanned procedure related to a new disease finding

Code:	Value:	Definition:
	surgical complication	caused by an operative complication that needs to be repaired while in the OR. *Example*: following cardiac surgery, the postoperative TEE reveals severe neo-pulmonary valve insufficiency requiring repair prior to leaving the OR. The pulmonary/neo-pulmonary valve procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example*: during CABG, the initial intraoperative TEE reveals previously undiagnosed pulmonary valve insufficiency requiring repair during the procedure. The pulmonary/neo-pulmonary valve procedure is unplanned and not related to an operative complication.
2	No	No pulmonary/neo-pulmonary valve procedure performed during this procedure.

Long Name: Other Cardiac Procedure, except Afib

SeqNo:	1805
Short Name:	OpOCard
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether another cardiac procedure was performed (other than CABG or Valve or Aorta or Afib procedures).
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2
ParentValue:	= "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code: Value:

3 Yes, planned

4 Yes, unplanned due to surgical complication

5 Yes, unplanned due to unsuspected disease or anatomy

2 No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedure operation type CPB Cardiovascular or No CPB Cardiovascular, indicate if any of the following procedures was completed:

- Subaortic stenosis resection
- Trauma, Cardiac repair
  - includes but is not limited to gunshot wound, stab wound, car accident, or other physical or blunt trauma induced injury
  - excludes surgically induced trauma or injury
- Acquired VSD repair
  - a VSD that is not congenital
  - may occur because of septal myocardial infarction, chest trauma, and/or myocardial infarction
- ASD repair
  - includes congenital (secundum, sinus venosus, coronary sinus, and PFO types) and acquired ASDs
  - excludes repairs when a transeptal incision is made to complete a different surgical repair, e.g., mitral/systemic AV valve repair.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent.

Code:	Value:	Definition:
		Example: the operative consent lists secundum ASD repair. The ASD repair procedure is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example*: during cardiac surgery, the postoperative TEE reveals a new ASD requiring repair prior to leaving the OR. The ASD repair procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example*: during cardiac surgery, the initial intraoperative TEE reveals a previously undiagnosed subaortic membrane causing subaortic stenosis requiring repair during the procedure. The subaortic stenosis resection procedure is unplanned and not related to an operative complication.
2	No	No other listed other cardiac procedure performed during this procedure. *Example*: during the procedure, a congenital VSD is repaired. No listed procedure was completed.

Long Name: Other Non-Cardiac

SeqNo: 1810
Short Name: OpONCard
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a non-cardiac procedure was performed.
ParentLongName: Operation Type
ParentShortName: OpType

ParentHarvestCodes: 1|2
ParentValue: = "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedure operation type CPB Cardiovascular or No CPB Cardiovascular, indicate if the following procedure was performed:

- Carotid endarterectomy

Long Name: Atrial Fibrillation Procedure Performed

SeqNo: 1815
Short Name: AFibProc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether an atrial fibrillation procedure was performed.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|2
ParentValue: = "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For patients age ≥ 18-years undergoing procedure operation type CPB Cardiovascular or No CPB

Cardiovascular, indicate if a procedure was completed for atrial fibrillation (A-fib). This includes left atrial appendage (LAA) obliteration and amputation.

Examples of A-fib procedures:

- Left atrial appendage (LAA) obliteration and/or amputation
- Epicardial Botox injections
- Surgical component of the convergent Maze procedure
- Coronary artery bypass graft done with an LAA clip even if A-fib is not documented.

Does not include posterior left pericardiotomy done for the prevention of post-op A-fib.

Long Name: CAB

SeqNo:	1820
Short Name:	OpCAB
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether coronary artery bypass grafting was done.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2
ParentValue:	= "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	<6575
ParentValue2:	<6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For patients age < 18-years undergoing procedure operation type CPB Cardiovascular or No CPB Cardiovascular, indicate whether coronary artery bypass grafting (CABG) was done.

Long Name: Valve

SeqNo:	1825
Short Name:	OpValve
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a surgical procedure was done on the Aortic, Mitral, Tricuspid, Pulmonic, common AV valve or truncal valve.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2
ParentValue:	= "CPB Cardiovascular" or "No CPB Cardiovascular"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	<6575
ParentValue2:	<6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For patients age < 18-years, indicate if a procedure was performed on or involving the aortic/neo-aortic/truncal, mitral/common AV/systemic AV, tricuspid/non-systemic AV, and/or or pulmonic/neo-pulmonic valves.

Code (1) Yes if any type of valve intervention was performed, regardless of whether it was a major part of the operation.

Long Name: Time Patient Entered the OR

SeqNo:	1830
Short Name:	OREntryT
Database Table Name:	Operations
Data Source:	User
Format:	Time - hh:mm (24-hour clock)
Definition:	Indicate to the nearest minute (using 24-hour clock) the time the patient entered the OR. If the procedure was performed in a location other than the OR, record the time when the sterile field was set up.

Intent/Clarification:

Indicate the time the patient physically entered the operating room (OR).

The data source should be a consistent, standardized report/source, e.g. an intraoperative record.

In the event the procedure was done outside of the (OR), record the time the sterile field was set up. For emergency procedures done outside the OR, this may be an estimated time.

There may be times when the OR entry time may be the same as the skin incision start time, for example when the surgeon scrubs into a cath lab case to perform a procedure.

Long Name: Skin Incision Start Time

SeqNo:	1835
Short Name:	SIStartT
Database Table Name:	Operations
Data Source:	User
Format:	Time - hh:mm (24-hour clock)
Definition:	Indicate to the nearest minute (using 24-hour clock) the time the skin incision was made.

Intent/Clarification:

Indicate the time the skin incision was made for the procedure.

The data source should be a consistent, standardized report/source, e.g., an intraoperative record.

There may be times when the skin incision start time may be the same as the OR entry time, for example when the surgeon scrubs into a cath lab case to perform a procedure.

Long Name: Endotracheal Intubation was Performed

SeqNo:	1840
Short Name:	Intubate
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an endotracheal intubation was performed.
Harvest Codes:	

Code: Value:
3 Yes, prior to entering OR for this procedure
4 Yes, in OR for this procedure
2 No

Intent/Clarification:

Identify if the patient required endotracheal or tracheal intubation.

Code:	Value:	Definition:
3	Yes, prior to entering the OR for this procedure	The patient was intubated before going to the OR. Includes intubation in the preoperative area or ICU prior to the OR entry date and time.
4	Yes, in OR for this procedure	The patient was intubated after OR entry date/time.
2	No	The patient did not require endotracheal or tracheal intubation during the procedure. Code this for laryngeal mask airway (LMA) use or other non-invasive airway support.

Long Name: Initial Extubation Date and Time

SeqNo: 1890
Short Name: ExtubateDT
Database Table Name: Operations
Data Source: User
Format: Date/Time - mm/dd/yyyy hh:mm
Definition: Indicate the date (mm/dd/yyyy) and time (hh:mm) (24 hour clock) ventilatory support initially ceased after surgery. Capture the extubation closest to the surgical stop time.
ParentLongName: Endotracheal Intubation was Performed
ParentShortName: Intubate
ParentHarvestCodes: 3|4
ParentValue: = "Yes, prior to entering OR for this procedure" or "Yes, in OR for this procedure"

Intent/Clarification:

Capture the first extubation date and time closest to the surgical stop time.

In the event the patient experiences unplanned extubation and is immediately reintubated, do not include as the initial extubation date and time. However, if the patient does not require immediate reintubation following unplanned extubation, do include the date and time of the unplanned extubation.

If the patient has a tracheostomy and is separated from mechanical ventilatory support postoperatively within the hospitalization, capture the date and time of separation from the mechanical ventilator closest to the surgical stop time.

If the patient expires while intubated or with a tracheostomy tube and is receiving mechanical ventilatory support, capture the date and time of death as the initial extubation date and time.

If the patient is discharged on chronic ventilatory support, capture the date and time of hospital discharge as the initial extubation date and time.

Patient with tracheostomy tubes who changes between multiple ventilatory modes, i.e., CPAP mode, trach collar, and/or ventilatory support at night etc., use the final date and time the patient no longer requires any ventilatory support as the initial extubation date and time.

Long Name: Extubated In The Operating Room Or By Anesthesia Team

SeqNo:	1895
Short Name:	ExtubInOR
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the endotracheal tube was removed in the OR or in the immediate postoperative time period after leaving the OR by the anesthesia team of record. This would include patients transported from the OR to the ICU or recovery areas who were extubated upon arrival in that location prior to care being handed off to another physician or the patient being connected to another ventilator.
ParentLongName:	Endotracheal Intubation was Performed
ParentShortName:	Intubate
ParentHarvestCodes:	3|4
ParentValue:	= "Yes, prior to entering OR for this procedure" or "Yes, in OR for this procedure"
Harvest Codes:	

Code: Value:
1 Yes
2 No

Intent/Clarification:

Indicate if the patient was extubated/removed from mechanical ventilatory support while in the OR. Include patients who were transported from the OR to the ICU or recovery area who were extubated upon arrival prior to being handed off to another physician or being connected to another ventilator.

If the patient was extubated in the OR and subsequently reintubated due to respiratory failure, code (1) Yes, the patient was extubated in the OR and code field (1905) Re-Intubated After Initial Postoperative Extubation as (1) Yes, and code postoperative event (160) Postoperative/ Postprocedural respiratory insufficiency requiring reintubation.

Long Name: Total Initial Postoperative Vent Hours

SeqNo:	1900
Short Name:	TotalPOInitVentHr
Database Table Name:	Operations
Data Source:	Calculated
Format:	Real
Definition:	System calculated. OR Exit date/time to initial extubation date/time.
Low Value:	0.00
High Value:	6000.00
ParentLongName:	Extubated In The Operating Room Or By Anesthesia Team
ParentShortName:	ExtubInOR
ParentHarvestCodes:	2
ParentValue:	= "No"

Intent/Clarification:

Software calculated field. Time between OR exit date and time to (1890) Initial Extubation Date and Time.

Long Name: Re-Intubated After Initial Postoperative Extubation

SeqNo:	1905
Short Name:	ReIntubate

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient was re-intubated after the initial postoperative extubation.

ParentLongName: Endotracheal Intubation was Performed

ParentShortName: Intubate

ParentHarvestCodes: 3|4

ParentValue: = "Yes, prior to entering OR for this procedure" or "Yes, in OR for this procedure"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient was reintubated following the initial postoperative extubation.

Includes reintubation for any reason whether planned or unplanned, including reintubation for elective procedures, non-cardiac procedures, or respiratory failure.

Does not include the immediate reintubation following an unplanned extubation.

Long Name: Incision Type - Multi-Select

SeqNo: 1915

Short Name: IncisionTypeMulti

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all types of incisions used during this procedure.

Harvest Codes:

Code:	Value:
1	Sternotomy
2	Partial sternotomy
3	Clamshell thoracotomy
4	Thoracotomy
5	Video-assisted thoracoscopy (VATS)
6	Other

Intent/Clarification:

Indicate the incision type(s) or how the surgeon accessed the operative site. This is the path or method used to expose the operative field during an operation.

Coding Notes:

In the event, there is an existing open surgical incision, code (6) Other. For example, a patient undergoing a mediastinal exploration and the sternum is already open from a prior procedure; code (6) Other as the incision type.

Code:	Value:	Definition:
1	Sternotomy	Surgical division of the entire sternum through a vertical incision.
2	Partial sternotomy	Partial surgical division of the sternum, upper or lower.
3	Clamshell thoracotomy	Surgical incision extending across the entire anterior chest
4	Thoracotomy	Surgical incision into the chest wall, left, right, or bilateral. Includes posterolateral, anterolateral, and axillary incisions. Also includes parasternal thoracotomy, thoracoabdominal, and limited or mini thoracotomy incisions.
5	Video-assisted thoracoscopy (VATS)	Small incisions in the chest wall to allow for VATS, a type of minimally invasive thoracic surgery. Includes Port access for minimally invasive thoracic surgery including valve and robotic procedures.
6	Other	Incision types not otherwise listed. Includes subxiphoid incisions, transverse sternotomy, sub-costal approaches, percutaneous approaches, and cut down to access the femoral artery. Includes surgical incisions left open from a previous procedure, e.g., open sternum or thoracotomy.

Long Name: Partial Sternotomy Location

SeqNo: 1930
Short Name: PartSternLocat
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the partial sternotomy location.
ParentLongName: Incision Type - Multi-Select
ParentShortName: IncisionTypeMulti
ParentHarvestCodes: contains(2)
ParentValue: Contains ("Partial sternotomy")
Harvest Codes:

Code:	Value:
1	Upper
2	Lower

Intent/Clarification:

If incision type partial sternotomy, describe which part of the sternum was opened.

Long Name: VATS Location

SeqNo: 1955
Short Name: VATSLocat
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the location of the VATS approach.
ParentLongName: Incision Type - Multi-Select
ParentShortName: IncisionTypeMulti
ParentHarvestCodes: contains(5)
ParentValue: Contains ("Video-assisted thoracoscopy (VATS)")
Harvest Codes:

Code:	Value:
1	Left
2	Right
3	Bilateral

Intent/Clarification:

If incision type video-assisted thoracotomy (VATS), indicate the location of the VATS approach.

Long Name: Post-Op-Open Chest With Planned Delayed Sternal Closure

SeqNo:	1960
Short Name:	COpPlndDelay
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the chest was left open after the ~~index~~ surgical procedure with planned delayed sternal closure.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient left the OR with an open sternum. A patient that leaves the OR with an open sternum will always have a sternal closure planned.

Please note, answer this field on *every* operation, not just the index operation.

In the event the patient dies prior to delayed sternal closure, code as (1) Yes.

Long Name: Time of Skin Closure

SeqNo:	1965
Short Name:	SIStopT
Database Table Name:	Operations
Data Source:	User
Format:	Time - hh:mm (24-hour clock)
Definition:	Indicate to the nearest minute (using 24-hour clock) the time the skin incision was closed. If patient leaves the operating room with an open incision, collect the time dressings were applied to the incision.

Intent/Clarification:

Use the documented time the incision was closed.

In the event the patient leaves the OR/procedure with an open sternum, record the time the dressings were applied to the incision.

Use the last date and time of incision closure. If the patient's incision was closed and required reopening during the same procedure, use the last skin incision closure time documented.

If the patient dies in the OR after incision but prior to skin closure, use the time of death as the skin closure time.

Long Name: Time Patient Exited the OR

SeqNo:	1970
Short Name:	ORExitT
Database Table Name:	Operations
Data Source:	User
Format:	Time - hh:mm (24-hour clock)
Definition:	Indicate to the nearest minute (using 24-hour clock) the time the patient exits the operating room. If the procedure was performed in a location other than the OR, record the time when the sterile field was taken down.

Intent/Clarification:

Capture the time the patient physically leaves the OR.

In the event the procedure was performed outside of the OR, record the time the sterile field was taken down.

In the event the patient dies in the OR, use the time of death as the time the patient exited the OR.

Long Name: Procedure Extended Through Midnight

SeqNo:	1975
Short Name:	MultiDay
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the procedure continued through midnight from one day to the next.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the procedure continued through midnight from one day to the next day.

Long Name: Surgeon

SeqNo:	1980
Short Name:	Surgeon
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by user)
Definition:	Indicate the name of the primary surgeon performing this surgical procedure. The name, NPI and signature of all surgeons contributing data to the database must be on file with the STS for data files to be accepted.

Intent/Clarification:

Field must be completed. Missing data or information for a surgeon not on your current contract with the STS will cause your data file submission not to process.

Do not enter cases where the cardiac surgeon is on standby, i.e., an interventional cardiology case where the surgeon may be present but does not perform any procedures.

Long Name: Surgeon National Provider Identifier

SeqNo:	1985
Short Name:	SurgNPI
Database Table Name:	Operations
Data Source:	Lookup
Format:	Text (categorical values specified by User)
Definition:	Indicate the individual-level National Provider Identifier (NPI) of the surgeon performing the procedure. For non-US surgeons, a unique identifier will be assigned by the STS.

Intent/Clarification:

Indicate the national provider identifier (NPI) for the surgeon. This field must be populated as missing/inaccurate data will cause problems with the data file submission.

This link provides an NPI search tool NPI Registry.

Long Name: Taxpayer Identification Number

SeqNo:	1990
Short Name:	TIN
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by User)
Definition:	Indicate the Taxpayer Identification Number for the Taxpayer holder of record for the Surgeon's National Provider Identifier that performed the procedure. This may be an individual TIN or a group TIN depending on billing. This field will be blank for Non-US participants.

Intent/Clarification:

Indicate the Taxpayer Identification Number (TIN) for the taxpayer holder of record for the Surgeon's National Provider Identifier that performed the procedure. This may be an individual TIN or a group TIN depending on billing.

Long Name: Reoperation Within This Admission

SeqNo:	1995
Short Name:	ReOpInAdm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether this is a reoperation within this ~~hospital admission~~ episode of care.

Harvest Codes:

Code:	Value:
1	Yes – Planned reoperation
2	Yes – Unplanned reoperation
3	No

Intent/Clarification:

Indicate if this operation is a reoperation during this episode of care (EOC). This is specific to the *episode of care* for the surgical hospital admission.

This field is different from the planned/unplanned adult valve and CABG procedures. This field is intending to collect the return to the OR as planned or unplanned. See the specific definitions below.

Code:	Value:	Definition:
1	Yes – Planned reoperation	This operation is a second or more operation of this episode of care (EOC) and was a part of the original surgical plan. Includes but is not limited to the following procedures: • delayed sternal closure • ECMO decannulation • VAD explantation • removal of Broviac catheter • operations a part of staged repairs, i.e., Glenn following Norwood procedure *Example*: following BT shunt placement, a patient remains in house related to social reasons; the patient undergoes later tetralogy of Fallot (TOF) repair. The TOF repair is part of a planned staged repair.
2	Yes – Unplanned reoperation	This operation is a second or more operation of this EOC and was not part of the original surgical plan. Includes but is not limited to the following procedures – Reoperation for: • mediastinal washout/exploration for any reason • bleeding • infection • hemodynamic instability • initiation of ECMO/VAD • residual or recurrent lesion *Example*: following AV canal repair, the patient is unable to tolerate feeds related to ongoing mitral valve insufficiency requiring repair. The mitral/systemic AV valve repair is unplanned.
3	No	This operation is not a second or more operation within this EOC.

Additional examples of planned vs. unplanned reoperations:

- Code mediastinal exploration or washout as (2) Yes – Unplanned reoperation regardless of whether the sternum was already open.
- Code subsequent operations during the same episode of care that are a part of a staged repair as (1) Yes – Planned reoperation. E.g., Glenn procedures following a Norwood operation is planned. Repair of Tetralogy of Fallot repair following a shunt creation is planned.
- In the event a VAD is implanted as a bridge to transplant and is followed by a heart transplant, code the transplant as (1) Yes, Planned reoperation.
- Procedures performed concomitantly with delayed sternal closures may be planned or unplanned depending on the scenario. In the event something went awry during the delayed sternal closure, code (1) Yes, Planned reoperation. If it were known prior to the delayed sternal closure an additional procedure was needed, code this operation as (2) Yes – Unplanned reoperation.

Long Name: Number of Prior Cardiac Operations

SeqNo:	2000
Short Name:	PrvCtOpN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate how many cardiac (heart or great vessels) surgical procedures were performed prior to this surgical procedure with or without cardiopulmonary bypass (CPB). ~~Also include lung procedures utilizing CPB or tracheal procedures utilizing CPB.~~
Low Value:	0
High Value:	200

Intent/Clarification:

Indicate the number of cardiac surgical procedures performed prior to this procedure.

Cardiac procedures are those performed on the heart or great vessels and include Operation Types (OpType) (1) CPB Cardiovascular and (2) No CPB Cardiovascular.

Refer to SeqNo: 1755 for the specific definitions of OpType.

Do not include the following OpTypes: (3) ECMO, (4) Thoracic, (9) CPB Non-Cardiovascular, (6) VAD Operation Done with CPB, (7) VAD Operation Done Without CPB, (777) Other.

Long Name: Number of Prior CPB Cardiac Operations

SeqNo:	2005
Short Name:	PrvOCtOpN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate how many cardiac surgical procedures were performed on this patient prior to this surgical procedure utilizing CPB.
Low Value:	0
High Value:	50

Intent/Clarification:

Indicate the number of cardiac surgical procedures utilizing cardiopulmonary bypass (CPB) performed prior to this procedure.

Cardiac procedures are those performed on the heart or great vessels and only includes Operation Type (OpType) (1) CPB Cardiovascular.

Refer to SeqNo: 1755 for the specific definitions of OpType.

Do not include the following OpTypes: (2) No CPB Cardiovascular, (3) ECMO, (4) Thoracic, (9) CPB Non-Cardiovascular, (6) VAD Operation Done with CPB, (7) VAD Operation Done Without CPB, (777) Other.

Long Name: Cross Clamp Time – No CPB

SeqNo:	2010
Short Name:	XclampTmNC
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of minutes the aorta is completely cross-clamped during this non-CPB cardiovascular surgical procedure. Enter zero if no cross-clamp was used.
Low Value:	0
High Value:	600
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	2

ParentValue: = “No CPB Cardiovascular”

Intent/Clarification:

Indicate the total time in minutes the aorta is completely cross clamped during a No CPB Cardiovascular procedure.

Enter 0 if no cross-clamp was used.

Long Name: Perfusion Strategy

SeqNo: 2015
Short Name: CPBUtil
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the level of CPB or coronary perfusion used during the procedure.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|9|6
ParentValue: = “CPB Cardiovascular”, “CPB Non-Cardiovascular” or “VAD Operation Done With CPB”
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575

Harvest Codes:

Code:	Value:
4	Left Heart Bypass
2	Combination
3	Full

Intent/Clarification:

Indicate the level of cardiopulmonary bypass or coronary perfusion utilized during this procedure.

Code:	Value:	Definition:
4	Left Heart Bypass	Left heart bypass is utilized to remove oxygenated blood

Code:	Value:	Definition:
		from the left atrium and return it to the distal descending aorta or femoral artery. This strategy allows repair or replacement of the descending thoracic aorta while regulating blood flow, minimizing surface area contact activation, and reducing heparin requirements.
2	Combination	With or without CPB and/or with or without coronary perfusion at any time during the procedure (capture conversions from off-pump to on-pump only). Examples include: • At start of procedure: No CPB/No coronary perfusion --> conversion to CPB • At start of procedure: No CPB/No coronary perfusion --> conversion to coronary perfusion • At start of procedure: No CPB/No coronary perfusion --> conversion to coronary perfusion --> conversion to CPB
3	Full	Full CPB or coronary perfusion was used for the entire procedure. If a structural repair is completed while the patient is on ECMO/VAD support where the circuit is functioning as a bypass circuit, OpType (1) CPB Cardiovascular, code Perfusion Strategy as (3) Full.

Long Name: CPB Utilization – Combination Plan

SeqNo:	2020
Short Name:	CPBCmb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the combination procedure from off-pump to on-pump was a planned or an unplanned conversion.
ParentLongName:	Perfusion Strategy
ParentShortName:	CPBUtil

ParentHarvestCodes: 2

ParentValue: = “Combination”

Harvest Codes:

Code: Value:

1 Planned

2 Unplanned

Intent/Clarification:

If combination perfusion strategy, indicate if the conversion to cardiopulmonary bypass (CPB) or coronary perfusion was planned or unplanned. The intent is to capture if the operation was intended to be an off-pump case (without cardiopulmonary bypass/CPB) and for some clinical reason, required CPB to complete the operation.

Coding Notes:

- Code (1) Planned if the surgeon intended to treat with any of the combination options described in Perfusion Strategy.
- Code (2) Unplanned if the surgeon did not intend to treat with any of the combination options described in Perfusion Strategy.

Long Name: CPB Utilization – Unplanned Combination Reason

SeqNo: 2025

Short Name: CPBCmbR

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the reason that the procedure required the initiation of CPB and/or coronary perfusion.

ParentLongName: CPB Utilization – Combination Plan

ParentShortName: CPBCmb

ParentHarvestCodes: 2

ParentValue: = “Unplanned”

Harvest Codes:

Code: Value:

1 Exposure/visualization

2 Bleeding

3 Inadequate size and/or diffuse disease of distal vessel

4 Hemodynamic instability (hypotension/arrhythmias)

5 Conduit quality and/or trauma

9 Other

Intent/Clarification:

If unplanned CPB utilization, indicate the reason that the procedure required initiation of CPB and/or coronary perfusion.

Long Name: Arterial Cannulation Insertion Site

SeqNo: 2030
Short Name: ArtCannInsertSite
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the insertion site for the arterial cannulation. If multiple cannulation occurred, select all that apply.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|9|6
ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	Aortic
2	Axillary
3	Femoral
4	Innominate
5	Other

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the cannulation (insertion) site(s) for the arterial bypass cannula(s). Select all that apply. The intent is to only capture coronary perfusion cannulation sites.

Code:	Value:	Definition:
1	Aortic	Arterial cannulation site is the aorta.

Code:	Value:	Definition:
2	Axillary	Arterial cannulation site is the axillary artery.
3	Femoral	Arterial cannulation site is the femoral artery.
4	Innominate	Arterial cannulation site is the innominate artery.
5	Other	Other arterial cannulation site not otherwise listed.

Long Name: Venous Cannulation Insertion Site

SeqNo: 2035
Short Name: VenCannInsertSite
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the insertion site of the venous cannulation. If multiple cannulations occurred, select all that apply.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|9|6
ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575
Harvest Codes:

Code:	Value:
1	Femoral
2	Pulmonary Vein
3	Jugular
4	SVC
8	IVC
5	Rt. Atrial
6	Lt. Atrial

7 Other

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the cannulation (insertion) site(s) for the venous bypass cannula(s). Select all that apply. The intent is to only capture coronary perfusion cannulation sites.

Code bicaval cannulation as both (5) Rt Atrial and (4) SVC.

Code:	Value:	Definition:
1	Femoral	Venous cannulation site is the femoral vein.
2	Pulmonary vein	Venous cannulation site is the axillary artery.
3	Jugular	Venous cannulation site is the femoral artery.
4	SVC	Venous cannulation site is the superior vena cava (SVC)
8	IVC	Venous cannulation site is the inferior vena cava (IVC)
5	Rt. Atrial	Venous cannulation site is the right atrium (Rt. Atrium)
6	Lt. Atrial	Venous cannulation site is the left atrium (Lt Atrium)
7	Other	Other Venous cannulation site not otherwise listed.

Long Name: CPB Blood Prime

SeqNo:	2040
Short Name:	CPBPrimed:
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the CPB circuit was primed with blood other than the patient's own blood.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6

ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate whether the CPB circuit was primed with blood other than the patient's own blood.

Long Name: Cardiopulmonary Bypass Time

SeqNo: 2060

Short Name: CPBTm

Database Table Name: Operations

Data Source: User

Format: Integer

Definition: Indicate the total number of minutes that systemic return is diverted into the cardiopulmonary bypass (CPB) circuit and returned to the systemic system. This time period (Cardiopulmonary Bypass Time) includes all periods of cerebral perfusion and sucker bypass and excludes any circulatory arrest and modified ultrafiltration periods. If more than one period of CPB is required during the surgical procedure, enter the sum of all the CPB periods.

Low Value: 1

High Value: 999

ParentLongName: Operation Type

ParentShortName: OpType

ParentHarvestCodes: 1|9|6

ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the total time in minutes. This time-period includes all periods of cerebral perfusion and sucker bypass and excludes periods of circulatory arrest and modified ultrafiltration.

Coding Notes:

- If more than one period of CPB is utilized, record the sum of the CPB periods.
- Priority source is the perfusion record but may be obtained from the surgeon's dictated op note or anesthesia record.
- Do not round total bypass minutes up. For example, if the total CPB time is 90.67 minutes, enter 90 minutes.

Long Name: Cross Clamp Time - CPB

SeqNo:	2065
Short Name:	XClampTm
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of minutes that the coronary circulation is mechanically isolated from systemic circulation, either by an aortic cross clamp or systemic circulatory arrest. This time period includes all intervals of intermittent or continuous cardioplegia administration. If more than one cross clamp period is required during this surgical procedure, enter the sum of the cross clamp periods. Enter zero if the coronary circulation was never mechanically isolated from systemic circulation, either by an aortic cross clamp or systemic circulatory arrest. For operations involving transplants, the cross clamp time is for the donor heart.
Low Value:	0
High Value:	600
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the total time in minutes the coronary circulation is mechanically isolated from systemic circulation, either by an aortic cross clamp or systemic circulatory arrest. This time-period includes all intervals of intermittent or continuous cardioplegia administration.

Coding Notes:

- If more than one cross clamp period is required during this surgical procedure, enter the sum of the cross-clamp periods.
- If the coronary circulation was never mechanically isolated from systemic circulation, either by an aortic cross clamp or systemic circulatory arrest, enter 0.
- For operations involving transplants (heart or heart and lung), enter the cross-clamp time for the donor heart. Thus, the cross-clamp time for transplants (heart or heart and lung) can be greater than the cardiopulmonary bypass (CPB) time.
- Priority source is the perfusion record but may be obtained from the surgeon's dictated op note or anesthesia record.
- Do not round the cross-clamp time up. For example, if the cross-clamp time is 50.6 minutes, enter 50 minutes.

Long Name: Circulatory Arrest Time

SeqNo:	2070
Short Name:	DHCATm
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of minutes of complete cessation of blood flow to the patient. This time period excludes any periods of cerebral perfusion. If more than one period of circulatory arrest is required during this surgical procedure, enter the sum of these periods. Enter zero if circulatory arrest technique was not used.
Low Value:	0
High Value:	200
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the total time in minutes where there is complete cessation of blood flow to the patient. Circulatory arrest is a surgical technique that involves cooling the body of the patient and stopping blood circulation. This is not the same as cardiopulmonary bypass time. It may be used in aortic arch procedures and pulmonary thromboembolectomies.

Coding Notes:

- If more than one period of circulatory arrest is required during this surgical procedure, enter the sum of these periods. If circulatory arrest technique was not used enter 0.
- Capture any episodes of deep hypothermic or moderate hypothermic circulatory arrest.
- Priority source is the perfusion record but may be obtained from the surgeon's dictated op note or anesthesia record.
- Do not round the circulatory arrest time up. For example, if the circulatory arrest time is 10.6 minutes, enter 10 minutes.

Long Name: Induced Fibrillation

SeqNo:	2075
Short Name:	InducedFib
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether ventricular fibrillation was intentionally induced during this procedure.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate whether ventricular fibrillation was intentionally induced during this procedure.

Long Name: Induced Fibrillation Time - Minutes

SeqNo:	2080
Short Name:	InducedFibTmMin
Database Table Name:	Operations

Data Source:	User
Format:	Integer
Definition:	Indicate the total number of whole minutes of intentionally induced ventricular fibrillation. This time period includes all intervals of intermittent or continuously induced fibrillation. If more than one fibrillation period is required during this surgical procedure, enter the total number of minutes.
Low Value:	1
High Value:	360
ParentLongName:	Induced Fibrillation
ParentShortName:	1
ParentHarvestCodes:	InducedFib
ParentValue:	= "Yes"

Intent/Clarification:

If utilized, indicate the total time in minutes of intentionally induced ventricular fibrillation.

Long Name: Temperature Measured

SeqNo:	2090
Short Name:	TempMeas
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient's core temperature was measured during the procedure.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate whether the patient’s core temp was measured during the procedure.

Core temperatures are most accurately monitored using esophageal, nasopharyngeal, bladder, rectal, oxygenator arterial outlet blood, and jugular bulb venous methods. Sites are encouraged to utilize one of these methods as priority source.

Long Name: Lowest Temperature

SeqNo:	2095
Short Name:	LwstTemp
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Record the patient's lowest core temperature in the operating room in degrees centigrade.
Low Value:	5.0
High Value:	40.0
ParentLongName:	Temperature Measured
ParentShortName:	TempMeas
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If core temperature measured, capture the lowest core intraoperative temperature.

Core temperatures are most accurately monitored using esophageal, nasopharyngeal, bladder, rectal, oxygenator arterial outlet blood, and jugular bulb venous methods. Sites are encouraged to utilize one of these methods as priority source.

Long Name: Lowest Temperature Source

SeqNo:	2100
Short Name:	LwstTempSrc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the source where the lowest core temperature was measured.
ParentLongName:	Temperature Measured
ParentShortName:	TempMeas

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Esophageal
2	CPB venous return
3	Bladder
4	Nasopharyngeal
5	Tympanic
6	Rectal
9	Jugular-Venous
10	Oxygenator arterial outlet blood (CPB Arterial Blood)
11	Pulmonary Artery
7	Other
8	Unknown

Intent/Clarification:

If core temperature measured, indicate the site/source where the lowest core intraoperative temperature was measured.

Core temperatures are most accurately monitored using esophageal, nasopharyngeal, bladder, rectal, oxygenator arterial outlet blood, and jugular bulb venous methods. Sites are encouraged to utilize one of these methods as priority source.

Long Name: Cerebral Perfusion Utilized

SeqNo: 2175

Short Name: CPerfUtil

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS) Definition: Indicate whether cerebral perfusion was performed.

ParentLongName: Operation Type

ParentShortName: OpType

ParentHarvestCodes: 1|9|6

ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate if selective (or isolated) cerebral perfusion was utilized during the procedure. Does not include regional or total body perfusion.

Description: Selective cerebral perfusion is a technique that involves providing blood flow and metabolic support to the brain while the blood flow to the rest of the body is stopped during circulatory arrest. This approach is commonly used during complex surgery that requires circulatory arrest. It offers more protection for the brain and minimizes the risk of stroke and other serious complications.

Long Name: Cerebral Perfusion Time

SeqNo:	2180
Short Name:	CPerfTime
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of minutes cerebral perfusion was performed. This would include antegrade or retrograde cerebral perfusion strategies.
Low Value:	1
High Value:	999
ParentLongName:	Cerebral Perfusion Utilized
ParentShortName:	CPerfUtil
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If cerebral perfusion performed, indicate the total number of minutes cerebral perfusion was performed, including antegrade and retrograde cerebral perfusion strategies. If more than one period of cerebral perfusion was utilized during this surgical procedure, enter the sum of these periods.

Priority source is the perfusion record but may be obtained from the surgeon's dictated op note.

Long Name: Cerebral Perfusion Type

SeqNo:	2185

Short Name: CPerfTyp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate type of cerebral perfusion utilized.
ParentLongName: Cerebral Perfusion Utilized
ParentShortName: CPerfUtil
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Antegrade
2	Retrograde
3	Both antegrade and retrograde

Intent/Clarification:

If cerebral perfusion performed, indicate the type of cerebral perfusion utilized during this procedure.

Long Name: Cardioplegia Delivery

SeqNo: 2245
Short Name: CplegiaDeliv
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the delivery method of cardioplegia used.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|9|6
ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"
Harvest Codes:

Code:	Value:
1	None
2	Antegrade
3	Retrograde
4	Both

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the delivery method of cardioplegia used during the procedure.

Cardioplegia is a solution that is used to cause the heart to arrest as documented by the surgeon or perfusionist. The priority source for obtaining this information is the perfusion record.

Code:	Value:	Definition (Intent/Clarification)
1	None	Cardioplegia not used during procedure.
2	Antegrade	Cardioplegia delivery to the heart via the coronary ostia (aortic root) in the normal direction of blood flow.
3	Retrograde	Cardioplegia delivery to the heart via the coronary sinus in the reverse direction of normal blood flow.
4	Both	Cardioplegia delivery to the heart utilizing both antegrade and retrograde delivery methods.

Retrograde autologous priming (RAP) is not the same as (3) Retrograde cardioplegia delivery. RAP is a means to effectively and safely restrict the hemodilution caused by the direct homologous blood transfusion and reduce the blood transfusion requirements during cardiac surgery.

Long Name: Cardioplegia Type

SeqNo: 2250
Short Name: CplegiaType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of cardioplegia used.
ParentLongName: Cardioplegia Delivery
ParentShortName: CplegiaDeliv
ParentHarvestCodes: 2|3|4
ParentValue: = "Antegrade", "Retrograde" or "Both"

Harvest Codes:

Code:	Value:
1	Blood
2	Crystalloid

Intent/Clarification:

If cardioplegia given, indicate the type of cardioplegia used during the procedure.

Coding Notes:

- Code (1) Blood if any blood is contained in the solution in any ratio/amount. For example, del Nido solution is mixed 1 part blood to 4 parts crystalloid is blood cardioplegia.
- Code (2) Crystalloid if the solution is crystalloid (without blood).

Long Name: Cardioplegia Solution

SeqNo:	2255
Short Name:	CplegiaSolution
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the cardioplegia solution used during this procedure.
ParentLongName:	Cardioplegia Delivery
ParentShortName:	CplegiaDeliv
ParentHarvestCodes:	2|3|4
ParentValue:	= "Antegrade", "Retrograde" or "Both"

Harvest Codes:

Code:	Value:
1	del Nido
2	Custodiol/Bretchneider (HTK)
3	Buckberg
4	Plegisol/St. Thomas
5	University of Wisconsin
6	Celsior
7	Roe's Solution
8	Microplegia with potassium
9	Microplegia with Adenocaine
90	Other

Intent/Clarification:

If cardioplegia given, indicate the cardioplegia solution type.

Long Name: First Hematocrit Measured In The OR

SeqNo:	2275
Short Name:	FirstORHct
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the first hematocrit measured in the OR measured in percentage (%).
Low Value:	1.00
High Value:	99.99
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the first hematocrit measured after the patient entered the OR.

Long Name: Lowest Hematocrit during CPB

SeqNo:	2280
Short Name:	LowestHematocritCPB
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the patient's lowest hematocrit after CPB initiation and prior to CPB discontinuation, measured in percentage (%).
Low Value:	1.00
High Value:	99.99
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the lowest hematocrit measured after the initiation of cardiopulmonary bypass (CPB).

If measured hematocrit values are unavailable, calculated values may be used. The calculated values must be documented in the medical record and should not be calculated by the data manager.

Long Name: Hematocrit - Post-CPB

SeqNo:	2285
Short Name:	HCTPost
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the hematocrit measured post-CPB, measured in percentage (%).
Low Value:	1.00
High Value:	99.99
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|9|6
ParentValue:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate the hematocrit measured following cessation of CPB.

Long Name: Ultrafiltration Performed

SeqNo:	2290
Short Name:	UltrafilPerform
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether ultra-filtration was performed.
ParentLongName:	Operation Type

ParentShortName: OpType

ParentHarvestCodes: 1|9|6

ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate whether ultra-filtration was performed.

Long Name: Ultrafiltration Performed When

SeqNo: 2295

Short Name: UltraFilPerfWhen

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate when ultra-filtration was performed.

ParentLongName: Ultrafiltration Performed

ParentShortName: UltrafilPerform

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	During CPB, CUF/ZBUF/DUF
2	After CPB, MUF
3	During and after CPB

Intent/Clarification:

If utilized, indicate when ultra-filtration was performed during this procedure.

Code:	Value:	Definition (Intent/Clarification)
1	During CPB, CUF/ZBUF/DUF	Ultrafiltration performed during cardiopulmonary bypass (CPB). • CUF = conventional ultrafiltration

Code:	Value:	Definition (Intent/Clarification)
		• ZBUF = zero balance ultrafiltration • DUF = dry ultrafiltration
2	After CPB, MUF	Ultrafiltration performed after cessation of CPB. • MUF = modified ultrafiltration
3	During and after CPB	Ultrafiltration performed during and following cessation of CPB.

Long Name: Anticoagulant Used

SeqNo: 2300
Short Name: AnticoagUsed
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether an anticoagulant was used during the procedure.
ParentLongName: Operation Type
ParentShortName: OpType
ParentHarvestCodes: 1|9|6
ParentValue: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If cardiopulmonary bypass (CPB) utilized, indicate whether an anticoagulant was used during the procedure.

Long Name: Type Of Anticoagulant Used - Multi-Select

SeqNo: 2325
Short Name: AnticoagType
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all types of anticoagulants used.
ParentLongName: Anticoagulant Used
ParentShortName: AnticoagUsed
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Unfractionated heparin
2	Argatroban
3	Bivalirudin
4	Other

Intent/Clarification:

If used, indicate the anticoagulant(s) used during the procedure. Include anticoagulants administered during the cardiopulmonary bypass (CPB) pump prime.

BLOOD AND BLOOD RELATED PRODUCTS (INCLUDING CPB BLOOD PRIME UNITS)

Long Name: Autologous Transfusion

SeqNo: 2340
Short Name: AutologousTrans
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient was transfused with any autologous blood products that had been collected prior to surgery (e.g., self-donated).
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient was transfused with self-donated blood collected prior to surgery during the procedure. Self-donated blood collected prior to the procedure does not include cell saver blood.

Complete this field for each operative case separately.

Long Name: Transfusion of Non-Autologous Blood Products During or After Procedure

SeqNo:	2345
Short Name:	TransfusBldProdAny
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received non-autologous (self-donated) blood products during or after this procedure.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient received any non-autologous (not self-donated) blood products during or after this procedure. This includes products administered during the cardiopulmonary bypass (CPB) circuit blood prime.

Includes non-autologous blood products administered any time after this procedure, regardless of the timeframe.

Complete this field for each operative case separately.

Long Name: Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR

SeqNo:	2350
Short Name:	TransfusBldProdBefore
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received non-autologous (self-donated) blood products during ~~or after~~ this procedure.
ParentLongName:	Transfusion of Non-Autologous Blood Products During or After Procedure
ParentShortName:	TransfusBldProdAny
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient received any non-autologous blood products, indicate whether the patient received any non-autologous blood products before leaving the OR.

Include products initiated in the OR even if completed outside of the OR. Do not include products that initiated in an inpatient area that completed in the OR.

Complete this field for each operative case separately.

Long Name: Transfusion of Blood Products Within 24 Hours Post-Procedure

SeqNo:	2355
Short Name:	TransfusBldProdLT24
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received blood products within 24 hours post-procedure.
ParentLongName:	Transfusion of Non-Autologous Blood Products During or After Procedure
ParentShortName:	TransfusBldProdAny
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient received any non-autologous blood products, indicate whether the patient received any non-autologous blood products within 24-hours of the procedure. This includes blood products transfused after the OR exit time up to 24-hours following OR exit time.

Complete this field for each operative case separately.

Long Name: Transfusion of Blood Products After 24 Hours Post-Procedure

SeqNo:	2360
Short Name:	TransfusBldProdGT24
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received blood products after 24 hours post-procedure.
ParentLongName:	Transfusion of Non-Autologous Blood Products During or After Procedure
ParentShortName:	TransfusBldProdAny
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient received any non-autologous blood products, indicate if the patient received any non-autologous blood products after 24-hours post-procedure. This includes blood products transfused any time after 24-hours from the OR exit time.

Complete this field for each operative case separately.

Long Name: Antifibrinolytic Used Intraoperatively

SeqNo:	2365
Short Name:	AntifibUsage
Database Table Name:	Operations
Data Source:	User

Format: Text (categorical values specified by STS)

Definition: Indicate whether antifibrinolytics were used intraoperatively.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if any of the following antifibrinolytics were administered during the procedure: Epsilon Amino-Caproic Acid (Amicar, EACA), Tranexamic Acid, and/or Aprotinin. The database is not collecting other medications in this field.

Long Name: Antifibrinolytic Type - Multi-Select

SeqNo: 2370

Short Name: AntifibType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all types of antifibrinolytics used intraoperatively.

ParentLongName: Antifibrinolytic Used Intraoperatively

ParentShortName: AntifibUsage

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Epsilon Amino-Caproic Acid (Amicar, EACA)
2	Tranexamic Acid
3	Trasylol (Aprotinin)

Intent/Clarification:

If antifibrinolytics administered during the procedure, indicate the type(s) of antifibrinolytic(s) used.

Long Name: Procoagulent Used Intraoperatively

SeqNo: 2390

Short Name: ProcoagUsage

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether procoagulents were used intraoperatively

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate whether a procoagulant (systemic clotting factor) was administered during the procedure.

Coding Notes:

- Code (1) Yes for systemic clotting factors only. Do not include topical clotting factors.

Long Name: Procoagulant Type - Multi-Select

SeqNo: 2395

Short Name: ProcoagType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all types of procoagulants used interoperatively.

ParentLongName: Procoagulent Used Intraoperatively

ParentShortName: ProcoagUsage

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Factor VIIa (Novoseven)
2	Factor VIIa (SevenFact)
3	Prothrombin Complex Concentrate-4 (PCC-4, KCentra)
4	Prothrombin Complex Concentrate-4 with Factor VIIa (FEIBA)
5	Prothrombin Complex Concentrate-3 (PCC-3, ProfilNine-SD)
6	Octaplex Prothrombin Concentrate
7	Fibrinogen Concentrate
8	Antithrombin 3 Concentrate (AT3)
9	Desmopressin (DDAVP)
10	Humate P

Intent/Clarification:

If used intraoperatively, indicate all types of procoagulants administered during the procedure.

L1. CABG PROCEDURES (< 18-YEARS)

Long Name: Number Of Distal Arterial Conduits

SeqNo:	2445
Short Name:	DistArt
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of distal anastomoses with arterial conduits, whether IMA, radial artery, etc.
Low Value:	0
High Value:	9
ParentLongName:	CAB
ParentShortName:	OpCAB
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If coronary artery bypass (CABG) done, indicate the total number of distal anastomoses constructed using an artery.

The artery/arterial component of the graft is anastomosed to the coronary artery. More than one anastomosis can be constructed from each artery.

Code the total number of distal anastomoses constructed using an artery including internal mammary artery (MA), radial, and other arterial conduits.

Long Name: Number Of Distal Venous Conduits

SeqNo:	2450
Short Name:	DistVein

Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of distal anastomoses with venous conduits.
Low Value:	0
High Value:	9
ParentLongName:	CAB
ParentShortName:	OpCAB
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If coronary artery bypass (CABG), indicate the total number of distal anastomoses with venous conduits.

Distal anastomosis refers to the connection between the bypass graft (conduit) and coronary artery. The venous/venous component of the graft is anastomosed to the coronary artery. More than one anastomosis can be constructed from a single vein. Saphenous veins are used as free grafts to bypass any coronary artery.

Long Name: IMA Artery Used

SeqNo	2455
Short Name:	IMAArtUs
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate which, if any, Internal Mammary Artery(ies) (IMA) were used for grafts.
ParentLongName:	CAB
ParentShortName:	OpCAB
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Left IMA
2	Right IMA
3	Both IMAs

4 No IMA

Intent/Clarification:

If coronary artery bypass (CABG), indicate the use of an internal mammary artery (IMA), also known as the internal thoracic artery, to construct one or more distal anastomoses.

The IMA may be used as a free or in-situ graft; pedicle, skeletonized.

Includes when only part of the IMA was used as part of a composite graft, including CryoVein.

The patient must leave the OR with an IMA graft in place to code (1) Left IMA or (2) Right IMA or (3) Both IMAs used. For example, the flow via the IMA graft was poor so the surgeon removed the IMA graft and used a venous graft to the LAD. In this scenario, the IMA was not used when the patient left the OR, code (4) No IMA.

In situations where the surgeon uses an existing LIMA/RIMA, code which (left or right) or both IMAs were used.

L2. CABG PROCEDURES (≥ 18-YEARS)

Long Name: Total Number of Distal Anastomoses with Arterial Conduits - Adult

SeqNo:	2460
Short Name:	TotalNoDistAnastArtCond
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of arterial grafts (any graft where the distal portion is arterial).
Low Value:	0
High Value:	9
ParentLongName:	CAB - Adult
ParentShortName:	OpCAB18
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Intent/Clarification:

If coronary artery bypass grafting (CABG) done, indicate the total number of distal anastomoses constructed using an artery.

The artery/arterial component of the graft is anastomosed to the coronary artery. More than one anastomosis can be constructed from each artery.

Code the total number of distal anastomoses constructed using an artery including IMA, radial, and other arterial conduits.

Long Name: Number Of Distal Venous Conduits - Adult

SeqNo:	2465
Short Name:	DistVein18
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of distal anastomoses with venous conduits.
Low Value:	0
High Value:	9
ParentLongName:	CAB - Adult
ParentShortName:	OpCAB18
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Intent/Clarification:

If coronary artery bypass grafting (CABG) done, indicate the total number of distal anastomoses with venous conduits.

Distal anastomosis refers to the connection between the bypass graft (conduit) and coronary artery. The venous/venous component of the graft is anastomosed to the coronary artery. More than one anastomosis can be constructed from a single vein. Saphenous veins are used as free grafts to bypass any coronary artery.

Long Name: IMA Artery Used - Adult

SeqNo:	2470
Short Name:	IMAArtUs18

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate which, if any, Internal Mammary Artery(ies) (IMA) were used for grafts.
ParentLongName:	CAB - Adult
ParentShortName:	OpCAB18
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Left IMA
2	Right IMA
3	Both IMAs
4	No IMA

Intent/Clarification:

If coronary artery bypass grafting (CABG) done, indicate the use of an internal mammary artery (IMA), also known as the internal thoracic artery, to construct one or more distal anastomoses.

The IMA may be used as a free or in-situ graft; pedicle, skeletonized.

Includes when only part of the IMA was used as part of a composite graft, including CryoVein.

The patient must leave the OR with an IMA graft in place to code IMA used. For example, the flow via the IMA graft was poor so the surgeon removed the IMA graft and used a venous graft to the LAD. In this scenario, the IMA was not used, code (4) No IMA.

In situations where the surgeon uses an existing LIMA/RIMA, code which (left or right) or both IMAs were used.

When part of the IMA was used as part of a composite graft, code which IMA was used.

M1. VALVE PROCEDURES (< 18-YEARS)

Long Name: Valve Device Explanted And/Or Implanted

SeqNo: 2475

Short Name:	ValExImp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a valve device of any type was explanted and/or implanted during this procedure.
ParentLongName:	Valve
ParentShortName:	OpValve
ParentHarvestCodes:	1
ParentValue:	= "Yes"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	<6575
ParentValue2:	<6575

Harvest Codes:

Code:	Value:
1	No
2	Yes, Explanted
3	Yes, Implanted
4	Yes, Explanted and Implanted

Intent/Clarification:

If age < 18-years, indicate whether a valve was implanted or explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Long Name: First Valve Prosthesis Explant Position

SeqNo:	2480
Short Name:	ValExpPos
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the first explanted prosthetic valve or annuloplasty device.
ParentLongName:	Valve Device Explanted And/Or Implanted
ParentShortName:	ValExImp
ParentHarvestCodes:	2|4

ParentValue: = "Yes, Explanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code: Value:

1 Aortic or neo-aortic valve
2 Mitral or systemic AV valve
3 Tricuspid or non-systemic AV valve
4 Pulmonary or neo-pulmonary valve
5 Truncal valve
6 Common AV valve

Intent/Clarification:

If explanted, indicate the location of the explanted prosthetic valve or annuloplasty device.

Coding Notes:

Nomenclature for valves has been updated in this version to reflect the position/function of the valve. Data managers are encouraged to work with their clinical teams to accurately capture the correct valve related diagnosis.

Code:	Value:	Definition:
1	Aortic or neo-aortic valve	Explant of a prosthetic valve in the aortic position and includes an aortic or neo-aortic valve. The neo-aortic valve is a valve functioning in the aortic position. Excludes explant of a truncal valve; instead, code (6) Truncal valve. *Example*: during a Ross procedure the native pulmonary valve is moved to the aortic position and is now the neo-aortic valve.
2	Mitral or systemic AV valve	Explant of a prosthetic valve in the mitral position or is functioning as the systemic atrioventricular (AV) valve. The systemic AV valve may be morphologically left or right and is providing the systemic support. *Example*: in single ventricle, Mitral atresia, the tricuspid valve is functioning as the systemic AV

Code:	Value:	Definition:
		valve.
3	Tricuspid or non-systemic AV valve	Explant of a prosthetic valve in the tricuspid position or is functioning as the non-systemic AV valve. The non-systemic AV valve is not providing the systemic support.
4	Pulmonary or neo-pulmonary valve	Explant of a prosthetic valve in the pulmonary position and includes a pulmonary or neo-pulmonary valve. The neo-pulmonary valve is a valve functioning in the pulmonary position. *Example*: following arterial switch operation, the native aortic valve functions in the pulmonary position and is now the neo-pulmonary valve.
5	Truncal valve	Explant of a prosthetic truncal valve. Code in the setting of truncus arteriosus where the explant is a previously implanted truncal valve. Caution as the dictated op note may state aortic valve.
6	Common AV valve	Explant of a prosthetic common AV valve. The common AV valve is the presence of one AV valve instead of 2 separate valves. This is most often in the setting of single ventricle physiology or in an upseptated valve (e.g., in the setting of an unrepaired AV septal defect).

Long Name: First Valve Explant Etiology

SeqNo: 2485
Short Name: ValExpEt
Database Table Name: Operations

Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the primary reason for explanting valve device.
ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: ValExImp
ParentHarvestCodes: 2|4
ParentValue: = "Yes, Explanted" or "Yes, Explanted and Implanted"
Harvest Codes:

Code:	Value:
1	Endocarditis
4	Incompetence
7	Bioprosthetic Deterioration
10	Thrombus
2	Failed repair
5	Pannus
8	Sizing/Positioning issue
3	Hemolysis
6	Paravalvular leak
9	Stenosis
11	Other
12	Unknown

Intent/Clarification:

If explanted, select the primary/most critical reason the valve is being explanted.

In the event a homograft is being explanted due to calcification, code (7) Bioprosthetic Deterioration.

Long Name: Valve Explant Type #1

SeqNo: 2490
Short Name: ValExType1
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of the first valve or device explanted.
ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: ValExImp
ParentHarvestCodes: 2|4
ParentValue: = "Yes, Explanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Leaflet clip
7	Surgeon fashioned
10	Transcatheter valve
11	Transcatheter valve in valve with prosthetic valve
9	Other

Intent/Clarification:

If explanted, indicate the type of valve being explanted.

Long Name: Valve Explant Unique Device Identifier (UDI) - 1

SeqNo:	2495
Short Name:	ValExpUDI1
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the first explanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Explant Type #1
ParentShortName:	ValExType1
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"

Intent/Clarification:

If explanted, indicate the unique device identifier (UDI) of the valve/valve device.

UDI Info:

The UDI identifies the specific individual valve; no two devices/valves have the same UDI. The UDI is made up of five different identifiers and each identifier is preceded by a number in parentheses. Enter all characters including the parenthesis.

Leave blank if the UDI is unknown or unable to be collected due to state/local privacy laws.

Refer to the FDA website for detailed explanation of UDIs.

The UDI is made up of five different identifiers and each identifier is preceded by a number in parentheses. Example UDI below: Device Identifier (01), Expiration Date (17), Manufacturing date (11), Lot Number (10), and Serial Number (21)



Long Name: Valve Explant Model #1

SeqNo:	2500
Short Name:	ValExMod1
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of the first valve or device explanted.
ParentLongName:	Valve Explant Type #1
ParentShortName:	ValExType1
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"

Harvest Codes:

Code:	Value:
201	500DM## - Medtronic Open Pivot Standard Mitral Heart Valve
202	500FA## - Medtronic Open Pivot Standard Aortic Heart Valve
203	501DA## - Medtronic Open Pivot AP Series Aortic Heart Valve
204	501DM## - Medtronic Open Pivot AP Series Mitral Heart Valve
205	502AG## - Medtronic Open Pivot Aortic Valved Graft (AVG)
206	503DA## - Medtronic Open Pivot APex Series Heart Valve
207	505DA## - Medtronic Open Pivot AP360 Series Aortic Heart Valve
208	A010 - Artivion Ascending Thoracic Aorta
209	A020 - Artivion Descending Thoracic Aorta

210 A030 - Artivion Pulmonary Artery
211 AV00 - Artivion Aortic Valve and Conduit
212 AV10 - Artivion Aortic Valve without Conduit
214 PV00 - Artivion Pulmonary Valve & Conduit
215 PV10 - Artivion Pulmonary Valve without Conduit
216 R010 - Artivion Aortoiliac Grafts
217 R020 - Artivion Femoral Popliteal Artery
218 SGPV00 - Artivion SG Pulmonary Valve & Conduit
219 SGPV10 - Artivion SG Pulmonary Valve without Conduit
220 V010 - Artivion Saphenous Vein
221 V060 - Artivion Femoral Vein
224 2500## - Edwards Prima Aortic Stentless Bioprosthesis
225 2500P## - Edwards Prima Plus Stentless Aortic Bioprosthesis
226 2625## - Carpentier-Edwards Porcine Aortic Bioprosthesis
227 2650## - Carpentier-Edwards S.A.V. Aortic Porcine Bioprosthesis
228 2700## - Carpentier-Edwards Perimount Pericardial Aortic Bioprosthesis
229 2700TFX## - Carpentier-Edwards Perimount Theon Pericardial Aortic Bioprosthesis with ThermaFix Process
230 2800## - Carpentier-Edwards Perimount RSR Pericardial Aortic Bioprosthesis
231 2800TFX## - Carpentier-Edwards Perimount Theon RSR Pericardial Aortic Bioprosthesis with ThermaFix Process
232 3000## - Carpentier-Edwards Perimount Magna Pericardial Aortic Bioprosthesis
233 3000TFX## - Carpentier-Edwards Perimount Magna Pericardial Aortic Bioprosthesis with ThermaFix Process
234 3160## - Edwards-Duromedics Bileaflet Prostheses
235 3300TFX## - Carpentier-Edwards Perimount Magna Ease Pericardial Aortic Bioprosthesis with ThermaFix Process
236 3600## - Edwards Mira Mechanical Valve
237 3600f## - Edwards Mira Mechanical Valve
238 3600u## - Edwards Mira Mechanical Valve
239 4100## - Carpentier-McCarthy-Adams IMR ETlogix Mitral Annuloplasty Ring
240 4200## - Edwards GeoForm Mitral Annuloplasty Ring
241 4300## - Carpentier-Edwards Bioprosthetic Valved Conduit
242 4400## - Carpentier-Edwards Classic Mitral Annuloplasty Ring
243 4425## - Carpentier-Edwards Classic Mitral Annuloplasty Ring with Duraflo Treatment
244 4450## - Carpentier-Edwards Physio Mitral Annuloplasty Ring
245 4475## - Carpentier-Edwards Physio Annuloplasty Ring with Duraflo Treatment
246 4500## - Carpentier-Edwards Classic Tricuspid Annuloplasty Ring
247 4525## - Carpentier-Edwards Classic Tricuspid Annuloplasty Ring with Duraflo Treatment
248 4600## - Crosgrove-Edwards Mitral/Tricuspid Annuloplasty Ring
249 4625## - Crosgrove-Edwards Annuloplasty System with Duraflo Treatment
250 4900## - Edwards MC3 Tricuspid Annuloplasty System

251 5100## - Edwards DETlogix Mitral Annuloplasty Ring
252 5100M## - Edwards Myxomatous Annuloplasty Ring
253 5200## - Carpentier-Edwards Physio II Mitral Annuloplasty Ring
254 6625## - Carpentier-Edwards Porcine Mitral Bioprosthesis
255 6625-ESR-LP## - Carpentier-Edwards Duraflex Low Pressure Porcine Mitral Bioprosthesis with Extended Suture Ring
256 6625LP## - Carpentier-Edwards Duraflex Low Pressure Porcine Mitral Bioprosthesis
257 6900P## - Carpentier-Edwards Perimount Plus Mitral Pericardial Bioprosthesis
258 6900PTFX## - Carpentier-Edwards Perimount Theon Mitral Pericardial Bioprosthesis with ThermaFix Process
259 7000TFX## - Carpentier-Edwards Perimount Magna Mitral Pericardial Bioprosthesis
260 7200TFX## - Carpentier-Edwards Perimount Magna Mitral Ease Pericardial Bioprosthesis
261 7300TFX## - Carpentier-Edwards Perimount Magna Mitral Ease Pericardial Bioprosthesis with ThermaFix Process
262 9000## - Cribier-Edwards Aortic Bioprosthesis
263 9000PHV## - Cribier-Edwards Aortic Bioprosthesis
264 9000TFX## - Edwards Sapien Transcatheter Heart Valve
265 9120## - Edwards-Duromedics Bileaflet Prostheses
266 9600## - Edwards Mira Mechanical Valve
267 AAL - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Large
268 AAM - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Medium
269 AAS - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Small
270 DLHPA - LifeNet CardioGraft Decellularized Hemi-Pulmonary Artery with Matracell - Left
271 DRHPA - LifeNet CardioGraft Decellularized Hemi-Pulmonary Artery with Matracell - Right
272 HVAL - LifeNet CardioGraft Aortic Heart Valve - Large
273 HVAM - LifeNet CardioGraft Aortic Heart Valve - Medium
274 HVAS - LifeNet CardioGraft Aortic Heart Valve - Small
275 HVPL - LifeNet CardioGraft Pulmonary Heart Valve - Large
276 HVPM - LifeNet CardioGraft Pulmonary Heart Valve - Medium
277 HVPS - LifeNet CardioGraft Pulmonary Heart Valve - Small
278 LHPA - LifeNet CardioGRAFT Hemi-Pulmonary Artery - Left
279 PAL - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Large
280 PAM - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Medium
281 PAS - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Small
282 RHPA - LifeNet CardioGraft Hemi-Pulmonary Artery - Right
283 TAL - LifeNet CardioGraft Thoracic Aorta Non- valved - Large
284 TAM - LifeNet CardioGraft Thoracic Aorta Non- valved - Medium
286 174A-## - Medtronic Hancock Apical Left Ventricle Connector
287 200## - Medtronic Contegra Unsupported Pulmonary Valve Conduit

288 200S## - Medtronic Contegra Supported Pulmonary Valve Conduit
289 305C2## - Medtronic Mosaic Standard Cinch - Aortic
290 305U2## - Medtronic Mosaic Ultra Cinch - Aortic
291 310## - Medtronic Mosaic Mitral
292 610B## - Medtronic Duran Band
293 610R## - Medtronic Duran Ring
294 620B## - Medtronic Duran AnCore Band
295 620BG## - Medtronic Duran AnCore Band With Chordal Guide
296 620R## - Medtronic Duran AnCore Ring
297 620RG## - Medtronic Duran Ancore Ring With Chordal Guide
298 638B## - Medtronic CG Future Band
299 638R## - Medtronic CG Future Composite Ring
300 670 - Medtronic Simplici-T Annuloplasty System
301 680R## - Medtronic Profile 3D Ring
302 995CS## - Medtronic Freestyle - Complete Subcoronary - CS
303 995MS## - Medtronic Freestyle - Modified Subcoronary - MS
304 FR995-## - Medtronic Freestyle - Modified Subcoronary - MS
307 HC105-## - Medtronic Hancock Low-porosity Valved Conduit
308 HC150-## - Medtronic Hancock Modified Orifice Pulmonic Valved Conduit
309 T505C2## - Medtronic Hancock II Aortic Cinch
310 T505U2## - Medtronic Hancock II Ultra Cinch
311 T510C## - Medtronic Hancock II Mitral
312 ONXA## - On-X Aortic Valve with standard sewing ring
313 ONXAC## - On-X Aortic Valve with Conform-X Sewing Ring
314 ONXACE## - On-X Aortic Valve with Conform- X Sewing Ring - extended
315 ONXAE## - On-X Aortic Valve with standard sewing ring - extended
316 ONXM## - On-X Mitral Valve with standard sewing ring
317 ONXMC## - On-X Mitral Valve with Conform-X Sewing Ring
327 LXA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve
328 A5-0## - Sorin Group: Carbomedics Standard Aortic Valve
329 AF-8## - Sorin Group: Carbomedics AnnuloFlex Annuloplasty System
330 AP-0## - Sorin Group: Carbomedics Carbo-Seal Ascending Aortic Prosthesis
331 AR-7## - Sorin Group: Carbomedics AnnuloFlo Annuloplasty System
332 CP-0## - Sorin Group: Carbomedics Carbo-Seal Valsalva Ascending Aortic Prosthesis
333 F7-0## - Sorin Group: Carbomedics OptiForm Mitral Valve
334 M7-0## - Sorin Group: Carbomedics Standard Mitral Valve
335 R5-0## - Sorin Group: Carbomedics Reduced Series Aortic Valve
336 S5-0## - Sorin Group: Carbomedics Top Hat Supra-Annular Aortic Valve
337 ##A-101 - Abbott Medical Mechanical Aortic Heart Valve
338 ##AEC-102 - Abbott Medical Mechanical Heart Valve
339 ##AECJ-502 - Abbott Medical Masters Series Aortic Mechanical Valve - Expanded Cuff

340 ##AECS-602 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating
341 ##AEHPJ-505 - Abbott Medical Masters HP Mechanical Valve - Expanded Cuff
342 ##AEHPS-605 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating
343 ##AET-104 - Abbott Medical Mechanical Heart Valve
344 ##AETJ-504 - Abbott Medical Masters Series Mechanical Heart Valve
345 ##AFHPJ-505 - Abbott Medical Masters HP Aortic Mechanical Valve - Flex Cuff
346 ##AG-701 - Abbott Medical Regent Valve with Silzone Coating
347 ##AGF-706 - Abbott Medical Regent Valve with Silzone Coating
348 ##AGFN-756 - Abbott Medical Regent Aortic Mechanical Valve - Flex Cuff
349 ##AGN-751 - Abbott Medical Regent Aortic Mechanical Valve - Standard Cuff
350 ##AHP-105 - Abbott Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
351 ##AHPJ-505 - Abbott Medical Masters HP Aortic Mechanical Heart Valve - Standard Cuff
352 ##AHPS-605 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating
353 ##AJ-501 – Abbott Medical Masters Series Aortic Mechanical Valve – Standard Cuff
354 ##AS-601 - Abbott Medical Masters Mechanical Heart Valve with Silzone Coating
355 ##AT-103 - Abbott Medical Mechanical Heart Valve
356 ##ATJ-503 - Abbott Medical Masters Series Aortic Mechanical Valve - PTFE Cuff
357 ##CAVG-404 - Abbott Medical Coated Aortic Valved Graft Prosthesis
358 ##CAVGJ-514 - Abbott Medical Masters Series Aortic Valved Graft
359 ##CAVGJ-514-00 - Abbott Medical Masters Aortic Valved Graft - Hemashield Technology
360 ##M-101 - Abbott Medical Mechanical Mitral Heart Valve
361 ##MEC-102 - Abbott Medical Mechanical Heart Valve
362 ##MECJ-502 - Abbott Medical Masters Series Mitral Mechanical Valve - Expanded Cuff
363 ##MECS-602 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating
364 ##MEHPS-605 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating
365 ##MET-104 - Abbott Medical Mechanical Heart Valve
366 ##METJ-504 – Abbott Medical Masters Series Mitral Mechanical Valve – Expanded PTFE Cuff
367 ##MHP-105 - Abbott Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
368 ##MHPJ-505 - Abbott Medical Masters HP Mitral Mechanical Heart Valve - Standard Cuff
369 ##MHPS-605 - Abbott Medical Masters Series Mechanical Heart Valve with Silzone Coating

370 ##MJ-501 - Abbott Medical Masters Series Mitral Mechanical Valve - Standard Cuff
371 ##MS-601 - Abbott Medical Masters Mechanical Heart Valve with Silzone Coating
372 ##MT-103 – Abbott Medical Mechanical Heart Valve
373 ##MTJ-503 - Abbott Medical Masters Series Mitral Mechanical Valve - PTFE Cuff
374 ##VAVGJ-515 - Abbott Medical Masters HP Aortic Valved Graft
375 AFR-## - Abbott Medical Attune Flexible Adjustable Annuloplasty Ring
376 B10-##A - Abbott Medical Biocor Aortic Valve
377 B10-##A-00 - Abbott Medical Biocor Aortic Valve
378 B10-##M - Abbott Medical Biocor Mitral Valve
379 B10-##M-00 - Abbott Medical Biocor Mitral Valve
380 B100-##A-00 - Abbott Medical Biocor Stented Aortic Tissue Valve
381 B100-##M-00 - Abbott Medical Biocor Stented Mitral Tissue Valve
382 B10SP-## - Abbott Medical Biocor Supra Stented Porcine Heart Valve
383 B20-0##A - Abbott Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
384 B30-##A - Abbott Medical Biocor Valve
385 B30-##M - Abbott Medical Biocor Valve
386 BSP100-## - Abbott Medical Biocor Supra Aortic Stented Tissue Valve
387 E100-##A-00 - Abbott Medical Epic Aortic Stented Tissue Valve
388 E100-##M-00 - Abbott Medical Epic Mitral Stented Tissue Valve
389 EL-##A – Abbott Medical Epic Aortic Valve
390 EL-##M - Abbott Medical Epic Mitral Valve
391 ELS-##A - Abbott Medical Epic Tissue Aortic Valve with Silzone Coating
392 ELS-##M - Abbott Medical Epic Tissue Mitral Valve with Silzone Coating
393 ESP100-##-00 - Abbott Medical Epic Supra Aortic Stented Tissue Valve
394 ESP100-##A-00 - Abbott Medical Epic Stented Aortic Tissue Valve
395 ROOT-## - Abbott Medical Toronto Root with BiLinx AC
396 RSAR-## - Abbott Medical SJM Rigid Saddle Ring
397 SARP-## - Abbott Medical SJM STguin Semi- Rigid Annuloplasty Ring
398 SARS-M## - Abbott Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - Abbott Medical Toronto SPV Valve
400 SPA-201-## - Abbott Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - Abbott Medical Tailor Flexible Annuloplasty Band
402 TAR-## - Abbott Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - Abbott Medical Tailor Flexible Annuloplasty Ring
404 PB10-## - Medtronic Melody Transcatheter Pulmonary Valve
405 700FF## - Medtronic Simulus FLX-O Ring
406 700FC## - Medtronic Simulus FLX-C Band
407 735AF## - Medtronic Simulus Adjustable Ring
408 800SR## - Medtronic Simulus Semi-rigid Ring
409 900SFC## - Medtronic TriAd Tricuspid Annuloplasty Ring
410 1000-## - Medtronic 3f Aortic Bioprosthesis
411 6200## - Carpentier-Edwards Physio Tricuspid Annuloplasty Ring

412 9300TFX## - Edwards Sapien Transcatheter Heart Valve
413 305## - Medtronic Mosaic Ultra Porcine Heart Valve
415 TF-##A - Abbott Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AO360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Artivion Pulmonary Hemi-Artery
420 SGPH00 - Artivion SG Pulmonary Hemi-Artery
421 690R## - Medtronic Contour 3D Annuloplasty ring
422 735AC## - Medtronic Simulus Adjustable Band
423 9600TFX## - Edwards Sapien Transcatheter Heart Valve
425 H607 - Medtronic post. Annuloplasty band (Split Mayo)
428 ICV08## - Sorin Group Sovering Annuloplasty
429 ICV09## - Sorin Group MEMO 3D Semi-rigid Annuloplasty Ring
432 A1-0## - Sorin Group: Carbomedics Orbis Universal Aortic Valve
433 M2-0## - Sorin Group: Carbomedics Orbis UniversalMitral Valve
434 PF ## - Sorin Group Pericarbon Freedom Stentless
435 PS ## - Sorin Group Pericarbon More Mitral
436 ART ## SOP - Sorin Group Soprano Armonia
437 ART ## SG - Sorin Group Freedom Solo
438 ART ## LFA - Sorin Group Bicarbon Fitline Aortic
439 MTR ## LFM - Sorin Group Bicarbon Fitline Mitral
440 ART ## LOV - Sorin Group Bicarbon Overline Aortic
441 ART ## LSA - Sorin Group Bicarbon Slimline Aortic
442 8300A## - Edwards Intuity Valve System (outside US)
443 8300AB## - Edwards Intuity Elite Valve System (outside US)
444 8300ACD## - Edwards Intuity Elite Valve System
445 9355NF## - Edwards Sapien XT Transcatheter Valve with NovaFlex System
446 9355ASP## - Edwards Sapien XT Transcatheter Valve with Ascendra System
447 S3TF1## - Edwards Sapien 3 Transcatheter Valve with Commander System
448 S3TA1## - Edwards Sapien 3 Transcatheter Valve with Certitude System
449 CRS-P3-640 - Medtronic CoreValve
450 CRS-P3-943 - Medtronic CoreValve
451 MCS-P3 - Medtronic CoreValve
452 MCS-P4 - Medtronic CoreValve Evolut
453 ONXAN## - On-X Aortic Heart Valve with Anatomic Sewing Ring
454 ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
455 ONXAAP## - On-X Ascending Aortic Prosthesis
456 ICV12## - Sorin Solo Smart Aortic Valve
457 ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
458 DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
459 MVC0## - Sorin Group Mitroflow Valsalva Conduit
460 1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
461 6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis

462 73##1088 - Vascutek Gelweave Plexus Graft
463 7300##ADP - Vascutek Terumo Gelweave Vascular Prosthesis
464 7320## - Vascutek Gelweave Trifucate Arch Graft
465 7350##ST - Vascutek Gelweave Pre-curved Graft
466 8300AB### - Edwards Intuity Elite Valve
467 8300KITB### - Edwards Intuity Elite Valve System
468 9600CM## - Edward Sapien
469 ART##SMT - Sorin Solo Smart
470 CNA19 - Sorin Crown PRT Tissue Valve
471 CNA21 - Sorin Crown PRT Tissue Valve
472 CNA23 - Sorin Crown PRT Tissue Valve
473 CNA25 - Sorin Crown PRT Tissue Valve
474 CNA27 - Sorin Crown PRT Tissue Valve
475 DPPGK - LifeNet CardioGRAFT Thick Pulmonary Patch (decellularized)
476 DPPGN - LifeNet CardioGRAFT Thin Pulmonary Patch (decellularized)
477 EVOLUTR-## - US- Medtronic CoreValve Evolut R
478 H749LTV##0 - Boston Scientific Lotus Transcatheter Valve
479 ICV1208 - Sorin Perceval Tissue Valves
480 ICV1209 - Sorin Perceval Tissue Valves
481 ICV1210 - Sorin Perceval Tissue Valves
482 ICV1211 - Sorin Perceval Tissue Valves
483 ICV1248 - Solo Smart Aortic Tissue Valves
484 ICV1264 - Solo Smart Aortic Tissue Valves
485 ICV1265 - Solo Smart Aortic Tissue Valves
486 ICV1331 - Sorin MEMO 3D RECHORD Annuloplasty Ring
487 ICV1332 - Sorin MEMO 3D RECHORD Annuloplasty Ring
488 ICV1333 - Sorin MEMO 3D RECHORD Annuloplasty Ring
489 ICV1334 - Sorin MEMO 3D RECHORD Annuloplasty Ring
490 ICV1335 - Sorin MEMO 3D RECHORD Annuloplasty Ring
491 ICV1336 - Sorin MEMO 3D RECHORD Annuloplasty Ring
492 ICV1337 - Sorin MEMO 3D RECHORD Annuloplasty Ring
493 IVC1247 - Solo Smart Aortic Tissue Valves
494 LMCP - LifeNet CardioGRAFT Left Mono Cusp Patch
495 MCP - LifeNet CardioGRAFT Mono Cusp Patch
496 PPGK - LifeNet CardioGRAFT Thick Pulmonary Patch
497 PPGN - LifeNet CardioGRAFT Thin Pulmonary Patch
498 PRT-## - Portico Transcatheter Aortic Valve
499 RMCP - LifeNet CardioGRAFT Right Mono Cusp Patch
500 TAS - LifeNet CardioGraft Thoracic Aorta - Small 16mm and less
501 TFGT-##A - Abbott Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502 Z65LOTUSKIT## - Lotus Valve Kit
503 11500AXX - Edwards Inspiris Resilia Aortic Valve
512 B10-## - Abbott Medical Biocor Mitral Valve

508 CDS0201 - Abbott MitraClip Delivery System
505 CDS0501 - Abbott MitraClip NT Clip Delivery System
506 CDS0601-NTR - Abbott MitraClip NTR Clip Delivery System
507 CDS0601-XTR - Abbott MitraClip XTR Clip Delivery System
513 11060A-## - Edwards Konect Resilia
514 5300-## - Edwards Physio Flex Annuloplast Ring
509 9750TFX## - Edwards Sapien 3 Transcatheter Heart Valve
504 400## - Medtronic Avalus Aortic Valve
511 TAV## - Medtronic Evolut Pro Plus
510 PVS## - Perceval Aortic Valve
515 TC1 ## - TTK Chitra Heart Valve
516 TC1-H ## - TTK Chitra Heart Valve
776 Surgeon Fashioned Device
777 Other US FDA-Approved Device
778 Other Non-US FDA-Approved Device

Intent/Clarification:

If explanted, indicate the model of the valve/valve device explanted.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Explant Device Size #1

SeqNo:	2505
Short Name:	ValExDevSz1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the first valve or device explanted.
Low Value:	6
High Value:	33
ParentLongName:	Valve Explant Type #1
ParentShortName:	ValExType1
ParentHarvestCodes:	1|2|3|4|5|6|7|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Autograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned" or "Other"

Intent/Clarification:

If explanted, enter the size of the valve/valve device being explanted. Leave blank if unknown.

Long Name: Second Valve Explanted or Device Removed

SeqNo:	2510
Short Name:	ValEx2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a second valve or device was explanted
ParentLongName:	Valve Device Explanted And/Or Implanted
ParentShortName:	ValExImp
ParentHarvestCodes:	2|4
ParentValue:	= "Yes, Explanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (2nd) was explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Code a valve/device was explanted even if the sewing cuff is retained.

Do not code a valve explant if a valve is implanted and explanted during the same operation in the event the valve did not work or fit.

Long Name: Second Valve Prosthesis Explant Position

SeqNo:	2515
Short Name:	ValExpPos2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the second explanted prosthetic valve or annuloplasty.
ParentLongName:	Second Valve Explanted or Device Removed

ParentShortName: ValEx2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Truncal valve
6	Common AV valve

Intent/Clarification:

See SeqNo 2480 for information.

Long Name: Second Valve Explant Etiology

SeqNo: 2520

Short Name: ValExpEt2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the primary reason for explanting valve device.

ParentLongName: Second Valve Explanted or Device Removed

ParentShortName: ValEx2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Endocarditis
4	Incompetence
7	Bioprosthetic Deterioration
10	Thrombus
2	Failed repair
5	Pannus
8	Sizing/Positioning issue
3	Hemolysis
6	Paravalvular leak
9	Stenosis
11	Other

12 Unknown

Intent/Clarification:

See SeqNo 2485 for information.

Long Name: Valve Explant Type #2

SeqNo: 2525
Short Name: ValExType2
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of the second valve or device explanted.
ParentLongName: Second Valve Explanted or Device Removed
ParentShortName: ValEx2
ParentHarvestCodes: 1
ParentValue: = “Yes”
Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Leaflet clip
7	Surgeon fashioned
10	Transcatheter valve
11	Transcatheter valve in valve with prosthetic valve
9	Other

Intent/Clarification:

See SeqNo 2490 for information.

Long Name: Valve Explant Unique Device Identifier (UDI) - 2

SeqNo: 2530
Short Name: ValExpUDI2
Database Table Name: Operations
Data Source: User

Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the second explanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Explant Type #2
ParentShortName:	ValExType2
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Valve Explant Model #2

SeqNo:	2535
Short Name:	ValExMod2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of the second valve or device explanted.
ParentLongName:	Valve Explant Type #2
ParentShortName:	ValExType2
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See Valve List for model names/model numbers.

Intent/Clarification:

Select the explanted valve model from the Valve List.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Explant Device Size #2

SeqNo:	2540
Short Name:	ValExDevSz2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the second valve or device explanted.
Low Value:	6
High Value:	33
ParentLongName:	Valve Explant Type #2
ParentShortName:	ValExType2
ParentHarvestCodes:	1|2|3|4|5|6|7|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Autograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned" or "Other"

Intent/Clarification:

Enter the size of the valve being explanted. Leave blank if unknown.

Long Name: Third Valve Explanted or Device Removed

SeqNo:	2545
Short Name:	ValEx3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a third valve or device was explanted.
ParentLongName:	Second Valve Explanted or Device Removed
ParentShortName:	ValEx2
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (3rd) was explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Code a valve/device was explanted even if the sewing cuff is retained.

Do not code a valve explant if a valve is implanted and explanted during the same operation due to the fact the valve did not work or fit.

Long Name: Third Valve Prosthesis Explant Position

SeqNo:	2550
Short Name:	ValExpPos3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the third explanted prosthetic valve or annuloplasty.
ParentLongName:	Third Valve Explanted or Device Removed
ParentShortName:	ValEx3
ParentHarvestCodes:	1
ParentValue:	= “Yes”

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Truncal valve
6	Common AV valve

Intent/Clarification:

See Seq No 2480 for information.

Long Name: Third Valve Explant Etiology

SeqNo:	2555
Short Name:	ValExpEt3
Database Table Name:	Operations

Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the primary reason for explanting valve device.
ParentLongName: Third Valve Explanted or Device Removed
ParentShortName: ValEx3
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Endocarditis
4	Incompetence
7	Bioprosthetic Deterioration
10	Thrombus
2	Failed repair
5	Pannus
8	Sizing/Positioning issue
3	Hemolysis
6	Paravalvular leak
9	Stenosis
11	Other
12	Unknown

Intent/Clarification:

See Seq No 2485 for information.

Long Name: Valve Explant Type #3

SeqNo: 2560
Short Name: ValExType3
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of the third valve or device explanted.
ParentLongName: Third Valve Explanted or Device Removed
ParentShortName: ValEx3
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:
Code: Value:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Leaflet clip
7	Surgeon fashioned
10	Transcatheter valve
11	Transcatheter valve in valve with prosthetic valve
9	Other

Intent/Clarification:

See Seq No 2490 for information.

Long Name: Valve Explant Unique Device Identifier (UDI) - 3

SeqNo:	2565
Short Name:	ValExpUDI3
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the third explanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Explant Type #3
ParentShortName:	ValExType3
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Valve Explant Model #3

SeqNo:	2570
Short Name:	ValExMod3

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of the third valve or device explanted.
ParentLongName:	Valve Explant Type #3
ParentShortName:	ValExType3
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve in valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the explanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Explant Device Size #3

SeqNo:	2575
Short Name:	ValExDevSz3
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the third valve or device explanted.
Low Value:	6
High Value:	33
ParentLongName:	Valve Explant Type #3
ParentShortName:	ValExType3
ParentHarvestCodes:	1|2|3|4|5|6|7|9
ParentValue:	= “Mechanical”, “Bioprosthetic”, “Homograft/Allograft”, “Autograft”, “Annuloplasty band/ring”, “Leaflet clip”, “Surgeon fashioned” or “Other”

Intent/Clarification:

Enter the size of the valve being explanted. Leave blank if unknown.

Long Name: Fourth Valve Explanted or Device Removed

SeqNo:	2580
Short Name:	ValEx4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a fourth valve or device was explanted.
ParentLongName:	Third Valve Explanted or Device Removed
ParentShortName:	ValEx3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (4th) was explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Code a valve/device was explanted even if the sewing cuff is retained.

Do not code a valve explant if a valve is implanted and explanted during the same operation due to the fact the valve did not work or fit.

Long Name: Fourth Valve Prosthesis Explant Position

SeqNo:	2585
Short Name:	ValExpPos4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the fourth explanted prosthetic valve or annuloplasty.
ParentLongName:	Fourth Valve Explanted or Device Removed
ParentShortName:	ValEx4

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Truncal valve
6	Common AV valve

Intent/Clarification:

See Seq No 2480 for information.

Long Name: Fourth Valve Explant Etiology

SeqNo: 2590

Short Name: ValExpEt4

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the primary reason for explanting valve device.

ParentLongName: Fourth Valve Explanted or Device Removed

ParentShortName: ValEx4

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Endocarditis
4	Incompetence
7	Bioprosthetic Deterioration
10	Thrombus
2	Failed repair
5	Pannus
8	Sizing/Positioning issue
3	Hemolysis
6	Paravalvular leak
9	Stenosis
11	Other
12	Unknown

Intent/Clarification:

See Seq No 2485 for information.

Long Name: Valve Explant Type #4

SeqNo:	2595
Short Name:	ValExType4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of the fourth valve or device explanted.
ParentLongName:	Fourth Valve Explanted or Device Removed
ParentShortName:	ValEx4
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Leaflet clip
7	Surgeon fashioned
10	Transcatheter valve
11	Transcatheter valve in valve with prosthetic valve
9	Other

Intent/Clarification:

See Seq No 2490 for information.

Long Name: Valve Explant Unique Device Identifier (UDI) - 4

SeqNo:	2600
Short Name:	ValExpUDI4
Database Table Name:	Operations
Data Source:	User
Format:	Text

Definition:	Indicate the Unique Device Identifier (UDI) of the fourth explanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Explant Type #4
ParentShortName:	ValExType4
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= “Mechanical”, “Bioprosthetic”, “Homograft/Allograft”, “Annuloplasty band/ring”, “Leaflet clip”, “Transcatheter valve”, “Transcatheter valve in valve with prosthetic valve” or “Other”

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Valve Explant Model #4

SeqNo:	2605
Short Name:	ValexMod4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of the fourth valve or device explanted.
ParentLongName:	Valve Explant Type #4
ParentShortName:	ValExType4
ParentHarvestCodes:	1|2|3|5|6|10|11|9
ParentValue:	= “Mechanical”, “Bioprosthetic”, “Homograft/Allograft”, “Annuloplasty band/ring”, “Leaflet clip”, “Transcatheter valve”, “Transcatheter valve in valve with prosthetic valve” or “Other”
Harvest Codes: Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the explanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Explant Device Size #4

SeqNo:	2610
Short Name:	ValExDevSz4
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the fourth valve or device explanted.
Low Value:	6
High Value:	33
ParentLongName:	Valve Explant Type #4
ParentShortName:	ValExType4
ParentHarvestCodes:	1|2|3|4|5|6|7|9
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Autograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned" or "Other"

Intent/Clarification:

Enter the size of the valve being explanted. Leave blank if unknown.

Long Name: Valve Implant Location #1

SeqNo:	2615
Short Name:	ValImpLoc1
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the first valve or device implanted.
ParentLongName:	Valve Device Explanted And/Or Implanted
ParentShortName:	ValExImp
ParentHarvestCodes:	3|4
ParentValue:	= "Yes, Implanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve

5 Common AV valve
6 Truncal valve

Intent/Clarification:

If implanted, indicate the location of the implanted prosthetic valve or annuloplasty device.

Coding Notes:

Nomenclature for valves has been updated in this version to reflect the position/function of the valve. Data managers are encouraged to work with their clinical teams to accurately capture the correct valve related diagnosis.

Code:	Value:	Definition:
1	Aortic or neo-aortic valve	Implant of a prosthetic valve/valve device in the aortic position and includes an aortic or neo-aortic valve. The neo-aortic valve is a valve functioning in the aortic position. Excludes implant of a truncal valve; instead, code (6) Truncal valve. *Example*: during a Ross procedure the native pulmonary valve is moved to the aortic position and is now the neo-aortic valve.
2	Mitral or systemic AV valve	Implant of a prosthetic valve/valve device in the mitral position or is functioning as the systemic atrioventricular (AV) valve. The systemic AV valve may be morphologically left or right and is providing the systemic support. *Example*: in single ventricle, Mitral atresia, the tricuspid valve is functioning as the systemic AV valve.
3	Tricuspid or non-systemic AV valve	Implant of a prosthetic valve/valve device in the tricuspid position or is functioning as the non-systemic AV valve. The non-systemic AV valve is not providing the systemic support.

Code:	Value:	Definition:
4	Pulmonary or neo-pulmonary valve	Implant of a prosthetic valve/valve device in the pulmonary position and includes a pulmonary or neo-pulmonary valve. The neo-pulmonary valve is a valve functioning in the pulmonary position. *Example*: following arterial switch operation, the native aortic valve functions in the pulmonary position and is now the neo-pulmonary valve.
5	Truncal valve	Implant of a prosthetic truncal valve/valve device truncal. Code in the setting of truncus arteriosus where the explant is a previously implanted truncal valve. Caution as the dictated op note may state aortic valve.
6	Common AV valve	Implant of a prosthetic common AV valve. The common AV valve is the presence of one AV valve instead of 2 separate valves. This is most often in the setting of single ventricle physiology or in an upseptated valve (e.g., in the setting of an unrepaired AV septal defect).

Long Name: Valve Implant Type #1

SeqNo: 2620
Short Name: ValImpType1
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of the first valve or device implanted.

ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: ValExImp

ParentHarvestCodes: 3|4

ParentValue: = "Yes, Implanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
5	Mechanical
6	Bioprosthetic
7	Homograft/Allograft
8	Annuloplasty band/ring
9	Leaflet clip
10	Transcatheter valve
11	Transcatheter valve-in-valve with prosthetic valve
1	Surgeon fashioned
2	Autograft
12	Other

Intent/Clarification:

If implanted, indicate the type of valve or valve device being implanted.

Long Name: VS-Transcatheter Valve Replacement Approach - 1

SeqNo: 2625

Short Name: VSTCVR1

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate transcatheter valve replacement approach for the first valve implant.

ParentLongName: Valve Implant Type #1

ParentShortName: ValImpType1

ParentHarvestCodes: 10|11

ParentValue: = "Transcatheter valve" or "Transcatheter valve-in-valve with prosthetic valve"

Harvest Codes:

Code:	Value:
1	Transapical
2	Transaxillary
3	Transfemoral
4	Transaortic

5	Subclavian
7	Transiliac
8	Transeptal
9	Transcarotid
10	Transcaval
6	Other

Intent/Clarification:

If implant of a transcatheter valve or transcatheter valve in valve, indicate the approach for the valve implant.

Long Name: Valve Implant Surgeon Fashioned Material #1

SeqNo:	2630
Short Name:	ValImpSFMat1
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the material used to fashion the first valve or device
ParentLongName:	Valve Implant Type #1
ParentShortName:	ValImpType1
ParentHarvestCodes:	1
ParentValue:	= "Surgeon fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Intent/Clarification:

If surgeon fashioned, indicate the material used to fashion the implanted valve/device.

Long Name: Valve Implant Commercial Device Model Number #1

SeqNo:	2635
Short Name:	ValImpComMod1
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size. Note that the model number is different from the serial number.
ParentLongName:	Valve Implant Type #1
ParentShortName:	ValImpType1
ParentHarvestCodes:	5|6|7|8|9|10|11|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the implanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Implant Unique Device Identifier (UDI) - 1

SeqNo:	2640
Short Name:	ValImpUDI1
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the first implanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Implant Type #1
ParentShortName:	ValImpType1
ParentHarvestCodes:	5|6|7|8|9|10|11|12
ParentValue:	= “Mechanical”, “Bioprosthetic”, “Homograft/Allograft”, “Annuloplasty band/ring”, “Leaflet clip”, “Transcatheter valve”, “Transcatheter valve-in-valve with prosthetic valve” or “Other”

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

Long Name: Valve Implant Commercial Device Size #1

SeqNo:	2645
Short Name:	ValImpComSz1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the first implanted valve or device
Low Value:	6
High Value:	33
ParentLongName:	Valve Implant Type #1
ParentShortName:	ValImpType1
ParentHarvestCodes:	5|6|7|8|9|1|2|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned", "Autograft" or "Other"

Intent/Clarification:

Indicate the size of the implanted valve/device.

Long Name: Second Valve Implant

SeqNo:	2650
Short Name:	ValImp2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a second valve or device was implanted
ParentLongName:	Valve Device Explanted And/Or Implanted
ParentShortName:	ValExImp
ParentHarvestCodes:	3|4
ParentValue:	= "Yes, Implanted" or "Yes, Explanted and Implanted"
Harvest Codes:	

Code: Value:
1 Yes
2 No

Intent/Clarification:

If implanted, indicate if an additional valve (2nd) was implanted during this procedure.

Long Name: Valve Implant Location #2

SeqNo: 2655
Short Name: ValImpLoc2
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the location of the second valve or device implanted
ParentLongName: Second Valve Implant
ParentShortName: ValImp2
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Aortic or neo-aortic valve
2 Mitral or systemic AV valve
3 Tricuspid or non-systemic AV valve
4 Pulmonary or neo-pulmonary valve
5 Common AV valve
6 Truncal valve

Intent/Clarification:

See SeqNo 2615 for more information.

Long Name: Valve Implant Type #2

SeqNo: 2660
Short Name: ValImpType2
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition: Indicate the type of the second valve or device implanted

ParentLongName: Second Valve Implant

ParentShortName: ValImp2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
5	Mechanical
6	Bioprosthetic
7	Homograft/Allograft
8	Annuloplasty band/ring
9	Leaflet clip
10	Transcatheter valve
11	Transcatheter valve-in-valve with prosthetic valve
1	Surgeon fashioned
2	Autograft
12	Other

Intent/Clarification:

Indicate the type of valve being implanted.

Long Name: VS-Transcatheter Valve Replacement Approach - 2

SeqNo: 2665

Short Name: VSTCVR2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate transcatheter valve replacement approach for the second valve implant.

ParentLongName: Valve Implant Type #2

ParentShortName: ValImpType2

ParentHarvestCodes: 10|11

ParentValue: = "Transcatheter valve" or "Transcatheter valve-in-valve with prosthetic valve"

Harvest Codes:

Code:	Value:
1	Transapical
2	Transaxillary

3	Transfemoral
4	Transaortic
5	Subclavian
7	Transiliac
8	Transeptal
9	Transcarotid
10	Transcaval
6	Other

Intent/Clarification:

If implant of a transcatheter valve or transcatheter valve in valve, indicate the approach for the valve implant.

Long Name: Valve Implant Surgeon Fashioned Material #2

SeqNo: 2670
Short Name: ValImpSFMat2
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the material used to fashion the second valve or device
ParentLongName: Valve Implant Type #2
ParentShortName: ValImpType2
ParentHarvestCodes: 1
ParentValue: = "Surgeon fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Intent/Clarification:

If surgeon fashioned, indicate the material used to fashion the implanted valve/device.

Long Name: Valve Implant Commercial Device Model Number #2

SeqNo: 2675
Short Name: ValImpComMod2
Database Table Name: Operations

Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	Valve Implant Type #2
ParentShortName:	ValImpType2
ParentHarvestCodes:	5|6|7|8|9|10|11|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the implanted valve model from the ValveList.

The valve list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Implant Unique Device Identifier (UDI) - 2

SeqNo:	2680
Short Name:	ValImpUDI2
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the second implanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Implant Type #2
ParentShortName:	ValImpType2
ParentHarvestCodes:	5|6|7|8|9|10|11|12

ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

Long Name: Valve Implant Commercial Device Size #2

SeqNo:	2685
Short Name:	ValImpComSz2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the second implanted valve or device
Low Value:	6
High Value:	33
ParentLongName:	Valve Implant Type #2
ParentShortName:	ValImpType2
ParentHarvestCodes:	5|6|7|8|9|1|2|12
ParentValue:	= “Mechanical”, “Bioprosthetic”, “Homograft/Allograft”, “Annuloplasty band/ring”, “Leaflet clip”, “Surgeon fashioned”, “Autograft” or “Other”

Intent/Clarification:

Indicate the size of the implanted valve/device.

Long Name: Third Valve Implant

SeqNo:	2690
Short Name:	ValImp3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a third valve or device was implanted
ParentLongName:	Second Valve Implant
ParentShortName:	ValImp2
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (3rd) was implanted during this procedure.

Long Name: Valve Implant Location #3

SeqNo:	2695
Short Name:	ValImpLoc3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the third valve or device implanted
ParentLongName:	Third Valve Implant
ParentShortName:	ValImp3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Common AV valve
6	Truncal valve

Intent/Clarification:

See SeqNo 2615 for more information.

Long Name: Valve Implant Type #3

SeqNo:	2700
Short Name:	ValImpType3
Database Table Name:	Operations
Data Source:	User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of the third valve or device implanted

ParentLongName: Third Valve Implant

ParentShortName: ValImp3

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
5	Mechanical
6	Bioprosthetic
7	Homograft/Allograft
8	Annuloplasty band/ring
9	Leaflet clip
10	Transcatheter valve
11	Transcatheter valve-in-valve with prosthetic valve
1	Surgeon fashioned
2	Autograft
12	Other

Intent/Clarification:

Indicate the type of valve being implanted.

Long Name: VS-Transcatheter Valve Replacement Approach - 3

SeqNo: 2705

Short Name: VSTCVR3

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate transcatheter valve replacement approach for the third valve implant.

ParentLongName: Valve Implant Type #3

ParentShortName: ValImpType3

ParentHarvestCodes: 10|11

ParentValue: = "Transcatheter valve" or "Transcatheter valve-in-valve with prosthetic valve"

Harvest Codes:

Code:	Value:
1	Transapical

2	Transaxillary
3	Transfemoral
4	Transaortic
5	Subclavian
7	Transiliac
8	Transeptal
9	Transcarotid
10	Transcaval
6	Other

Intent/Clarification:

If implant of a transcatheter valve or transcatheter valve in valve, indicate the approach for the valve implant.

Long Name: Valve Implant Surgeon Fashioned Material #3

SeqNo: 2710
Short Name: ValImpSFMat3
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the material used to fashion the third valve or device
ParentLongName: Valve Implant Type #3
Parent Short Name: ValImpType3
ParentHarvestCodes: 1
ParentValue: = "Surgeon fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Intent/Clarification:

If surgeon fashioned, indicate the material used to fashion the implanted valve/device.

Long Name: Valve Implant Commercial Device Model Number #3

SeqNo: 2715
Short Name: ValImpComMod3

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	Valve Implant Type #3
ParentShortName:	ValImpType3
ParentHarvestCodes:	5|6|7|8|9|10|11|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the implanted valve model from the ValveList.

The valve list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Implant Unique Device Identifier (UDI) - 3

SeqNo:	2720
Short Name:	ValImpUDI3
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the third implanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Implant Type #3
ParentShortName:	ValImpType3
ParentHarvestCodes:	5|6|7|8|9|10|11|12

ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

Long Name: Valve Implant Commercial Device Size #3

SeqNo:	2725
Short Name:	ValImpComSz3
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the third implanted valve or device
Low Value:	6
High Value:	33
ParentLongName:	Valve Implant Type #3
ParentShortName:	ValImpType3
ParentHarvestCodes:	5|6|7|8|9|1|2|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned", "Autograft" or "Other"

Intent/Clarification:

Indicate the size of the implanted valve/device.

Long Name: Fourth Valve Implant

SeqNo:	2730
Short Name:	ValImp4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a fourth valve or device was implanted
ParentLongName:	Third Valve Implant
ParentShortName:	ValImp3

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (4th) was implanted during this procedure.

Long Name: Valve Implant Location #4

SeqNo: 2735

Short Name: ValImpLoc4

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the location of the fourth valve or device implanted

ParentLongName: Fourth Valve Implant

ParentShortName: ValImp4

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Common AV valve
6	Truncal valve

Intent/Clarification:

See SeqNo 2615 for more information.

Long Name: Valve Implant Type #4

SeqNo: 2740

Short Name: ValImpType4

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of the fourth valve or device implanted

ParentLongName: Fourth Valve Implant

ParentShortName: ValImp4

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
5	Mechanical
6	Bioprosthetic
7	Homograft/Allograft
8	Annuloplasty band/ring
9	Leaflet clip
10	Transcatheter valve
11	Transcatheter valve-in-valve with prosthetic valve
1	Surgeon fashioned
2	Autograft
12	Other

Intent/Clarification:

Indicate the type of valve being implanted.

Long Name: VS-Transcatheter Valve Replacement Approach - 4

SeqNo: 2745

Short Name: VSTCVR4

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate transcatheter valve replacement approach for the fourth valve implant.

ParentLongName: Valve Implant Type #4

ParentShortName: ValImpType4

ParentHarvestCodes: 10|11

ParentValue: = "Transcatheter valve" or "Transcatheter valve-in-valve with prosthetic valve"

Harvest Codes:

Code:	Value:
1	Transapical
2	Transaxillary
3	Transfemoral
4	Transaortic
5	Subclavian
7	Transiliac
8	Transeptal
9	Transcarotid
10	Transcaval
6	Other

Intent/Clarification:

If implant of a transcatheter valve or transcatheter valve in valve, indicate the approach for the valve implant.

Long Name: Valve Implant Surgeon Fashioned Material #4

SeqNo:	2750
Short Name:	ValImpSFMat4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the material used to fashion the fourth valve or device
ParentLongName:	Valve Implant Type #4
ParentShortName:	ValImpType4
ParentHarvestCodes:	1
ParentValue:	= “Surgeon fashioned”

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Intent/Clarification:

If surgeon fashioned, indicate the material used to fashion the implanted valve/device.

Long Name: Valve Implant Commercial Device Model Number #4

SeqNo:	2755
Short Name:	ValImpComMod4
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	Valve Implant Type #4
ParentShortName:	ValImpType4
ParentHarvestCodes:	5|6|7|8|9|10|11|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the implanted valve model from the ValveList.

The valve list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Valve Implant Unique Device Identifier (UDI) - 4

SeqNo:	2760
Short Name:	ValImpUDI4
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of the fourth implanted valve device if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Valve Implant Type #4
ParentShortName:	ValImpType4
ParentHarvestCodes:	5|6|7|8|9|10|11|12

ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Transcatheter valve", "Transcatheter valve-in-valve with prosthetic valve" or "Other"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

Long Name: Valve Implant Commercial Device Size #4

SeqNo:	2765
Short Name:	ValImpComSz4
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the fourth implanted valve or device
Low Value:	6
High Value:	33
ParentLongName:	Valve Implant Type #4
ParentShortName:	ValImpType4
ParentHarvestCodes:	5|6|7|8|9|1|2|12
ParentValue:	= "Mechanical", "Bioprosthetic", "Homograft/Allograft", "Annuloplasty band/ring", "Leaflet clip", "Surgeon fashioned", "Autograft" or "Other"

Intent/Clarification:

Indicate the size of the implanted valve/device.

M2. VALVE SURGERY EXPLANT (≥ 18-YEARS)

Long Name: First Valve Prosthesis Explant Position - Adult

SeqNo:	2770
Short Name:	ValExp18Pos
Database Table Name:	Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the location of the first explanted prosthetic valve or annuloplasty device.

ParentLongName: Valve Prosthesis Explant

ParentShortName: ValExp

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Aortic or neo-aortic valve
2 Mitral or systemic AV valve
3 Tricuspid or non-systemic AV valve
4 Pulmonary or neo-pulmonary valve
5 Truncal valve
6 Common AV valve

Intent/Clarification:

If explanted, indicate the location of the explanted prosthetic valve or annuloplasty device.

Coding Notes:

Nomenclature for valves has been updated in this version to reflect the position/function of the valve. Data managers are encouraged to work with their clinical teams to accurately capture the correct valve related diagnosis.

Code:	Value:	Definition:
1	Aortic or neo-aortic valve	Explant of a prosthetic valve in the aortic position and includes an aortic or neo-aortic valve. The neo-aortic valve is a valve functioning in the aortic position. Excludes explant of a truncal valve; instead, code (6) Truncal valve. *Example*: during a Ross procedure the native pulmonary valve is moved to the aortic position and is now the neo-aortic valve.
2	Mitral or systemic AV valve	Explant of a prosthetic valve in the mitral position or is functioning as the systemic atrioventricular (AV)

Code:	Value:	Definition:
		valve. The systemic AV valve may be morphologically left or right and is providing the systemic support. *Example*: in Single ventricle, Mitral atresia, the tricuspid valve is functioning as the systemic AV valve.
3	Tricuspid or non-systemic AV valve	Explant of a prosthetic valve in the tricuspid position or is functioning as the non-systemic AV valve. The non-systemic AV valve is not providing the systemic support.
4	Pulmonary or neo-pulmonary valve	Explant of a prosthetic valve in the pulmonary position and includes a pulmonary or neo-pulmonary valve. The neo-pulmonary valve is a valve functioning in the pulmonary position. *Example*: following arterial switch operation, the native aortic valve functions in the pulmonary position and is now the neo-pulmonary valve.
5	Truncal valve	Explant of a prosthetic truncal valve. Code in the setting of truncus arteriosus where the explant is a previously implanted truncal valve. Caution as the dictated op note may state aortic valve.
6	Common AV valve	Explant of a prosthetic common AV valve. The common AV valve is the presence of one AV valve instead of 2 separate valves. This is most often in the setting of single ventricle physiology or in an upseptated valve (e.g., in the setting of an unrepaired AV septal defect).

Long Name: First Valve Explant Type

SeqNo: 2775

Short Name:	ValExpTyp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the first type of valve device explanted or enter unknown.
ParentLongName:	Valve Prosthesis Explant
ParentShortName:	ValExp
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
2	Mechanical
3	Bioprosthetic
7	Homograft
10	Autograft
4	Annuloplasty
5	Leaflet Clip
6	Transcatheter Valve
11	Transcatheter Valve in Valve with prosthetic valve
9	Other
1	Unknown

Intent/Clarification:

If explant, indicate the type of valve being explanted.

This can be determined using the valve model number and the valve manufacturer website.

In the scenario where a patient underwent a previous prosthetic valve implant and without removal later underwent a transcatheter aortic valve replacement (TAVR), code the prosthetic valve as (3) Bioprosthetic and the TAVR valve as (11) Transcatheter Valve in Valve with prosthetic valve. The first explant is the TAVR as that is the valve that will be removed first. The second explant is the bioprosthetic (SAVR) as it will be removed next.

Long Name: First Valve Explant Etiology - Adult

SeqNo: 2780

Short Name: ValExp18Et
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the primary reason for explanting valve device.

ParentLongName: Valve Prosthesis Explant
ParentShortName: ValExp
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Endocarditis
2	Failed repair
3	Hemolysis
4	Incompetence
5	Pannus
6	Paravalvular leak
7	Prosthetic Deterioration
8	Sizing/Positioning issue
9	Stenosis
10	Thrombus
11	Other
12	Unknown

Intent/Clarification:

If explant, select the primary/most critical reason the valve is being explanted.

In the event a homograft is being explanted due to calcification, code (7) Bioprosthetic Deterioration.

Long Name: First Valve Explant Device Known

SeqNo: 2785
Short Name: ValExpDevKnown
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the type of explanted valve device is known.
ParentLongName: Valve Prosthesis Explant

ParentShortName: ValExp

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If explant, indicate if the type of explanted valve device is known. This information may be found in the patient's medical record or the patient's manufacturer device card.

In the event a patient presents for a reoperation status post a previous Ross procedure, code (2) No for the explant of the AV conduit.

Long Name: First Valve Explant Device

SeqNo: 2790

Short Name: ValExpDev

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the model number of the first prosthesis explanted.

ParentLongName: First Valve Explant Device Known

ParentShortName: ValExpDevKnown

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value: See ValveList for valve models

Intent/Clarification:

Select the explanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: First Valve Explant Unique Device Identifier (UDI)

SeqNo:	2795
Short Name:	ValExpUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	First Valve Explant Device Known
ParentShortName:	ValExpDevKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If explanted, see SeqNo 2495 for UDI information.

Long Name: First Valve Explant Device Year Known

SeqNo:	2800
Short Name:	ValExpYrKn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if the year of implant is known for the device being explanted.
ParentLongName:	First Valve Explant Device Known
ParentShortName:	ValExpDevKnown
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If explant, indicate if the year of implant is known for the device being explanted.

Long Name: First Valve Explant Implant Year

SeqNo:	2805
Short Name:	ValExpYr
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the year of implant for the device being explanted.
ParentLongName:	First Valve Explant Device Year Known
ParentShortName:	ValExpYrKn
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If year of implant known, indicate the year of implant for the device being explanted. If the year of the implant is documented in a range, capture the year closest to surgery. For example, if the date of the implant is documented as being 10-15 years ago, capture as 10 years.

Leave blank if you have no information on the month, day, or year of the implant.

Long Name: Second Valve Prosthesis Explant

SeqNo:	2810
Short Name:	ValExp2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a second prosthetic valve or annuloplasty was explanted during this procedure.
ParentLongName:	Valve Prosthesis Explant
ParentShortName:	ValExp
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (2nd) was explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Code a valve/device was explanted even if the sewing cuff is retained.

Do not code a valve explant if a valve is implanted and explanted during the same operation due to the fact the valve did not work or fit.

Long Name: Second Valve Prosthesis Explant Position - Adult

SeqNo:	2815
Short Name:	ValExp18Pos2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the second explanted prosthetic valve or annuloplasty.
ParentLongName:	Second Valve Prosthesis Explant
ParentShortName:	ValExp2
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Truncal valve
6	Common AV valve

Intent/Clarification:

Indicate the location of the explanted prosthetic valve or annuloplasty device.

See SeqNo 2770 for information.

Long Name: Second Valve Explant Type

SeqNo:	2820
Short Name:	ValExpTyp2
Database Table Name:	Operations

Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the second type of valve device explanted or enter unknown.
ParentLongName:	Second Valve Prosthesis Explant
ParentShortName:	ValExp2
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
2	Mechanical
3	Bioprosthetic
7	Homograft
10	Autograft
4	Annuloplasty
5	Leaflet Clip
6	Transcatheter Valve
11	Transcatheter Valve in Valve with prosthetic valve
9	Other
1	Unknown

Intent/Clarification:

Indicate the type of valve being explanted. This can be determined using the valve model number and the valve manufacturer website.

In the scenario a patient underwent a previous prosthetic valve implant and without removal, later underwent a transcatheter aortic valve replacement (TAVR), code the prosthetic valve as (3) Bioprosthetic and the TAVR valve as (11) Transcatheter Valve in Valve with prosthetic valve. The first explant is the TAVR as that is the valve that will be removed first. The second explant is the bioprosthetic (SAVR) as it will be removed next.

Long Name: Second Valve Explant Etiology - Adult

SeqNo:	2825
Short Name:	ValExp18Et2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary reason for explanting valve device.
ParentLongName:	Second Valve Prosthesis Explant

ParentShortName: ValExp2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Endocarditis
2	Failed repair
3	Hemolysis
4	Incompetence
5	Pannus
6	Paravalvular leak
7	Prosthetic Deterioration
8	Sizing/Positioning issue
9	Stenosis
10	Thrombus
11	Other
12	Unknown

Intent/Clarification:

If explant, select the primary/most critical reason the valve is being explanted.

In the event a homograft is being explanted due to calcification, code (7) Bioprosthetic Deterioration.

Long Name: Second Valve Explant Device Known

SeqNo: 2830

Short Name: ValExpDevKnown2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the type of explanted valve device is known.

ParentLongName: Second Valve Prosthesis Explant

ParentShortName: ValExp2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the type of explanted valve device is known. This information may be found in the patient's medical record or the patient's manufacturer device card.

Long Name: Second Valve Explant Device

SeqNo:	2835
Short Name:	ValExpDev2
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the model number of the second prosthesis explanted.
ParentLongName:	Second Valve Explant Device Known
ParentShortName:	ValExpDevKnown2
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the explanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Second Valve Explant Device Unique Device Identifier (UDI)

SeqNo:	2840
Short Name:	ValExpDevUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.

ParentLongName: Second Valve Explant Device Known

ParentShortName: ValExpDevKnown2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If explanted, see SeqNo 2495 for UDI information.

Long Name: Second Explant Year of Implant Known

SeqNo: 2845

Short Name: ValExp2YrImplantKn

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if the year of implant is known for the device being explanted.

ParentLongName: Second Valve Explant Device Known

ParentShortName: ValExpDevKnown2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the year of implant is known for the device being explanted.

Long Name: Second Valve Explant Implant Year

SeqNo: 2850

Short Name: ValExp2ImplantYr

Database Table Name: Operations

Data Source: User

Format: Text

Definition: Indicate the year of implant for the device being explanted.

ParentLongName: Second Explant Year of Implant Known

ParentShortName: ValExp2YrImplantKn

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

Indicate the year of implant for the device being explanted. If the year of the implant is documented in a range, capture the year closest to surgery. For example, if the date of the implant is documented as being 10-15 years ago, capture as 10 years.

Leave blank if you have no information on the month, day, or year of the implant.

Long Name: Third Valve Prosthesis Explant

SeqNo: 2855

Short Name: ValExp3

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a third prosthetic valve or annuloplasty was explanted during this procedure.

ParentLongName: Second Valve Prosthesis Explant

ParentShortName: ValExp2

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if an additional valve (3rd) was explanted during this procedure. Only include explants of previously placed artificial valves, do not code explants for native valves.

Code a valve/device was explanted even if the sewing cuff is retained.

Do not code a valve explant if a valve is implanted and explanted during the same operation due to the fact the valve did not work or fit.

Long Name: Third Valve Prosthesis Explant Position - Adult

SeqNo: 2860
Short Name: ValExp18Pos3
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the location of the third explanted prosthetic valve or annuloplasty.
ParentLongName: Third Valve Prosthesis Explant
ParentShortName: ValExp3
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Aortic or neo-aortic valve
2	Mitral or systemic AV valve
3	Tricuspid or non-systemic AV valve
4	Pulmonary or neo-pulmonary valve
5	Truncal valve
6	Common AV valve

Intent/Clarification:

Indicate the location of the explanted prosthetic valve or annuloplasty device.

See SeqNo 2770 for information.

Long Name: Third Valve Explant Type

SeqNo: 2865
Short Name: ValExpTyp3
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the third type of valve device explanted or enter unknown.
ParentLongName: Third Valve Prosthesis Explant
ParentShortName: ValExp3
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:

Code	Value
2	Mechanical
3	Bioprosthetic
7	Homograft
10	Autograft
4	Annuloplasty
5	Leaflet Clip
6	Transcatheter Valve
11	Transcatheter Valve in Valve with prosthetic valve
9	Other
1	Unknown

Intent/Clarification:

Indicate the type of valve being explanted.

This can be determined using the valve model number and the valve manufacturer website.

In the scenario a patient underwent a previous prosthetic valve implant and without removal, later underwent a transcatheter aortic valve replacement (TAVR), code the prosthetic valve as (3) Bioprosthetic and the TAVR valve as (11) Transcatheter Valve in Valve with prosthetic valve. The first explant is the TAVR as that is the valve that will be removed first. The second explant is the bioprosthetic (SAVR) as it will be removed next.

Long Name: Third Valve Explant Etiology - Adult

SeqNo:	2870
Short Name:	ValExp18Et3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary reason for explanting valve device.
ParentLongName:	Third Valve Prosthesis Explant
ParentShortName:	ValExp3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:

Code	Value
1	Endocarditis
2	Failed repair
3	Hemolysis
4	Incompetence

5	Pannus
6	Paravalvular leak
7	Prosthetic Deterioration
8	Sizing/Positioning issue
9	Stenosis
10	Thrombus
11	Other
12	Unknown

Intent/Clarification:

Select the primary/most critical reason the valve is being explanted.

In the event a homograft is being explanted due to calcification, code (7) Bioprosthetic Deterioration.

Long Name: Third Valve Explant Device Known

SeqNo:	2875
Short Name:	ValExpDevKnown3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the type of explanted valve device is known.
ParentLongName:	Third Valve Prosthesis Explant
ParentShortName:	ValExp3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the type of explanted valve device is known. This information may be found in the patient's medical record or the patient's manufacturer device card.

Long Name: Third Valve Explant Device

SeqNo	2880

Short Name:	ValExpDev3
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the model number of the third prosthesis explanted.
ParentLongName:	Third Valve Explant Device Known
ParentShortName:	ValExpDevKnown3
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

Select the explanted valve model from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: Third Valve Explant Device Unique Device Identifier (UDI)

SeqNo	2885
Short Name:	ValExpDev3UDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Third Valve Explant Device Known
ParentShortName:	ValExpDevKnown3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If explanted, see SeqNo 2495 for UDI information.

Long Name: Third Explant Year of Implant Known

SeqNo:	2890
Short Name:	ValExp3YrImplantKn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if the year of implant is known for the device being explanted.
ParentLongName:	Third Valve Explant Device Known
ParentShortName:	ValExpDevKnown3
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the year of implant is known for the device being explanted.

Long Name: Third Valve Explant Implant Year

SeqNo:	2895
Short Name:	ValExp3ImplantYr
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the year of implant for the device being explanted.
ParentLongName:	Third Explant Year of Implant Known
ParentShortName:	ValExp3YrImplantKn
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

Indicate the year of implant for the device being explanted. If the year of the implant is documented in a range, capture the year closest to surgery. For example, if the date of the implant is documented as being 10-15 years ago, capture as 10 years.

Leave blank if you have no information on the month, day, or year of the implant.

M3. AORTIC, NEO-AORTIC, or TRUNCAL VALVE WITHOUT CONCOMITANT AORTA PROCEDURE (≥ 18-YEARS)

Long Name: Aortic, Neo-Aortic Or Truncal Valve Procedure

SeqNo:	2900
Short Name:	ANTValve
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the procedure was performed on the aortic, neo-aortic or truncal valve.
ParentLongName:	AV-Aorta Procedure Performed
ParentShortName:	AVAortaProcPerf
ParentHarvestCodes	2
ParentValue:	= "No"

Harvest Codes:

Code:	Value:
1	Aortic valve
2	Neo-aortic valve
3	Truncal valve

Intent/Clarification:

If aortic/ neo-aortic / truncal valve procedure without concomitant aorta procedure, indicate which valve the procedure was performed on.

Long Name: VS-Aortic Valve Procedure

SeqNo:	2905
Short Name:	VSAVPr
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate the type of procedure that was performed on the aortic valve.
ParentLongName:	AV-Aorta Procedure Performed
ParentShortName:	AVAortaProcPerf
ParentHarvestCodes	2
ParentValue:	= "No"

Harvest Codes:

Code:	Value:
1	Replacement
2	Repair / Reconstruction
3	Surgical Prosthetic Valve Intervention (Not explant of valve)

Intent/Clarification:

If aortic/ neo-aortic / truncal valve procedure without concomitant aorta procedure, indicate the type of procedure performed on the aortic/neo-aortic/truncal valve.

Coding Notes:

- Code (1) Replacement when the aortic/neo-aortic/truncal valve was replaced.
  - Includes replacement of a native or previously placed prosthetic valve.
  - In the event there was attempted aortic/neo-aortic/truncal valve repair that was converted to replacement, code (2) Replacement.
- Code (2) Repair / Reconstruction when the native aortic/neo-aortic/truncal valve was repaired or reconstructed.
- Code (3) Surgical prosthetic valve intervention where there is intervention on a previously implanted prosthetic valve without explantation of the prosthetic valve.

Long Name: VS-Aortic Transcatheter Valve Replacement

SeqNo:	2910
Short Name:	VSTCV
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the aortic valve replacement was done using a transcatheter valve device.
ParentLongName:	VS-Aortic Valve Procedure
ParentShortName:	VSAVPr
ParentHarvestCodes:	1

ParentValue: = "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve replacement, indicate if the valve was replaced using a transcatheter valve device via transcatheter approach. Do not include transcatheter devices inserted via an open approach; open approaches to insert a transcatheter device are captured as surgical aortic valve replacement.

This will only include procedures where a cardiothoracic surgeon is present and participating in the transcatheter valve procedure.

Long Name: VS-Transcatheter Valve Replacement Approach

SeqNo: 2915

Short Name: VSTCVR

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS) Definition: Indicate transcatheter valve replacement approach.

ParentLongName: VS-Aortic Transcatheter Valve Replacement

ParentShortName: VSTCV

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Transapical
2	Transaxillary
3	Transfemoral
4	Transaortic
5	Subclavian
7	Transiliac
8	Transeptal
9	Transcarotid
10	Transcaval
6	Other

Intent/Clarification:

If transcatheter valve replacement, indicate the transcatheter valve replacement approach.

Long Name: VS-Aortic Surgical Valve Replacement

SeqNo:	2920
Short Name:	VSAVSurgRep
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the aortic valve replacement was done using a surgical procedure.
ParentLongName:	VS-Aortic Valve Procedure
ParentShortName:	VSAVPr
ParentHarvestCodes:	1
ParentValue:	= "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate whether the replacement of the aortic/neo-aortic/truncal valve was performed using an open/surgical procedure.

Long Name: VS-Aortic Surgical Valve Replacement Device Type

SeqNo:	2925
Short Name:	VSAVSurgType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of device used to surgically replace the aortic valve.
ParentLongName:	VS-Aortic Surgical Valve Replacement
ParentShortName:	VSAVSurgRep
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Surgeon fashioned pericardium (Ozaki)
4	Other

Intent/Clarification:

If surgical/open replacement, indicate the type of device used to surgically replace the aortic/neo-aortic/truncal valve.

Accurate collection of the valve type is necessary for device longitudinal surveillance. This can be determined by looking up the valve model number on the manufacturer website.

Long Name: VS-Aortic Surgical Bioprosthetic Replacement Valve Type

SeqNo:	2930
Short Name:	VSAVSurgBioT
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of bioprosthetic device used to surgically replace the aortic valve.
ParentLongName:	VS-Aortic Surgical Valve Replacement Device Type
ParentShortName:	VSAVSurgType
ParentHarvestCodes:	2
ParentValue:	= "Bioprosthetic"

Harvest Codes:

Code:	Value:
1	Stented
2	Stentless subcoronary valve only
3	Sutureless/rapid deployment

Intent/Clarification:

If bioprosthetic surgical replacement, select the valve type.

Long Name: VS-Aortic Valve Procedure Repair Type

SeqNo:	2940
Short Name:	AVProcRepType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate the repair type of the aortic valve. If more than one repair type was performed, select all that apply.

ParentLongName: VS-Aortic Valve Procedure

ParentShortName: VSAVPr

ParentHarvestCodes: 2

ParentValue: = "Repair / Reconstruction"

Harvest Codes:

Code: Value:

1 Commissural suture annuloplasty
2 Leaflet plication
3 Leaflet commissural resuspension suture
4 Leaflet free edge reinforcement
5 External Suture Annuloplasty
6 Nodular Release
7 Leaflet Shaving
8 Leaflet debridement
9 Ring annuloplasty External Ring
10 Pannus/Thrombus Removal (Native Valve)
11 Leaflet resection suture
12 Leaflet pericardial patch
17 Leaflet patch augmentation, other than pericardium
13 Division of fused leaflet raphe
14 Ring annuloplasty Internal Ring
15 Reduction of number of cusps/sinus resection for Truncal *valve*
16 Neocuspidization

Intent/Clarification:

If repair/reconstruction, indicate the repair type(s) of the aortic/neo-aortic/truncal valve. Select all that apply.

Code:	Value:	Definition:
1	Commissural suture annuloplasty	Identifies repairs involving placement of pledgeted mattress sutures across the upper portion of the commissural post to improve leaflet coaptation. These annuloplasty sutures are contained with the inside of the aorta, in contrast to the sutures for commissural resuspension.

Code:	Value:	Definition:
		May be referred to as subcommissural annuloplasty.
2	Leaflet plication	Repair with central plication stitches, shortening the leaflet free-edge length for the correction of leaflet prolapse. Code free margin shortening as leaflet plication.
3	Leaflet commissural resuspension suture	Repair with a pledgeted mattress suture placed at the top end of the commissural post. The stitch is placed transmurally so that one pledget is on the inside of the aorta and the other pledget is on the outside of the aorta. This suture has the effect of compressing all aortic layers together and is often used in repair of aortic dissections. If this procedure is performed in conjunction with valve sparing root procedure, both leaflet commissural resuspension suture and valve sparing root procedure should be selected. If performed in conjunction with replacement of the ascending aorta, do not code as a valve sparing root procedure (Seq 3925); code Aortic/Neo-Aortic/Truncal Valve or Root Procedure Performed (Seq 3830) as yes and code the repair type (Seq 3870) as Leaflet commissural resuspension suture.
4	Leaflet free edge reinforcement	The free edge reinforcement technique is performed by using suture passed in running fashion over and over along the entire length of the free margin. May include reinforcement (PTFE) suture.
5	External Suture Annuloplasty	To identify placement of the annuloplasty suture outside the right/left commissure, passing the needle through the septal myocardium.
6	Nodular Release	Repair procedure included nodular release.
7	Leaflet Shaving	Leaflet shaving removing a growth.
8	Leaflet debridement	A debridement technique can be used to remove

Code:	Value:	Definition:
		small leaflet lesions such as Lambl's excrescence, fibroelastomas, and small calcific deposits.
9	Ring annuloplasty External Ring	A ring sewn around the base to the annulus to reshape it and provide support. Rings may be flexible or rigid.
10	Pannus/Thrombus Removal (Native Valve)	The valve repair included pannus or thrombus removal from the native valve. Pannus is the ingrowth of fibrous tissue into the valve apparatus. May also include removal of vegetation.
11	Leaflet resection suture	Sutures placed to mark the edges of the resection.
12	Leaflet pericardial patch	A pericardial patch can be used to repair larger perforations in the valve leaflets.
17	Leaflet patch augmentation, other than pericardium	Leaflet repair utilizing material other than pericardium.
13	Division of fused leaflet raphe	The division of the raphe. For example, the two commissures or hinge points that are fused in bicuspid valves.
14	Ring annuloplasty Internal Ring	New type of annuloplasty ring that is tailored to each valve's shape and is designed to be implanted directly into the aortic annulus. The HAART 300 is an example of an internal ring.
15	Reduction of number of cusps/sinus resection for Truncal valve	Reduction of truncal valve cusps/truncal valve sinus resection.
16	Neocuspidization	Reconstruction of the valve using the patient's own body tissue, e.g., the Ozaki procedure.

Long Name: Aortic Valve Number Of Cusps

SeqNo:	2945
Short Name:	AVNumCusps
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the number of cusps for neocuspidization.
ParentLongName:	VS-Aortic Valve Procedure Repair Type
ParentShortName:	AVProcRepType
ParentHarvestCodes:	contains(16)
ParentValue:	Contains (“Neocuspidization”)

Harvest Codes:

Code:	Value:
1	One cusp
2	Two cusps
3	Three cusps

Intent/Clarification:

If neocuspidization, indicate the number of cusps.

Long Name: VS-Aortic Valve Procedure Surgical Prosthetic Valve Intervention Type

SeqNo:	2950
Short Name:	AVSurgProsthValInt
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate what procedure was performed on a previously implanted prosthetic Aortic valve. If more than one intervention was performed, select all that apply.
ParentLongName:	VS-Aortic Valve Procedure
ParentShortName:	VSAVPr
ParentHarvestCodes:	3
ParentValue:	= “Surgical Prosthetic Valve Intervention (Not explant of valve)”

Harvest Codes:

Code:	Value:

1 Repair of periprosthetic leak
2 Removal of Pannus
3 Removal of Clot
4 Other

Intent/Clarification:

If surgical prosthetic valve intervention, indicate what procedure(s) was/(were) performed on a previously implanted prosthetic aortic/neo-aortic/truncal valve.

This field does not capture explantation of the prosthetic valve.

Code:	Value:	Definition:
1	Repair of periprosthetic leak	Repair of a periprosthetic leak with one or more repair sutures without the need to remove the existing prosthesis. Does not include repair of a periprosthetic leak done via transcatheter device.
2	Removal of Pannus	Pannus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
3	Removal of Clot	Clot or thrombus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
4	Other	Other prosthetic valve repair not listed.

Long Name: VS-Aortic Proc-Aortic Annular Enlargement

SeqNo: 2955

Short Name:	AnlrEnl
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an annular enlargement procedure was performed on the Aortic Valve.

ParentLongName: AV-Aorta Procedure Performed

ParentShortName: AVAortaProcPerf

ParentHarvestCodes: 2

ParentValue: = “No”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/ neo-aortic / truncal valve procedure without concomitant aorta procedure, indicate whether an annular enlargement procedure was performed on the aortic/neo-aortic/truncal valve.

An aortic annular enlargement is defined as incision of the aortic annulus to enlarge the aortic orifice. Annular enlargement techniques include, but are not limited to Manougian, Konno and Nicks, including modified Nick’s and Manougian.

Coding Notes:

In the event the surgeon performs an annular enlargement procedure without concomitant aortic root procedure, code (1) Yes.

Description: Enlargement of the aortic annulus during aortic valve replacement permits insertion of a larger prosthetic valve or allows for optimal positioning. The enlarging procedure typically employs a patch of either pericardium or Dacron.

Long Name: VS-Aortic Proc-Aortic Annular Enlargement - Technique

SeqNo: 2960

Short Name: AnlrEnlTech

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the technique used for the aortic annular enlargement procedure.

ParentLongName: VS-Aortic Proc-Aortic Annular Enlargement

ParentShortName: AnlrEnl

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:
1 Nicks-Nunez
2 Manougian
3 Konno
4 Other
5 Unknown

Intent/Clarification:

If aortic/neo-aortic/truncal annular enlargement, indicate the annular enlargement technique utilized.

Code:	Value:	Definition:
1	Nicks-Nunez	Posterior approach for enlargement of the aortic annulus. The aortotomy is extended either through the non-coronary sinus, across the aortic ring as far as the origin of the mitral valve or by resecting the posterior commissure (between left and non-coronary cusps), stopping at the base of the base of the anterior mitral leaflet. The incision can be extended across the fibrous mitral annulus, further into the anterior mitral leaflet. Includes modified Nicks procedures (supra-annular aortoplasty).
2	Manougian	The aortotomy is extended into the commissure between the left and non-coronary sinuses and into the anterior mitral leaflet. Includes modified Manougian procedures.
3	Konno	The aortic annulus is enlarged by implantation of a patch into the incised ventricular septum. Another patch is used to close the right ventricular incision. Includes Konno-Rastan aortic enlargement procedures.
4	Other	Other annular enlargement technique not listed.
5	Unknown	Annular enlargement procedure completed but the actual technique is unknown.

Long Name: VS-Aortic Valve or Valve Repair Device Implant

SeqNo:	2970
Short Name:	AorticImplant
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an aortic valve or valve repair device was implanted.
ParentLongName:	AV-Aorta Procedure Performed
ParentShortName:	AVAortaProcPerf
ParentHarvestCodes:	2
ParentValue:	= "No"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve procedure without concomitant aorta procedure, indicate whether an aortic/neo-aortic/truncal valve or valve repair device was implanted.

Long Name: VS-Aortic Proc-Implant Model Number

SeqNo:	2975
Short Name:	VSAoIm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	VS-Aortic Valve or Valve Repair Device Implant
ParentShortName:	AorticImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	
Code: Value:	See ValveList for valve models

Intent/Clarification:

If aortic/neo-aortic/truncal valve or valve device implanted, select the device from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: VS-Aortic Proc-Imp-Size

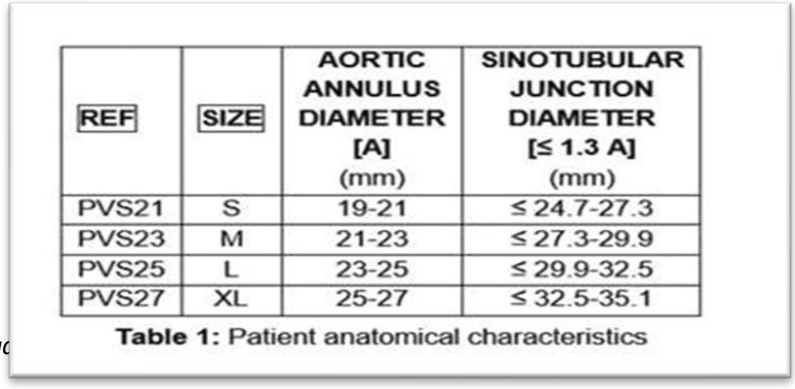
SeqNo:	2980
Short Name:	VSAoImSz
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the Aortic implant size.
Low Value:	5
High Value:	100
ParentLongName:	VS-Aortic Valve or Valve Repair Device Implant
ParentShortName:	AorticImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If aortic/neo-aortic/truncal valve or valve device implanted, indicate the size of the aortic/neo-aortic/truncal valve or repair device implant.

Code valves with a size range as the smallest size. For example, ON-X valve sized 27/29 are coded as size 27.

The Perceval Sutureless Valve and the Perceval Plus Valve come in 4 sizes: S, M, L, and XL. Code the size of the last digits in the model number. For example, PSV23 will be coded as 23. Note: REF = Model Number in the table below.



REF	SIZE	AORTIC ANNULUS DIAMETER [A] (mm)	SINOTUBULAR JUNCTION DIAMETER [≤ 1.3 A] (mm)
PVS21	S	19-21	≤ 24.7-27.3
PVS23	M	21-23	≤ 27.3-29.9
PVS25	L	23-25	≤ 29.9-32.5
PVS27	XL	25-27	≤ 32.5-35.1

Table 1: Patient anatomical characteristics

Long Name: VS-Aortic Proc-Imp - Unique Device Identifier (UDI)

SeqNo:	2985
Short Name:	VSAoImUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VS-Aortic Valve or Valve Repair Device Implant
ParentShortName:	AorticImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

M4. MITRAL / SYSTEMIC AV VALVE PROCEDURE (≥ 18-YEARS)

Long Name: Mitral Valve Type

SeqNo:	2990
Short Name:	MVType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of mitral valve where the procedure was performed.
ParentLongName:	VS-Mitral / Common AV / Systemic AV Valve Procedure Performed
ParentShortName:	VSMV
ParentHarvestCodes:	3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Mitral valve
2	Common AV valve
3	Systemic AV valve, other

Intent/Clarification:

If mitral/common AV/systemic AV valve procedure performed, indicate which valve the procedure was performed on.

Long Name: VS-Mitral Valve Procedure

SeqNo: 2995

Short Name: VSMVPr

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of procedure that was performed on the mitral valve.

ParentLongName: VS-Mitral / Common AV / Systemic AV Valve Procedure Performed

ParentShortName: VSMV

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Repair
2	Replacement
3	Surgical Prosthetic Valve Intervention (Not explant of valve)

Intent/Clarification:

If mitral/common AV/systemic AV valve procedure performed, indicate the type of procedure performed.

Coding Notes:

- Code (1) Repair when the native mitral/common AV/systemic AV valve was repaired
- Code (2) Replacement when the mitral/common AV/systemic AV valve was replaced

- Includes replacement of a native or previously placed prosthetic valve.
- In the event there was attempted mitral/common AV/systemic AV valve repair that was converted to replacement, code (2) Replacement.

- Code (3) Surgical prosthetic valve intervention where there is intervention on a prosthetic valve without explantation of the prosthetic valve

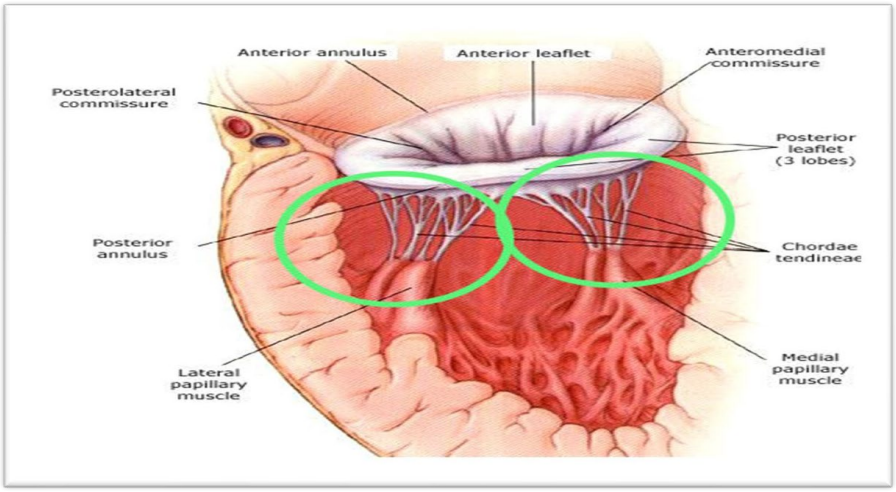


Figure Mitral Valve

Long Name: VS-Mitral Valve - Repair Approach

SeqNo:	3000
Short Name:	VSMVRepApp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the approach that was used to repair the Mitral Valve.
ParentLongName:	VS-Mitral Valve Procedure
ParentShortName:	VSMVPr
ParentHarvestCodes:	1
ParentValue:	= "Repair"

Harvest Codes:

Code:	Value:
2	Surgical
1	Transcatheter

Intent/Clarification:

If mitral/common AV/systemic AV valve repair, indicate the approach used to repair the valve.

Code:	Value:	Definition:
2	Surgical	Repair is performed via open surgical technique or minimally invasive mitral valve surgery, where small incisions are made through the chest. If a transcatheter device is inserted via an open procedure capture as surgical repair.
1	Transcatheter	Transcatheter mitral valve replacement (TMVR) and mitral clip procedures are performed on patients who may not be candidates for conventional open-heart valve replacement or repair surgery. Catheter based access is obtained through an artery.

Long Name: VS - Mitral Valve Repair - Surgical Approach

SeqNo: 3005
Short Name: VSMVRepAppSurg
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the type of surgical repair to the mitral valve. If more than one repair type was performed, select all that apply.
ParentLongName: VS-Mitral Valve - Repair Approach
ParentShortName: VSMVRepApp
ParentHarvestCodes: 2
ParentValue: = “Surgical”
Harvest Codes:

Code: Value:
1 Annuloplasty
2 Annular decalcification/debridement
3 Commissurotomy
4 Leaflet resection
5 Leaflet extension/replacement patch
6 Commissuroplasty
7 Neochords (PTFE)
8 Edge to edge repair

9 Cleft repair (scallop closure)
10 Chordal Transfer
11 Leaflet Plication
12 Pannus/Thrombus Removal (Native Valve)
13 Removal supravalvar mitral ring/membrane

Intent/Clarification:

If mitral/common AV/systemic AV valve repair, indicate the repair type(s). Select all that apply.

Code:	Value:	Definition:
1	Annuloplasty	The valve repair included an annuloplasty. Includes Kay annuloplasty.
2	Annular decalcification/debridement	The valve repair included an annular decalcification or debridement.
3	Commissurotomy	The valve repair included a valve commissurotomy; disruption of the components of a commissure fused because of valvular disease. Includes mitral repair leaflet - commissure resection.
4	Leaflet resection	The valve repair included leaflet resection.
5	Leaflet extension / replacement patch	The valve repair included a leaflet extension or replacement patch.
6	Commissuroplasty	The valve repair procedure included a mitral/ common AV/systemic AV valve Commissuroplasty.
7	Neochords (PTFE)	The valve repair included Neochord (PTFE) valve repair. Intended to replace damaged chordae by delivering artificial chordae tendineae.
8	Edge to edge repair	The valve repair included an edge-to-edge repair; a surgical approximation of the valve leaflets, sometimes called the Alfieri or Bow-Tie procedure. Includes open transcatheter mitral clip procedures.
9	Cleft repair (scallop closure)	The valve repair included a cleft repair.

Code:	Value:	Definition:
10	Chordal Transfer	The valve repair included a chordal or leaflet transfer.
11	Leaflet Plication	The valve repair included a leaflet plication. Includes imbrication of the mitral leaflet.
12	Pannus/Thrombus Removal (Native Valve)	The valve repair included pannus or thrombus removal. Pannus is the ingrowth of fibrous tissue into the valve apparatus. Includes removal of vegetation.
13	Removal supravalvar mitral ring/membrane	The valve repair included the removal of a supravalvular mitral ring or membrane.

Long Name: VS – Mitral Valve Resection Location

SeqNo: 3010
Short Name: VSMVResLoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the mitral valve resection location(s).
ParentLongName: VS – Mitral Valve Repair – Surgical Approach
ParentShortName: VSMVRepAppSurg
ParentHarvestCodes: contains(4)
ParentValue: Contains (“Leaflet resection”)
Harvest Codes:

Code:	Value:
1	Anterior Resection
2	Posterior Resection
3	Both

Intent/Clarification:

If leaflet resection performed, indicate the valve resection location(s).

Long Name: VS-Mitral Leaflet Resection Methods

SeqNo: 3015
Short Name: VSLeafResTypMult
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate the type of resection method used. If more than one method was used, select all that apply.
ParentLongName: VS – Mitral Valve Repair – Surgical Approach
ParentShortName: VSMVRepAppSurg
ParentHarvestCodes: contains(4)
ParentValue: Contains ("Leaflet resection")
Harvest Codes:

Code:	Value:
1	Triangular
2	Quadrangular
4	Resection with Sliding Valvuloplasty
5	Resection with Folding Valvuloplasty
3	Other

Intent/Clarification:

If leaflet resection performed, indicate the type of resection method(s) used.

Long Name: VS – Mitral Valve Surgery Neochords Location

SeqNo: 3020
Short Name: VSNeochordLoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the mitral valve neochord location(s).
ParentLongName: VS – Mitral Valve Repair – Surgical Approach
ParentShortName: VSMVRepAppSurg
ParentHarvestCodes: contains(7)
ParentValue: Contains ("Neochords (PTFE)")
Harvest Codes:

Code:	Value:
1	Anterior

2 Posterior
3 Both
4 Not Documented

Intent/Clarification:

If neochord procedure performed, indicate the neochord location.

Coding Notes:

- Code (1) Anterior when anterior neochord(s) were placed
- Code (2) Posterior when posterior neochord(s) were placed
- Code (3) Both when both anterior and posterior eochords were placed
- Code (4) Not Documented when neochord(s) were placed but the location is not documented.

Long Name: Valve Surgery – Mitral Valve Chordal Transfer Location

SeqNo:	3025
Short Name:	VSChordalTransLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the mitral valve chordal transfer location(s).
ParentLongName:	VS – Mitral Valve Repair – Surgical Approach
ParentShortName:	VSMVRepAppSurg
ParentHarvestCodes:	contains(10)
ParentValue:	Contains (“Chordal Transfer”)

Harvest Codes:

Code: Value:
1 Anterior Chordal transfer
2 Posterior Chordal transfer
3 Both
4 Not documented

Intent/Clarification:

If chordal transfer performed, indicate the chordal transfer location.

Anterior and posterior refers to the origins of the chords, not the destination.

Long Name: VS-Mitral Valve Repair – Leaflet Extension / Replacement Patch – Location

SeqNo:	3030
Short Name:	VSMitRLeafERPLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the mitral leaflet extension/replacement patch.
ParentLongName:	VS – Mitral Valve Repair – Surgical Approach
ParentShortName:	VSMVRepAppSurg
ParentHarvestCodes:	contains(5)
ParentValue:	Contains (“Leaflet extension/replacement patch”)

Harvest Codes:

Code:	Value:
1	Anterior
2	Posterior
3	Both
4	Not Documented

Intent/Clarification:

If leaflet extension/replacement patch performed, indicate the patch location.

Long Name: VS-Mitral Repair Attempted

SeqNo:	3035
Short Name:	MitralIntent
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a Mitral Valve Repair was attempted prior to the Mitral Valve Replacement.
ParentLongName:	VS-Mitral Valve Procedure
ParentShortName:	VSMVPr
ParentHarvestCodes:	2
ParentValue:	= “Replacement”

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If mitral/common AV/systemic AV valve replacement, indicate if there was attempted valve repair prior to replacement during this operative setting/procedure. Do not capture valve repairs that fail after the patient leaves the operative setting for this procedure.

Description: Preservation of the native valve and surrounding structures is preferable to replacement when possible. The surgeon may attempt repair prior to replacement.

Long Name: VS-Mitral Chordal Preservation

SeqNo:	3040
Short Name:	VSChorPres
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether native chords were preserved.
ParentLongName:	VS-Mitral Valve Procedure
ParentShortName:	VSMVPr
ParentHarvestCodes:	2
ParentValue:	= "Replacement"

Harvest Codes:

Code: Value:
2 Anterior
3 Posterior
4 Both
1 None

Intent/Clarification:

If mitral/common AV/systemic AV valve replacement, indicate whether the native chords were preserved and indicate their location.

If artificial chords from each papillary muscle to the annulus were placed during the valve replacement, code Yes to chords preserved. The STS realizes that native chords are ideal, however, given the current limitations in this version it is believed this is the best way to signify the presence of artificial chords.

Coding Notes:

- In the scenario where the anterior leaflet is removed and it is not specified whether the anterior chords were preserved and the posterior leaflet is left intact, code (3) Posterior only as this is the most common scenario.
- In the scenario where the majority of the chords were removed, code (1) None.
- In the scenario where most of the posterior leaflet was preserved, code (3) Posterior.

Long Name: VS-Mitral Transcatheter Valve Replacement

SeqNo:	3045
Short Name:	VSTCVMit
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the mitral valve replacement was done using a transcatheter valve device.
ParentLongName:	VS-Mitral Valve Procedure
ParentShortName:	VSMVPr ParentHarvestCodes: 2
ParentValue:	= "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If mitral/common AV/systemic AV valve replacement, indicate if the valve was replaced using a transcatheter valve device via transcatheter approach. Do not include transcatheter devices inserted via an open approach; open approaches to insert a transcatheter device are captured as surgical mitral/common AV/systemic AV valve replacement.

This will only capture procedures where a cardiothoracic surgeon is present and participating in the transcatheter valve procedure.

Description: Transcatheter mitral valve replacement (TMVR) is performed on patients who may not be candidates for conventional open-heart valve replacement surgery. Catheter based access is obtained through an artery.

Long Name: VS-Mitral Valve Procedure - Surgical Prosthetic Valve Intervention (Not Explant of Valve)

SeqNo: 3055
Short Name: SurgProsValInt
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate what procedure was performed on a previously implanted prosthetic Mitral valve. If more than one intervention was performed, select all that apply.
ParentLongName: VS-Mitral Valve Procedure
ParentShortName: VSMVPr
ParentHarvestCodes: 3
ParentValue: = "Surgical Prosthetic Valve Intervention (Not explant of valve)"
Harvest Codes:

Code: Value:
1 Repair of periprosthetic leak
2 Removal of Pannus
3 Removal of Clot
4 Other

Intent/Clarification:

If surgical prosthetic valve intervention, indicate what procedure(s) was/(were) performed on a previously implanted prosthetic mitral/common AV/systemic AV valve.

This field does not capture explantation of the prosthetic valve.

Code:	Value:	Definition:
1	Repair of periprosthetic leak	Repair of a periprosthetic leak with one or more repair sutures without the need to remove the existing prosthesis. Does not include repair of a periprosthetic leak done via transcatheter device.
2	Removal of Pannus	Pannus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
3	Removal of Clot	Clot or thrombus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
4	Other	Other prosthetic valve repair not listed.

Long Name: VS-Mitral Implant

SeqNo:	3060
Short Name:	MitralImplant
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a mitral valve or valve device was implanted.
ParentLongName:	VS-Mitral / Common AV / Systemic AV Valve Procedure Performed
ParentShortName:	VSMV
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If mitral/common AV/systemic AV valve procedure performed, indicate whether a mitral/common AV/systemic AV valve or valve device was implanted.

Long Name: VS-Mitral Implant - Type

SeqNo:	3065
Short Name:	MitralImplantTy
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of mitral valve or valve device implanted.
ParentLongName:	VS-Mitral Implant
ParentShortName:	MitralImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical valve
3	Bioprosthetic valve
5	Annuloplasty Ring Surgical
8	Annuloplasty without ring (pericardial or suture)
7	Transcatheter device implanted open heart
9	Transcatheter Replacement Device (Transapical)
10	Trancatheter Replacement Device (Transseptal)
11	Annuloplasty Ring Transcatheter
2	Mitral leaflet clip
6	Other

Intent/Clarification:

If mitral/common AV/systemic AV valve implant, indicate the type of valve or valve device being implanted.

Accurate collection of the valve type is necessary for device longitudinal surveillance. This can be determined by looking up the valve model number on the manufacturer website.

Coding Notes:

- In the scenario where a transcatheter valve is implanted in an open/surgical cardiac procedure, code (7) Transcatheter device implanted open heart and complete the valve implant related fields.
- (5) Annuloplasty Ring Surgical may also be referred to as Annuloplasty band.

Long Name: VS - Mitral Leaflet Clip Number Implanted

SeqNo:	3070
Short Name:	MitralLeafletClipNum
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mitral leaflet clips implanted. Exclude failed implant attempts.
Low Value:	1
High Value:	3
ParentLongName:	VS-Mitral Implant - Type
ParentShortName:	MitralImplantTy
ParentHarvestCodes:	2

ParentValue: = "Mitral leaflet clip"

Intent/Clarification:

If Mitral leaflet clip, enter the number of clips implanted.

Long Name: VS-Mitral Proc-Implant Model Number

SeqNo: 3075
Short Name: VSMiIm
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the model number of the device implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName: VS-Mitral Implant
ParentShortName: MitralImplant
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:
Code: Value: See ValveList for valve models

Intent/Clarification:

If mitral/common AV/systemic AV valve or valve device implanted, select the device from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: VS-Mitral Proc-Imp-Size

SeqNo: 3080
Short Name: VSMiImSz
Database Table Name: Operations
Data Source: User
Format: Integer
Definition: Indicate the Mitral implant size.

Low Value:	5
High Value:	100
ParentLongName:	VS-Mitral Implant
ParentShortName:	MitralImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If mitral/common AV/systemic AV valve or valve device implanted, indicate the size of the valve or repair device implant.

Code valves with a size range as the smallest size. For example, ON-X valve sized 27/29 are coded as size 27.

Implanted MitraClips are only available in one size so leave the implant size blank.

Long Name: VS-Mitral Proc-Imp-Unique Device Identifier (UDI)

SeqNo:	3085
Short Name:	VSMiImUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VS-Mitral Implant
ParentShortName:	MitralImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

M5. TRICUSPID/NON-SYSTEMIC AV VALVE PROCEDURE (≥ 18-YEARS)

Long Name: VS - Tricuspid Valve Procedure Performed

SeqNo:	3090
Short Name:	VSTrPr
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS) Definition: Indicate the type of tricuspid procedure performed.
ParentLongName:	VS-Tricuspid / Non-Systemic AV Valve
ParentShortName:	VSTV ParentHarvestCodes: 3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Repair
2	Replacement
3	Surgical Prosthetic Valve Intervention (Not Explant of Valve)

Intent/Clarification:

If tricuspid/non-systemic AV valve procedure performed, indicate the type of procedure performed on the valve.

Coding Notes:

- Code (1) Repair when the native tricuspid/non-systemic AV valve was repaired.
- Code (2) Replacement when the tricuspid/non-systemic AV valve was replaced.
  - Includes replacement of a native or previously placed prosthetic valve.
  - In the event there was attempted tricuspid/non-systemic AV valve repair that was converted to replacement, code (2) Replacement.
- Code (3) Surgical prosthetic valve intervention where there is intervention on a prosthetic valve without explantation of the prosthetic valve.

Long Name: VS - Tricuspid Valve Repair Type

SeqNo:	3095
Short Name:	VSTSRepairType
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select

Definition: Indicate the type of tricuspid valve repair surgery. If more than one repair type was performed, choose all that apply.

ParentLongName: VS - Tricuspid Valve Procedure Performed

ParentShortName: VSTrPr

ParentHarvestCodes: 1

ParentValue: = "Repair"

Harvest Codes:

Code: Value:

1 Annuloplasty
2 Transcatheter Clip/Device
3 Leaflet Resection
4 Pannus/Thrombus Removal (Native Valve)

Intent/Clarification:

If tricuspid/non-systemic AV valve repair/reconstruction, indicate the repair type(s). Select all that apply.

Code:	Value:	Definition:
1	Annuloplasty	The valve repair included an annuloplasty.
2	Transcatheter Clip/Device	The valve repair included a transcatheter clip or device.
3	Leaflet Resection	The valve repair included leaflet resection.
4	Pannus/Thrombus Removal (Native Valve)	The valve repair included pannus or thrombus removal. Pannus is the ingrowth of fibrous tissue into the valve apparatus. Includes removal of vegetation.

Long Name: VS-Tricuspid Repair - Annuloplasty Type

SeqNo: 3100

Short Name: OpTricusAnTy

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate type of annuloplasty procedure.

ParentLongName: VS - Tricuspid Valve Repair Type

ParentShortName: VSTSRepairType

ParentHarvestCodes: contains(1)

ParentValue: Contains ("Annuloplasty")

Harvest Codes:

Code:	Value:
1	Pericardium
2	Suture
3	Prosthetic ring
4	Prosthetic band
5	Other

Intent/Clarification:

If annuloplasty, indicate the type of annuloplasty procedure.

(1) Pericardium includes bovine pericardium.

Long Name: VS-Tricuspid Transcatheter Valve Replacement

SeqNo: 3105

Short Name: VSTCVTri

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the tricuspid valve replacement was done using a transcatheter valve device.

ParentLongName: VS - Tricuspid Valve Procedure Performed

ParentShortName: VSTrPr

ParentHarvestCodes: 2

ParentValue: = "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If tricuspid/non-systemic AV valve replacement, indicate if the valve was replaced using a transcatheter valve device via transcatheter approach. Do not include transcatheter devices inserted via an open approach; open approaches to insert a transcatheter device are captured

as surgical tricuspid/non-systemic AV valve replacement.

This will only capture procedures where a cardiothoracic surgeon is present and participating in the transcatheter valve procedure.

Description: Transcatheter tricuspid valve replacement (TTVR) is performed on patients who may not be candidates for conventional open-heart valve replacement surgery. Catheter based access is obtained through an artery.

Long Name: VS-Tricuspid Valve Procedure - Surgical Prosthetic Valve Intervention (Not Explant of Valve)

SeqNo:	3115
Short Name:	VSTVSurgProsthValIntType
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate what procedure was performed on a previously implanted prosthetic Tricuspid valve. If more than one intervention was performed, select all that apply.
ParentLongName:	VS - Tricuspid Valve Procedure Performed
ParentShortName:	VSTrPr
ParentHarvestCodes:	3
ParentValue:	= "Surgical Prosthetic Valve Intervention (Not Explant of Valve)"

Harvest Codes:

Code:	Value:
1	Repair of periprosthetic leak
2	Removal of Pannus
3	Removal of Clot
4	Other

Intent/Clarification:

If tricuspid/non-systemic AV valve surgical prosthetic valve intervention, indicate what procedure(s) was/(were) performed on a previously implanted prosthetic tricuspid/non-systemic AV valve.

This field does not capture explantation of the prosthetic valve.

Code:	Value:	Definition:

Code:	Value:	Definition:
1	Repair of periprosthetic leak	Repair of a periprosthetic leak with one or more repair sutures without the need to remove the existing prosthesis. Does not include repair of a periprosthetic leak done via transcatheter device.
2	Removal of Pannus	Pannus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
3	Removal of Clot	Clot or thrombus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
4	Other	Other prosthetic valve repair not listed.

Long Name: VS-Tricuspid Implant

SeqNo: 3120
Short Name: TricuspidImplant
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a tricuspid valve or device was implanted.
ParentLongName: VS-Tricuspid / Non-Systemic AV Valve
ParentShortName: VSTV
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If tricuspid/non-systemic AV valve procedure, indicate whether a tricuspid/non- systemic AV valve or valve device was implanted.

Long Name: VS-Tricuspid Implant - Type

SeqNo: 3125
Short Name: TricusImplantTy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of tricuspid valve or valve device implanted.
ParentLongName: VS-Tricuspid Implant
ParentShortName: TricuspidImplant
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:

1 Mechanical valve
2 Annuloplasty device
3 Bioprosthetic valve
5 Homograft
7 Transcatheter device implanted open heart
4 Transcatheter valve
6 Other

Intent/Clarification:

If tricuspid/non-systemic AV valve or valve device implanted, indicate the type of valve or valve device implanted.

Accurate collection of the valve type is necessary for device longitudinal surveillance. This can be determined by looking up the valve model number on the manufacturer website.

Coding Notes:

- In the scenario where a transcatheter valve is implanted in an open/surgical cardiac procedure, code (7) Transcatheter device implanted open heart and complete the valve implant related fields.
- (6) Other also includes valve/device fashioned from CorMatrix.

Long Name: VS-Tricuspid Proc-Implant Model Number

SeqNo: 3130
Short Name: VSTrIm

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the model number of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	VS-Tricuspid Implant
ParentShortName:	TricuspidImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Code: Value:	See ValveList for valve models

Intent/Clarification:

If tricuspid/non-systemic AV valve or valve device implanted, select the device from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: VS-Tricuspid Proc-Imp-Size

SeqNo:	3135
Short Name:	VSTrImSz
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the Tricuspid implant size.
Low Value:	5
High Value:	100
ParentLongName:	VS-Tricuspid Implant
ParentShortName:	TricuspidImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If tricuspid/non-systemic AV valve or valve device implanted, indicate the size of the valve or repair device implant.

Implanted Tricuspid clips are only available in one size so leave the implant size blank.

Long Name: VS-Tricuspid Proc-Imp-Unique Device Identifier (UDI)

SeqNo:	3140
Short Name:	VSTrImUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the device UDI if available, otherwise leave blank. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VS-Tricuspid Implant
ParentShortName:	TricuspidImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If implanted see SeqNo 2495 for UDI information.

Long Name: VS-Tricuspid Valvectomy

SeqNo:	3145
Short Name:	VSTrValvec
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether tricuspid valvectomy was performed
ParentLongName:	VS-Tricuspid / Non-Systemic AV Valve
ParentShortName:	VSTV
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If tricuspid/non-systemic AV valve procedure performed, indicate if the tricuspid/non-systemic AV valve was removed without valve replacement. The patient leaves the OR without a tricuspid/non-systemic AV valve.

Code (2) No if a new tricuspid valve is implanted during the procedure.

M6. PULMONARY/NEO-PULMONARY VALVE PROCEDURE (≥ 18-YRS)

Long Name: VS-Pulmonic Proc-Procedure

SeqNo:	3150
Short Name:	OpPulm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of procedure that was performed on the pulmonic valve.
ParentLongName:	VS-Pulmonary / Neo-Pulmonary Valve
ParentShortName:	VSPV
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
3	Repair / Leaflet Reconstruction
5	Pannus or Thrombus removal
2	Replacement
4	Valvectomy

Intent/Clarification:

If pulmonary/neo-pulmonary valve procedure, indicate the type of procedure performed.

Pannus or Thrombus removal also includes removal of vegetation.

Long Name: VS-Pulmonic Transcatheter Valve Replacement

SeqNo: 3155
Short Name: VSTCVPu
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the pulmonic valve replacement was done using a transcatheter valve device.
ParentLongName: VS-Pulmonic Proc-Procedure
ParentShortName: OpPulm
ParentHarvestCodes: 2
ParentValue: = "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the pulmonary/neo-pulmonary valve was replaced using a transcatheter valve device via transcatheter approach. Do not include transcatheter devices inserted via an open approach; open approaches to insert a transcatheter device are captured as surgical pulmonary/neo-pulmonary valve replacement.

This will only capture procedures where a cardiothoracic surgeon is present and participating in the transcatheter valve procedure.

Description: Transcatheter pulmonary/neo-pulmonary valve replacement is performed on patients who may not be candidates for conventional open-heart valve replacement surgery. Catheter based access is obtained through an artery.

Long Name: VS-Pulmonic Implant

SeqNo: 3165
Short Name: PulmonicImplant
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a pulmonic valve or device was implanted.
ParentLongName: VS-Pulmonary / Neo-Pulmonary Valve
ParentShortName: VSPV
ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If pulmonary/neo-pulmonary valve procedure, performed, indicate whether a pulmonary or neo-pulmonary valve or valve device was implanted.

Long Name: VS-Pulmonic - Type Of Implant

SeqNo: 3170

Short Name: VSPuTypeImp

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of pulmonic implant

ParentLongName: VS-Pulmonic Implant

ParentShortName: PulmonicImplant

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Surgeon Fashioned
2	Commercially Supplied

Intent/Clarification:

If pulmonary/neo-pulmonary valve or valve device implanted, indicate the type of implant.

Long Name: VS-Pulmonic - Surgeon Fashioned Implant Material

SeqNo: 3175

Short Name: VSPuImpMat

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the material used to fashion the pulmonic implant

ParentLongName: VS-Pulmonic - Type Of Implant

ParentShortName: VSPuTypeImp

ParentHarvestCodes: 1

ParentValue: = "Surgeon Fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
3	Other

Intent/Clarification:

If surgeon fashioned valve or valve device implanted, indicate the material used to fashion the pulmonary/neo-pulmonary implant.

Long Name: VS-Pulmonic Implant - Device Type

SeqNo: 3180

Short Name: PulmonicImplantTy

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of pulmonic valve or valve device implanted.

ParentLongName: VS-Pulmonic - Type Of Implant

ParentShortName: VSPuTypeImp

ParentHarvestCodes: 2

ParentValue: = "Commercially Supplied"

Harvest Codes:

Code:	Value:
1	Mechanical valve
3	Bioprosthetic valve
4	Transcatheter valve
7	Transcatheter device implanted open heart
2	Annuloplasty device
5	Homograft
6	Other

Intent/Clarification:

If commercially supplied, indicate the type of pulmonary/neo-pulmonary valve/valve device implanted. Accurate collection of the valve type is necessary for device longitudinal

surveillance. This can be determined by looking up the valve model number on the manufacturer website.

Long Name: VS-Pulmonic Proc-Implant Model Number

SeqNo:	3185
Short Name:	VSPuIm
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the model number of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.
ParentLongName:	VS-Pulmonic Implant
ParentShortName:	PulmonicImplant
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Code: Value:	See ValveList for valve models

Intent/Clarification:

If pulmonary/neo-pulmonary valve or valve device implanted, select the device from the ValveList.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI will allow for valve identification.

Long Name: VS-Pulmonic Proc-Imp-Size

SeqNo:	3190
Short Name:	VSPuImSz
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the Pulmonic implant size.
Low Value:	5
High Value:	100

ParentLongName: VS-Pulmonic Implant
ParentShortName: PulmonicImplant
ParentHarvestCodes: 1
ParentValue: = "Yes"

Intent/Clarification:

If pulmonary/neo-pulmonary valve or valve device was implanted, indicate the size of the pulmonary/neo-pulmonary valve or repair device implant.

Implanted pulmonic clips are only available in one size so leave the implant size blank.

Long Name: VS-Pulmonic Proc-Imp-Unique Device Identifier

SeqNo: 3195
Short Name: VSPulmUDI
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Indicate the device UDI if available, otherwise leave blank.
This field should be collected in compliance with state/local privacy laws.
ParentLongName: VS-Pulmonic Implant
ParentShortName: PulmonicImplant
ParentHarvestCodes: 1
ParentValue: = "Yes"

Intent/Clarification:

If implanted, see SeqNo 2495 for UDI information.

N. OTHER CARDIAC PROCEDURES (≥ 18-YRS)

Long Name: Other Card-Subaortic Stenosis Resection Type

SeqNo: 3200
Short Name: OCarSubaStenResTy
Database Table Name: Operations

Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of subaortic stenosis resection.
ParentLongName:	Other Cardiac Procedure, except Afib
ParentShortName:	OpOCard
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Muscle
3	Membrane
6	Other
5	Not Documented
7	No

Intent/Clarification:

If subaortic stenosis resection, indicate the type of resection.

Coding Notes:

- In the event a muscle resection was performed (septal myectomy) concomitantly with a subaortic membrane resection, code (1) muscle.
- Include the subaortic stenosis resection as a procedure in the Procedures section.

Description: Subaortic stenosis (or subvalvular aortic stenosis) is a narrowing of the area below the aortic valve. This may vary from a thin layer of extra tissue to large bundles of heart muscle. This procedure is sometimes called septal myomectomy or septal myectomy. This can be performed alone for hypertrophic obstructive cardiomyopathy or concomitantly with an aortic valve procedure.

Long Name: Other Card-Cardiac Trauma

SeqNo:	3205
Short Name:	OCarTrma
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient had a surgical procedure for an injury due to Cardiac Trauma either in conjunction with, or as the primary surgical procedure.

ParentLongName: Other Cardiac Procedure, except Afib

ParentShortName: OpOCard

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient underwent a surgical procedure for cardiac trauma or injury, whether the primary procedure or completed concomitantly with another surgical procedure.

Coding Notes

- Cardiac injury or trauma includes but is not limited to: gunshot wound, stab wound, car accident, other physical or blunt trauma induced injury.
- Excludes surgically induced cardiac trauma or injury.
- Include the cardiac trauma repair as a procedure in the Procedures section.

Long Name: Other Card-Acquired VSD Repair

SeqNo: 3210

Short Name: OCarAcqVSD

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the patient had an acquired Ventricular Septal Defect Repair either in conjunction with, or as the primary surgical procedure.

ParentLongName: Other Cardiac Procedure, except Afib

ParentShortName: OpOCard

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient underwent surgical repair of an acquired ventricular septal defect (VSD), whether the primary procedure or completed concomitantly with another surgical procedure.

Coding Notes

- An acquired VSD is a VSD that is not congenital and may occur because of a septal myocardial infarction, chest trauma, and/or myocardial infection.
- Include the acquired VSD repair as a procedure in the Procedures section.

Long Name: Acquired VSD Repair Method

SeqNo:	3215
Short Name:	AcqVSDMethod
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the method used to perform the VSD repair.
ParentLongName:	Other Card-Acquired VSD Repair
ParentShortName:	OCarAcqVSD
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Surgical
2	Device

Intent/Clarification:

If acquired ventricular septal defect (VSD) repair, indicate the method used for surgical closure.

Include the acquired VSD repair as a procedure in the Procedures section.

Long Name: Other Card - ASD Repair Type

SeqNo:	3220
Short Name:	OCardASDRepTyp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of ASD repair.

ParentLongName: Other Cardiac Procedure, except
ParentShortName: Afib OpOCard
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code: Value:

1 Congenital (includes secundum, coronary sinus, and sinus venosus)
2 Acquired
3 None

Intent/Clarification:

Indicate if the patient underwent atrial septal defect (ASD) repair and the type of ASD repaired, whether the primary surgical procedure or concomitantly with another surgical procedure.

Does not include the septal repair when a transeptal incision is made during the procedure. For example, some mitral valve procedures are completed using a transeptal incision. This should not be coded as an ASD repair.

Additionally, include the ASD repair as a procedure in the Procedures section.

Code:	Value:	Definition:
1	Congenital (includes secundum, coronary sinus, and sinus venosus)	During development of the heart, there is an opening in the atrial septum. Also includes congenital PFOs.
2	Acquired	Not a congenital ASD. Includes created ASDs, i.e., atrial septectomy or septostomy, or iatrogenic. Acquired ASD repairs may be required in patients with previous MitraClip or transcatheter mitral valve replacement as persistent interatrial shunting was associated with worse clinical outcomes and increased mortality.
3	None	No ASD repair performed.

Long Name: ASD Repair Method

SeqNo: 3225

Short Name:	ASDRepMethod
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the method used to repair the ASD.
ParentLongName:	Other Card - ASD Repair Type
ParentShortName:	OCardASDRepTyp
ParentHarvestCodes:	1|2
ParentValue:	= "Congenital (includes secundum, coronary sinus, and sinus venousus)" or "Acquired"

Harvest Codes:

Code:	Value:
1	Surgical
2	Device

Intent/Clarification:

If an ASD repair is completed, indicate the method used to repair the ASD.

O. OTHER NON-CARDIAC PROCEDURES (≥ 18-YRS)

Long Name: Other Non Card-Caro Endart

SeqNo:	3230
Short Name:	ONCCarEn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient underwent surgical removal of stenotic atheromatous plaque or percutaneous/surgical placement of carotid stent in conjunction with the primary surgical procedure.
ParentLongName:	Other Non-Cardiac
ParentShortName:	OpONCard
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:

3 Yes, planned
4 Yes, unplanned due to surgical complication
5 Yes, unplanned due to unsuspected disease or anatomy
2 No

Intent/Clarification:

If other non-cardiac procedure performed, indicate if a carotid endarterectomy or percutaneous/surgical placement of carotid stent was performed in conjunction with the primary surgical procedure.

Right and/or left carotid arteries are branches of the arch of the aorta that traverse the neck and supply blood flow to the brain.

Coding Notes:

- Do include carotid endarterectomy performed during CABG procedures.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication.
2	No	No carotid endarterectomy or carotid stent placement performed during this procedure.

P. ATRIAL FIBRILLATION PROCEDURES (≥ 18-YRS)

Long Name: Other Card- Left Atrial Appendage Amputation

SeqNo:	3235
Short Name:	OCarAAppAmp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a Left Atrial Appendage (LAA) amputation was performed.
ParentLongName:	Atrial Fibrillation Procedure Performed
ParentShortName:	AFibProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

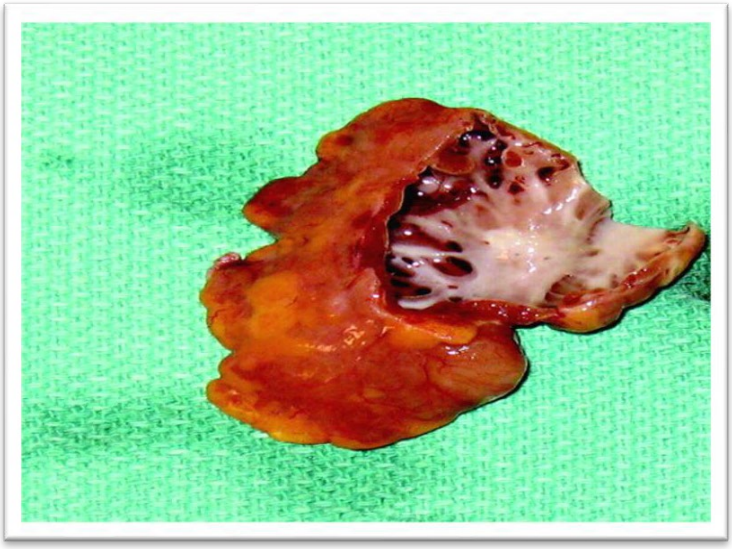
Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if a left atrial appendage (LAA) amputation was performed. Includes surgical amputation and surgical amputation with over-sewing. Amputation refers to surgical resection by either a cutting stapler or scissors.

Example surgeon documentation:

- We first amputated the LAA flush to the left atrium using a cutting epicardial stapler.
- LAA amputated to prevent future AFib complication using an epicardial stapler.



Long Name: AFib Lesion Location

SeqNo: 3240
Short Name: OCarAFibLesLoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the location of the majority of lesions created to treat atrial fibrillation.
ParentLongName: Atrial Fibrillation Procedure Performed
ParentShortName: AFibProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Epicardial
2 Intracardiac
3 Both
4 None

Intent/Clarification:

If atrial fibrillation (AFib) procedure performed, indicate the location of the majority of lesions created to treat AFib.

Code:	Value:	Definition:
1	Epicardial	Epicardial lesions created for the purpose of AFib ablation. Lesions are created on the outside surface of the heart (i.e., pulmonary vein isolation with or without connection to the left atrial appendage). Includes epicardial Botox injections for treatment of AFib. Includes the surgical component of the convergent MAZE procedure performed by the CT surgeon
2	Intracardiac	Intracardiac or endocardial lesions created for the purpose of AFib ablation.

Code:	Value:	Definition:
		Lesions are created inside the heart (i.e., Maze procedures, lesions to mitral annulus, etc.).
3	Both	Both epicardial and intracardiac lesions were created for the purpose of AFib ablation.
4	None	No other lesions created. Code (4) None when only the LAA is obliterated, and no other lesions are created.

Long Name: AFib Lesion - Method

SeqNo: 3245
Short Name: AFibLesMeth
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate whether the method used to create the lesion(s) for the AFib ablation procedure, choose all that apply.
ParentLongName: AFib Lesion Location
ParentShortName: OCarAFibLesLoc
ParentHarvestCodes: 1|2|3
ParentValue: = "Epicardial", "Intracardiac" or "Both"
Harvest Codes:

Code:	Value:
1	Radiofrequency
2	Cut-and-sew
3	Cryo

Intent/Clarification:

If atrial fibrillation (AFib) lesion location was epicardial, intracardiac, or both, indicate the method used to create the lesions for the AFib procedure.

Leave blank if epicardial Botox injections were used to treat AFib.

Code:	Value:	Definition:
1	Rediofrequency	Radiofrequency energy uses an alternating current resulting in thermal injury to disrupt AFib pathways. These probes can be applied to either endocardial or epicardial heart surfaces to create transmural linear lesions that block atrial conduction.
2	Cut and Sew	A technically difficult procedure where the lesions are created using a scalpel, creating surgical incisions in the atrium and sewing them to create scars that inhibit re-entry rhythms.
3	Cryo	Cryoablation freezes the heart tissue triggering an irregular heartbeat. Cryoablation is performed with a nitrous oxide cooled probe that when applied to atrial tissue, produces transmural lesions that block atrial conduction.

Q. VAD PROCEDURES

Long Name: VAD Explanted And/Or Implanted

SeqNo: 3250
Short Name: VADExImp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether a ventricular assist device (VAD) was explanted and/or implanted during this procedure.

Harvest Codes:

Code:	Value:
1	No
2	Yes, explanted
3	Yes, implanted
4	Yes, explanted and implanted

Intent/Clarification:

Indicate whether a ventricular assist device (VAD) was explanted and/or implanted during this procedure. This does not include pump change outs, but implants and explants of devices only.

Includes the implantation/explantation of right/left heart temporary assist devices and VADs.

Coding Notes:

- In the scenario where existing ECMO cannulas are used when converting to a VAD, code (3) Yes, implanted.

Code:	Value:	Definition:
1	No	No VAD/temporary assist device was explanted and/or implanted during this procedure.
2	Yes, explanted	A VAD/temporary assist device was explanted during this procedure without implantation of another VAD.
3	Yes, implanted	A VAD/temporary assist device was implanted during this procedure without explantation of an existing VAD.
4	Yes, explanted and implanted	A VAD/temporary assist device was explanted, and an additional VAD implanted during this procedure.

Long Name: VAD-Indication for VAD

SeqNo:	3255
Short Name:	VADInd
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the reason the patient is receiving the ventricular assist device (VAD).
ParentLongName:	VAD Explanted And/Or Implanted
ParentShortName:	VADExImp
ParentHarvestCodes:	3|4
ParentValue:	= "Yes, implanted" or "Yes, explanted and implanted"
Harvest Codes:	

Code: Value:

1 Bridge to Transplantation
2 Bridge to Recovery
3 Device destination
4 Postcardiotomy Ventricular failure (separation from CPB)
5 Device Malfunction
6 End of Life
7 Salvage
8 Device infection

Intent/Clarification:

If a ventricular assist device (VAD)/temporary assist device implanted, indicate the reason the patient received the device.

Code:	Value:	Definition:
1	Bridge to Transplantation	Device implanted for mechanical circulatory support (MCS) until heart transplantation is possible
2	Bridge to Recovery	Device implanted for MCS in a patient expected to have ventricular recovery. May include patients with myocarditis, viral cardiomyopathy, acute myocardial infarction with revascularization, post-transplant reperfusion injury etc.
3	Device destination	Device implanted for permanent life sustaining MCS. Includes patients where heart transplantation is not an option.
4	Postcardiotomy Ventricular failure (separation from CPB)	Device implanted to provide MCS because of failure to separate from cardiopulmonary bypass (CPB) post cardiac surgery. Postcardiotomy refers to those patients with the inability to wean from cardiopulmonary bypass secondary to left, right, or biventricular failure.
5	Device Malfunction	Device implanted in a patient with an existing VAD/temporary assist device experiencing device

Code:	Value:	Definition:
		failure and requires replacement.
6	End of Life	Device implanted in a patient with an existing VAD/temporary assist device that has reached functional life expectancy and requires replacement.
7	Salvage	Device implanted in a moribund patient unresponsive to medical interventions.
8	Device infection	Device implanted due to infection in the existing VAD/temporary assist device. Includes infection within the pump pocket, driveline, VAD/temporary assist device endocarditis, or other infection requiring implantation of the VAD/temporary assist device. Device related infections are defined as positive culture in the presence of leukocytosis, and/or fever requiring medical or surgical intervention.

Long Name: VAD Implant Type - Multi-Select

SeqNo: 3265
Short Name: VImpTyMulti
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all types of VADs implanted.
ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: VADExImp
ParentHarvestCodes: 3|4
ParentValue: = "Yes, implanted" or "Yes, explanted and implanted"
Harvest Codes:

Code: Value:
1 RVAD - Right Ventricular Assist Device

2 LVAD - Left Ventricular Assist Device
4 TAH - Total Artificial Heart

Intent/Clarification:

If a ventricular assist device (VAD) /temporary assist device was implanted, indicate the type(s) of device implanted.

Coding Notes:

- If a biventricular device was implanted, select both (1) RVAD – Right Ventricular Assist Device and LVAD – Left Ventricular Assist Device.
- If the VAD//temporary assist device was implanted in a single ventricle, the majority will be an LVAD. Work with your surgeon to determine if the implanted device is RVAD or LVAD.

Long Name: RVAD Implant Unique Device Identifier (UDI)

SeqNo:	3270
Short Name:	RVADImpUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) for the implanted RVAD. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VAD Implant Type - Multi-Select
ParentShortName:	VImpTyMulti
ParentHarvestCodes:	contains(1)
ParentValue:	Contains ("RVAD - Right Ventricular Assist Device")

Intent/Clarification:

If RVAD – Right Ventricular Assist Device implanted, indicate the Unique Device Identifier (UDI) for the device.

See SeqNo 2495 for UDI information.

Long Name: RVAD Product Type

SeqNo:	3275

Short Name: RVADProdType

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of RVAD inserted.

ParentLongName: VAD Implant Type - Multi-Select

ParentShortName: VImpTyMulti

ParentHarvestCodes: contains(1)

ParentValue: Contains ("RVAD - Right Ventricular Assist Device")

Harvest Codes:

Code:	Value:
101	Abiomed AB 5000
102	Abiomed Abiocor TAH
103	Abiomed BVS 5000
104	BerlinHeart EXCOR
105	BerlinHeart INCOR
106	CircuLite Synergy Endovascular Micro-Pump System
107	CircuLite Synergy Micro-Pump (Surgical System)
139	Eva Heart
108	HeartWare HVAD
109	Impella (catheter based)
140	Impella 2.0
141	Impella 5.0
142	Impella 5.5
143	Impella CP
144	Impella RP
110	Jarvik 2000
145	Jostra Rotoflow
111	Levitronix CentriMag
112	Levitronix PediMag
113	LifeBridge
136	Maquet CardioHelp model #70104-7999
114	Maquet ROTAFLOW Centrifugal Pump system
115	Medtronic Biomedicus (Biopump)
116	Micromed Heart Assist 5 (DeBakey)
146	Nu Pulse LVAS
147	Orqis
999	Other
117	pCAS
118	PediaFlow
119	PediPump
120	PennState PVAD

121 Sorin Revolution
122 Syncardia CardioWest TAH
123 Tandem Heart (catheter based)
124 Terumo Duraheart
137 Thoratec Heartmate lll MLP-002487
125 Thoratec Centrimag
126 Thoratec Heart Mate II
127 Thoratec Heart Mate IP
128 Thoratec Heart Mate VE
129 Thoratec Heart Mate XVE
138 THORATEC HEARTMATE III IMPLANT KIT (VAD) 106524
130 Thoratec IVAD
131 Thoratec PediMag/ PediVas
132 Thoratec PVAD
148 Toyobo
135 WorldHeart MiFlow
133 WorldHeart NovaCor
134 WorldHeart Pediaflow

Intent/Clarification:

If right ventricular assist device (RVAD) implanted, select the type of implant from the VAD implant list.

The implant list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (999) Other. Entering the UDI will allow for device identification.

Long Name: LVAD Implant Unique Device Identifier (UDI)

SeqNo:	3280
Short Name:	LVADImpUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) for the implanted LVAD. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VAD Implant Type - Multi-Select
ParentShortName:	VImpTyMulti
ParentHarvestCodes:	contains(2)

ParentValue:	Contains ("LVAD - Left Ventricular Assist Device")

Intent/Clarification:

If left ventricular assist device (LVAD) implanted, indicate the Unique Device Identifier (UDI) for the device.

See SeqNo 2495 for UDI information.

Long Name: LVAD Product Type

SeqNo:	3285
Short Name:	LVADProdType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of LVAD inserted.
ParentLongName:	VAD Implant Type - Multi-Select
ParentShortName:	VImpTyMulti
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("LVAD - Left Ventricular Assist Device")
Harvest Codes:	See VADImplant list for VADs.

Intent/Clarification:

If left ventricular assist device (LVAD) implanted, select the type of LVAD implanted from the VADImplant list.

The implant list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (999) Other. Entering the UDI will allow for device identification.

Long Name: Total Artificial Heart Unique Device Identifier (UDI)

SeqNo:	3286
Short Name:	TAHUDI
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) for the implanted total artificial heart.

	This field should be collected in compliance with state/local privacy laws.
ParentLongName:	VAD Implant Type - Multi-Select
ParentShortName:	VImpTyMulti
ParentHarvestCodes:	contains(4)
ParentValue:	Contains ("TAH - Total Artificial Heart")

Intent/Clarification:

If Total Artificial Heart (TAH) implanted, indicate the Unique Device Identifier (UDI) for the device.

See SeqNo 2495 for UDI information.

Long Name: Total Artificial Heart Product Type

SeqNo:	3287
Short Name:	TAHProdTy
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of total artificial heart implanted.
ParentLongName:	VAD Implant Type - Multi-Select
ParentShortName:	VImpTyMulti
ParentHarvestCodes:	contains(4)
ParentValue:	Contains ("TAH - Total Artificial Heart")
Harvest Codes:	See VADImplant list

Intent/Clarification:

If a total artificial heart (TAH) implanted, select the type of TAH implanted from the VADImplant list.

The implant list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (999) Other. Entering the UDI will allow for device identification.

Long Name: VAD-Explant Reason

SeqNo:	3315
Short Name:	VExpRsn

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the reason the VAD was explanted.
ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: VADExImp
ParentHarvestCodes: 2|4
ParentValue: = "Yes, explanted" or "Yes, explanted and implanted"
Harvest Codes:

Code: Value:

1 Cardiac Transplant
2 Recovery
3 Device Transfer
4 Device-Related Infection
5 Device Malfunction
6 End of Life

Intent/Clarification:

If a ventricular assist device (VAD)/temporary assist device was explanted, indicate the reason the device was explanted.

Code:	Value:	Definition:
1	Cardiac Transplant	The device was explanted at the time of cardiac transplantation.
2	Recovery	The device was explanted due to cardiac recovery.
3	Device Transfer	The device was explanted to implant another assist device.
4	Device-Related Infection	The device was explanted due to an infection within the pump pocket, driveline, VAD endocarditis, or other infection requiring explanation of the VAD/temporary assist device. The body of the VAD/temporary assist device has an active infection requiring removal to eliminate the infection. Device related infections are defined as positive culture in the presence of leukocytosis, and/or fever requiring

Code:	Value:	Definition:
		medical or surgical intervention.
5	Device Malfunction	The device was explanted due to a poorly functioning VAD pump causing hemodynamic compromise and/or requiring immediate intervention or VAD/temporary assist device replacement.
6	End of Life	The device was explanted because the mechanical device pump has reached functional life expectancy and requires replacement.

Long Name: VAD Explant Unique Device Identifier (UDI)

SeqNo: 3320
Short Name: VADExpUDI
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Indicate the Unique Device Identifier (UDI) of the explanted VAD if available, otherwise leave blank.

This field should be collected in compliance with state/local privacy laws.

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: VADExImp
ParentHarvestCodes: 2|4
ParentValue: = "Yes, explanted" or "Yes, explanted and implanted"

Intent/Clarification:

If ventricular assist device (VAD)/temporary assist device explanted, indicate the Unique Device Identifier (UDI) for the explanted device.

See SeqNo 2495 for UDI information.

Long Name: VAD Related Complication

SeqNo: 3325
Short Name: VADRelComp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether there was a VAD-related complication.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If ventricular assist device (VAD), indicate if there was a VAD-related complication.

VAD related complications may include:

- **Cannula/Insertion site issue** – a mechanical assist device related postoperative event included a cannula/insertion site issue that required a procedural or surgical intervention. May include bleeding, repair of pseudoaneurysm, surgery to correct retroperitoneal hematoma caused by insertion etc.
- **Hemorrhagic** – a mechanical device related hemorrhage. Patients are at increased risk of bleeding due to anticoagulation and anti-platelet therapy, non-pulsatile blood flow leading to blood vessel malformation, and changes in blood-clotting factors.
- **Thrombotic/Embolic** – a mechanical assist device related thrombotic or embolic event. May include VAD thrombus.
- **Hemolytic** – a hemolytic event related to a mechanical assist device. Patients may experience clinical signs of hemolysis (anemia, low hematocrit, hyperbilirubinemia) and a plasma free hemoglobin > 40 mg/dL within 72 hours of VAD implant. Does not include hemolysis resulting from non-device causes.
- **Infection** – an infection related to a mechanical assist device. May include insertion (cannula) site infections, driveline/cannula infection, pump pocket infection, VAD endocarditis, or sepsis.
- **Other mechanical assist device related complication** - any other mechanical assist device related event. May include device malfunctions, psychiatric episodes etc.

Long Name: Explanted VAD Was Implanted At Other Facility

SeqNo: 3330
Short Name: VADOthFacility
Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the explanted VAD had been implanted at a different facility.

ParentLongName: VAD Related Complication

ParentShortName: VADRelComp

ParentHarvestCodes: 1

ParentValue: = "Yes"

ParentLongName2: VAD Explanted And/Or Implanted

ParentShortName2: VADExImp

ParentHarvestCodes2: 2|4

ParentValue2: = "Yes, explanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate whether the explanted ventricular assist device (VAD)/temporary assist device was inserted during a previous admission or from an outside hospital.

Long Name: Complications For VAD Implanted At Other Facility

SeqNo: 3335

Short Name: VADOthFacilityComp

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all of the complications related to the VAD device that was inserted at a different facility.

ParentLongName: VAD Related Complication

ParentShortName: VADRelComp

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Intracranial bleed
2	Bowel obstruction
3	Endocarditis

4 Hemolysis
5 Pump pocket infection
6 Embolic stroke
7 Driveline/cannula infection
8 Device malfunction

Intent/Clarification:

If ventricular assist device (VAD)/temporary assist device placed at another facility, indicate the complication(s) related to the VAD device.

Long Name: Complication For VAD Implanted During This Operation

SeqNo: 3340
Short Name: ImpVADComp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all complications related to the VAD device that was implanted during this operation.
ParentLongName: VAD Related Complication
ParentShortName: VADRelComp
ParentHarvestCodes: 1
ParentValue: = "Yes"
ParentLongName2: VAD Explanted And/Or Implanted
ParentShortName2: VADExImp
ParentHarvestCodes2: 3|4
ParentValue2: = "Yes, implanted" or "Yes, explanted and implanted"
Harvest Codes:

Code: Value:
1 Intracranial bleed
2 Bowel obstruction
3 Endocarditis
4 Hemolysis
5 Pump pocket infection
6 Embolic stroke
7 Driveline/cannula infection
8 Device malfunction

Intent/Clarification:

If a ventricular assist device (VAD)/temporary assist device was implanted during this operation, indicate the complication(s) related to the implanted VAD device.

R. AORTA PROCEDURES

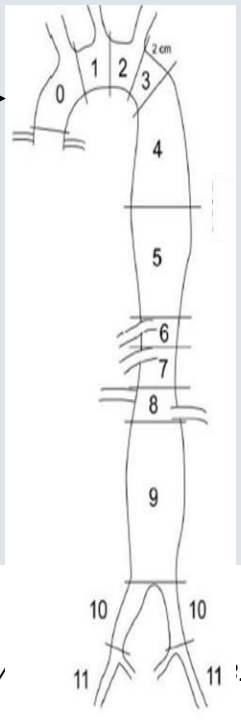
General Information Aorta Procedures

Data Managers should collaborate with the surgeon to complete this section. If you are unable to obtain an answer, then it is better to leave answers blank than to guess.

- Aorta punch holes used to sew the proximal anastomosis to the aorta are not captured as an aorta procedure.
- Do not code aortic root procedure when the surgeon performs an aortic valve procedure and a concomitant annular enlargement with no other aortic root procedure performed. Annular enlargement is often required for aortic valve procedures and do not constitute a procedure on the aorta. This procedure is coded in M3 Aortic Valve Section Seq 2955.
- Do not capture isolated abdominal aortic aneurysm/dissections. This is identified as procedures where the most proximal portion of the procedure involves the celiac artery.

<u>Use the following diagrams for reference in the Aorta Procedure section:</u>

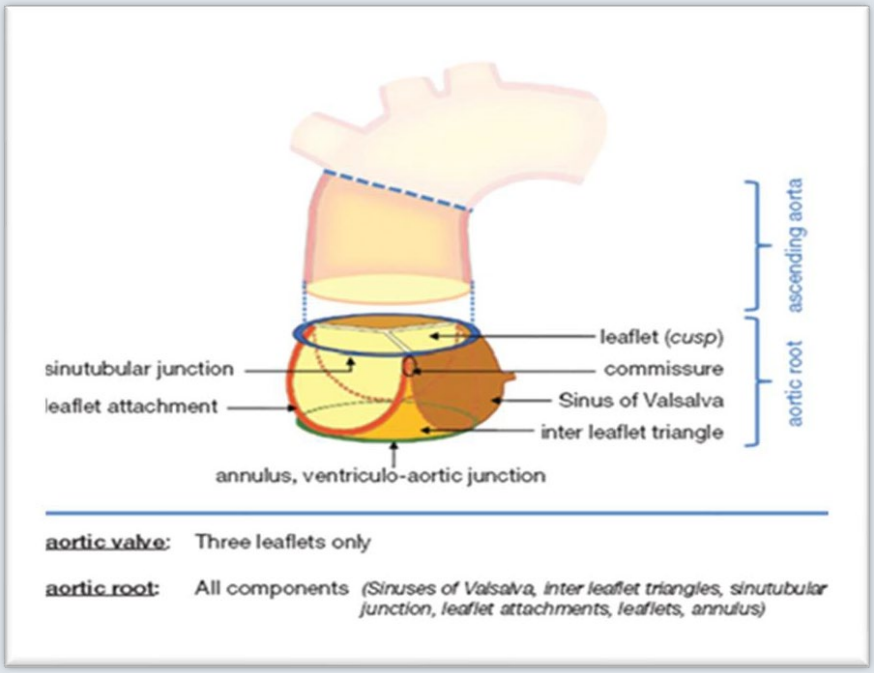
C
B
A



A. Zone 0 Below sinotubular junction
B. Zone 0 Sinotubular junction to mid ascending
C. Zone 0 Mid ascending to distal ascending
D. Zone 1 (between innominate and left carotid)
E. Zone 2 (between left carotid and left subclavian)
F. Zone 3 (first 2 cm distal to left subclavian)
G. Zone 4 (end of zone 3 to mid descending aorta ~ T6)
H. Zone 5 (mid descending aorta to celiac)
I. Zone 6 (celiac to superior mesenteric)
J. Zone 7 (superior mesenteric to renals)

K. Zone 8 (renal to infra-renal abdominal aorta)
L. Zone 9 (infrarenal abdominal aorta)
M. Zone 10 (common iliac)
N. Zone 11 (external iliacs)

Zone “0” is subdivided into 3
sections: Below sinotubular junction, sinotubular junction to mid ascending aorta, mid ascending to distal ascending (at the innominate artery). The mid ascending aorta begins at the portion that is anterior to the right pulmonary artery and then ends at the origin of



the innominate artery.

Descriptions:

- Zone 0 Below sinotubular junction (STJ): the boundary between the aortic root and the ascending aorta. The aortic root, aortic annulus, and the sinus of Valsalva are below the STJ and are in Zone 0 (see figure).
- Zone 0 STJ to mid-ascending: the segment of the ascending aorta between the STJ and the mid-point of the ascending aorta (i.e., proximal tubular ascending aorta) and is in Zone 0 (see figure).
- Zone 0 Mid-ascending to distal ascending: the segment of the ascending aorta betweenthe mid-point of the ascending aorta and the origin of the innominate artery or first branch vessel off the aortic arch and is in Zone 0 (see figure).

- Zone 1 of the aorta: includes the segment of aorta between the innominate and left carotid artery as well as the segment of aorta from which the left carotid artery arises (see figure).
- Zone 2 of the aorta: includes the segment of aorta between the left carotid artery and left subclavian artery as well as the segment of aorta from which the left subclavian artery arises (see figure).
- Zone 3 of the aorta: is the 2 cm segment of aorta just beyond the left subclavian artery (see figure).
- Zone 4 of the aorta: extends from 2 cm beyond the left subclavian artery to the mid-descending thoracic aorta, which is usually defined by the T6 to T7 vertebral bodies (see figure).
- Zone 5 of the aorta: extends from the mid descending thoracic aorta (at T6-T7) to the origin of the celiac artery but does not include the origin of the celiac artery (see figure).
- Zone 6 of the aorta: extends from the celiac artery to the origin of the superior mesenteric artery but does not include the origin of the superior mesenteric artery (see figure).
- Zone 7 of the aorta: extends from the superior mesenteric artery to the origin of the first renal artery but does not include the origin of the first renal artery (see figure).
- Zone 8 of the aorta: is the segment of aorta from which all the renal arteries arise (usually two but may be more) (see figure).
- Zone 9 of the aorta: is the segment of aorta between the last renal artery take-off and the aortic bifurcation (see figure).
- Zone 10: is the common iliac arteries (see figure).
- Zone 11: is the external iliac arteries (see figure).

Use the following table *as a guide* to the anatomical location of zones. *Please verify with your surgeon the proximal and distal locations using zones, do not assume.*

For example, do not assume that the procedure was performed in Zone 2 if your surgeon states it was an arch procedure. Verify with your surgeon if it was Zone 1, 2, or 3.

Root/Ascending	Zone 0 (A) - Below STJ Zone 0 (B) - STJ to Mid-ascending Zone 0 (C) – Mid-ascending to distal ascending
Arch	Zone 1 Zone 2 Zone 3
Descending	Zone 4 Zone 5
Thoracoabdominal	Zone 6 Zone 7 Zone 8 Zone 9 Zone 10 Zone 11
Dissections: Stanford Type A	Starts in zone 0 – verify with your surgeon which section of zone 0
Dissections: Stanford Type B	Starts in zone 3 – verify with your surgeon the proximal and distal zones
Dissections: Non-A or non-B	Starts in zone 1 or zone 2 and is less common – verify with your surgeon the proximal and distal zones

Long Name: Family History Of Disease Of The Aorta

SeqNo: 3385
Short Name: FamHistAorta
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether there is a family history of disease of the aorta
ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Aneurysm
2	Dissection
3	Both Aneurysm and Dissection
4	Sudden Death
6	Unknown
5	None

Intent/Clarification:

If aorta procedure performed, indicate if there is a family history of disease of the aorta.

Patients with a family history of thoracic aneurysm (especially with a history of dissection or rupture) who require aortic surgery may have more fragile aortic tissue or require a more extensive procedure which may affect procedural outcomes.

Coding Notes:

- Family history means any alive or dead first-degree relative (sibling, parent, child) with either a ***thoracic*** aortic aneurysm (including a dilated or enlarged aorta), or aortic dissection/rupture. Half-siblings are considered second-degree relatives and will not be included in family history.
- Do not include abdominal aneurysms as they are typically not familial in nature. Thoracic location is sometimes described as near or above the heart, or in the chest.
- Code (6) Unknown in the case of a family history of an unexplained death of a first-degree relative.

Long Name: Patient's Genetic History

SeqNo: 3390

Short Name: PatGenHist

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the genetic history of the patient

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code: Value:

1 Marfan
2 Ehlers-Danlos
3 Loeys-Dietz
4 Non-Specific familial thoracic aortic syndrome
5 Aortic Valve Morphology
6 Turner syndrome
7 Other
9 Unknown
8 None

Intent/Clarification:

If aorta procedure performed, indicate whether the patient has a history of any of the well-known, genetically triggered thoracic aortic conditions listed. The condition must be documented in the medical record and the diagnosis made by clinical or genetic testing.

Clinical or genetic testing can be done in the preoperative or postoperative time frame. For example, the genetic testing results obtained post-discharge for an aortic dissection patient can be used.

Coding Notes:

- Takayasu arteritis is considered an inflammatory vasculitis, not a genetically triggered thoracic aortic condition, code (8) None.

Code:	Value:	Definition:
1	Marfan	Genetic condition affecting connective tissue
2	Ehlers-Danlos	Group of genetic disorders affecting connective tissue
3	Loeys-Dietz	Genetic disorder affecting connective tissue
4	Non-Specific familial thoracic aortic syndrome	Patients in whom another family member(s) had a thoracic aneurysm, but no specific gene mutation was identified when tested.
5	Aortic Valve Morphology	Variant aortic valve morphology including bicuspid, unicuspid, and quadricuspid valves.

Code:	Value:	Definition:
6	Turner Syndrome	Chromosomal disorder resulting from a missing or incomplete sex chromosome.
7	Other	Patient with a relevant gene mutation related to the thoracic aortic condition not otherwise listed; these will include known pathogenic mutations familiar to specialists but not associated with a named syndrome.
9	Unknown	Patient has not undergone any specific genetic testing, thus has no known syndrome/genetic diagnosis.
8	None	Patient has undergone genetic testing with no positive results.

Long Name: Prior Aortic Intervention

SeqNo: 3395
Short Name: PriorAorta
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient had prior aortic intervention
ParentLongName: Aorta Procedure Performed
ParentShortName: AortProc
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate whether the patient had a prior aortic intervention.

Long Name: Prior Aortic Intervention - Previous Repair - Root (Zone 0 - A)

SeqNo:	3400
Short Name:	PriorRepRoot
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the prior intervention involved the aortic root
ParentLongName:	Prior Aortic Intervention
ParentShortName:	PriorAorta
ParentHarvestCodes:	1
ParentValue: = "Yes"	

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the aortic root.

The aortic root is the 'sinus' segment of the aorta that immediately exits the heart and contains the aortic valve and coronary artery origins. It ends anatomically at the sinotubular junction (STJ) where the tubular ascending aorta begins. The region of the aorta designated in Zone 0 from below the STJ (from the annulus to the coronary). See General Information for Aorta Procedures and Diagrams for reference.

Type of surgeries in this location include aortic root replacements (mechanical, biological, Bentall procedure), and valve sparing root procedures (David, reimplantation, Yacoub, Remodeling, Florida sleeve).

Long Name: Prior Aortic Intervention - Previous Repair Type - Root (Zone 0 - A)

SeqNo:	3405
Short Name:	PriorRepTyRoot
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of prior root repair

ParentLongName: Prior Aortic Intervention - Previous Repair - Root (Zone 0 - A)

ParentShortName: PriorRepRoot

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Open
2	Endovascular
3	Hybrid

Intent/Clarification:

If the prior aortic intervention involved the aortic root, indicate the type of repair.

Currently the only applicable choice for root repair type is (1) Open. The other available choices were added in the event endovascular root procedures started.

Long Name: Prior Aortic Intervention - Repair Failure - Root (Zone 0 - A)

SeqNo: 3410

Short Name: PriorFailRoot

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether there is failure of the prior root repair

ParentLongName: Prior Aortic Intervention - Previous Repair - Root (Zone 0 - A)

ParentShortName: PriorRepRoot

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the aortic root, indicate if there is failure of the prior root repair.

There are four areas of prior root failure: proximal, distal, right coronary button suture line, and left coronary button suture line.

Examples include a secondary or false pseudo-aneurysm has developed in or near the previous

aortic root repair, or a portion of preserved aortic root tissue (typically the coronary origins or buttons) has become aneurysmal.

Long Name: Prior Aortic Intervention - Disease Progression - Root (Zone 0 - A)

SeqNo:	3415
Short Name:	PriorProgRoot
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whethere there is progression of disease following the prior root repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Root (Zone 0 - A)
ParentShortName:	PriorRepRoot
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the aortic root, indicate if there is disease progression following the prior aortic root repair.

If only a portion of the aortic root (typically the non-coronary sinus) was replaced during the initial root procedure, aneurysmal progression of the left and/or right coronary sinuses may have occurred. Development of coronary button aneurysms would also be considered progression of disease.

Long Name: Prior Aortic Intervention - Previous Repair - Ascending (Zone 0 - B&C)

SeqNo:	3420
Short Name:	PriorRepAsc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the prior intervention involved the ascending aorta

ParentLongName: Prior Aortic Intervention

ParentShortName: PriorAorta

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the ascending aorta (Zone 0 – Section B & C).

The region of the aorta designated in Zone 0 section B and/or C. Zone 0 section B is the sinotubular junction (STJ) to mid ascending (from the coronary to the distal margin of the right pulmonary artery). Zone 0 section C is the mid ascending to distal ascending (from the right pulmonary artery to the innominate artery). See General Information for Aorta Procedures and Diagrams for reference.

The ascending aorta is also called the tubular ascending segment and is the portion of the aorta above the aortic root (sinus segment) beginning at the STJ and extending to the first aortic arch vessel (innominate or brachiocephalic artery).

Long Name: Prior Aortic Intervention - Previous Repair Type - Ascending (Zone 0 - B&C)

SeqNo: 3425

Short Name: PriorRepTyAsc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of prior ascending aorta repair

ParentLongName: Prior Aortic Intervention - Previous Repair - Ascending (Zone 0 - B&C)

ParentShortName: PriorRepAsc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Open

2 Endovascular
3 Hybrid

Intent/Clarification:

If the prior aortic intervention involved the ascending aorta (Zone 0, Section B and/or C), indicate the type of repair.

Most simply classified as ascending aortic replacement with a prosthetic graft, it also includes ascending aortic resection (removal of the aneurysm with end-to-end proximal and distal aortic connection) and aortoplasty (reduction of the diameter of the ascending aorta with sutures or by removing a longitudinal segment).

Long Name: Prior Aortic Intervention - Repair Failure - Ascending (Zone 0 - B&C)

SeqNo:	3430
Short Name:	PriorFailAsc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is failure of the prior ascending repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Ascending (Zone 0 - B&C)
ParentShortName:	PriorRepAsc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the ascending aorta (Zone 0, Section B and/or C), indicate if there is failure of the prior ascending aorta repair.

Examples include a situation where there has been a previous replacement or aortoplasty of the (tubular) ascending aortic segment and the patient has manifested a pseudo-aneurysm, further aortic expansion, and/or contained rupture of the proximal or distal suture line.

Long Name: Prior Aortic Intervention – Disease Progression – Ascending (Zone 0 – B&C)

SeqNo:	3435
Short Name:	PriorProgAsc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whethere there is progression of disease following the prior ascending aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Ascending (Zone 0 - B&C)
ParentShortName:	PriorRepAsc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the ascending aorta (Zone 0, Section B and/or C), indicate if there is disease progression.

Examples include a patient with previous ascending aorta replacement with a tube graft, but a small segment of the ascending aorta (usually the ascending to proximal arch transition) was not removed, has subsequently become aneurysmal, and now requires intervention; or a patient who underwent previous ascending (reduction) aortoplasty and this segment has become aneurysmal to an extent requiring intervention.

Long Name: Prior Aortic Intervention - Previous Repair - Arch (Zones 1,2,3)

SeqNo:	3440
Short Name:	PriorRepArch
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the prior intervention involved the aortic arch
ParentLongName:	Prior Aortic Intervention
ParentShortName:	PriorAorta
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the aortic arch (Zones 1, 2, and/or 3).

The aortic arch is the segment of aorta beyond the tubular ascending segment beginning at the level of the first branching vessel of the aorta (typically the innominate or brachiocephalic artery) and terminating just after the last branch vessel of the aortic arch (left subclavian artery) before transitioning to the descending thoracic aorta; specifically zones 1, 2 and 3. The region of the aorta designated in Zones 1, 2, & 3 from the distal ascending to the proximal descending thoracic aorta. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Prior Aortic Intervention - Previous Repair Type - Arch (Zones 1,2,3)

SeqNo:	3445
Short Name:	PriorRepTyArch
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of prior arch repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Arch (Zones 1,2,3)
ParentShortName:	PriorRepArch
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Open
2	Endovascular
3	Hybrid

Intent/Clarification:

If the prior aortic intervention involved the aortic arch (Zones 1, 2, and/or 3), indicate the type of repair.

Open arch repairs may include (1) hemi-arch repairs where branch arteries are not reimplanted or bypassed, and extent of arch replacement with a graft includes a significant portion of the lesser curve (non-branched portion) of the aortic arch, (2) total arch replacement where all

branch vessels are reimplanted or bypassed in addition to graft replacement of the aorta, or (3) partial arch replacement where one or more but not all arch vessels are reimplanted or replaced in addition to graft replacement of a portion the aortic arch.

Hybrid repairs may combine surgical bypasses to one or more arch vessels with endograft (stent) repair of the aortic arch, and total endovascular arch replacement (rare) includes endovascular perfusion of arch vessels using special techniques.

Long Name: Prior Aortic Intervention - Repair Failure - Arch (Zones 1,2,3)

SeqNo:	3450
Short Name:	PriorFailArch
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is failure of the prior arch repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Arch (Zones 1,2,3)
ParentShortName:	PriorRepArch
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the aortic arch (Zones 1, 2, and/or 3), indicate if there is failure of the prior arch repair.

Failure of the prior repair relates to pseudo-aneurysms that have formed as part of aortic arch repair, or failure of an endograft to ‘seal’ causing an endoleak leading to further aortic expansion. May also indicate a bypassed or reimplanted arch vessel failure that requires a later reintervention.

An endoleak is defined as persistent blood flow in the aneurysm sac through and around the endovascular seal and is the most common complication after endovascular aneurysm repair.

Long Name: Prior Aortic Intervention - Disease Progression - Arch (Zones 1,2,3)

SeqNo:	3455

Short Name:	PriorProgArch
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is progression of disease following the prior arch repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Arch (Zones 1,2,3)
ParentShortName:	PriorRepArch
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the aortic arch (Zones 1, 2, and/or 3), indicate if there is disease progression following the prior arch repair.

Examples include cases of partial or hemi-arch replacement where the residual aortic arch has become aneurysmal to an extent requiring reintervention, or a reimplanted branch vessel has become aneurysmal requiring intervention.

Long Name: Prior Aortic Intervention - Previous Repair - Descending (Zones 4,5)

SeqNo:	3460
Short Name:	PriorRepDesc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the prior intervention involved the descending aorta
ParentLongName:	Prior Aortic Intervention
ParentShortName:	PriorAorta
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes

2 No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the descending aorta (Zones 4 and/or 5).

The descending thoracic aorta begins after the aortic arch (beyond the left subclavian artery) and extends to the level of the aortic hiatus at the diaphragm. The region of the aorta designated in zones 4 & 5 is distal arch to the celiac arteries. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Prior Aortic Intervention - Previous Repair Type - Descending (Zones 4,5)

SeqNo:	3465
Short Name:	PriorRepTyDesc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of prior descending aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Descending (Zones 4,5)
ParentShortName:	PriorRepDesc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Open
2	Endovascular
3	Hybrid

Intent/Clarification:

If the prior aortic intervention involved the descending aorta (Zones 4 and/or 5), indicate the type of repair.

The descending thoracic aorta can be replaced with a tube graft (open surgical) or using endovascular (stent) repair. Hybrid repairs include the use of an‘elephant trunk’ extension of an aortic arch repair and secondary open surgical or endograft connection to the elephant trunk extension.

Long Name: Prior Aortic Intervention - Repair Failure - Descending (Zones 4,5)

SeqNo:	3470
Short Name:	PriorFailDesc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is failure of the prior descending repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Descending (Zones 4,5)
ParentShortName:	PriorRepDesc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the descending aorta (Zones 4 and/or 5), indicate if there is failure of the prior descending aorta repair.

Examples include formation of pseudo-aneurysm or failure of an endograft repair to seal or an endoleak causing aneurysm expansion at the site of previous treatment.

An endoleak is defined as persistent blood flow in the aneurysm sac through and around the endovascular seal and is the most common complication after endovascular aneurysm repair.

Long Name: Prior Aortic Intervention - Disease Progression - Descending (Zones 4,5)

SeqNo:	3475
Short Name:	PriorProgDesc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whethere there is progression of disease following the prior descending aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Descending (Zones 4,5)

ParentShortName: PriorRepDesc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the descending aorta (Zones 4 and/or 5), indicate if there is disease progression following the descending aorta repair.

Examples include a situation where a segment of the descending thoracic aorta was previously replaced, and an adjacent non-replaced segment has expanded to an extent requiring intervention; or a preemptive elephant trunk extension was created at the time of a previous arch repair and the descending thoracic aorta has become large enough to require treatment.

Long Name: Prior Aortic Intervention - Previous Repair - Suprarenal Abdominal (Zones 6,7)

SeqNo: 3480

Short Name: PriorRepSupraAb

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the prior intervention involved the suprarenal abdominal aorta

ParentLongName: Prior Aortic Intervention

ParentShortName: PriorAorta

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the suprarenal abdominal aorta (Zones 6 and/or 7).

The suprarenal abdominal aorta is the segment of aorta beginning at the level of the diaphragm ending just below the renal artery branches. This segment includes major branches to the abdominal organs including the celiac and superior mesenteric arteries, but not the inferior mesenteric artery. The region of the aorta designated in zone 6 & 7 is from the celiac to the renal arteries. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Prior Aortic Intervention - Previous Repair Type - Suprarenal Abdominal (Zones 6,7)

SeqNo:	3485
Short Name:	PriorRepTySupraAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of prior suprarenal abdominal aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Suprarenal Abdominal (Zones 6,7)
ParentShortName:	PriorRepSupraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Open
2	Endovascular
3	Hybrid

Intent/Clarification:

If the prior aortic intervention involved the suprarenal abdominal aorta (Zones 6 and/or 7), indicate the type of repair.

Like the aortic arch, when this segment is replaced either with open surgery or with endovascular (stent) grafting, the major vessels require either reimplantation or bypass.

Long Name: Prior Aortic Intervention - Repair Failure - Suprarenal Abdominal (Zones 6,7)

SeqNo:	3490
Short Name:	PriorFailSupraAb
Database Table Name:	Operations

Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is failure of the prior suprarenal abdominal repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Suprarenal Abdominal (Zones 6,7)
ParentShortName:	PriorRepSupraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the suprarenal abdominal aorta (Zones 6 and/or 7), indicate if there is failure of the prior repair.

Failure of this repair includes pseudo-aneurysms as well as failure of endograft seal or endoleak causing continued expansion of the aorta requiring another intervention. Additionally, stenosis or occlusion of a bypassed or reimplanted visceral vessel indicates a repair failure that could mandate a reintervention.

An endoleak is defined as persistent blood flow in the aneurysm sac through and around the endovascular seal and is the most common complication after endovascular aneurysm repair.

Long Name: Prior Aortic Intervention - Disease Progression - Suprarenal Abdominal (Zones 6,7)

SeqNo:	3495
Short Name:	PriorProgSupraAb
Database Table Name:	Operations Data Source: User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whethere there is progression of disease following the prior suprarenal abdominal aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Suprarenal Abdominal (Zones 6,7)
ParentShortName:	PriorRepSupraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the suprarenal abdominal aorta (Zones 6 and/or 7), indicate if there is disease progression following the repair.

Examples include a situation where a portion of the suprarenal aorta that was not replaced during the initial surgery (most typically proximally near the diaphragm during open surgery) has aneurysm progression requiring another intervention; or aneurysm formation of the proximal portions of the visceral vessels themselves could also occur (more likely in genetic aneurysm syndromes) and require reintervention.

Long Name: Prior Aortic Intervention - Previous Repair - Infrarenal Abdominal (Zones 8,9,10,11)

SeqNo:	3500
Short Name:	PriorRepInfraAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the prior intervention involved the infrarenal abdominal aorta
ParentLongName:	Prior Aortic Intervention
ParentShortName:	PriorAorta
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient had a prior aortic intervention, indicate if the prior intervention involved the infrarenal abdominal aorta (Zones 8, 9, 10, and/or 11).

This is the segment of aorta below the renal arteries and terminating just before the bifurcation of the aorta into the common iliac arteries. The region of the aorta designated in zone 8, 9, 10, 11 is the infrarenal abdominal aorta. See General Information for Aorta Procedures and

Diagrams for reference.

Long Name: Prior Aortic Intervention - Previous Repair Type - Infrarenal Abdominal (Zones 8,9,10,11)

SeqNo:	3505
Short Name:	PriorRepTyInfraAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of prior infrarenal abdominal aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Infrarenal Abdominal (Zones 8,9,10,11)
ParentShortName:	PriorRepInfraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Open
2	Endovascular
3	Hybrid

Intent/Clarification:

if the prior aortic intervention involved the infrarenal abdominal aorta (Zones 8, 9, 10, and/or 11), indicate the type of repair.

The infra-renal aorta can be replaced either with open surgery or endovascular (stent) graft repair. The endovascular (stent) graft repair usually involves a graft from the kidneys and branching graft into the common iliac arteries.

Long Name: Prior Aortic Intervention - Repair Failure - Infrarenal Abdominal (Zones 8,9,10,11)

SeqNo:	3510
Short Name:	PriorFailInfraAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether there is failure of the prior infrarenal abdominal repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Infrarenal Abdominal (Zones 8,9,10,11)
ParentShortName:	PriorRepInfraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the prior aortic intervention involved the infrarenal abdominal aorta (Zones 8, 9, 10, and/or 11), indicate if there is failure of the prior infrarenal abdominal repair.

Failure includes pseudo-aneurysms as well as failure of endograft to seal or endoleak causing continued expansion of the aorta requiring another intervention.

An endoleak is defined as persistent blood flow in the aneurysm sac through and around the endovascular seal and is the most common complication after endovascular aneurysm repair.

Long Name: Prior Aortic Intervention - Disease Progression - Infrarenal Abdominal (Zones 8,9,10,11)

SeqNo:	3515
Short Name:	PriorProgInfraAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whethere there is progression of disease following the prior infrarenal abdominal aorta repair
ParentLongName:	Prior Aortic Intervention - Previous Repair - Infrarenal Abdominal (Zones 8,9,10,11)
ParentShortName:	PriorRepInfraAb
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes

2 No

Intent/Clarification:

If the prior aortic intervention involved the infrarenal abdominal aorta (Zones 8, 9, 10, and/or 11), indicate if there is disease progression following the prior repair.

An example includes a situation where a segment of infrarenal aorta was left behind or untreated during a previous procedure and has now become aneurysmal to an extent requiring reintervention.

Long Name: Current Procedure with Endoleak involvement

SeqNo:	3520
Short Name:	Endoleak
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if current procedure is with endoleak involvement.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if the current procedure is with endoleak.

The intent is to identify the efficacy of the procedure with the optimal therapy resulting in the absence of any endoleak.

An endoleak is defined as the presence of blood leaking through or around an endograft into the aneurysm sac resulting in perfusion and persistent pressurization of the aneurysm sac. It is the most common complication after endovascular aneurysm repair. In the case of an aortic dissection, an endoleak refers to persistent false lumen perfusion.

Long Name: Endoleak - Type I - Leak At Graft Attachment Site

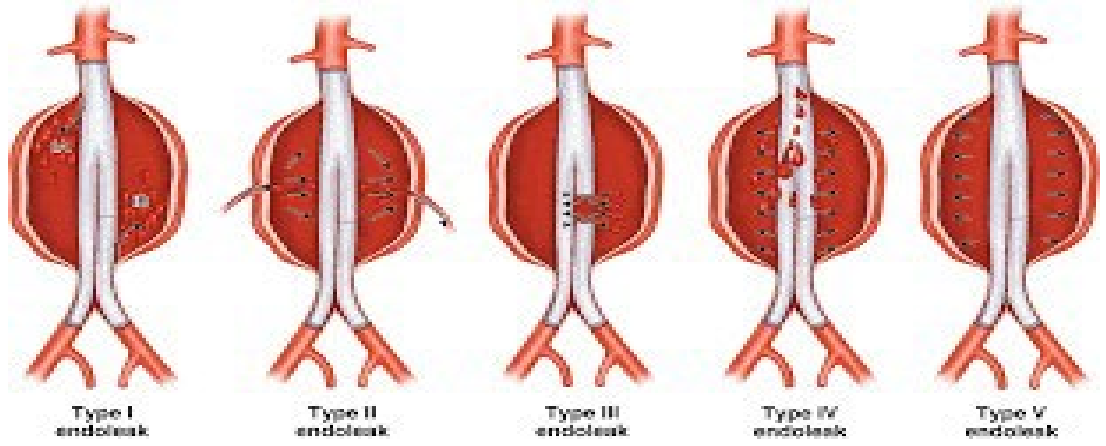
SeqNo: 3525
Short Name: EndoleakTypeI
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether endoleak is type I
ParentLongName: Current Procedure with Endoleak involvement
ParentShortName: Endoleak
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the current procedure is with endoleak involvement, indicate if the endoleak is Type I.

A Type I endoleak is defined as leakage of blood around a graft at the proximal or distal seal zones. This is a result of a gap between the aortic wall and the endograft at either the proximal or distal seal zone.



Long Name: Endoleak - Type I - Location

SeqNo: 3530
Short Name: EndoleakTyILoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition: Indicate the location of the type I endoleak

ParentLongName: Endoleak - Type I - Leak At Graft Attachment Site

ParentShortName: EndoleakTypeI

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Ia-Proximal

2 Ib-Distal

3 Ic-Iliac occluder

Intent/Clarification:

If the endoleak is Type I, indicate the location of the endoleak.

Code:	Value:	Definition:
1	Ia-Proximal	An endoleak occurring at the proximal seal zone.
2	Ib-Distal	An endoleak occurring at the distal seal zone.
3	Ic-Iliac occluder	A non-occluded iliac artery in patients with an aorto-uni-iliac (AUI) device with a patent femoral-femoral bypass.

Long Name: Endoleak - Type II - Aneurysm Sac Filling Via Branch Vessel

SeqNo: 3535

Short Name: EndoleakTypeII

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether endoleak is type II

ParentLongName: Current Procedure with Endoleak involvement

ParentShortName: Endoleak

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Yes
2 No

Intent/Clarification:

If the current procedure is with endoleak involvement, indicate if the endoleak is Type II.

A Type II endoleak is defined as retrograde filling of the aneurysm sac or false lumen in the case of dissection by aortic branch vessels (e.g., left subclavian artery, intercostal arteries, etc.).

Long Name: Endoleak - Type II - Number Of Vessels

SeqNo: 3540
Short Name: EndoleakVessNum
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the number of vessels involved in the type II endoleak
ParentLongName: Endoleak - Type II - Aneurysm Sac Filling Via Branch Vessel
ParentShortName: EndoleakTypeII
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code: Value:
1 IIa-Single vessel
2 IIb-Two vessels or more

Intent/Clarification:

If the endoleak is Type II, indicate the number of involved vessels providing retrograde flow into the aneurysm sac or false lumen.

Code:	Value:	Definition:
1	IIa-Single vessel	An endoleak with one branch vessel with retrograde flow causing an endoleak.
2	IIb-Two vessels or more	An endoleak with more than one branch vessel with retrograde flow causing an endoleak.

Long Name: Endoleak - Type III - Leak Through Defect In Graft

SeqNo: 3545
Short Name: EndoleakTypeIII
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether endoleak is type III
ParentLongName: Current Procedure with Endoleak involvement
ParentShortName: Endoleak
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the current procedure is with endoleak involvement, indicate if the endoleak is Type III.

A Type III endoleak is defined as leakage of blood into the aneurysm sac or false lumen in the case of dissection, due to either a gap between separate endograft components, or a defect in the fabric of the graft secondary to graft strut fracture or erosion.

Long Name: Endoleak - Type III - Graft Defect Type

SeqNo: 3550
Short Name: EndoleakType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the graft defect type
ParentLongName: Endoleak - Type III - Leak Through Defect In Graft
ParentShortName: EndoleakTypeIII
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	IIIa-Junctional separation of modular components

2 IIIb-Endograft fractures or holes

Intent/Clarification:

If the endoleak is Type III, indicate the type of graft defect.

Code:	Value:	Definition:
1	IIIa-Junctional separation of modular components	An endoleak that occurs secondary to junctional separation of overlapping endografts.
2	IIIb-Endograft fractures or holes	An endoleak that occurs due to a perforation in the fabric of an endograft secondary to graft strut fracture or erosion.

Long Name: Endoleak - Type IV - Leak Through Graft Fabric - Porosity

SeqNo: 3555
Short Name: EndoleakTypeIV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether endoleak is type IV
ParentLongName: Current Procedure with Endoleak involvement
ParentShortName: Endoleak
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If the current procedure is with endoleak involvement, indicate if the endoleak is Type IV.

A Type IV endoleak is defined as the presence of an endoleak secondary to graft porosity.

Coding Notes:

- All other types of endoleaks must be *definitively ruled out* prior to selecting this diagnosis.

Long Name: Endoleak - Type V - Endotension-Expansion Aneurysm Sac Without Leak

SeqNo: 3560
Short Name: EndoleakTypeV
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether endoleak is type V
ParentLongName: Current Procedure with Endoleak involvement
ParentShortName: Endoleak
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the current procedure is with endoleak involvement, indicate if the endoleak is Type V.

A Type V endoleak, also known as endotension, is defined as persistent aneurysm expansion in the absence of a confirmed endoleak.

Long Name: Current Procedure with Aorta Infection

SeqNo: 3565
Short Name: Infection
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate if current procedure is with infection.
ParentLongName: Aorta Procedure Performed
ParentShortName: AortProc
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"
Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

If aorta procedure performed, indicate if the current procedure is with an aorta infection.

The intent is to establish the presence of a primary aortic infection (either native aorta or prosthetic graft). This can be prospectively established preoperatively with diagnostic cultures (i.e., perigraft fluid or phlegmon aspiration) or other imaging such (tagged WBC scan or characteristic MRI or CT changes). The final diagnosis should depend on surgeon report, intraoperative cultures, and pathologic data.

Long Name: Aorta Infection Type

SeqNo: 3570
Short Name: InfecType
Database Table Name: Operations Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of aortic infection
ParentLongName: Current Procedure with Aorta Infection
ParentShortName: Infection
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Graft infection
2 Valvular endocarditis
3 Nonvalvular endocarditis
4 Native aorta
5 Multiple infection types

Intent/Clarification:

If the current procedure is with an aortic infection, indicate the infection type or involvement of infection within the aorta including the sinus of Valsalva and the aortic valve. Infection may involve native tissue or prosthetic graft/valve material.

Coding Notes:

- Code (5) Multiple infection types when the infection involves more than one type, i.e., graft and native aorta.

Long Name: Current Procedure with Trauma

SeqNo:	3575
Short Name:	Trauma
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if current procedure is with trauma.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if the current procedure is with aortic trauma including blunt trauma (i.e., blunt aortic injury from a motor vehicle accident), penetrating trauma (i.e., gun shot, stabbing, etc.), and iatrogenic trauma (i.e., endovascular catheter induced perforation or dissection, may include catheter trauma).

Do not include surgical induced trauma in this field.

Long Name: Aortic Trauma - Location

SeqNo:	3580
Short Name:	AorticTraumaLoc
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the location of the aorta where trauma occurred. If more than one location of trauma, select all that apply.
ParentLongName:	Current Procedure with Trauma
ParentShortName:	Trauma
ParentHarvestCodes:	1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Root
2 Ascending
3 Arch
4 Descending
5 Thoracoabdominal
6 Abdominal

Intent/Clarification:

If the current procedure is with aortic trauma, indicate the aortic location(s) of the trauma.

Code:	Value:	Definition:
1	Root	Aortic trauma involving the root. Includes the sinus of Valsalva, aortic valve leaflets, and the aortoventricular junction.
2	Ascending	Aortic trauma involving the ascending aorta; location of trauma in the sinotubular junction to the innominate artery.
3	Arch	Aortic trauma involved the arch; location of trauma in the proximal aspect of the innominate artery to the distal aspect of the left subclavian artery/aortic isthmus.
4	Descending	Aortic trauma involved the descending aorta; location of trauma in the aorta distal to the left subclavian to the diaphragmatic hiatus.
5	Thoracoabdominal	Aortic trauma involved the thoracoabdominal aorta; location of trauma includes parts of the descending thoracic aorta and abdominal aorta.
6	Abdominal	Aortic trauma involved the abdominal aorta; location of trauma includes parts of the descending thoracic aorta and abdominal aorta. Trauma isolated to infra-diaphragmatic abdominal aorta.

Long Name: Aorta Presentation

SeqNo: 3585

Short Name: Presentation

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the clinical presentation

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Pain
2	CHF
3	Cardiac Arrest
4	Syncope
9	Infection
12	Asymptomatic
13	Injury related to surgical complication
16	Neuro Deficit
14	Other
15	Unknown

Intent/Clarification:

If aorta procedure, indicate the clinical presentation or the presenting symptoms that led to the diagnosis and operative intervention.

There is no hierarchy to the list, the primary presentation should be indicated by the surgeon.

Long Name: Aorta Presentation - Neuro Deficit

SeqNo: 3590

Short Name: AortPresNeuroDef

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the most severe type of neuro deficit the patient presented with. Timeframe is from Admission to OR Entry.

ParentLongName: Aorta Presentation

ParentShortName: Presentation

ParentHarvestCodes: 16

ParentValue: = "Neuro Deficit"

Harvest Codes:

Code:	Value:
1	Stroke
2	Limb numbness
3	Paralysis
4	Hoarseness (acute vocal cord dysfunction)

Intent/Clarification:

If the presenting symptom is Neuro Deficit, indicate the most severe neurologic deficit present from hospital admission to OR entry date/time.

Long Name: Aorta Primary indication

SeqNo: 3595

Short Name: PrimIndic

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the primary indication for intervention

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Aneurysm
2	Dissection
9	Other

Intent/Clarification:

If aorta procedure performed, indicate the primary indication or condition/diagnosis/pathology for which the surgery is being performed.

There is no specific hierarchy, the primary presentation should be indicated by the surgeon. For example, a patient with a bicuspid aortic valve has severe aortic stenosis and bicuspid aortopathy (aneurysm). Patient had an aortic valve replacement with ascending aortic

replacement. In this scenario, code aneurysm as the primary indication for aortic surgery.

Aneurysm also includes penetrating ulcer.

Long Name: Aneurysm - Etiology

SeqNo: 3600
Short Name: AnEtilogy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the aneurysm etiology
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 1
ParentValue: = "Aneurysm"
Harvest Codes:

Code:	Value:
1	Atherosclerosis
2	Infection
3	Inflammatory
4	Connective Tissue/Syndromic Disorder
5	Ulcerative Plaque/Penetrating Ulcer
6	Pseudoaneurysm
7	Mycotic
8	Traumatic transection
9	Intercostal visceral patch
10	Anastomotic site
12	Aortic Valve Morphology
13	Chronic Dissection
14	Congenital structural cardiac abnormality
11	Unknown

Intent/Clarification:

If the primary indication is aneurysm, indicate the etiology of the aneurysm.

Code:	Value:	Definition:
1	Atherosclerosis	Etiology related to an arteriosclerotic aneurysm,

Code:	Value:	Definition:
		resulting from a weakening of the wall with severe atherosclerosis.
2	Infection	Etiology related to the primary infection of native aorta resulting in aneurysm.
3	Inflammatory	Etiology related to an autoimmune disease, i.e., Ehlers-Danlos syndrome.
4	Connective Tissue/ Syndromic Disorder	Etiology related to connective tissue/syndromic disorder, i.e., Marfan syndrome, myxomatous degeneration, etc.
5	Ulcerative Plaque/ Penetrating Ulcer	Etiology related to ulcerative plaque/penetrating ulcer.
6	Pseudoaneurysm	Etiology related to an outpouching that does not involve all layers of the aortic wall.
7	Mycotic	Etiology related to a native tissue infection.
8	Traumatic transection	Etiology related to a traumatic transection of the aorta.
9	Intercostal visceral patch	Etiology related to a pseudoaneurysm along the intercostal patch anastomotic suture line. Intercostal patch aneurysms are a complication of the sparing of intercostal arteries during thoracic aneurysm repair.
10	Anastomotic site	Etiology related to the anastomotic site of a previous aortic repair.
12	Aortic Valve Morphology	Etiology related to a variant of aortic valve morphology including bicuspid, unicuspid, and quadricuspid aortic valve.
13	Chronic Dissection	Etiology related to chronic aortic dissection.
14	Congenital structural cardiac abnormality	Etiology related to a congenital cardiac structural defect.

Code:	Value:	Definition:
11	Unknown	Etiology is unknown or is not otherwise listed. For example, documentation of systemic hypertension, degenerative and post stenotic dilation related aneurysm.

Long Name: Aneurysm - Type

SeqNo: 3605
Short Name: AnType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the aneurysm type
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 1
ParentValue: = "Aneurysm"
Harvest Codes:

Code:	Value:
1	Fusiform
2	Saccular
3	Unknown

Intent/Clarification:

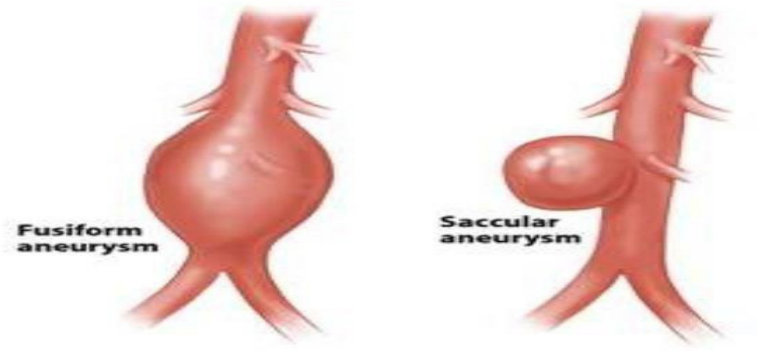
If the primary indication of the aorta procedure is aneurysm, indicate the type of aneurysm.

Coding Notes:

- Although most aneurysms tend to be fusiform, there needs to be documentation in the medical record indicating the type. For example, if there is no documentation whether the aneurysm is fusiform or saccular, code as (3) Unknown.

Code:	Value:	Definition:
1	Fusiform	A diffuse dilation of all layers of the aortic wall involving an

Code:	Value:	Definition:
		extended segment
2	Saccular	A focal dilation of all layers of the aorta.
3	Unknown	Type of aneurysm unknown.



Long Name: Aneurysm - Rupture

SeqNo: 3610
Short Name: AnRupt
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the aneurysm ruptured
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 1
ParentValue: = "Aneurysm"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the primary indication of the aorta procedure is aneurysm, indicate whether the aneurysm is ruptured.

Aneurysm rupture is a complete breakdown in the integrity of the aortic wall and if not 'contained' will result in exsanguination.

Long Name: Aneurysm - Rupture - Contained

SeqNo:	3615
Short Name:	AnRuptCon
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the rupture was contained
ParentLongName:	Aneurysm - Rupture
ParentShortName:	AnRupt
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the aneurysm is ruptured, indicate if the rupture is contained. Contained rupture is a complete breakdown in the integrity of the aortic wall but is being 'contained' by some clot or another structure. It is an unstable situation. When seen on CT scan, it is almost always 'contained' as frank rupture is usually fatal.

Long Name: Aneurysm - Location

SeqNo:	3620
Short Name:	AnLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the maximum diameter of the aneurysm.
ParentLongName:	Aorta Primary indication
ParentShortName:	PrimIndic

ParentHarvestCodes: 1

ParentValue: = "Aneurysm"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If the primary indication for the aorta procedure is aneurysm, indicate the aortic location of the maximum diameter of the aneurysm. See General Information for Aorta Procedures and Diagrams for reference.

There is no specific hierarchy, the surgeon should indicate the location/primary zone of maximum diameter.

If the aneurysm spans more than one zone, code the most proximal zone with the largest diameter.

Long Name: Dissection - Timing

SeqNo: 3625

Short Name: DisTiming

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the timing of the aortic dissection

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code: Value:

1 Hyperacute (<24 hours)
2 Acute (>=24 hours, <2 weeks)
3 Subacute (>= 2 weeks, <90 days)
4 Chronic (>=90 days)
5 Acute on chronic
6 Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate the timing of the aortic dissection.

The intent is to define the time interval from occurrence of dissection until presentation of the patient. The best assessment of dissection is the onset of symptoms which is usually found in the EMS report or history of present illness in the history and physical (H&P). Record the time from first onset of pain until the patient presents/is evaluated for treatment.

Code:	Value:	Definition:
1	Hyperacute (<24 hours)	Time between onset of symptoms and presentation for evaluation is less than 24-hours.
2	Acute (>=24 hours, <2 weeks)	Time between onset of symptoms and presentation for evaluation is greater than or equal to 24-hours but less than 14-days.
3	Subacute (>=2 weeks, <90 days)	Time between onset of symptoms and presentation for evaluation is greater than or equal to 14-days but less than 90-days.
4	Chronic (>=90 days)	Time between onset of symptoms and presentation for evaluation is greater than or equal to 90 days.
5	Acute on chronic	An acute dissection in the presence of an existing chronic dissection.
6	Unknown	Time between onset of symptoms and presentation for evaluation is unknown – the patient cannot describe a specific onset of symptoms.

Long Name: Dissection Onset Date Known

SeqNo: 3630
Short Name: DisOnsetDtKnown
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the date of dissection onset is known
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 2
ParentValue: = "Dissection"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the date of dissection onset is known.

The intent is to confirm the duration of symptoms preceding the patient's evaluation for treatment. While dissection timing (SEQ 3625) describes fairly broad intervals, this sequence refers to the patient's recall of specific date when symptoms were first felt. Typical symptoms include sudden onset of pain which is usually memorable.

Coding Notes:

- Code (2) No only for patients whose dissection is incidentally discovered or if the patient does not recall the onset of pain.
- Code (1) Yes if the date of dissection symptoms is known. In patients with a chronic dissection following a previous repair, code (1) Yes and record the date of the previous repair as the (3635) Dissection Onset Date.

Long Name: Dissection Onset Date

SeqNo: 3635
Short Name: DisOnsetDt
Database Table Name: Operations
Data Source: User

Format: Date - mm/dd/yyyy
Definition: Indicate dissection onset date
ParentLongName: Dissection Onset Date Known
ParentShortName: DisOnsetDtKnown
ParentHarvestCodes: 1
ParentValue: = "Yes"

Intent/Clarification:

If the dissection onset date is known, indicate the date of symptom onset.

If the patient's recall is non-specific (e.g., "sometime last week") leave this field blank.

Long Name: Dissection - Primary Tear Location

SeqNo: 3640
Short Name: DisTearLoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate location of the primary tear
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 2
ParentValue: = "Dissection"

Code: Value:

1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate the location of the primary tear for the dissection. See General Information for Aorta Procedures and Diagrams for reference.

Coding Notes:

As most dissections include multiple re-entry tears, it may be difficult to confirm the primary site and the surgeon MUST be the final arbiter of this definition.

- This is the site identified by the surgeon at an open operation or judged by the surgeon from imaging as the primary site to be covered by endovascular stent.
- If the radiology report names a primary entry point and the surgeon concurs, report this location.

Long Name: Proximal Dissection Extent Known

SeqNo:	3645
Short Name:	DisRetExt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if proximal (toward heart) dissection extent is known.
ParentLongName:	Aorta Primary indication
ParentShortName:	PrimIndic
ParentHarvestCodes:	2
ParentValue:	= "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the extent of the proximal dissection is known.

Coding Notes:

- Code (1) Yes if imaging indicates an extension of the false lumen proximal (toward the aortic valve) to the primary tear location.

Long Name: Most Proximal Dissection Location

SeqNo:	3650
Short Name:	DisRetLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate location of most proximal (closest to heart) dissection location.
ParentLongName:	Proximal Dissection Extent Known
ParentShortName:	DisRetExt
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4

Intent/Clarification:

If the extent of the proximal dissection is known, indicate the location of the most proximal dissection location. See General Information for Aorta Procedures and Diagrams for reference.

The intent is to define how far the retrograde dissection extends toward the aortic valve. This would be the point at which the false lumen comes closest to the aortic valve. The surgeon or radiologist can be the final arbiter of this definition.

Long Name: Distal Dissection Extent Known

SeqNo:	3655
Short Name:	DistalExt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if distal (away from heart) dissection is known.
ParentLongName:	Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the extent of the distal (away from the heart) dissection is known.

Long Name: Distal Dissection Extension Location

SeqNo: 3660

Short Name: DistalExtLoc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate location of most distal (away from heart) dissection location.

ParentLongName: Distal Dissection Extent Known

ParentShortName: DistalExt

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9

13 Zone 10
14 Zone 11

Intent/Clarification:

If the extent of the distal dissection is known, indicate the location of the most distal (away from the heart) dissection location. See General Information for Aorta Procedures and Diagrams for reference and refer to the most distal or highest number zone.

The intent is to define the how far along the aorta (away from the valve) any new or extended dissection goes.

Long Name: Stanford Classification Known

SeqNo: 3665
Short Name: StanfordClass
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the Stanford classification
ParentLongName: Aorta Primary indication
ParentShortName: PrimIndic
ParentHarvestCodes: 2
ParentValue: = "Dissection"
Harvest Codes:
Code: Value:
1 Type A
2 Type B
3 Unknown
4 Other

Intent/Clarification:

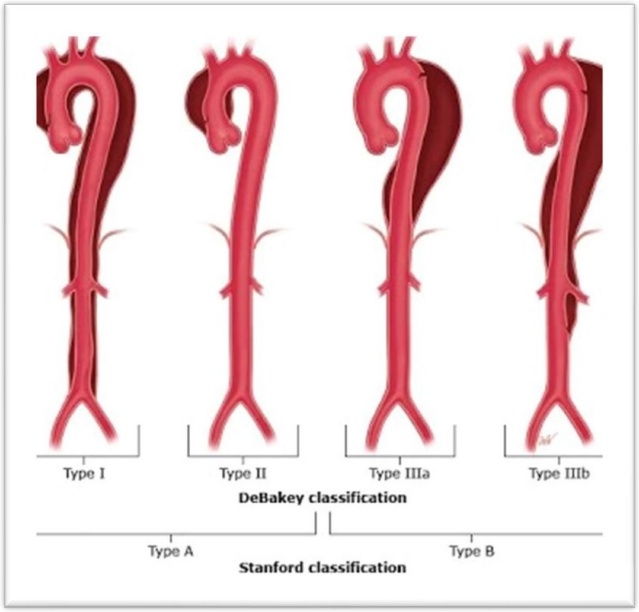
If the primary indication for the aorta procedure is dissection, indicate the Stanford classification of the dissection.

The Stanford classification is used to separate dissections into those that require surgical repair versus those that can be managed medically. The classification system is based on where the dissection starts.

See General Information for Aorta Procedures and Diagrams for reference.

Code:	Value:	Definition:

Code:	Value:	Definition:
1	Type A	Dissection starts in Zone 0 and involves the ascending aorta. Type A dissections may progress to involve the aortic arch and more rarely the descending thoracic aorta. Includes DeBakey type I and II. Type A dissections generally require primary surgical repair.
2	Type B	Dissection starts in Zone 3 and involves the descending thoracic or thoracoabdominal aorta distal to the left subclavian artery without involvement of the ascending aorta. Includes DeBakey type III. Type B dissections are generally treated medically, reserving surgical repair for complications.
3	Unknown	The type of dissection is unknown.
4	Other	Other Zone 1 and Zone 2 dissections; may be referred to as non-A-non-B dissection and include dissections of the arch without the involvement of the ascending aorta.



Long Name: Retrograde dissection caused by Aortic Stent Graft (Post TEVAR)

SeqNo: 3670

Short Name: DisPosTEVAR

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if there was a proximal dissection (toward the heart) caused by an aortic stent graft (post TEVAR).

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate whether a retrograde (toward the heart) dissection was caused by an aortic stent graft. Identify whether retrograde dissection occurred or extended during or following a thoracic endovascular aortic repair (TEVAR).

Coding Notes:

- Code (1) Yes if retrograde dissection is noted on post TEVAR imaging that was not present onimaging before TEVAR.
- Code (1) Yes if retrograde dissection (false lumen) extends closer to the aortic valve than wasnoted on pre-TEVAR imaging.

Long Name: Patient within 30 days post TAVR

SeqNo: 3675

Short Name: PtLess30PostTAVR

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if the patient had a TAVR within the last 30 days.

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the patient underwent a transcatheter aortic valve replacement (TAVR) within 30 days prior to this surgical procedure.

This field is not meant to specify the TAVR is the reason for the current procedure.

Long Name: Patient within 30 days Post Other Cath Procedure

SeqNo: 3680

Short Name: PtLess30PostOthCath

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if the patient had any catheter based procedure, other than TAVR, within the last 30 days.

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the patient underwent any other catheter-based procedure (excluding TAVR) within 30 days prior to this surgical procedure.

This field is not meant to specify the other catheter-based procedure is the reason for the current procedure.

Long Name: Dissection - Malperfusion

SeqNo:	3685
Short Name:	DisMal
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether malperfusion was present
ParentLongName:	Aorta Primary indication
ParentShortName:	PrimIndic
ParentHarvestCodes:	2
ParentValue:	= "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

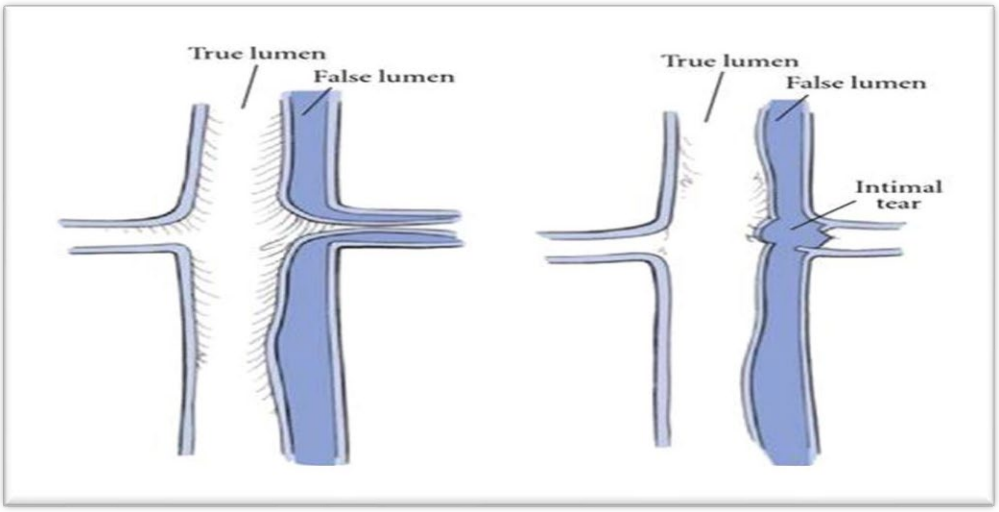
Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate whether malperfusion (inadequate/compromised blood flow) to any branch vessel was present because of the dissection or dissection repair.

Utilize the radiology report or the surgeon's evaluation to define if present.

Coding Notes:

- Code (1) Yes if any vessel has compromised blood flow
- Code (3) Unknown if the surgeon/radiologist indicate the imaging is inadequate to confirm the presence or absence of malperfusion



Long Name: Dissection - Malperfusion Type

SeqNo: 3690
Short Name: DisMalType
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate where malperfusion occurred. If malperfusion occurred in more than one location, select all that apply.
ParentLongName: Dissection - Malperfusion
ParentShortName: DisMal
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Coronary
2	Right Common Carotid
3	Left Subclavian
4	Superior Mesenteric
5	Renal, right
6	Spinal
7	Right subclavian
8	Left Common Carotid
9	Celiac
10	Renal, left
11	Iliofemoral

Intent/Clarification:

If malperfusion is present, indicate the vessels with compromised flow because of the dissection or related repair. The surgeon is the final arbiter of this definition.

Long Name: Dissection - Lower Extremity Motor Function

SeqNo: 3695
Short Name: DisLowMotFun
Database Table Name: Operations
Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if any NEW motor deficit of either lower extremity was present preoperatively.

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	No deficit
2	Weakness
3	Paralysis
4	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if a *new* motor deficit of either lower extremity is a presenting symptom. The motor deficit must be present preoperatively and does not include new post-operative paralysis or paraplegia.

Long Name: Dissection - Lower Extremity Sensory Deficit

SeqNo: 3700

Short Name: DisLowSenDef

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if any NEW sensory deficit of either lower extremity was present preoperatively.

ParentLongName: Aorta Primary indication

ParentShortName: PrimIndic

ParentHarvestCodes: 2

ParentValue: = "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if a *new* sensory deficit

of either lower extremity is a presenting symptom. The sensory deficit must be present preoperatively and does not include new post-operative paralysis or paraplegia.

Coding Notes:

- Code (1) Yes with any documentation of numbness or insensate areas that were not reported or documented in the patient's past medical history.
- Code (3) Unknown if there is no documentation in the medical record regarding sensation in the lower extremities.

Long Name: Dissection - Rupture

SeqNo:	3705
Short Name:	DisRupt
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether dissection ruptured
ParentLongName:	Aorta Primary indication
ParentShortName:	PrimIndic
ParentHarvestCodes:	2
ParentValue:	= "Dissection"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the primary indication for the aorta procedure is dissection, indicate if the dissection ruptured.

Coding Notes:

- Code (1) Yes if any volume of blood is extravascular (outside the aortic adventitial layer or outermost layer of the aortic wall).

Long Name: Dissection - Rupture - Contained

SeqNo:	3710
Short Name:	DisRuptCon

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the rupture was contained
ParentLongName: Dissection - Rupture
ParentShortName: DisRupt
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If dissection rupture, indicate rupture was contained.

Coding Notes:

- Code (1) Yes if extravascular blood is contained by surrounding structures such that bleeding has stopped.

Long Name: Dissection - Rupture Location

SeqNo: 3715
Short Name: DisRuptLoc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the rupture location
ParentLongName: Dissection - Rupture
ParentShortName: DisRupt
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:
Code: Value:

1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2

6 Zone 3
7 Zone 4
8 Zone 5
9 Zone 6
10 Zone 7
11 Zone 8
12 Zone 9
13 Zone 10
14 Zone 11

Intent/Clarification:

If dissection rupture, indicate the location of the rupture. This is the site identified by the surgeon at an open operation or judged by the surgeon/radiologist from imaging as the rupture site to be covered by endovascular. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Aorta Primary Indication - Other

SeqNo:	3720
Short Name:	PrimIndicOther
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the patient's primary indication for Aorta surgery other than Aneurysm or Dissection.
ParentLongName:	Aorta Primary indication
ParentShortName:	PrimIndic
ParentHarvestCodes:	9
ParentValue:	= "Other"

Harvest Codes:
Code: Value:

1 Valvular Dysfunction
2 Stenosis/Obstruction
3 Intramural Hematoma
4 Coarctation
5 Endoleak
6 Infection
7 Injury related to Surgical Complication/Perforation
8 Trauma

Intent/Clarification:

If the primary indication for the aorta procedure is Other (not aneurysm and not dissection), indicate the primary indication for the aorta procedure.

Code:	Value:	Definition:
1	Valvular Dysfunction	Primary indication for aorta procedure is valvar dysfunction.
2	Stenosis/Obstruction	Primary indication for aorta procedure is stenosis or obstruction
3	Intramural Hematoma	Primary indication for aorta procedure is intramural hematoma, blood in the wall of the aorta, but no dissection flap is visualized.
4	Coarctation	Primary indication for aorta procedure is coarctation, narrowing of the aorta and usually a congenital issue.
5	Endoleak	Primary indication for aorta procedure is endoleak, persistent blood flow in the aneurysm sac through and around theendovascular seal and is the most common complication after endovascular aneurysm repair.
6	Infection	Primary indication for aorta procedure is infection.
7	Injury related to Surgical Complication/Perforation	Primary indication for aorta procedure is related to surgical complication or perforation. Includes intraoperative surgical trauma to the aorta during the current procedure.
8	Trauma	Primary indication for aorta procedure is aortic trauma. Includes blunt trauma (i.e., blunt aortic injury from motor vehicle accident), penetrating trauma (i.e., gun shot, stabbing), and iatrogenic trauma (i.e., endovascular catheter induced perforation or dissection, may include catheter trauma).

ADDITIONAL ANATOMICAL INFORMATION

Long Name: Root - Aortic-Annular Ectasia

SeqNo:	3725
Short Name:	RootAAnnEctasia
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether aorto-annular ectasia is present
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate whether aorto-annular ectasia is present. Aorto-annular ectasia refers to dilatation of the aortic root involving the annulus and/or the sinuses and/or the sinotubular junction and typically gives rise to aortic insufficiency.

The intent of this field is to identify patients with aortic root dilatation specifically that impacts aortic valve function. To code, there must be documentation of aorta root ectasia or dilated annulus.

Long Name: Root - Asymmetric Root Dilation

SeqNo:	3730
Short Name:	RootDilaAsym
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS) Definition: Indicate whether asymmetric root dilation is present
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate if asymmetric root dilation is present. Asymmetric root dilatation refers to predominance of dilatation present in one or two sinus segments as opposed to more uniform root dilatation involving all 3 sinus segments (these may often be associated with aortic insufficiency).

Asymmetric root dilatation is not the same as a sinus of Valsalva aneurysm. A sinus of Valsalva aneurysm is a distinct dilatation with a windsock appearance in one segment. Asymmetric root dilatation is generalized enlargement of one or two sinus segments. An aortic root aneurysm is generalized enlargement of all 3 sinus segments.

Long Name: Root - Asymmetric Root Dilation - Location

SeqNo: 3735

Short Name: RoottDilaAsym

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all locations of asymmetric root dilation.

ParentLongName: Root - Asymmetric Root Dilation

ParentShortName: RootDilaAsym

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Right
2	Left
3	Non-coronary

Intent/Clarification:

If asymmetric root dilation present, indicate the location(s).

Long Name: Root - Sinus Of Valsalva Aneurysm

SeqNo:	3740
Short Name:	RootSinus
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is a sinus of valsalva aneurysm
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate if a sinus of Valsalva aneurysm is present. Sinus of Valsalva (SOV) aneurysm specifically refers to distinct dilatation of a single sinus segment, i.e., does not involve a second sinus segment as would be the case with asymmetric root dilatation.

Sinus of Valsalva aneurysm differs from asymmetric root dilatation. A SOV aneurysm is a distinct dilatation with a windsock appearance in one segment. Asymmetric root dilatation is generalized enlargement of 1 or 2 sinus segments. An aortic root aneurysm is generalized enlargement of all 3 sinus segments.

Long Name: Root - Sinus Of Valsalva Aneurysm - Multi Location

SeqNo:	3745
Short Name:	RootSinusLocMult
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all locations of sinus of valsalva aneurysm.
ParentLongName:	Root - Sinus Of Valsalva Aneurysm
ParentShortName:	RootSinus
ParentHarvestCodes:	1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Right
2	Left
3	Non-coronary

Intent/Clarification:

If sinus of Valsalva aneurysm present, indicate the location.

Coding Notes*:*

Only select one location *(*right, left, or non-coronary) despite the definition stating to indicate all locations.

Long Name: Arch Anomalies

SeqNo: 3750

Short Name: ArchAnom

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether arch anomalies are present.

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether an arch anomaly is present.

Arch anomalies include right aortic arch, aberrant right or left subclavian arteries, variant vertebral origin, Kommerell/Ductus bulge, or bovine.

Long Name: Arch Anomalies Type

SeqNo: 3755
Short Name: ArchAnomTy
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate which arch anomalies are present. If there are multiple arch anomalies, choose all that apply.
ParentLongName: Arch Anomalies
ParentShortName: ArchAnom
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:

1 Arch Type Right
2 Aberrant Right Subclavian
3 Kommerell/Ductus Bulge
4 Variant vertebral origin
5 Aberrant Left Subclavian
6 Bovine

Intent/Clarification:

If arch anomaly present, indicate which arch anomaly(ies) are present.

Code:	Value:	Definition:
1	Arch Type Right	The aortic arch travels around (anteriorly) to the right mainstem bronchus and right pulmonary artery and then passes posteriorly to the trachea.
2	Aberrant Right Subclavian	A right subclavian artery that originates directly from the aortic arch and not the innominate artery/brachiocephalic artery. They are typically associated with left arch anatomy).
3	Kommerell/Ductus Bulge	Kommerell diverticulum is not a true diverticulum but a remnant of the left fourth aortic arch and is a bulbous dilatation at the origin of an aberrant subclavian artery. It is often associated with other arch anomalies.

Code:	Value:	Definition:
4	Variant vertebral origin	Any vertebral artery that originates directly from the aortic arch rather than a branch of either subclavian artery.
5	Aberrant Left Subclavian	A left subclavian artery that does not originate from the distal arch as a separate ostium sequential and distal to the take-off of the left common carotid artery on the greater curvature of the aortic arch.
6	Bovine	Refers to the common origin of both the innominate artery and the left common carotid artery as they originate from the greater curve of the arch.

Long Name: Patent Internal Mammary Artery Bypass Graft

SeqNo: 3760
Short Name: ArchPatIMA
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether there is a patent internal mammary bypass graft present
ParentLongName: Aorta Procedure Performed
ParentShortName: AortProc
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	N/A

Intent/Clarification:

If aorta procedure performed, indicate if there is a patent internal mammary bypass graft present – this specifically refers to a patient who has undergone prior coronary artery bypass grafting (CABG) and has a patent internal mammary graft (either left or right) present.

This does not include an internal mammary graft placed during this procedure.

Long Name: Ascending Asymmetric Dilation

SeqNo:	3765
Short Name:	AscAsymDil
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there is asymmetric dilatation of the ascending aorta
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate if there is asymmetric dilatation of the ascending aorta.

Asymmetric dilatation refers to non-uniform dilatation of the aorta distal to the sinotubular junction, as is often noted as a pattern of dilation that affects the greater curvature of the ascending aorta.

Long Name: Ascending Proximal Coronary Bypass Grafts

SeqNo:	3770
Short Name:	AscProxGr
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether proximal bypass grafts are present on the aorta
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If aorta procedure performed, indicate if proximal bypass grafts are present on the aorta. These refer to any saphenous vein, radial artery, or free internal mammary artery grafts that emanate from the ascending aorta.

These include patient who underwent prior proximal coronary bypass grafts, not proximal bypass grafts that are placed during this procedure.

MEASUREMENTS (Largest Diameter)

Long Name: Treated Zone with the Largest Diameter

SeqNo:	3775
Short Name:	TrtZnLrgDiam
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the treated zone with the largest diameter.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Below STJ

2 STJ-midascending
3 Midascending to distal ascending
4 Zone 1
5 Zone 2
6 Zone 3
7 Zone 4
8 Zone 5
9 Zone 6
10 Zone 7
11 Zone 8
12 Zone 9
13 Zone 10
14 Zone 11

Intent/Clarification:

If aorta procedure performed, indicate the treated zone with the largest diameter. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Treated Zone with the Largest Diameter - Measurement

SeqNo:	3780
Short Name:	TrtZnLrgDiamMeas
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the size of the largest diameter of the treated zone. Measurement to be recorded in millimeters (mm).
Low Value:	0.0
High Value:	120.0
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Intent/Clarification:

If aorta procedure performed, indicate the size of the largest diameter of the treated zone.

Coding Notes*:*

- Record dimension in millimeters (mm). If reported in centimeters (cm), convert to mm (1 cm = 10 mm). Example 5.3 cm = 53 mm.
- Capture the results closest to and within 1-year of the current OR date. When there are

two measurements available, one pre-op and one intra-op, code the intraoperative measurement.

- If the diameter measurement is not included in the surgeon dictation or available studies, leave blank.
- The data manager should not use the measurements from PACS (picture archiving and communication system) unless the measurements are supported by documentation from the surgeon. It is not the intention of the STS that the data managershould interpret the measurements.

Long Name: Treated Zone with the Largest Diameter - Method Obtained

SeqNo:	3785
Short Name:	TrtZnLrgDiamMeasMeth
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the method used to obtain the recorded size. See Intent/Clarification section for directions if more than one source is available.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:
Code: Value:

1	3D or 4D Reconstruction
2	PreOp CT
3	PreOp MRI
4	PreOp Echo
5	Intraoperatively

Intent/Clarification:

If aorta procedure performed, indicate the method used to obtain the size of the largest diameter of the treated zone.

Coding Notes*:*

- Capture the results closest to and within 1-year of the current OR date. When there are two measurements available, one pre-op and one intra-op, code the intraoperative

measurement.

- The data manager should not use the measurements from the PACs (Picture Archiving and Communication System) unless the measurements are supported by documentation from the surgeon. It is not the intention of the STS that the data managershould interpret the measurements.

Long Name: Proximal to Treated Zone(s) (Largest Diameter) Available

SeqNo:	3790
Short Name:	ProxTreatZoneAvail
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a measurement is available on the zone proximal (closest to the heart) to treated area.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic procedure performed, indicate if a measurement is available on the zone proximal (closest to the heart) to the treated area. This is the zone right before the treated section.

Long Name: Proximal to Treated Zone(s) (Largest Diameter) Available - Location

SeqNo:	3795
Short Name:	ProxTreatZoneAvailLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the zone proximal (closest to the heart) to the treated zone(s).

ParentLongName: Proximal to Treated Zone(s) (Largest Diameter) Available

ParentShortName: ProxTreatZoneAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If the measurement proximal to the treated zone is known, indicate the zone proximal to the treated zone. This is the zone right before the treated section. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Proximal to Treated Zone(s) (Largest Diameter) Available - Measurement

SeqNo: 3800

Short Name: ProxTreatZoneAvailMeas

Database Table Name: Operations

Data Source: User

Format: Real

Definition: Indicate the largest diameter of the zone proximal (closest to the heart) to the treated zone(s). Measurement to be recorded in millimeters (mm).

Low Value: 0.0

High Value: 120.0

ParentLongName: Proximal to Treated Zone(s) (Largest Diameter) Available

ParentShortName: ProxTreatZoneAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If the measurement proximal to the treated zone is known, indicate the largest diameter of the zone proximal to the treated zone(s).

Coding Notes*:*

- Record dimension in millimeters (mm). If reported in centimeters (cm), convert to mm (1 cm = 10 mm). Example 5.3 cm = 53 mm.
- Capture the results closest to and within 1-year of the current OR date. When there are two measurements available, one pre-op and one intra-op, code the intraoperative measurement.

Long Name: Proximal to Treated Zone(s) (Largest Diameter) - Method Obtained

SeqNo: 3805

Short Name: ProxTreatZoneAvailMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the method used to obtain the recorded size. See Intent/Clarification section for directions if more than one source is available.

ParentLongName: Proximal to Treated Zone(s) (Largest Diameter) Available

ParentShortName: ProxTreatZoneAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	3D or 4D Reconstruction
2	PreOp CT
3	PreOp MRI
4	PreOp Echo
5	Intraoperatively

Intent/Clarification:

If the measurement proximal to the treated zone is known, indicate the method used to obtain the recorded size.

Coding Notes*:*

- Capture the results closest to and within 1-year of the current OR date. When there are two measurements available, one pre-op and one intra-op, code the intraoperative measurement.
- The data manager should not use the measurements from the PACs (Picture Archiving and Communication System) unless the measurements are supported by documentation from the surgeon. It is not the intention of the STS that the data managershould interpret the measurements.

Long Name: Distal to Treated Zone(s) (Largest Diameter) Available

SeqNo:	3810
Short Name:	DistTreatZoneAvail
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a measurement is available on the zone distal (further from the heart) to treated area.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic procedure performed, indicate if a measurement is available on the zone distal (or further from the heart) to the treated area. This is the zone right after the treated section.

Long Name: Distal to Treated Zone(s) (Largest Diameter) Available - Location

SeqNo:	3815
Short Name:	DistTreatZoneAvailLoc
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate the zone distal (furthest from the heart) to the treated zone(s).
ParentLongName:	Distal to Treated Zone(s) (Largest Diameter) Available
ParentShortName:	DistTreatZoneAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	STJ-midascending
2	Midascending to distal ascending
3	Zone 1
4	Zone 2
5	Zone 3
6	Zone 4
7	Zone 5
8	Zone 6
9	Zone 7
10	Zone 8
11	Zone 9
12	Zone 10
13	Zone 11

Intent/Clarification:

If the measurement distal to the treated zone is known, indicate the zone distal to the treated zone. This is the zone right after the treated section. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Distal to Treated Zone(s) (Largest Diameter) Available - Measurement

SeqNo:	3820
Short Name:	DistTreatZoneAvailMeas
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the largest diameter of the zone distal (furthest from the heart) to the treated zone(s). Measurement to be recorded in millimeters (mm).
Low Value:	0.0
High Value:	120.0

ParentLongName: Distal to Treated Zone(s) (Largest Diameter) Available

ParentShortName: DistTreatZoneAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If the measurement distal to the treated zone is known, indicate the largest diameter of the zone distal to the treated zone(s).

Coding Notes*:*

- Record dimension in millimeters (mm). If reported in centimeters (cm), convert to mm (1 cm = 10 mm). Example 5.3 cm = 53 mm.
- Capture the results closest to and within 1-year of the current OR date. When there are two measurements available, one pre-op and one intra-op, code the intraoperative measurement.

Long Name: Distal to Treated Zone(s) (Largest Diameter) Available - Method Obtained

SeqNo: 3825

Short Name: DistTreatZoneAvailMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the method used to obtain the recorded size. See Intent/Clarification section for directions if more than one source is available.

ParentLongName: Distal to Treated Zone(s) (Largest Diameter) Available

ParentShortName: DistTreatZoneAvail

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	3D or 4D Reconstruction
2	PreOp CT
3	PreOp MRI
4	PreOp Echo
5	Intraoperatively

Intent/Clarification:

If the measurement distal to the treated zone is known, indicate the method used to obtain the recorded size.

Coding Notes*:*

- Capture the results closest to and within 1-year of the current OR date. When there are two measurements available, one pre-op and one intra-op, code the intraoperative measurement.
- The data manager should not use the measurements from the PACs (Picture Archiving and Communication System) unless the measurements are supported by documentation from the surgeon. It is not the intention of the STS that the data managershould interpret the measurements.

INTERVENTION

Long Name: Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed

SeqNo:	3830
Short Name:	VSAVAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a procedure was performed on the aortic/neo-aortic/truncal valve or aortic root.
ParentLongName:	AV-Aorta Procedure Performed
ParentShortName:	AVAortaProcPerf
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes, planned
4	Yes, unplanned due to surgical complication
5	Yes, unplanned due to unsuspected disease or anatomy
2	No

Intent/Clarification:

If aorta procedure performed, indicate if a procedure was performed on the aortic /neo-aortic/truncal valve or aortic root and whether the procedure was planned.

Planned versus unplanned procedures for the adult procedure fields are different than planned and unplanned questions in other sections of the congenital database (e.g., postoperative events). This field is looking to capture the planning of the intraoperative procedures completed, not whether the return to the OR is planned/unplanned. Please see specific definitions below.

Code:	Value:	Definition:
3	Yes, planned	The procedure was planned prior to OR entry. Procedures are considered planned when they are included in the preoperative surgical plan and/or are included in the surgical consent. *Example:* the operative consent lists CABG with possible aortic valve replacement. The aortic/neo-aortic/truncal valve procedure is planned.
4	Yes, unplanned due to surgical complication	Unplanned procedure related to a new disease finding caused by an operative complication that needs to be repaired while in the OR. *Example:* following cardiac surgery, the postoperative TEE reveals severe aortic insufficiency requiring repair prior to leaving the OR. The aortic/neo-aortic/truncal valve procedure is unplanned due to a complication during surgery.
5	Yes, unplanned due to unsuspected disease or anatomy	Unplanned procedure related to new disease findings found in the OR unrelated to a surgical complication. *Example:* during CABG, the initial intraoperative TEE reveals previously undiagnosed aortic valve insufficiency requiring repair during the procedure. The aortic/neo-aortic/truncal valve procedure is unplanned and not related to an operative complication.
2	No	No aortic/neo-aortic/truncal valve or aortic root procedure performed during this procedure.

Long Name: Aortic, Neo-Aortic Or Truncal Valve Procedure With Aorta

SeqNo: 3835
Short Name: ANTAoValve
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the valve on which the procedure was performed.
ParentLongName: Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed
ParentShortName: VSAVAo
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Aortic valve
2	Neo-aortic valve
3	Truncal valve
4	No valve procedure performed

Intent/Clarification:

If aortic/ neo-aortic / truncal valve or aortic root procedure, indicate which valve the procedure was performed on.

Long Name: VS-Aorta - Aortic Valve Procedure Performed

SeqNo: 3840
Short Name: VSAVPrAo
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS) Definition:
Indicate the procedure performed on the aortic valve.
ParentLongName: Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed
ParentShortName: VSAVAo
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
2	Replacement
1	Repair/Reconstruction

3 Surgical Prosthetic Valve Intervention (Not Explant of Valve)

Intent/Clarification:

If aortic/ neo-aortic / truncal valve procedure, indicate the type of procedure performed on the aortic/neo-aortic/truncal valve.

Coding Notes:

- Code (2) Replacement when the aortic/neo-aortic/truncal valve was replaced.
- Includes replacement of a native or previously placed prosthetic valve.
- Code (1) Repair/Reconstruction when the aortic/neo-aortic/truncal valve was repaired or reconstructed.
- In the event there was attempted aortic/neo-aortic/truncal valve repair that was converted to replacement, code (2) Replacement.
- Code (3) Surgical prosthetic valve intervention where there is intervention on a prosthetic valve without explantation of the prosthetic valve.

Long Name: VS-Aorta - Aortic Transcatheter Valve Replacement

SeqNo:	3845
Short Name:	VSTCVAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a transcatheter aortic valve replacement was performed.
ParentLongName:	VS-Aorta - Aortic Valve Procedure Performed
ParentShortName:	VSAVPrAo
ParentHarvestCodes:	2
ParentValue:	= "Replacement"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve replacement, indicate if the valve was replaced using a transcatheter valve device via transcatheter approach. Do not include transcatheter devices inserted via an open approach; open approaches to insert a transcatheter device are captured as surgical aortic valve replacement.

This will only include procedures where a cardiothoracic surgeon is present and participating in the transcatheter valve procedure.

Transcatheter aortic valve replacement (TAVR) technology is designed for patients who may not be candidates for conventional open-heart valve replacement surgery to obtain a life-saving valve. Catheter based access is obtained through an artery.

Long Name: VS-Aorta - Transcatheter Valve Replacement Approach

SeqNo:	3850
Short Name:	VSTCVRAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the approach used for the transcatheter aortic valve procedure.
ParentLongName:	VS-Aorta - Aortic Transcatheter Valve Replacement
ParentShortName:	VSTCVAo
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Transapical
2	Transaxillary
3	Transfemoral
4	Transaortic
5	Subclavian
6	Transiliac
7	Transeptal
8	Transcarotid
9	Trancaval
10	Other

Intent/Clarification:

If transcatheter valve replacement, indicate the transcatheter valve replacement approach.

Long Name: VS-Aorta - Aortic Surgical Valve Replacement

SeqNo:	3855
Short Name:	VSAVSurgRepAo

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate if an aortic valve surgical replacement was performed.
ParentLongName: VS-Aorta - Aortic Valve Procedure Performed
ParentShortName: VSAVPrAo
ParentHarvestCodes: 2
ParentValue: = "Replacement"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate whether the replacement of the aortic/neo-aortic/truncal valve was performed using an open/surgical procedure.

Long Name: VS-Aorta - Aortic Surgical Valve Replacement - Device Type

SeqNo: 3860
Short Name: VSAVSurgTypeAo
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of valve implanted during the surgical aortic valve procedure.
ParentLongName: VS-Aorta - Aortic Surgical Valve Replacement
ParentShortName: VSAVSurgRepAo
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Surgeon fashioned pericardium (Ozaki)
4	Other

Intent/Clarification:

If replaced, indicate the type of device used to surgically replace the aortic/neo-aortic/truncal valve. Accurate collection of the valve type is necessary for device longitudinal surveillance. This can be determined by looking up the valve model number on the manufacturer website.

Example: For Composite Valve Conduit which includes Stented Valve Conduit and Biologic Full Root, code (4) Other. Capture the type of composite valve conduit in SeqNo 3915 and SeqNo 3920.

Long Name: VS-Aorta - Aortic Surgical Bioprosthetic Replacement - Valve Type

SeqNo:	3865
Short Name:	VSAVSurgBioTAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of bioprosthetic valve that was implanted.
ParentLongName:	VS-Aorta - Aortic Surgical Valve Replacement - Device Type
ParentShortName:	VSAVSurgTypeAo
ParentHarvestCodes:	2
ParentValue:	= "Bioprosthetic"

Harvest Codes:

Code:	Value:
1	Stented
2	Stentless subcoronary valve only
3	Sutureless/rapid deployment

Intent/Clarification:

If bioprosthetic surgical replacement, select the valve type.

Long Name: VS-Aorta - Aortic Valve Procedure Repair Type

SeqNo:	3870
Short Name:	AVProcRepTypeAo
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the type of aortic valve repair that was performed. If more than one repair was performed, choose all that apply.

ParentLongName: VS-Aorta - Aortic Valve Procedure Performed

ParentShortName: VSAVPrAo

ParentHarvestCodes: 1

ParentValue: = "Repair/Reconstruction"

Harvest Codes:

Code: Value:

1 Commissural suture annuloplasty
2 Leaflet plication
3 Leaflet commissural resuspension suture
4 Leaflet free edge reinforcement (PTFE)
5 External Suture Annuloplasty
6 Nodular Release
7 Leaflet Shaving
8 Leaflet debridement
9 Ring annuloplasty External Ring
10 Pannus/Thrombus Removal (Native Valve)
11 Leaflet resection suture
12 Leaflet pericardial patch
13 Division of fused leaflet raphe
14 Ring annuloplasty Internal Ring
15 Reduction of number of cusps/sinus resection for truncal valve
16 Neocuspidization

Intent/Clarification:

If repair/reconstruction, indicate the repair type(s) of the aortic valve. Select all that apply.

Code:	Value:	Definition:
1	Commissural suture annuloplasty	Identifies repairs involving placement of pledgeted mattress sutures across the upper portion of the commissural post to improve leaflet coaptation. These annuloplasty sutures are contained with the inside of the aorta, in contrast to the sutures for commissural resuspension. May be referred to as subcommissural annuloplasty.
2	Leaflet plication	Repair with central plication stitches, shortening the leaflet free-edge length for the correction of leaflet prolapse. Code free margin shortening as leaflet plication.

Code:	Value:	Definition:
3	Leaflet commissural resuspension suture	Repair with a pledgeted mattress suture placed at the top end of the commissural post. The stitch is placed transmurally so that one pledget is on the inside of the aorta and the other pledget is on the outside of the aorta. This suture has the effect of compressing all aortic layers together and is often used in repair of aortic dissections. If this procedure is performed in conjunction with valve sparing root procedure, both leaflet commissural resuspension suture and valve sparing root procedure should be captured. If performed in conjunction with replacement of the ascending aorta, do not code as a valve sparing root procedure (Seq 3925); code Aortic/Neo-Aortic/Truncal Valve or Root Procedure Performed (Seq 3830) as yes and code the repair type (Seq 3870) as Leaflet commissural resuspension suture.
4	Leaflet free edge reinforcement	The free edge reinforcement technique is performed by using suture passed in running fashion over and over along the entire length of the free margin. May include reinforcement (PTFE) suture.
5	External Suture Annuloplasty	To identify placement of the annuloplasty suture outside the right/left commissure, passing the needle through the septal myocardium.
6	Nodular Release	Repair procedure included nodular release.
7	Leaflet Shaving	Leaflet shaving removing a growth.
8	Leaflet debridement	A debridement technique can be used to remove small leaflet lesions such as Lambl's excrescence, fibroelastomas, and small calcific deposits.
9	Ring annuloplasty External Ring	A ring sewn around the base to the annulus to reshape it and provide support. Rings may be flexible or rigid.
10	Pannus/Thrombus Removal (Native Valve)	The aortic repair included pannus or thrombus removal from the native valve. Pannus is the ingrowth of fibrous tissue into the valve apparatus. May also include removal

Code:	Value:	Definition:
		of vegetation.
11	Leaflet resection suture	Sutures placed to mark the edges of the resection.
12	Leaflet pericardial patch	A pericardial patch can be used to repair larger perforations in the valve leaflets.
17	Leaflet patch augmentation, other than pericardium	Leaflet repair utilizing material other than pericardium.
13	Division of fused leaflet raphe	The division of the raphe. For example, the two commissures or hinge points that are fused in bicuspid valves.
14	Ring annuloplasty Internal Ring	New type of annuloplasty ring that is tailored to each valve's shape and is designed to be implanted directly into the aortic annulus. The HAART 300 is an example of an internal ring.
15	Reduction of number of cusps/sinus resection for Truncal valve	Reduction of truncal valve cusps/truncal valve sinus resection.
16	Neocuspidization	Reconstruction of the valve using the patient's own body tissue, i.e., the Ozaki procedure.

Long Name: Aortic Valve Number Of Cusps - With Aorta

SeqNo: 3875
Short Name: AVAoNumCusps
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the number of cusps for neocuspidization.

ParentLongName: VS-Aorta - Aortic Valve Procedure Repair Type

ParentShortName: AVProcRepTypeAo

ParentHarvestCodes: contains(16)

ParentValue: Contains ("Neocuspidization")

Harvest Codes:

Code:	Value:
1	One cusps
2	Two cusps
3	Three cusps

Intent/Clarification:

If neocuspidization, indicate the number of cusps.

Long Name: VS-Aorta - Aortic Valve Procedure Surgical Prosthetic Valve Intervention (Not Explant of Valve)

SeqNo: 3880

Short Name: AVSurgProsthValIntAo

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate what procedure was performed on a previously implanted prosthetic Aortic valve. If more than one intervention was performed, select all that apply.

ParentLongName: VS-Aorta - Aortic Valve Procedure Performed

ParentShortName: VSAVPrAo

ParentHarvestCodes: 3

ParentValue: = "Surgical Prosthetic Valve Intervention (Not Explant of Valve)"

Harvest Codes:

Code:	Value:
1	Repair of periprosthetic leak
2	Removal of Pannus
3	Removal of clot
4	Other

Intent/Clarification:

If Surgical prosthetic valve intervention, indicate what procedure(s) was/(were) performed on a previously implanted prosthetic Aortic/Neo-Aortic/Truncal valve.

This field does not capture explantation of the prosthetic valve.

Code:	Value:	Definition:
1	Repair of periprosthetic leak	Repair of a periprosthetic leak with one or more repair sutures without the need to remove the existing prosthesis. Does not include repair of a periprosthetic leak done via transcatheter device as this is not entered into the database.
2	Removal of Pannus	Pannus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
3	Removal of Clot	Clot or thrombus removal from surgical prosthetic valve without the need to remove the existing prosthesis.
4	Other	Other prosthetic valve repair not listed.

Long Name: VS-Aorta - Aortic annular enlargement

SeqNo: 3885
Short Name: AnlrEnlAo
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate if an aortic annular enlargement was performed.
ParentLongName: Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed
ParentShortName: VSAVAo
ParentHarvestCodes: 3|4|5
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate whether an annular enlargement procedure was performed on the aortic/neo-aortic/truncal valve.

An aortic annular enlargement is defined as incision of the aortic annulus to enlarge the aortic orifice. Annular enlargement techniques include, but are not limited to Manougian, Konno and Nicks, including modified Nick's and Manougian.

Description: Enlargement of the aortic annulus during aortic valve replacement permits insertion of a larger prosthetic valve or allows for optimal positioning. The enlarging procedure typically employs a patch of either pericardium or Dacron.

Long Name: VS-Aorta - Aortic Annular Enlargement - Technique

SeqNo:	3890
Short Name:	AnlrEnlTechAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the technique used for aortic annular enlargement.
ParentLongName:	VS-Aorta - Aortic annular enlargement
ParentShortName:	AnlrEnlAo
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

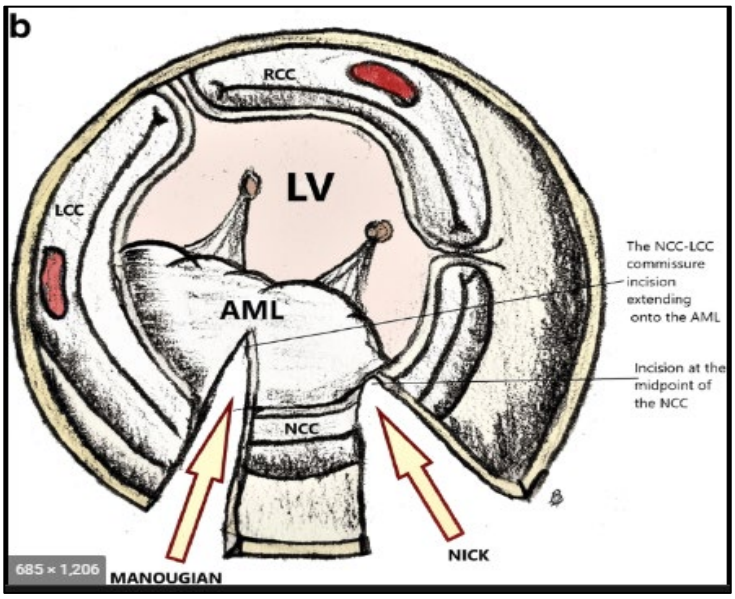
Code:	Value:
1	Nicks-Nunez
2	Manougian
3	Konno
4	Other
5	Unknown

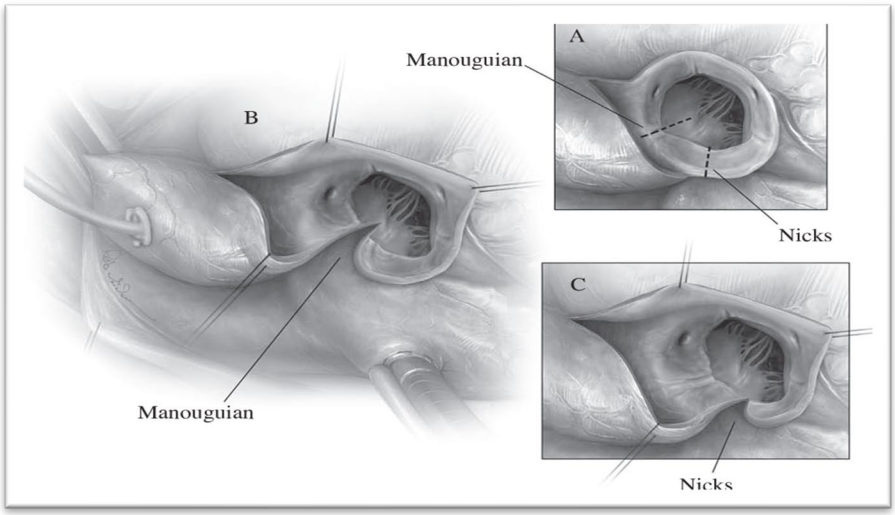
Intent/Clarification:

Indicate the annular enlargement technique utilized.

Code:	Value:	Definition:
1	Nicks-Nunez	Posterior approach for enlargement of the aortic annulus. The aortotomy is extended either through the non-coronary sinus, across the aortic ring as far as the origin of the mitral valve or by resecting the posterior commissure (between left

Code:	Value:	Definition:
		and non-coronary cusps), stopping at the base of the base of the anterior mitral leaflet. The incision can be extended across the fibrous mitral annulus, further into the anterior mitral leaflet. Includes modified Nicks procedures (supra-annular aortoplasty).
2	Manougian	The aortotomy is extended into the commissure between the left and non-coronary sinuses and into the anterior mitral leaflet. Includes modified Manougian procedures.
3	Konno	The aortic annulus is enlarged by implantation of a patch into the incised ventricular septum. Another patch is used to close the right ventricular incision. Includes Konno-Rastan aortic enlargement procedures.
4	Other	Other annular enlargement technique not listed. Includes Y incision (a Y incision through the left non commissure post extended below the aortic annulus to the area between the nadirs of left and noncoronary cusps and mitral valve annulus for the annular enlargement) and rectangular patch enlargement (a rectangular patch is sewn to the aortomitral curtain/mitral annulus at the bottom and aortic annulus on both sides, then to the incision of the transverse aortotomy).
5	Unknown	Annular enlargement procedure completed but the actual technique is unknown.





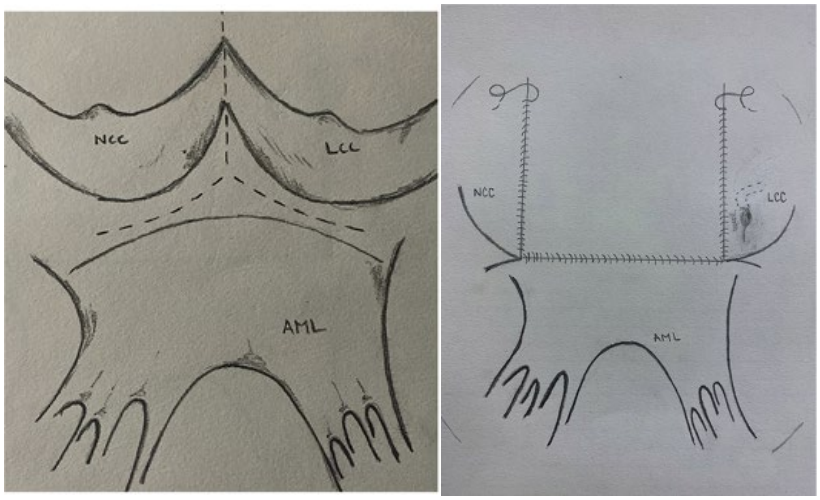


Figure 1: Y incision rectangular patch

Long Name: VS-Aorta - Replacement of non-coronary sinus (Modified Wheat/Modified Yacoub)

SeqNo:	3895
Short Name:	AVReplNonCorSinAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a replacement of a non-coronary sinus was performed. This included modified Wheat and modified Yacoub procedures.
ParentLongName:	Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed
ParentShortName:	VSAVAo
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve or root procedure performed, indicate if replacement of a non-coronary sinus was performed, including a modified Wheat and modified Yacoub procedures.

Modified Yacoub refers to the strategy whereby 1 to 3 sinuses (most commonly 1 sinus, the non-coronary sinus), and the tongues of the ascending aortic prosthesis are sewn to the native aortic wall.

Long Name: VS-Aortic Root Procedure

SeqNo:	3900
Short Name:	VSAVRoot
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an aortic root procedure was performed during this operation.
ParentLongName:	Aortic / Neo-Aortic / Truncal Valve or Root Procedure Performed

ParentShortName: VSAVAo

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

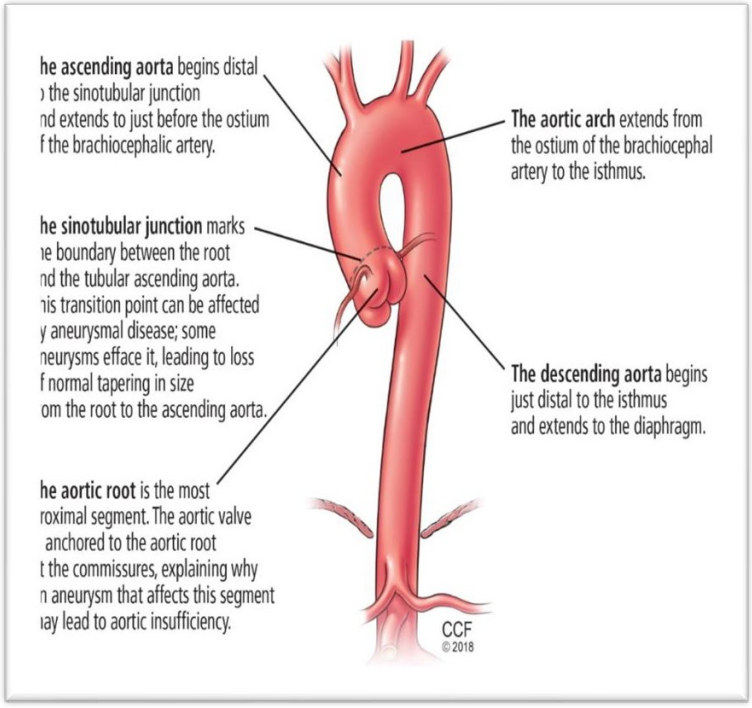
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic/neo-aortic/truncal valve or root procedure performed, indicate if an aortic root procedure was performed during this operation.

Do not include aortic root procedure when the surgeon only performs an annular enlargement with no other aortic root procedure.



Long Name: VS-Aortic Root Replacement With Coronary Ostial Reimplantation

SeqNo: 3905

Short Name: VSAVRootOReimp

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the root replacement procedure included coronary ostial reimplantation.

ParentLongName: VS-Aortic Root Procedure

ParentShortName: VSAVRoot

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

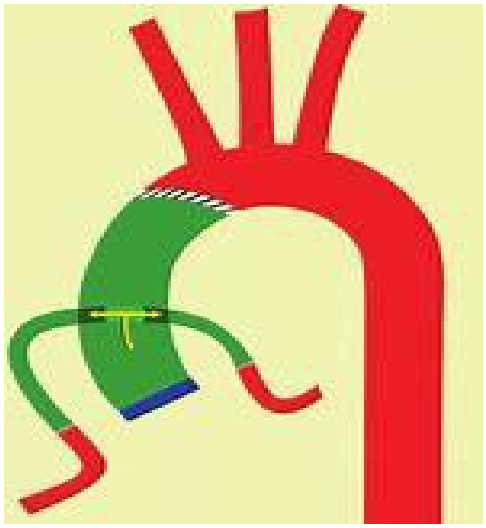
Intent/Clarification:

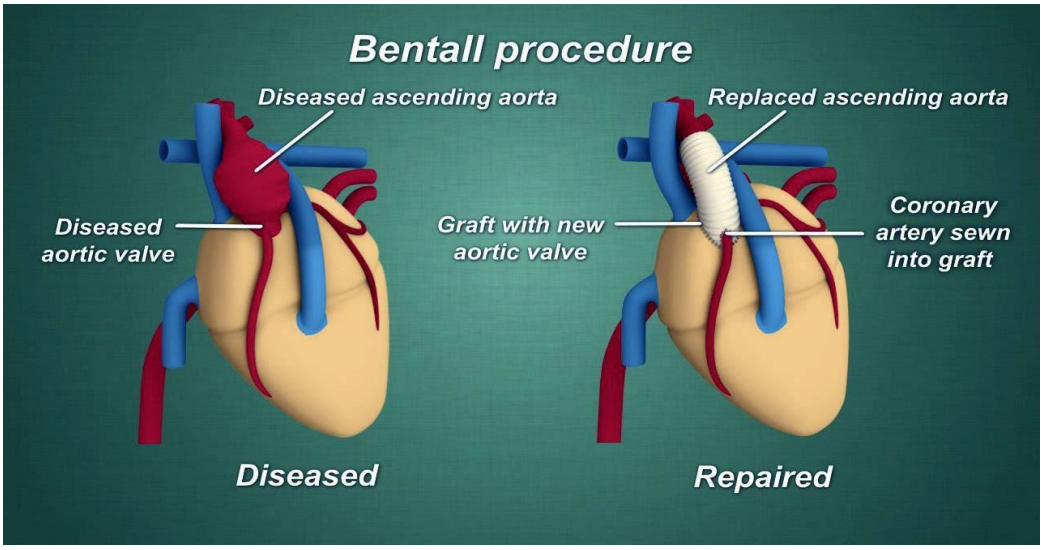
If aortic root procedure performed, indicate if the procedure included a root replacement with coronary ostial reimplantation.

Most common procedure is a Bentall/ modified Bentall which involves composite graft replacement of the aortic valve, aortic root, and ascending aorta with reimplantation of the coronary arteries into the graft.

A Cabrol/modified Cabrol may also be captured here. The Cabrol procedure is a variation of the Bentall procedure where a composite and interposition graft are utilized. The composite graft is used to replace the ascending aorta and aortic valve. The interposition graft serves as the reimplantation site for the coronary arteries. A Cabrol is a circumferential Dacron tube anastomosed to both coronaries.

Do include procedures with root replacement and no procedure on the ascending aorta where the coronary arteries are reimplanted.





Long Name: VS-Aortic Root Replacement With Coronary Ostial Reimplantation - Type

SeqNo:	3910
Short Name:	VSAVRootOReimpType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of aortic root reimplantation.
ParentLongName:	VS-Aortic Root Replacement With Coronary Ostial Reimplantation
ParentShortName:	VSAVRootOReimp
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Composite Valve Conduit
2	Valve Sparing Root

Intent/Clarification:

If aortic root replacement with coronary ostial reimplantation, indicate the type of aortic root reimplantation.

Long Name: VS-Aortic Root Procedure With Coronary Ostial Reimplantation (Bentall) - Type

SeqNo: 3915

Short Name: VSAVRootOReimpTy

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS) Definition:
Indicate the type of device used for root replacement.

ParentLongName: VS-Aortic Root Replacement With Coronary Ostial Reimplantation - Type

ParentShortName: VSAVRootOReimpType

ParentHarvestCodes: 1

ParentValue: = "Composite Valve Conduit"

Harvest Codes:

Code: Value:

1 Mechanical
2 Bioprosthetic
4 Homograft root replacement
3 Autograft with native pulmonary valve (Ross procedure)

Intent/Clarification:

If the type of aortic root replacement with coronary ostial reimplantation is with a composite valve conduit, indicate the type of composite valve device used for root replacement.

Includes all aortic root procedures with coronary ostial reimplantation, not just the Bentall procedure.

Code:	Value:	Definition:
1	Mechanical	An artificial/manufactured aortic graft and valve
2	Bioprosthetic	Graft/valve created from animal donors' valves or animal tissue.
4	Homograft root replacement	A graft of tissue taken from a donor of the samespecies as the recipient.
3	Autograft with native pulmonary valve (Ross	Replacement of the aortic valve with a pulmonary autograft (the native pulmonary

Code:	Value:	Definition:
	procedure)	valve).

Long Name: VS-Aortic Root Procedure With Coronary Ostial Reimplantation - Bioprosthetic Type

SeqNo: 3920
Short Name: VSAVRepBioTy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of bioprosthetic device used during the aortic root replacement with coronary ostial reimplantation
ParentLongName: VS-Aortic Root Procedure With Coronary Ostial Reimplantation (Bentall) - Type
ParentShortName: VSAVRootOReimpTy
ParentHarvestCodes: 2
ParentValue: ="Bioprosthetic"
Harvest Codes:

Code:	Value:
3	Stented Valve Conduit
4	Stentless Valve Conduit
2	Stentless biologic full root

Intent/Clarification:

If the type of composite valve conduit is bioprosthetic, indicate the type of bioprosthetic device used during the aortic root replacement with coronary ostial reimplantation.

Long Name: VS-Aortic Valve Sparing Root Operation

SeqNo: 3925
Short Name: VSAVSparRtOp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition: Indicate the type of aortic valve sparing root operation that was performed.

ParentLongName: VS-Aortic Root Replacement With Coronary Ostial Reimplantation - Type

ParentShortName: VSAVRootOReimpType

ParentHarvestCodes: 2

ParentValue: = "Valve Sparing Root"

Harvest Codes:

Code: Value:

3 Valve sparing root reimplantation (David)

4 Valve sparing root remodeling (Yacoub)

5 Valve sparing root reconstruction (Florida Sleeve)

Intent/Clarification:

If the type of aortic root replacement with coronary ostial reimplantation is with a valve sparing root operation, indicate the type of aortic valve sparing root operation performed.

If a commissural resuspension is performed in conjunction with valve sparing root procedure, both leaflet commissural resuspension suture and valve sparing root procedure should be captured.

Code:	Value:	Definition:
3	Valve sparing root reimplantation (David)	The tube graft surrounds the native valve. The coronary arteries are reimplanted (figure 1).
4	Valve sparing root remodeling (Yacoub)	The tube graft is grooved to fit around the coronary arteries (figure 2).
5	Valve sparing root reconstruction (Florida Sleeve)	The tube graft is prepared with openings for the coronary arteries (the coronaries are not re-implanted). The graft is placed onto the root reinforcing the sinuses (figure 3).

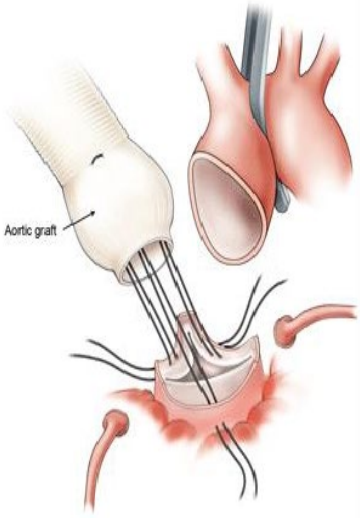


Figure 1 David

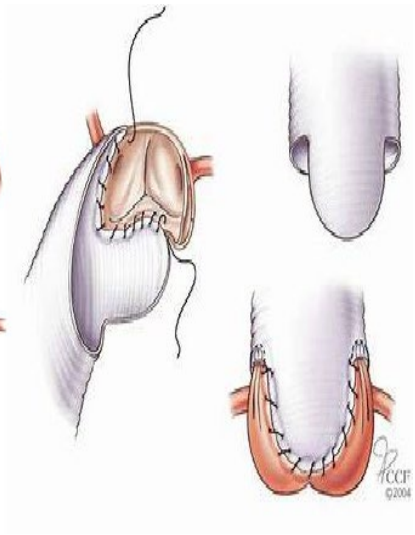


Figure 2 Yacoub



Figure 3 Florida Sleeve

Long Name: Coronary Reimplantation

SeqNo:	3930
Short Name:	VSAVCorReimp
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of coronary reimplantation performed. If the procedure did not include coronary reimplantation, select none.
ParentLongName:	VS-Aortic Root Procedure
ParentShortName:	VSAVRoot
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	None
2	Direct to Root Prosthesis (Button)
3	With Vein Graft Extension (SVG Cabrol)
4	With Dacron Graft Extension (Classic Cabrol)

Intent/Clarification:

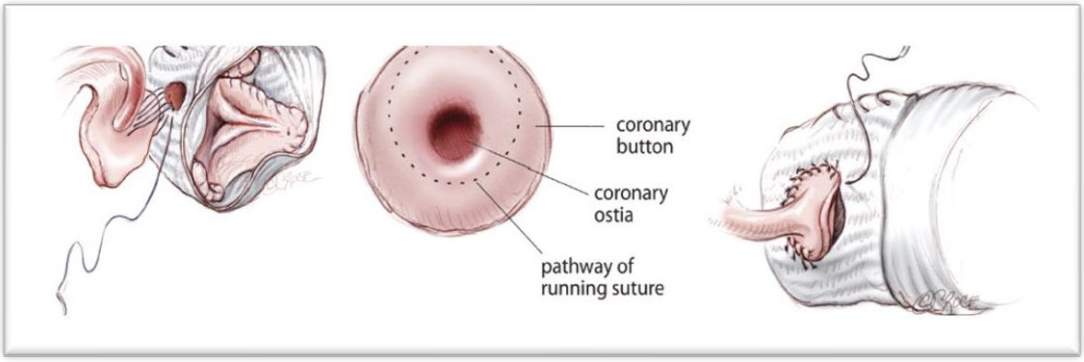
If aortic root procedure performed, indicate if coronary reimplantation was performed and if done, the type of reimplantation.

The 'button technique' is currently the most used method for coronary ostia reimplantation.

Coding Notes:

This is not a multi-select field. In cases where two types of coronary reimplantation are utilized, it is most important to differentiate right/left classic buttons vs. any other configuration (meaning, is there an impact on outcomes when you do anything but buttons).

- If a case has Button and Cabrol, code Cabrol.
- If a case has both SVG Cabrol and Classic Cabrol, code SVG Cabrol since SVG Cabrol is relatively infrequent compared to Classic Cabrol.
- If coding coronary artery reimplantation using homograft – "Human arterial homograft (8 mm femoral artery) Left and Right biologic Cabrol extension," do not code the femoral artery extension as SVG Cabrol or Classic Cabrol. In this scenario, leave blank.



Long Name: VS-Aortic Valve Major Root Reconstruction/Debridement without coronary ostial reimplantation

SeqNo:	3935
Short Name:	VSAVRootRecon
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the procedure included aortic valve major root reconstruction / debridement.
ParentLongName:	VS-Aortic Root Procedure
ParentShortName:	VSAVRoot

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aortic root procedure performed, indicate whether the procedure included major root reconstruction/debridement without coronary ostia reimplantation.

Long Name: Surgical Ascending/Arch Procedure

SeqNo: 3940

Short Name: ArchProc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate if a surgical ascending/arch procedure was performed. Endovascular procedures are not captured here.

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if a surgical procedure was performed on the ascending aorta and aortic arch.

The ascending aorta is the first part of the aorta originating at the left ventricleand leading into the aortic arch**.**

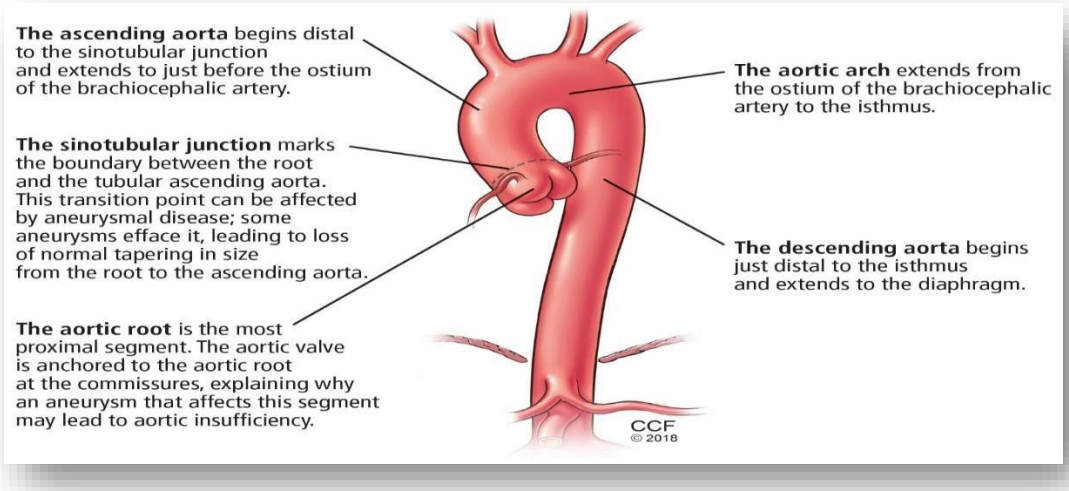


Figure A Hemiarch

Figure B Total Arch with Debranching (Arch Branch Reimplantation)

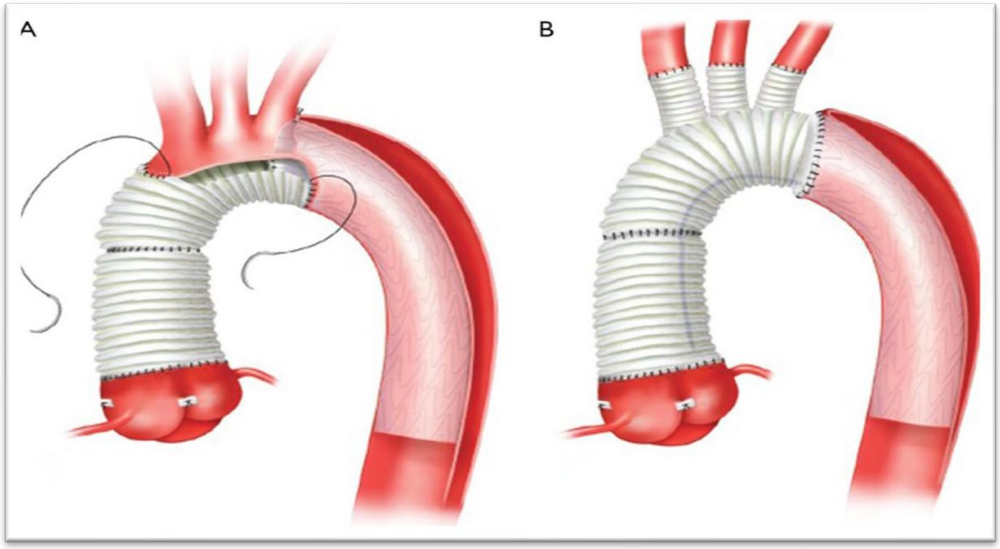
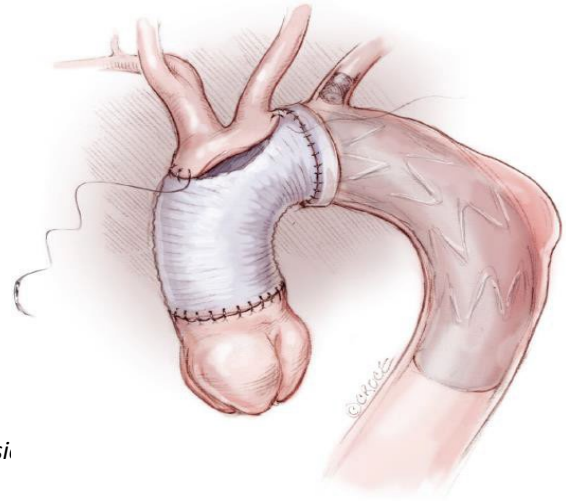


Figure 5 Total Arch with an Island



Long Name: Surgical Ascending/Arch Procedure - Proximal Location

SeqNo:	3945
Short Name:	ArchProxLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the proximal location (closest to the heart) of the procedure performed on the ascending/arch. If the procedure originated with the aortic valve choose STJ- Midascending.
ParentLongName:	Surgical Ascending/Arch Procedure
ParentShortName:	ArchProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	STJ-midascending
2	Midascending to distal ascending
3	Zone 1
4	Zone 2
5	Zone 3

Intent/Clarification:

If surgical ascending aorta/aortic arch procedure performed, indicate the proximal location (location closest to the heart) of the procedure performed on the ascending aorta/aortic arch. This is the first section that is closest to the heart where the procedure begins. See diagram for reference.

Coding Notes:

- If the procedure originates with the aortic valve, choose STJ-Mid ascending.

Long Name: Open Arch Procedure - Distal Technique

SeqNo:	3950
Short Name:	ArchDisTech
Database Table Name:	Operations
Data Source:	User

Format: Text (categorical values specified by STS) Definition: Indicate the distal technique for the arch procedure

ParentLongName: Surgical Ascending/Arch Procedure

ParentShortName: ArchProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Open/Unclamped

2 Clamped

Intent/Clarification:

If surgical ascending aorta/aortic arch procedure performed, indicate the distal technique (with or without a clamp) for the arch procedure.

Code:	Value:	Definition:
1	Open/Unclamped	Ascending aorta/arch procedure done without a clamp on the aorta. Requires circulatory arrest.
2	Clamped	The aorta is clamped with an instrument and the anastomosis is completed proximal (closest to the heart) to that part of the aorta.

Long Name: Open Arch Procedure - Distal Site

SeqNo: 3955

Short Name: ArchDiscSite

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the distal location (furthest from the heart) of the procedure performed on the ascending / arch.

ParentLongName: Surgical Ascending/Arch Procedure

ParentShortName: ArchProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Ascending Aorta
2 Hemiarch
3 Zone 1
4 Zone 2
5 Zone 3
6 Zone 4

Intent/Clarification:

If surgical ascending aorta/aortic arch procedure performed, indicate the distal location (location furthest from the heart) of the procedure performed on the ascending aorta/aortic arch. This is to define the distal anastomosis site. See General Information for Aorta Procedures and Diagrams for reference.

Code:	Value:	Definition:
1	Ascending aorta	The ascending aorta was resected with a clamp on the distal ascending aorta
2	Hemiarch	A single anastomosis was done somewhere in the ascending aorta or proximal arch without separate grafts to the head vessels.
3	Zone 1	The innominate artery was reconnected with a graft between the innominate artery and left common carotid takeoffs.
4	Zone 2	The innominate and carotid arteries were reconnected with a graft sewn between the left common carotid and the left subclavian artery takeoffs.
5	Zone 3	The innominate, carotid, left subclavian arteries were reconnected with the graft being sewn beyond the left subclavian artery takeoff.
6	Zone 4	The graft was sewn to the mid-descending thoracic aorta.

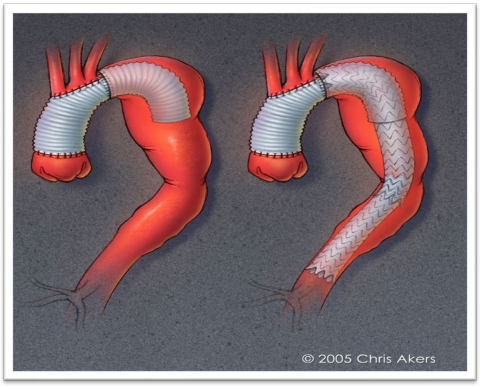
Long Name: Open Arch Procedure - Distal Extension

SeqNo: 3960
Short Name: ArchDisExt
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the graft extended beyond the arch anastomosis.
ParentLongName: Surgical Ascending/Arch Procedure
ParentShortName: ArchProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Yes, Elephant trunk
2 Yes, Frozen Elephant trunk
3 No

Intent/Clarification:

If surgical ascending aorta/aortic arch procedure performed, indicate if the graft extended distally beyond the arch anastomosis.

Code:	Value:	Definition:
1	Yes, Elephant trunk	An elephant trunk is a soft graft. The aortic arch is replaced, and a free-floating extension of the arch prosthesis (elephant trunk) is left behind in the proximal descending aorta – see figure below. 

Code:	Value:	Definition:
2	Yes, Frozen Elephant trunk	A frozen elephant trunk means a stent was placed distally. The proximal portion is non-stented and consists of a Dacron sleeve for conventionalsurgical handling; the distal part consists of a stent graft – see figure 2 below. In the situation of frozen elephant trunk (a stent placed distally with a proximal graft), the stent is part of the open surgical ascending/arch procedure (SeqNo 3940). Do not include as an endovascular procedure (SeqNo 4020). Code the stent in the Aorta Device section and capture implant method (SeqNo 4295) as open surgical.
3	No	The graft did not extend beyond the arch anastomosis.

Long Name: Open Arch Procedure - Arch Branch Reimplantation

SeqNo: 3965
Short Name: ArchBranReimp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether arch branch reimplantation was performed
ParentLongName: Surgical Ascending/Arch Procedure
ParentShortName: ArchProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

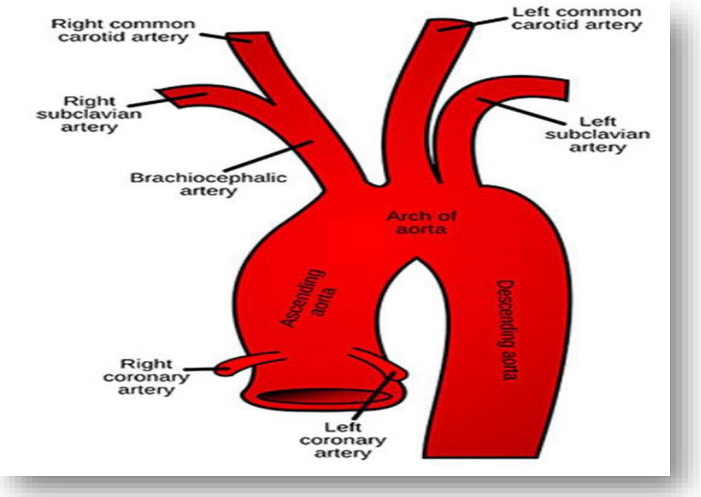
Code:	Value:
1	Yes
2	No

Intent/Clarification:

If surgical ascending aorta/aortic arch procedure performed, indicate if arch branch reimplantation (end branches sewn to the graft) was performed.

If the surgeon performed an open elephant trunk where the graft material covered the left subclavian artery and the surgeon then fenestrated the graft and stented into the left subclavian artery, code arch branch reimplantation (SeqNo 3965) yes and arch branch location

(SeqNo 3970) left subclavian. Capture the graft material in the Aorta Device section, but do not include the stent in the device section.



Long Name: Arch Branch Location

SeqNo:	3970
Short Name:	ArchBranReimpLoc
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the arch branch location. If more than one arch branch was reimplanted, select all that apply.
ParentLongName:	Open Arch Procedure - Arch Branch Reimplantation
ParentShortName:	ArchBranReimp
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Innominate
2	Left Subclavian
3	Right Subclavian
4	Left Vertebral
5	Right Common Carotid
6	Left Common Carotid
7	Other

Intent/Clarification:

If arch branch reimplantation performed, indicate the location(s) of the arch branch reimplantation(s).

Code:	Value:	Definition:
1	Innominate	The innominate (also called the brachiocephalic artery) was reattached to the graft.
2	Left Subclavian	The left subclavian artery was reattached to the graft.
3	Right Subclavian	The right subclavian artery was reattached to the graft; meaning the right subclavian artery was sewn directly, not from the trunk or bifurcation of the innominate artery.
4	Left Vertebral	The left vertebral artery was reattached to the graft; meaning a separate graft or anastomosis was created for the vertebral artery, not when it remains attached to the left subclavian artery.
5	Right Common Carotid	The right common carotid was reattached to the graft.
6	Left Common Carotid	The left common carotid was reattached to the graft.
7	Other	Any other artery not listed was reattached to the graft.

Long Name: Surgical Descending Thoracic Aorta or Thoracoabdominal Procedure

SeqNo:	3975
Short Name:	DescAortaProc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if a surgical procedure of the descending thoracic or thoracoabdominal aorta was performed. Endovascular procedures are not captured here.
ParentLongName:	Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

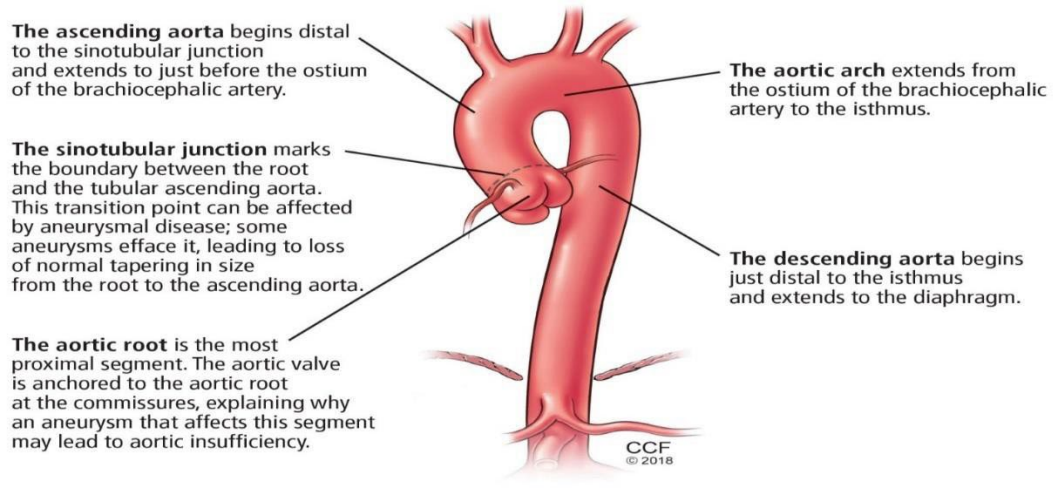
ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if a surgical procedure was performed on the descending thoracic and/or thoracoabdominal aorta.



Long Name: Open Surgical Descending - Proximal Location

SeqNo: 3980

Short Name: DescAortaLoc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the proximal location of the descending aorta procedure

ParentLongName: Surgical Descending Thoracic Aorta or Thoracoabdominal Procedure

ParentShortName: DescAortaProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Reverse Hemiarch
2	Zone 0
3	Zone 1
4	Zone 2
5	Zone 3
6	Zone 4
7	Zone 5
8	Zone 6
9	Zone 7
10	Zone 8
11	Zone 9

Intent/Clarification:

If surgical descending thoracic aorta or thoracoabdominal procedure performed, indicate the proximal location of the descending aorta procedure.

This is defining the extent or coverage of the arch as defined by the zones or with an open anastomosis to the mid to distal arch without branch anastomosis (known as a hemiarch). Zones imply the zone branches are taken or revascularized. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Intercostal Reimplantation

SeqNo: 3985

Short Name: AortaInterReimp

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS) Definition: Indicate whether intercostal vessels were reimplanted

ParentLongName: Surgical Descending Thoracic Aorta or Thoracoabdominal Procedure

ParentShortName: DescAortaProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes

2 No

Intent/Clarification:

If surgical descending thoracic aorta or thoracoabdominal procedure performed, indicate whether an island of intercostal vessels were sewn to the graft or if a separate branch was used to sew the intercostal vessels to the graft.

Long Name: Distal Location

SeqNo:	3990
Short Name:	AortaDisZone
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the distal location of the descending/thoracoabdominal procedure
ParentLongName:	Surgical Descending Thoracic Aorta or Thoracoabdominal Procedure
ParentShortName:	DescAortaProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Zone 3
2	Zone 4
3	Zone 5
4	Zone 6
5	Zone 7
6	Zone 8
7	Zone 9
8	Zone 10
9	Zone 11

Intent/Clarification:

If surgical descending thoracic aorta or thoracoabdominal procedure performed, indicate the distal location of the descending thoracic aorta/thoracoabdominal procedure.

This is defining the distal extent of the aortic intervention as defined by the Zones. See General Information for Aorta Procedures and Diagrams for reference.

An apical-aortic conduit is coded as an aortic valve implant only and then code the distal aortic location.

Long Name: Visceral Vessel Intervention

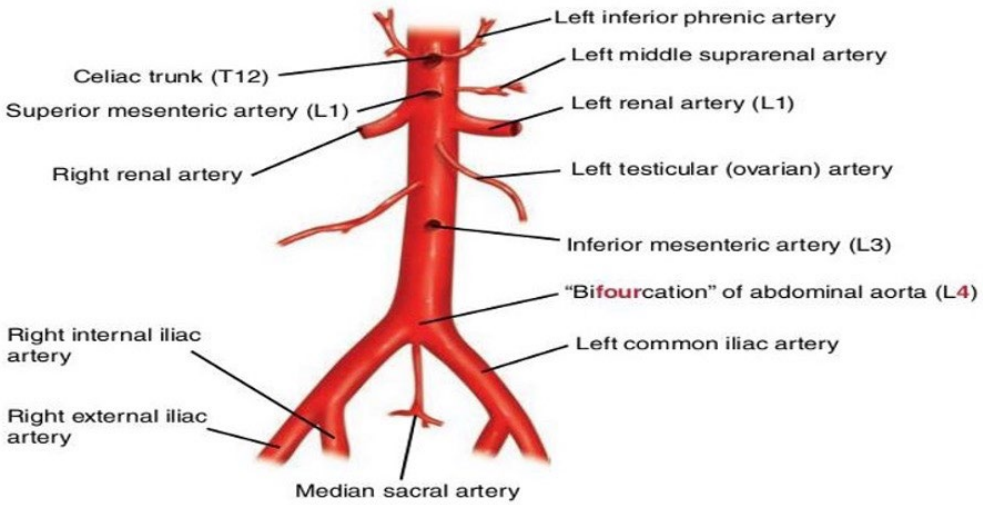
SeqNo:	3995
Short Name:	AortaVisceral
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there was visceral vessel intervention.
ParentLongName:	Surgical Descending Thoracic Aorta or Thoracoabdominal Procedure
ParentShortName:	DescAortaProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If surgical descending thoracic aorta or thoracoabdominal procedure performed, indicate if visceral vessels were revascularized by sewing the vessels to the graft, reimplantation, or using a branch graft.



Long Name: Visceral Vessel Intervention - Celiac

SeqNo:	4000
Short Name:	AortaViscCel
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the visceral vessel intervention involved the celiac artery
ParentLongName:	Visceral Vessel Intervention
ParentShortName:	AortaVisceral
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Reimplantation
2	Branch Graft
3	None

Intent/Clarification:

If visceral vessel intervention performed, indicate whether the celiac artery was revascularized by sewing the vessels to the graft or using a branch graft.

Long Name: Visceral Vessel Intervention - Superior Mesenteric

SeqNo:	4005
Short Name:	AortaViscSup
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the visceral vessel intervention involved the superior mesenteric artery
ParentLongName:	Visceral Vessel Intervention
ParentShortName:	AortaVisceral
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:

Code: Value:
1 Reimplantation
2 Branch Graft
3 None

Intent/Clarification:

If visceral vessel intervention performed, indicate whether the superior mesenteric artery was revascularized by sewing the vessels to the graft or using a branch graft.

Long Name: Visceral Vessel Intervention - Right Renal

SeqNo:	4010
Short Name:	AortaViscRenR
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the visceral vessel intervention involved the right renal artery
ParentLongName:	Visceral Vessel Intervention
ParentShortName:	AortaVisceral
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:
1 Reimplantation
2 Branch Graft
3 None

Intent/Clarification:

If visceral vessel intervention performed, indicate whether the right renal artery was revascularized by sewing the vessels to the graft or using a branch graft.

Long Name: Visceral Vessel Intervention - Left Renal

SeqNo:	4015
Short Name:	AortaViscRenL
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition: Indicate whether the visceral vessel intervention involved the left renal artery

ParentLongName: Visceral Vessel Intervention

ParentShortName: AortaVisceral

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

Code:	Value:
1	Reimplantation
2	Branch Graft
3	None

Intent/Clarification:

If visceral vessel intervention performed, indicate whether the left renal artery was revascularized by sewing the vessels to the graft or using a branch graft.

Long Name: Endovascular Procedures

SeqNo: 4020

Short Name: EndovasProc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether there was an endovascular procedure performed.

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

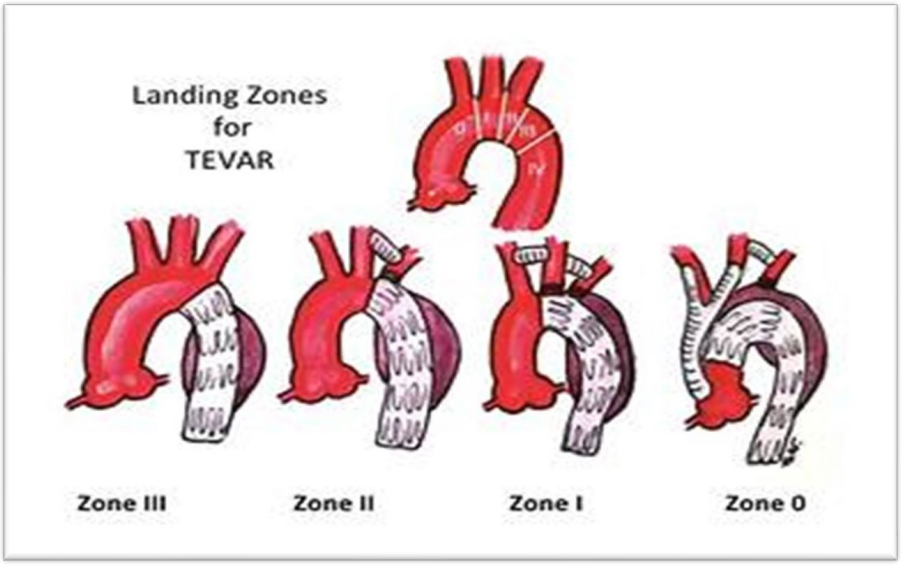
Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if an endovascular procedure was performed. An endovascular procedure is defined as a catheter-based procedure where a stent is implanted into the aorta.

Transthoracic endovascular aortic repairs (TEVAR) are included as endovascular aorta cases if a CT surgeon on the participant agreement participated in the TEVAR. TEVAR with any portion above the level of the diaphragm is to be entered into the database. Endovascular aneurysm repairs (EVARs) are not included in the STS Database.

In the situation of frozen elephant trunk (a stent placed distally with a proximal graft), the stent is part of the open surgical ascending/arch procedure (SeqNo 3940). Do not include as an endovascular procedure (SeqNo 4020). Code the stent in the Aorta Device section and capture implant method (SeqNo 4295) as open surgical.



Long Name: Endovascular Procedures - Access

SeqNo:	4025
Short Name:	EndovasAccess
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the access used for the endovascular procedure
ParentLongName:	Endovascular Procedures
ParentShortName:	EndovasProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Femoral

2	Iliac
3	Abdominal Aorta
4	Left Subclavian/Axillary
5	Right Subclavian/Axillary
6	Ascending Aorta
8	Carotid
7	LV Apex

Intent/Clarification:

If endovascular procedure performed, indicate the blood vessel through which the stent graft was delivered.

Long Name: Endovascular Procedures - Percutaneous Access

SeqNo: 4030
Short Name: EndovasPercAcc
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether access was percutaneous
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate if there was percutaneous or needle access. No incision was required; however, a stab wound may be required for sheath placement.

Code (2) No if a cut-down to access the femoral artery was performed.

Long Name: Endovascular Procedures - Proximal Landing Zone

SeqNo: 4035
Short Name: EndoProxZone
Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the proximal landing zone

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If endovascular procedure performed, indicate the proximal landing zone, defined as the area of the aorta closest to the heart where the graft is located.

If two or more stent grafts were used, code the proximal landing zone as the site where the most proximal stent graft has its most proximal location. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Endovascular Procedures - Distal Landing Zone

SeqNo: 4040

Short Name: EndoDistalZone

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the distal landing zone

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If endovascular procedure performed, indicate the distal landing zone, defined as the area of the aorta closest to the iliac bifurcation (furthest from the heart).

If two or more stent grafts were used, code the distal landing zone as the site where the most distal stent graft has its most distal location. See General Information for Aorta Procedures and Diagrams for reference.

Long Name: Endovascular Procedures - Ascending TEVAR

SeqNo: 4045

Short Name: EndovasTEVAR

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether an ascending TEVAR was performed

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Dedicated IDE
2 Off Label Stent
3 No

Intent/Clarification:

If endovascular procedure performed, indicate whether an ascending thoracic endovascular aortic repair (TEVAR) was performed. This is to identify if the stent graft placed in Zone 0 (a region spanning from the sinotubular junction to the innominate artery) was a dedicated investigational device exemption (IDE) or off label stent.

Code:	Value:	Definition:
1	Dedicated IDE	A stent without FDA approval was used under an investigational device exemption (IDE).
2	Off Label Stent	A stent with FDA approval was used although the implantation took place outside of the score of the approved label.
3	No	Ascending TEVAR was not performed.

Figure 2 Arch Branch Reimplantation Example

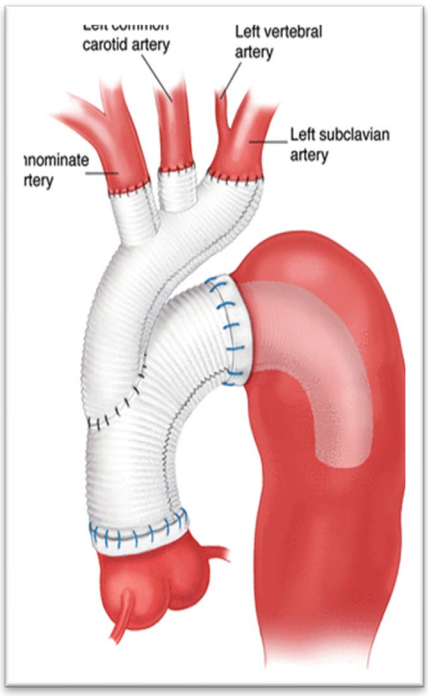
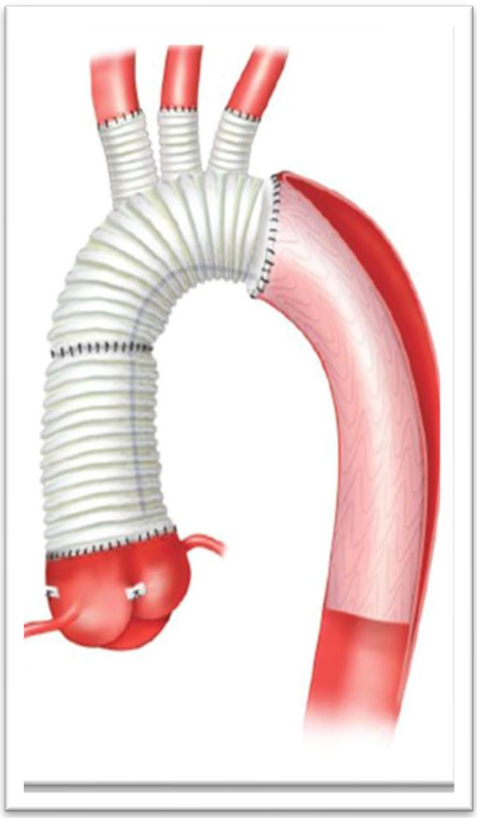
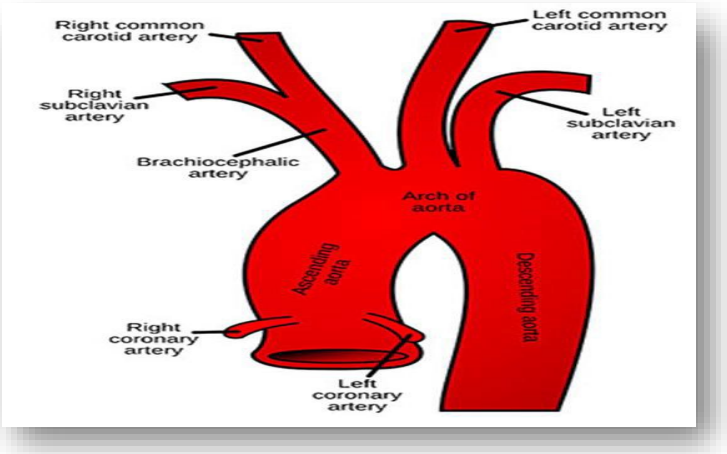


Figure 2 Arch Branch Reimplantation Example





Long Name: Arch Vessel Management - Innominate

SeqNo: 4050
Short Name: Innominate
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the management of the innominate artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate how the innominate artery received its blood following the procedure. The innominate (or brachiocephalic) artery originates in the aortic arch as the first branch of the arch and divides into the right common carotid and right subclavian arteries.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.

2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Innominate - Extra-Anatomic Bypass Location

SeqNo: 4055
Short Name: InExtraAnatBypLoc
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For innominate vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Arch Vessel Management - Innominate
ParentShortName: Innominate
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code: Value:
1 Aorta- Innominate
2 Aorta- Right carotid
3 Aorta- right subclavian
4 Right Carotid- Right subclavian
5 Other

Intent/Clarification:

If extra-anatomic bypass is utilized for management of the innominate artery, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy

Intent is to describe how the arch branch vessel was managed as part of a hybrid strategy (i.e., separate surgical procedure either done concurrently or at a previous time, typically done during the same admission) to provide blood flow following or aspart of that strategy.

Code:	Value:	Definition:
1	Aorta-Innominate	A graft was created from the native or surgically replaced aorta to the innominate artery.
2	Aorta-Right carotid	A graft was created from the native or surgically replaced aorta to the right carotid artery. This bypass is done beyond the innominate and often for aneurysm of the innominate artery and includes

		bypass of the right subclavian.
3	Aorta-right subclavian	A graft was created from the native or surgically replaced aorta to the right subclavian artery. This bypass is done beyond the innominate and often for aneurysm of the innominate and includes bypass of the right carotid.
4	Right Carotid-Right subclavian	Either a bypass (i.e., use of a separate graft) or direct transposition was performed to create a communication between the right carotid and subclavian vessels.
5	Other	Any other not listed extra-anatomic bypass performed.

Long Name: Arch Vessel Management - Left Carotid

SeqNo: 4060
Short Name: LeftCarotid
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the management of the left carotid artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate how the left carotid artery received its blood

following the procedure. The left carotid artery arises from the aortic arch.

Intent is to describe specifically how the arch branch vessel wasmanaged as part of a hybrid strategy (i.e., separate surgical procedure either done concurrently or at a previous time, typically done during the same admission).

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a ‘chimney’ or ‘periscope’ technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an

		additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Arch Vessel Management - Left Carotid - Extra-anatomic Bypass

SeqNo: 4065
Short Name: LeftCarotidExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For left carotid vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Arch Vessel Management - Left Carotid
ParentShortName: LeftCarotid
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code:	Value:
1	Aorta- left carotid

2 Innominate- left carotid
3 Right carotid- Left carotid
4 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in left carotid artery management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy

Intent is to describe specifically how the arch branch vessel was managed as part of ahybrid strategy (i.e., separate surgical procedure either done concurrently or at a previous time, typically done during the same admission).

Code:	Value:	Definition:
1	Aorta-left carotid	An aorta to left carotid artery bypass.
2	Innominate-left carotid	An innominate artery to left carotid artery bypass.
3	Right carotid-Left carotid	A right carotid artery to left carotid artery bypass.
4	Other	Any other not listed extra-anatomic bypass performed.

Long Name: Arch Vessel Management - Left Subclavian

SeqNo: 4070
Short Name: LeftSubclavian
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS) Definition: Indicate the management of the left subclavian artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:
Code: Value:

1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate how the left subclavian artery received its blood following the procedure. The left subclavian artery arises from the distal aortic arch.

Intent is to describe specifically how the arch branch vessel wasmanaged as part of a hybrid strategy (i.e., separate surgical procedure either done concurrently or at a previous time, typically done during the same admission).

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft.

		Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Arch Vessel Management - Left Subclavian - Extra-anatomic Bypass

SeqNo: 4075
Short Name: LeftSubclavExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select

Definition: For left subclavian vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Arch Vessel Management - Left Subclavian
ParentShortName: LeftSubclavian
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code: Value:
1 Aorta- left subclavian
2 Left carotid- left subclavian
3 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in left subclavian artery management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Intent is to describe specifically how the arch branch vessel was managed as part of ahybrid strategy (i.e., separate surgical procedure either done concurrently or at a previous time, typically done during the same admission).

Code:	Value:	Definition:
1	Aorta-left subclavian	An aorta to leftsubclavian bypass.
2	Left carotid-left subclavian	A left carotid artery to left subclavian bypass This means that either a bypass (i.e., use of a separate graft) or direct transposition was performed to create a communication between the left carotid and subclavian vessels.
3	Other	Any other not listed extra-anatomic bypass performed. Code if another strategy is utilized such as a transposition.

VISCERAL VESSEL MANAGEMENT

Long Name: Visceral Vessel Management - Celiac

SeqNo: 4080
Short Name: Celiac
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate management of the celiac artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the celiac axis/artery was revascularized during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular	Open and covered stents may be used to hold the margin of

Code:	Value:	Definition:
	Branch Graft	the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Celiac - Extra-anatomic Bypass

SeqNo: 4085
Short Name: CeliacExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For celiac vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Visceral Vessel Management - Celiac
ParentShortName: Celiac
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code:	Value:
1	Aorta- celiac
2	Iliac- celiac
3	Other

Intent/Clarification:

If extra-anatomic bypass is utilized in celiac vessel management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Aorta-celiac	The extra-anatomic bypass was aorta to celiac. The bypass may originate from any segment of the aorta (e.g., ascending, descending, abdominal).
2	Iliac-celiac	The extra-anatomic bypass was iliac to celiac. The bypass may originate from any segment of the iliac artery (e.g., common, external, or internal).
3	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the celiac or one of its branches (e.g., hepatic, splenic).

Code:	Value:	Definition:
		Examples include hepatorenal or splenorenal bypass.

Long Name: Visceral Vessel Management - Superior Mesenteric

SeqNo: 4090
Short Name: SupMesenteric
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate management of the superior mesenteric artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:
1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the superior mesenteric artery (SMA) was revascularized during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a

Code:	Value:	Definition:
		tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by

Code:	Value:	Definition:
		a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Superior mesenteric - Extra-anatomic Bypass

SeqNo: 4095
Short Name: SupMesExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For superior mesenteric management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Visceral Vessel Management – Superior Mesenteric
ParentShortName: SupMesenteric
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code:	Value:
1	Aorta- superior mesenteric
2	Iliac- superior mesenteric
3	Other

Intent/Clarification:

If extra-anatomic bypass is utilized in superior mesenteric management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Aorta-superior mesenteric	The extra-anatomic bypass was aorta to superiormesenteric. The bypass may originate from any segment of the aorta (e.g., ascending, descending, abdominal).
2	Iliac-superior mesenteric	The extra-anatomic bypass was iliac to superior mesenteric. The bypass may originate from any segment of the iliac artery (e.g.,common, external, or internal).
3	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the superior mesenteric.

Long Name: Visceral Vessel Management - Right Renal

SeqNo: 4100
Short Name: RightRenal
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate management of the right renal artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Native Flow
2	Endovascular Branch Graft
3	Endovascular Parallel Graft
4	Extra-anatomic Bypass
5	Fenestrated
6	No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the right renal artery was revascularized

during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission).

Code:	Value:	Definition:
		Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Right Renal - Extra-anatomic Bypass

SeqNo: 4105
Short Name: RightRenalExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For right renal vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Visceral Vessel Management - Right Renal
ParentShortName: RightRenal
ParentHarvestCodes: 4
ParentValue: = "Extra-anatomic Bypass"
Harvest Codes:

Code:	Value:
1	Aorta- right renal

2 Iliac- right renal
3 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in right renal management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Aorta-right renal	The extra-anatomic bypass was aorta to right renal. The bypass may originate from any segment of the aorta (e.g., ascending, descending, abdominal).
2	Iliac-right renal	The extra-anatomic bypass was iliac to right renal. The bypass may originate from any segment of the iliac artery (e.g., common, external, or internal).
3	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the right renal artery. An example would include hepatorenal bypass.

Long Name: Visceral Vessel Management - Left Renal

SeqNo: 4110
Short Name: LeftRenal
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate management of the left renal artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code: Value:

1 Native Flow
2 Endovascular Branch Graft
3 Endovascular Parallel Graft
4 Extra-anatomic Bypass
5 Fenestrated
6 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the left renal artery was revascularized during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Endovascular Branch Graft	Open and covered stents may be used to hold the margin of the stent graft away from the orifice of a branch artery and preserve a channel for branch artery perfusion. Branched stent grafts are categorized as modular or unibody. Code if the artery is instrumented with an endovascular branch graft extending from the main body of an aortic endograft.
3	Endovascular Parallel Graft	Parallel graft techniques (PGT) are the use of covered stents in aortic side branches parallel to and outside the abdominal or thoracic endograft. Code In the event the artery is instrumented with a separate endovascular graft that does not extend from an aortic endograft but rather courses parallel alongside an

Code:	Value:	Definition:
		aortic endograft with flow from the native aorta as would be performed with a 'chimney' or 'periscope' technique.
4	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
5	Fenestrated	Refers to the creation of a hole within the stent graft. A common variant of the fenestrated approach involves the use of a hinged fenestration where a small inner fenestration is connected to a larger outer fenestration by a short, curved polyester cap. Code If the artery is covered by an aorticendograft with a fenestration/opening in the endograft corresponding to the location of the artery and allowing continued antegrade flow into the artery via this fenestration despite endograft coverage. This may include coverage of a graft.
6	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Left Renal - Extra-anatomic Bypass

SeqNo: 4115
Short Name: LeftRenalExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For left renal vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.

ParentLongName: Visceral Vessel Management - Left Renal

ParentShortName: LeftRenal

ParentHarvestCodes: 4

ParentValue: = "Extra-anatomic Bypass"

Harvest Codes:

Code: Value:

1 Aorta- left renal

2 Iliac- left renal

3 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in left renal management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Aorta-left renal	The extra-anatomic bypass was aorta to left renal. The bypass may originate from any segment of the aorta (e.g., ascending, descending, abdominal).
2	Iliac-left renal	The extra-anatomic bypass was iliac to left renal. The bypass may originate from any segment of the iliac artery (e.g., common, external, or internal).
3	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the left renal artery. An example would include splenorenal bypass.

Long Name: Visceral Vessel Management - Right Iliac

SeqNo: 4120

Short Name: RightIliac

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate management of the right iliac artery

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code: Value:

1 Native flow
2 Bifurcated graft
3 Extra-anatomic bypass
4 No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the right iliac artery was revascularized during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure. This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Bifurcated graft	Refers to when the right iliac artery is instrumented with an iliac limb extending from the main body of an abdominal aortic endograft (either bifurcated or aorto uni-iliac) and landing distally within the right iliac artery.
3	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission).

		Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
4	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Right Iliac - Extra-anatomic Bypass

SeqNo: 4125
Short Name: RightIliacExtraAnatByp
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For right iliac vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Visceral Vessel Management - Right Iliac
ParentShortName: RightIliac
ParentHarvestCodes: 3
ParentValue: = "Extra-anatomic bypass"
Harvest Codes:

Code: Value:
1 Femoral- Femoral
2 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in right iliac vessel management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Femoral-Femoral	The extra-anatomic bypass was femoral to femoral. This would typically be a bypass from the left common femoral artery to the right common femoral artery.

Code:	Value:	Definition:
2	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the right iliac artery. An example would include aorto-iliac bypass.

Long Name: Visceral Vessel Management - Left Iliac

SeqNo: 4130
Short Name: LeftIliac
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate management of the left iliac artery
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Native flow
2	Bifurcated graft
3	Extra-anatomic bypass
4	No Flow Restored

Intent/Clarification:

If endovascular procedure performed, indicate if the left iliac artery was revascularized during an endovascular repair of the thoracic or thoracoabdominal aorta.

Code:	Value:	Definition:
1	Native Flow	No direct endo-intervention on the vessel was performed to improve blood flow. Code If the artery was left intact and continues to receive blood flow from the native aorta in the normal manner after the endovascular procedure.

Code:	Value:	Definition:
		This includes reimplantation of arch vessels directly onto a tube graft used for any type of arch replacement. Code in the scenario when the patient has a prior history of fenestrated stent graft repair of juxtarenal aortic aneurysm (not part of current TEVAR or hybrid procedure) as the visceral vessels were not manipulated as part of the TEVAR procedure.
2	Bifurcated graft	Refers to when the left iliac artery is instrumented with an iliac limb extending from the main body of an abdominal aortic endograft (either bifurcated or aorto uni-iliac) and landing distally within the left iliac artery.
3	Extra-anatomic Bypass	Refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy. They may be performed in a staged fashion (i.e., commonly an additional operation before the endovascular one, typically done during the same admission). Example includes bypassing any arch vessel originating from the ascending aortic graft using a separate prosthetic graft.
4	No Flow Restored	No flow restored following the endovascular procedure.

Long Name: Visceral Vessel Management - Left Iliac - Extra-anatomic Bypass

SeqNo:	4135
Short Name:	LeftIliacExtraAnatByp
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	For left iliac vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName:	Visceral Vessel Management - Left Iliac

ParentShortName: LeftIliac

ParentHarvestCodes: 3

ParentValue: = "Extra-anatomic bypass"

Harvest Codes:

Code: Value:

1 Femoral- Femoral

2 Other

Intent/Clarification:

If extra-anatomic bypass is utilized in left iliac vessel management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Femoral-Femoral	The extra-anatomic bypass was femoral to femoral. This would typically be a bypass from the right common femoral artery to the left common femoral artery.
2	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel to the left iliac artery. An example would include aorto-iliac bypass.

Long Name: Visceral Vessel Management - Internal Iliac Preserved

SeqNo: 4140

Short Name: IntIliacPres

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the internal iliac was preserved

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Right iliac only
2	Left iliac only
3	Both
4	No

Intent/Clarification:

If endovascular procedure performed, indicate whether the native antegrade flow is maintained within the internal iliac arteries during an endovascular repair of the thoracoabdominal aorta.

Long Name: Visceral Vessel Management - Other visceral Vessels Extra-Anatomic Bypass

SeqNo: 4145

Short Name: OthVisVes

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether extra-anatomic bypass of other visceral vessels was performed

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether extra-anatomic bypass of other visceral vessels was performed. An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Includes a bypass to any branch of the major visceral vessels such as the hepatic or splenic branches of the celiac axis, a bypass to the inferior mesenteric artery or accessory renal artery, or a bypass to another named visceral vessel other than the celiac artery, superior mesenteric

artery (SMA), or left or right renal arteries.

Long Name: Visceral Vessel Management - Other Visceral Vessel(s) Extra-anatomic Bypass - Location

SeqNo: 4150
Short Name: OthVisVesExtraAnatBypLoc
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: For other visceral vessel management, indicate the location of the extra-anatomic bypass location. If more than one location was bypassed, select all that apply.
ParentLongName: Visceral Vessel Management - Other visceral Vessels Extra-Anatomic Bypass
ParentShortName: OthVisVes
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Aorta-other
2	Iliac-other
3	Other

Intent/Clarification:

If extra-anatomic bypass is utilized in other visceral vessel management, indicate the extra-anatomic bypass location(s). An extra-anatomic bypass refers to any bypass graft that is placed outside the normal anatomic vascular pathway to provide blood flow following or as part of that strategy.

Code:	Value:	Definition:
1	Aorta-other	The extra-anatomic bypass included an aorta to other bypass. The bypass may originate from any segment of the aorta (e.g., ascending, descending, abdominal).
2	Iliac-other	The extra-anatomic bypass included an iliac to other bypass. The bypass may originate from any segment of the iliac artery (e.g., common, external, or internal).

Code:	Value:	Definition:
3	Other	Any other not listed extra-anatomic bypass performed. Includes a bypass from any other vessel other than the aorta or iliac artery to another named visceral vessel other than the celiac artery, superior mesenteric artery (SMA), or left or right renal arteries. An example would include splenorenal bypass.

Long Name: Planned Staged Hybrid

SeqNo: 4155
Short Name: PlanStagHybrid
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the procedure was a planned staged hybrid
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether the procedure will involve a combination of open and endovascular procedures or devices. In particular, the combination of an approach with stent grafts which can be deployed open (surgically) or endovascularly.

Staged procedure means that this procedure will be done in more than one setting, for example two trips to the operating room or hybrid procedure room/suite. Often, the procedures are not done during the same hospitalization depending on how the patient is recovering and the procedure is still considered a staged hybrid procedure.

OTHER ENDOVASCULAR PROCEDURAL INFORMATION

Long Name: Dissection Proximal Entry Tear Covered

SeqNo:	4160
Short Name:	DisProxTearCov
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS) Definition: Indicate whether the proximal entry tear was covered
ParentLongName:	Endovascular Procedures
ParentShortName:	EndovasProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether the proximal entry tear (primary tear) was fully covered by an aortic endograft.

Long Name: Endoleak At End Of Procedure

SeqNo:	4165
Short Name:	EndoEndProc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether there was endoleak present at the end of the procedure
ParentLongName:	Endovascular Procedures
ParentShortName:	EndovasProc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether there was endoleak present at the end of the procedure before the patient exits the operating room. This would typically be determined by the surgeon's assessment of the intraoperative completion angiogram.

An endoleak is defined as persistent blood flow in the aneurysm sac through and around the endovascular seal and is the most common complication after endovascular aneurysm repair.

Long Name: Endoleak At End Of Procedure - Type

SeqNo: 4170
Short Name: EndoEndProcTy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of endoleak present
ParentLongName: Endoleak At End Of Procedure
ParentShortName: EndoEndProc
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

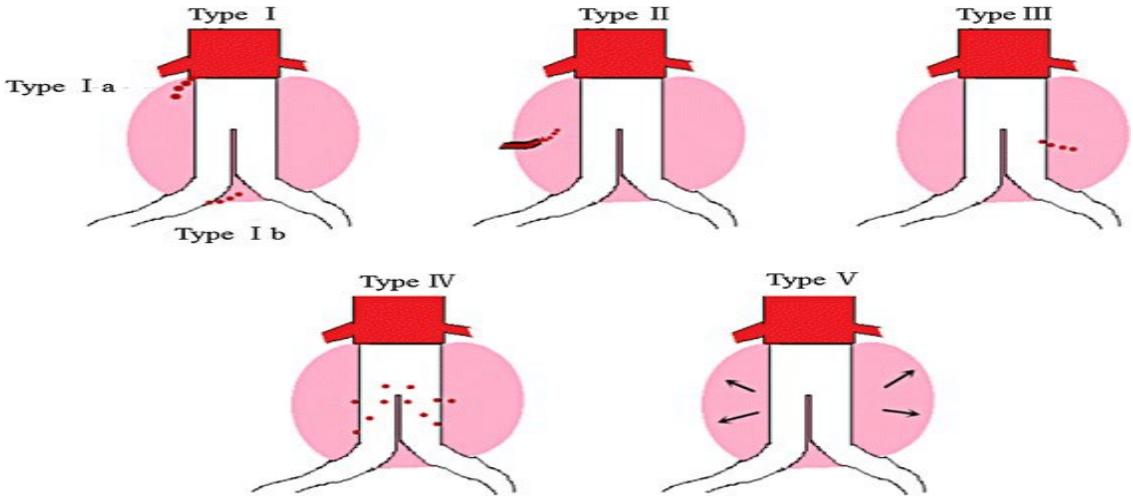
Code:	Value:
1	Ia
2	Ib
3	II
4	III
5	IV
6	V

Intent/Clarification:

If endoleak present at the completion of the endovascular repair before exiting the operating room, indicate the type of endoleak present. This would typically be determined by the surgeon's assessment of the intraoperative completion angiogram.

Code:	Value:	Definition:
1	Ia	A leak occurring at the proximal seal zone
2	Ib	A leak occurring at the distal seal zone

Code:	Value:	Definition:
3	II	Retrograde filling of the aneurysm sac or false lumen in the case of dissection by aortic branch vessels (e.g., left subclavian artery, intercostal arteries etc.).
4	III	Leakage of blood into the aneurysm sac or false lumen in the case of dissection, due to either a gap between separate endograft components or a defect in the fabric of the graft secondary to graft strut fracture or erosion.
5	IV	Presence of an endoleak secondary to graft porosity. All other types of endoleaks must be ruled out prior to coding this type of endoleak.
6	V	Persistent aneurysm expansion in the absence of a confirmed endoleak; also known as endotension.



Long Name: Conversion To Open

SeqNo: 4175
Short Name: ConvToOpen
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition: Indicate whether there was an unplanned conversion to an open procedure

ParentLongName: Endovascular Procedures

ParentShortName: EndovasProc

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether there was an unplanned conversion to an open (surgical) procedure. Includes any conversion to open surgery not pre-specified as part of the operative plan.

Long Name: Conversion To Open - Reason

SeqNo: 4180

Short Name: ConvToOpenRes

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS) Definition: Indicate the reason for conversion to open procedure

ParentLongName: Conversion To Open

ParentShortName: ConvToOpen

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Deployment failure
2	Endoleak
3	Rupture
4	Occlusion / loss of branch

Intent/Clarification:

If unplanned conversion to an open surgical procedure, indicate the reason for conversion to open procedure.

Code:	Value:	Definition:
1	Deployment failure	The reason for open conversion is failure of the endograft to deploy, either partially or fully such that the planned endovascular treatment could not be completed.
2	Endoleak	The reason for open conversion is a persistent endoleak noted on completion angiogram.
3	Rupture	The reason for open conversion is the rupture of the aorta or a branch vessel rupture intraoperatively.
4	Occlusion / loss of branch	The reason for open conversion is partial or complete occlusion or loss of antegrade flow within a branch vessel.

Long Name: Intraop Dissection Extension

SeqNo: 4185
Short Name: IntDisExten
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether there was intraoperative dissection extension
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	None
2	Antegrade
3	Retrograde
4	Both

Intent/Clarification:

If endovascular procedure performed, indicate whether there was intraoperative dissection extension. If during the operation, a preexisting aortic dissection is made to propagate either proximally or distally beyond its preoperative extent, an extension of the dissection has

occurred.

Code:	Value:	Definition:
1	None	No intraoperative dissection extension occurred.
2	Antegrade	If the preexisting dissection extends distally (i.e., downstream towards the descending or abdominal aorta) beyond the original extent.
3	Retrograde	If the preexisting dissection extends proximally (i.e., back towards the aortic arch or ascending aorta) beyond the original extent.
4	Both	If the preexisting dissection extends both proximally and distally.

Long Name: Unintentional Rupture Of Dissection Septum

SeqNo: 4190
Short Name: UnintRup
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether there was unintentional rupture of the dissection septum
ParentLongName: Endovascular Procedures
ParentShortName: EndovasProc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If endovascular procedure performed, indicate whether the dissection membrane/septum was

unintentionally ruptured during an endovascular repair of an aortic dissection.

This is typically due to the septum being fractured by a balloon or endograft and the results is the creation of a new fenestration or connection between the true and false lumens of the dissection, called stent graft induced new entry tear (SINE). This would typically be determined by the surgeon's assessment of the intraoperative completion angiogram, intravascular ultrasound, and/or transesophageal echocardiography.

Does not include the intentional fracture/rupture of the dissection septum/membrane performed by the surgeon typically using a balloon.

Long Name: Unintentional Rupture Of Dissection Septum - Location

SeqNo:	4195
Short Name:	UnintRupLoc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location of the unintentional rupture of the dissection septum
ParentLongName:	Unintentional Rupture Of Dissection Septum
ParentShortName:	UnintRup
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Below STJ
2	STJ-midascending
3	Midascending to distal ascending
4	Zone 1
5	Zone 2
6	Zone 3
7	Zone 4
8	Zone 5
9	Zone 6
10	Zone 7
11	Zone 8
12	Zone 9
13	Zone 10
14	Zone 11

Intent/Clarification:

If unintentional rupture of the dissection membrane/septum occurred, indicate the location of the unintentional rupture.

See General Information for Aorta Procedures and Diagrams for reference.

Specify the exact aortic segment in which the unintentional rupture of the dissection membrane/septum occurred.

This would typically be determined by the surgeon's assessment of the intraoperative completion angiogram, intravascular ultrasound, and/or transesophageal echocardiography.

ADDITIONAL PROCEDURAL INFORMATION

Long Name: Spinal Drain

SeqNo:	4200
Short Name:	SpinalDrain
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate timing of spinal drain placement.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Pre-aortic procedure
2	Post-aortic procedure
3	None

Intent/Clarification:

If aorta procedure performed, indicate whether a cerebrospinal fluid (CSF) drain was placed for the thoracic aortic intervention.

CSF drainage is an adjunct to protect against paraplegia during aortic repairs as CSF pressure may increase during the perioperative period of aortic repair leading to paraplegia. High CSF pressure may reduce spinal cord blood perfusion. CSF drainage reduces CSF pressure promoting spinal cord blood perfusion thereby reducing the risk of paraplegia. The drain is most often placed by anesthesia.

Include any failed attempt at placing a CSF drain including mal-deployed drains.

Long Name: IntraOp Motor Evoked Potential

SeqNo:	4205
Short Name:	MotorEvoke
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether motor evoked potential was measured intraoperatively
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether motor evoked potential (MEP) was measured intraoperatively. Includes unsuccessful attempts at the use of MEPs.

MEPs are used to monitor spinal cord function (motor cortex) during aortic intervention. Monitoring involves direct monitoring of electrical impulses used to stimulate the motor cortex and measurement of the response along the spinal cord. Changes in function during aortic intervention may indicate spinal cord injury. Adjunctive measures may be beneficial in restoring MEPs implying improvement in spinal cord function. It requires trained personnel, e.g., neurophysiologist, for monitoring.

Long Name: IntraOp Motor Evoked Potential - Documented MEP Abnormality

SeqNo:	4210
Short Name:	MotorEvokeAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition: Indicate whether any abnormality of motor evoked potential was documented

ParentLongName: IntraOp Motor Evoked Potential

ParentShortName: MotorEvoke

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If motor evoked potential (MEP) measured, indicate if any MEP abnormality was documented.

Long Name: IntraOp Somatosensory Evoked Potential

SeqNo: 4215

Short Name: SomatEvoke

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether somatosensory evoked potential was measured intraoperatively.

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if somatosensory evoked potential (SSEP) was measured intraoperatively. Includes unsuccessful attempts at the use of SSEPs.

Description: SSEPs are used to monitor spinal cord function (sensory function) during aortic intervention. Monitoring involves direct monitoring of electrical impulses used to stimulate the

sensory ventral tracts and measurement of the sensory response along the spinal cord. Changes in function during aortic intervention may indicate spinal cord injury. Adjunctive measures may be beneficial in restoring SSEPs implying improvement in spinal cord function. SSEPs maybe less sensitive than MEPs for spinal cord dysfunction. It requires trained personnel, e.g., neurophysiologist, for monitoring.

Long Name: IntraOp Somatosensory Evoked Potential - Documented SEP Abnormality

SeqNo:	4220
Short Name:	SomatEvokeAb
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether any abnormality of somatosensory evoked potential was documented
ParentLongName:	IntraOp Somatosensory Evoked Potential
ParentShortName:	SomatEvoke
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If somatosensory evoked potential (SSEP) measured, indicate if any SSEP abnormality was documented. Includes unsuccessful attempts at the use of SSEP.

Long Name: IntraOp EEG

SeqNo:	4225
Short Name:	IntraOpEEG
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether EEG was monitored intraoperatively

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether Intraoperative electroencephalography (EEG) was used. Includes unsuccessful attempts at the use of intraoperative EEG.

Does not include intraoperative bispectral index (BIS) monitoring.

EEG may be used to monitor overall brain function during thoracic aortic procedures. Like MEPs and SSEPs, EEG monitoring requires trained personnel, e.g., neurophysiologist.

Long Name: IntraOp EEG - Documented EEG Abnormality

SeqNo: 4230

Short Name: IntraOpEEGAb

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether any abnormality of intraoperative EEG was documented

ParentLongName: IntraOp EEG

ParentShortName: IntraOpEEG

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If Intraoperative electroencephalography (EEG) used, indicate if any EEG abnormality was documented.

Coding Notes:

Code (2) No EEG abnormality for patients while undergoing circulatory arrest as it is normal for them to experience an isoelectric (flat) EEG.

Long Name: IntraOp Intravascular Ultrasound (IVUS)

SeqNo:	4235
Short Name:	IntraOpIVUS
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether intravascular ultrasound was used intraoperatively.
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether intraoperative intravascular ultrasound (IVUS) was used. Includes the use of IVUS during the actual aorta procedure, not IVUS used only to obtain percutaneous access.

IVUS provides a unique point-of-view picture generated in real time, yielding information that goes beyond what is possible with routine imaging methods such as coronary angiography, performed in the cath lab, or even non- invasive multi-slice CT scans.

Long Name: IntraOp Transcutaneous Doppler

SeqNo:	4240
Short Name:	TransDoppler
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether a transcutaneous doppler was used intraoperatively
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether an intraoperative transcutaneous doppler was used.

Description: Transcutaneous doppler enables the surgeon to alter his/her approach depending on the size and the location of aortic atheromatous burden and provides an opportunity for intervention guidance during aortic cannulation, cross clamping, and aortotomy.

Long Name: IntraOp Angiogram

SeqNo:	4245
Short Name:	IntraOpAng
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an intraoperative angiogram was performed
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate if an angiogram was performed intraoperatively. Intraoperative angiography allows the surgeon to inspect the anatomic results of the surgical procedure.

Long Name: IntraOp Angiogram - Volume Of Contrast

SeqNo:	4250
Short Name:	IntraOpAngVol
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the total volume of contrast given intraoperatively
Low Value:	0.0
High Value:	2000.0
ParentLongName:	IntraOp Angiogram
ParentShortName:	IntraOpAng
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If intraoperative angiography performed, indicate the documented total volume of contrast used in milliliters (ml) during the intraoperative angiogram.

The volume may be documented in the perioperative record, the operative dictation, or the cath lab event log.

Long Name: IntraOp Angiogram - Fluoroscopy Time In Minutes

SeqNo:	4255
Short Name:	IntraOpAngFlTm
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the total intraoperative fluoroscopy time in minutes
Low Value:	0.00
High Value:	400.00
ParentLongName:	IntraOp Angiogram
ParentShortName:	IntraOpAng

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If intraoperative angiography performed, indicate the documented total intraoperative fluoroscopy time in minutes (min).

The time may be documented in the perioperative record, the operative dictation, or the cath lab event log.

Long Name: Endovascular Balloon Fenestration of the Dissection Flap

SeqNo: 4260

Short Name: EndoBalFenDisFlap

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the timing of endovascular balloon fenestration of the dissection flap performed, or select N/A.

ParentLongName: Aorta Procedure Performed

ParentShortName: AortProc

ParentHarvestCodes: 3|4|5

ParentValue: = "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	PreOp
2	IntraOp
3	PostOp
4	N/A

Intent/Clarification:

If aorta procedure performed, indicate the timing of endovascular balloon fenestration of the dissection flap performed.

DEVICES

Long Name: Aorta Device Inserted

SeqNo:	4265
Short Name:	ADevIns
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether one or more devices were inserted into the aorta or aortic position (for combined procedures).
ParentLongName:	Aorta Procedure Performed
ParentShortName:	AortProc
ParentHarvestCodes:	3|4|5
ParentValue:	= "Yes, planned", "Yes, unplanned due to surgical complication" or "Yes, unplanned due to unsuspected disease or anatomy"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta procedure performed, indicate whether a device or devices were inserted into the aorta or aortic position. Not all aortic interventions require prosthetic materials or device implants (e.g., primary repair of a pseudoaneurysm).

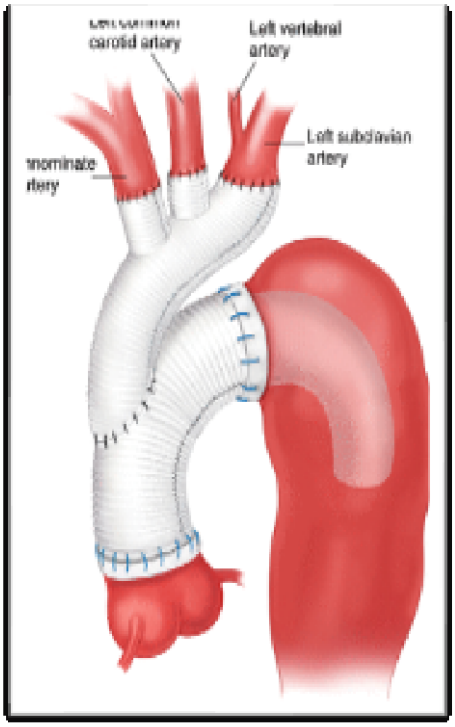
Coding Notes:

Device refers to any implanted material within the aortic valve for combined aorta and aortic valve procedures and the aorta; grafts or stent-grafts. Includes all synthetic prosthetics inserted including Dacron, PTFE, homografts, autografts, stents, stent-grafts, and patch grafts.

- Does not include the felt or Bioglue.
- Does not include the use of autografts of a valve, i.e., Ross procedure.

Example: The surgeon performed an open elephant trunk, and the graft material covered the left subclavian. Therefore, he fenestrated the graft and stented into the left subclavian. This should be captured as “Arch Reimplantation” ‘yes’ and “LeftSubclavian” ‘yes.’ Capture the graft material in the device section, but you do not need to capture the stent in the device section.

Capture as aorta device inserted



Do not code as an aorta device as it is not inserted in the aorta. Include as arch branch reimplantation under arch vessel management.

Long Name: Aortic Valve or Aortic Valve Composite Graft Implanted

SeqNo:	4270
Short Name:	AVAVCompGraftImplAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if an aortic valve or an aortic valve composite graft was implanted.
ParentLongName:	Aorta Device Inserted
ParentShortName:	ADevIns
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If aorta device inserted, indicate if an aortic valve or aortic valve composite graft was implanted.

In the event the surgeon modifies a commercial valve with graft material to create a composite graft, code the commercial valve here and capture the graft material in the Aorta Devices section.

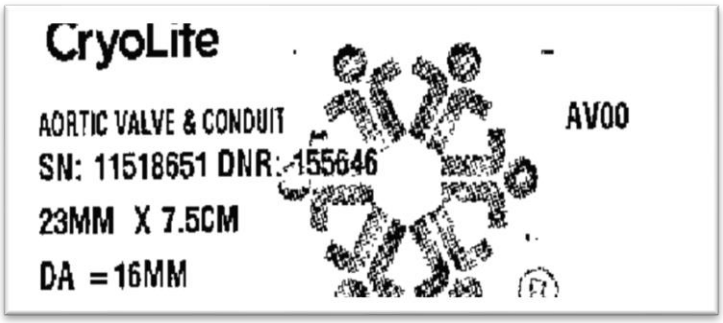
Long Name: Aortic Valve or Aortic Valve Composite Graft Implanted - Model Number

SeqNo:	4275
Short Name:	AVAVCompGrImplModelAo
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the model number of the aortic valve or aortic valve composite graft.
ParentLongName:	Aortic Valve or Aortic Valve Composite Graft Implanted
ParentShortName:	AVAVCompGraftImplAo
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	
Code: Value:	See Valve List for model names/model numbers.

Intent/Clarification:

If an aortic valve or aortic valve composite graft implanted, select the name of the commercial valve or commercial valve conduit implanted from the Valve List. The names provided include the manufacturer's model number with "xx" substituting for the device size.

The device list will only be updated in the vendor software with the data specification/version upgrades. Devices not listed should be entered as Harvest code (777) Other US FDA - Approved Device or (778) Other Non-US FDA – Approved Device. Entering the UDI in Seq #2985 will allow for valve identification.



Model Number = AV00

Long Name: Aortic Valve or Aortic Valve Composite Graft Implanted - Size

SeqNo:	4280
Short Name:	AVAVCompGrImplSize
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the size of the aortic valve or aortic valve composite graft. For composite grafts record the size of the valve.
Low Value:	5
High Value:	100
ParentLongName:	Aortic Valve or Aortic Valve Composite Graft Implanted
ParentShortName:	AVAVCompGraftImplAo
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If aortic valve or aortic valve composite graft implanted, indicate the size.

ON-X valves with sizes such as 27/29 are coded as size 27.

The Perceval Sutureless Valve and the Perceval Plus Valve come in 4 sizes, S, M, L, XL. Code the size of the last digits in the model number. For example, PSV23 will be coded as 23.

REF	SIZE	AORTIC ANNULUS DIAMETER [A] (mm)	SINOTUBULAR JUNCTION DIAMETER [≤ 1.3 A] (mm)
PVS21	S	19-21	≤ 24.7-27.3
PVS23	M	21-23	≤ 27.3-29.9
PVS25	L	23-25	≤ 29.9-32.5
PVS27	XL	25-27	≤ 32.5-35.1

Table 1: Patient anatomical characteristics

Long Name: Aortic Valve or Aortic Valve Composite Graft Implanted - Unique Device Identifier

SeqNo:	4285
Short Name:	AVAVCompGrImplUDIAo
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the UDI of the aortic valve or aortic valve composite graft. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aortic Valve or Aortic Valve Composite Graft Implanted
ParentShortName:	AVAVCompGraftImplAo
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

See SeqNo 2495 for UDI information.

AORTA DEVICES OTHER THAN AORTIC VALVES AND COMPOSITE GRAFTS

Long Name: Aorta Device - Location #01

SeqNo:	4290
Short Name:	ADevLoc01
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #01 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device Inserted
ParentShortName:	ADevIns
ParentHarvestCodes:	1
ParentValue:	= "Yes"
Harvest Codes:	

Code: Value:

Code	Value
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

If aortic valve or aortic valve composite graft implanted, indicate the location where the device was inserted. See General Information for Aorta Procedures and Diagrams for reference.

In this section you enter the zones the implant covers, both proximal and distal, therefore the information for implant method, outcome, model number and UDI is entered twice.

Long Name: Aorta Device - Implant Method #01

SeqNo:	4295
Short Name:	ADevDelMeth01
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #01 within the aorta.
ParentLongName:	Aorta Device - Location #01
ParentShortName:	ADevLoc01
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

Code	Value
1	Open Surgical
2	Endovascular

Intent/Clarification:

Specify the method of implant for device.

Coding Notes:

In the event of attempted endovascular device placement that ultimately required implantation by open surgical techniques, code as (1) Open Surgical.

Long Name: Aorta Device - Outcome #01

SeqNo: 4300
Short Name: ADevOut01
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the outcome of the attempt to insert device #01.
ParentLongName: Aorta Device - Location #01
ParentShortName: ADevLoc01
ParentHarvestCodes: <>1 And Is Not Missing
ParentValue: Is Not "No additional devices inserted" And Is Not Missing
Harvest Codes:

Code: Value:
1 Unsuccessfully implanted/maldeployed
2 Implanted/deployed and removed
3 Successfully implanted/deployed

Intent/Clarification:

Indicate the outcome of the aortic device implant.

Code:	Value:	Definition:
1	Unsuccessfully implanted/maldeployed	A device implantation was attempted by endovascular means but was not successfully deployed in the intended position. If a device was maldeployed but later removed this would be classified as (2) Implanted/deployed and removed. *Example*: attempted deployment of a fenestrated or branched device for transverse arch intervention and

Code:	Value:	Definition:
		malalignment of the portal did not allow successful branch vessel bypass.
2	Implanted/deployed and removed	A device implantation was attempted endovascularly but was not successfully deployed. *Example*: open repair of descending thoracic aortic after failed thoracic endovascular aortic repair from rupture or persistent endoleak.
3	Successfully implanted/deployed	A device was successfully deployed by endovascular or open surgical means.

Long Name: Aorta Device - Model Number #01

SeqNo:	4305
Short Name:	ADevModel01
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #01.
ParentLongName:	Aorta Device - Location #01
ParentShortName:	ADevLoc01
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Enter the manufacturer model number of the aortic device implant. In this section there is no drop-down list for the aortic device model numbers.

In the event the surgeon modifies a commercial valve with graft material to create a composite graft, code the commercial valve in SeqNo 4270 and capture the graft material in this field.



Figure 8 REF = Model Number (PC-1016N)

Long Name: Aorta Device - Unique Device Identifier #01

SeqNo:	4310
Short Name:	ADevUDI01
Database Table Name:	Operations Data Source: User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #01 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #01
ParentShortName:	ADevLoc01
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #02

SeqNo:	4315
Short Name:	ADevLoc02
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #02 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #01
ParentShortName:	ADevLoc01
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending

4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #02

SeqNo:	4320
Short Name:	ADevDelMeth02
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #02 within the aorta.
ParentLongName:	Aorta Device - Location #02
ParentShortName:	ADevLoc02
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #02

SeqNo:	4325

Short Name: ADevOut02
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the outcome of the attempt to insert device #02.
ParentLongName: Aorta Device - Location #02
ParentShortName: ADevLoc02
ParentHarvestCodes: <>1 And Is Not Missing
ParentValue: Is Not "No additional devices inserted" And Is Not Missing
Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #02

SeqNo: 4330
Short Name: ADevModel02
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Indicate the model number of aorta device #02.
ParentLongName: Aorta Device - Location #02
ParentShortName: ADevLoc02
ParentHarvestCodes: <>1 And Is Not Missing
ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #02

SeqNo: 4335
Short Name: ADevUDI02

Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #02 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #02
ParentShortName:	ADevLoc02
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #03

SeqNo:	4340
Short Name:	ADevLoc03
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #03 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #02
ParentShortName:	ADevLoc02
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)

10 Zone 6 (celiac to superior mesenteric)
11 Zone 7 (superior mesenteric to renals)
12 Zone 8 (renal to infra-renal abdominal aorta)
13 Zone 9 (infrarenal abdominal aorta)
14 Zone 10 (common iliac)
15 Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #03

SeqNo:	4345
Short Name:	ADevDelMeth03
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #03 within the aorta.
ParentLongName:	Aorta Device - Location #03
ParentShortName:	ADevLoc03
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #03

SeqNo:	4350
Short Name:	ADevOut03
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #03.

ParentLongName: Aorta Device - Location #03

ParentShortName: ADevLoc03

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #03

SeqNo: 4355

Short Name: ADevModel03

Database Table Name: Operations

Data Source: User

Format: Text

Definition: Indicate the model number of aorta device #03.

ParentLongName: Aorta Device - Location #03

ParentShortName: ADevLoc03

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #03

SeqNo: 4360

Short Name: ADevUDI03

Database Table Name: Operations

Data Source: User

Format: Text

Definition: Indicate the Unique Device Identifier (UDI) of aorta device #03 if available, otherwise leave blank. Note that the UDI is not the

	same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #03
ParentShortName:	ADevLoc03
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #04

SeqNo:	4365
Short Name:	ADevLoc04
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #04 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #03
ParentShortName:	ADevLoc03
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #04

SeqNo:	4370
Short Name:	ADevDelMeth04
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #04 within the aorta.
ParentLongName:	Aorta Device - Location #04
ParentShortName:	ADevLoc04
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #04

SeqNo:	4375
Short Name:	ADevOut04
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #04.
ParentLongName:	Aorta Device - Location #04
ParentShortName:	ADevLoc04
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

1 Unsuccessfully implanted/maldeployed
2 Implanted/deployed and removed
3 Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #04

SeqNo:	4380
Short Name:	ADevModel04
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #04.
ParentLongName:	Aorta Device - Location #04
ParentShortName:	ADevLoc04
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #04

SeqNo:	4385
Short Name:	ADevUDI04
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #04 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #04
ParentShortName:	ADevLoc04

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #05

SeqNo: 4390

Short Name: ADevLoc05

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the location within the aorta where device #05 was inserted, or indicate that no additional devices were inserted.

ParentLongName: Aorta Device - Location #04

ParentShortName: ADevLoc04

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #05

SeqNo:	4395
Short Name:	ADevDelMeth05
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #05 within the aorta.
ParentLongName:	Aorta Device - Location #05
ParentShortName:	ADevLoc05
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #05

SeqNo:	4400
Short Name:	ADevOut05
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #05.
ParentLongName:	Aorta Device - Location #05
ParentShortName:	ADevLoc05
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed

3 Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #05

SeqNo:	4405
Short Name:	ADevModel05
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #05.
ParentLongName:	Aorta Device - Location #05
ParentShortName:	ADevLoc05
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #05

SeqNo:	4410
Short Name:	ADevUDI05
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #05 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #05
ParentShortName:	ADevLoc05
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #06

SeqNo:	4415
Short Name:	ADevLoc06
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #06 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #05
ParentShortName:	ADevLoc05
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #06

SeqNo: 4420

Short Name: ADevDelMeth06

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the implant method used to insert device #06 within the aorta.

ParentLongName: Aorta Device - Location #06

ParentShortName: ADevLoc06

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #06

SeqNo: 4425

Short Name: ADevOut06

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the outcome of the attempt to insert device #06.

ParentLongName: Aorta Device - Location #06

ParentShortName: ADevLoc06

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #06

SeqNo:	4430
Short Name:	ADevModel06
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #06.
ParentLongName:	Aorta Device - Location #06
ParentShortName:	ADevLoc06
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #06

SeqNo:	4435
Short Name:	ADevUDI06
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #06 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #06
ParentShortName:	ADevLoc06
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #07

SeqNo:	4440
Short Name:	ADevLoc07
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #07 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #06
ParentShortName:	ADevLoc06
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #07

SeqNo:	4445
Short Name:	ADevDelMeth07
Database Table Name:	Operations
Data Source:	User

Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #07 within the aorta.
ParentLongName:	Aorta Device - Location #07
ParentShortName:	ADevLoc07
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #07

SeqNo:	4450
Short Name:	ADevOut07
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #07.
ParentLongName:	Aorta Device - Location #07
ParentShortName:	ADevLoc07
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #07

SeqNo:	4455
Short Name:	ADevModel07
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #07.
ParentLongName:	Aorta Device - Location #07
ParentShortName:	ADevLoc07
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #07

SeqNo:	4460
Short Name:	ADevUDI07
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #07 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #07
ParentShortName:	ADevLoc07
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #08

SeqNo:	4465
Short Name:	ADevLoc08

Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #08 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #07
ParentShortName:	ADevLoc07
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #08

SeqNo:	4470
Short Name:	ADevDelMeth08
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #08 within the aorta.
ParentLongName:	Aorta Device - Location #08

ParentShortName: ADevLoc08

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

Code: Value:

1 Open Surgical

2 Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #08

SeqNo: 4475

Short Name: ADevOut08

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the outcome of the attempt to insert device #08.

ParentLongName: Aorta Device - Location #08

ParentShortName: ADevLoc08

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

1 Unsuccessfully implanted/maldeployed

2 Implanted/deployed and removed

3 Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #08

SeqNo: 4480

Short Name: ADevModel08

Database Table Name: Operations

Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #08.
ParentLongName:	Aorta Device - Location #08
ParentShortName:	ADevLoc08
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #08

SeqNo:	4485
Short Name:	ADevUDI08
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #08 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #08
ParentShortName:	ADevLoc08
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #09

SeqNo:	4490
Short Name:	ADevLoc09
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate the location within the aorta where device #09 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #08
ParentShortName:	ADevLoc08
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #09

SeqNo:	4495
Short Name:	ADevDelMeth09
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #09 within the aorta.
ParentLongName:	Aorta Device - Location #09
ParentShortName:	ADevLoc09
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #09

SeqNo:	4500
Short Name:	ADevOut09
Database Table Name:	Operations Data Source: User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #09.
ParentLongName:	Aorta Device - Location #09
ParentShortName:	ADevLoc09
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #09

SeqNo:	4505
Short Name:	ADevModel09
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #09.
ParentLongName:	Aorta Device - Location #09
ParentShortName:	ADevLoc09

ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #09

SeqNo:	4510
Short Name:	ADevUDI09
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #09 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #09
ParentShortName:	ADevLoc09
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #10

SeqNo:	4515
Short Name:	ADevLoc10
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #10 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #09
ParentShortName:	ADevLoc09
ParentHarvestCodes:	<>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #10

SeqNo: 4520

Short Name: ADevDelMeth10

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the implant method used to insert device #10 within the aorta.

ParentLongName: Aorta Device - Location #10

ParentShortName: ADevLoc10

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #10

SeqNo:	4525
Short Name:	ADevOut10
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #10.
ParentLongName:	Aorta Device - Location #10
ParentShortName:	ADevLoc10
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #10

SeqNo:	4530
Short Name:	ADevModel10
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #10.
ParentLongName:	Aorta Device - Location #10
ParentShortName:	ADevLoc10
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #10

SeqNo:	4535
Short Name:	ADevUDI10
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #10 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #10
ParentShortName:	ADevLoc10
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #11

SeqNo:	4540
Short Name:	ADevLoc11
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #11 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #10
ParentShortName:	ADevLoc10
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #11

SeqNo:	4545
Short Name:	ADevDelMeth11
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #11 within the aorta.
ParentLongName:	Aorta Device - Location #11
ParentShortName:	ADevLoc11
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #11

SeqNo:	4550
Short Name:	ADevOut11
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #11.
ParentLongName:	Aorta Device - Location #11
ParentShortName:	ADevLoc11
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #11

SeqNo:	4555
Short Name:	ADevModel11
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #11.
ParentLongName:	Aorta Device - Location #11
ParentShortName:	ADevLoc11
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #11

SeqNo:	4560
Short Name:	ADevUDI11
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #11 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #11
ParentShortName:	ADevLoc11
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #12

SeqNo:	4565
Short Name:	ADevLoc12
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #12 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #11
ParentShortName:	ADevLoc11
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)

7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #12

SeqNo:	4570
Short Name:	ADevDelMeth12
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #12 within the aorta.
ParentLongName:	Aorta Device - Location #12
ParentShortName:	ADevLoc12
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #12

SeqNo:	4575
Short Name:	ADevOut12
Database Table Name:	Operations

Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the outcome of the attempt to insert device #12.
ParentLongName: Aorta Device - Location #12
ParentShortName: ADevLoc12
ParentHarvestCodes: <>1 And Is Not Missing
ParentValue: Is Not "No additional devices inserted" And Is Not Missing
Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #12

SeqNo: 4580
Short Name: ADevModel12
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Indicate the model number of aorta device #12.
ParentLongName: Aorta Device - Location #12
ParentShortName: ADevLoc12
ParentHarvestCodes: <>1 And Is Not Missing
ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #12

SeqNo: 4585
Short Name: ADevUDI12
Database Table Name: Operations
Data Source: User

Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #12 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #12
ParentShortName:	ADevLoc12
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #13

SeqNo:	4590
Short Name:	ADevLoc13
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #13 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #12
ParentShortName:	ADevLoc12
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)

11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #13

SeqNo:	4595
Short Name:	ADevDelMeth13
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #13 within the aorta.
ParentLongName:	Aorta Device - Location #13
ParentShortName:	ADevLoc13
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #13

SeqNo:	4600
Short Name:	ADevOut13
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #13.

ParentLongName: Aorta Device - Location #13

ParentShortName: ADevLoc13

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #13

SeqNo: 4605

Short Name: ADevModel13

Database Table Name: Operations

Data Source: User

Format: Text

Definition: Indicate the model number of aorta device #13.

ParentLongName: Aorta Device - Location #13

ParentShortName: ADevLoc13

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #13

SeqNo: 4610

Short Name: ADevUDI13

Database Table Name: Operations Data Source: User

Format: Text

Definition: Indicate the Unique Device Identifier (UDI) of aorta device #13 if available, otherwise leave blank. Note that the UDI is not the same as the serial number.

	This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #13
ParentShortName:	ADevLoc13
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

SeqNo: 4615

Long Name: Aorta Device - Location #14

Short Name:	ADevLoc14
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location within the aorta where device #14 was inserted, or indicate that no additional devices were inserted.
ParentLongName:	Aorta Device - Location #13
ParentShortName:	ADevLoc13
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #14

SeqNo:	4620
Short Name:	ADevDelMeth14
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #14 within the aorta.
ParentLongName:	Aorta Device - Location #14
ParentShortName:	ADevLoc14
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #14

SeqNo:	4625
Short Name:	ADevOut14
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #14.
ParentLongName:	Aorta Device - Location #14
ParentShortName:	ADevLoc14
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code: Value:

1 Unsuccessfully implanted/maldeployed
2 Implanted/deployed and removed
3 Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #14

SeqNo:	4630
Short Name:	ADevModel14
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #14.
ParentLongName:	Aorta Device - Location #14
ParentShortName:	ADevLoc14
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #14

SeqNo:	4635
Short Name:	ADevUDI14
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #14 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #14
ParentShortName:	ADevLoc14

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

Long Name: Aorta Device - Location #15

SeqNo: 4640

Short Name: ADevLoc15

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the location within the aorta where device #15 was inserted, or indicate that no additional devices were inserted.

ParentLongName: Aorta Device - Location #14

ParentShortName: ADevLoc14

ParentHarvestCodes: <>1 And Is Not Missing

ParentValue: Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	No additional devices inserted
2	Below sinotubular junction
3	Sinotubular junction to mid ascending
4	Mid ascending to distal ascending
5	Zone 1 (between innominate and left carotid)
6	Zone 2 (between left carotid and left subclavian)
7	Zone 3 (first 2 cm. distal to left subclavian)
8	Zone 4 (end of zone 3 to mid descending aorta - T6)
9	Zone 5 (mid descending aorta to celiac)
10	Zone 6 (celiac to superior mesenteric)
11	Zone 7 (superior mesenteric to renals)
12	Zone 8 (renal to infra-renal abdominal aorta)
13	Zone 9 (infrarenal abdominal aorta)
14	Zone 10 (common iliac)
15	Zone 11 (external iliacs)

Intent/Clarification:

Refer to definition for aorta device location.

Long Name: Aorta Device - Implant Method #15

SeqNo:	4645
Short Name:	ADevDelMeth15
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the implant method used to insert device #15 within the aorta.
ParentLongName:	Aorta Device - Location #15
ParentShortName:	ADevLoc15
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Open Surgical
2	Endovascular

Intent/Clarification:

Refer to definition for aorta device implant method.

Long Name: Aorta Device - Outcome #15

SeqNo:	4650
Short Name:	ADevOut15
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the outcome of the attempt to insert device #15.
ParentLongName:	Aorta Device - Location #15
ParentShortName:	ADevLoc15
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Harvest Codes:

Code:	Value:
1	Unsuccessfully implanted/maldeployed
2	Implanted/deployed and removed
3	Successfully implanted/deployed

Intent/Clarification:

Refer to the definition for aorta device implant outcome.

Long Name: Aorta Device - Model Number #15

SeqNo:	4655
Short Name:	ADevModel15
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the model number of aorta device #15.
ParentLongName:	Aorta Device - Location #15
ParentShortName:	ADevLoc15
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

Refer to the definition for aorta device implant model number.

Long Name: Aorta Device - Unique Device Identifier #15

SeqNo:	4660
Short Name:	15 ADevUDI15
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate the Unique Device Identifier (UDI) of aorta device #15 if available, otherwise leave blank. Note that the UDI is not the same as the serial number. This field should be collected in compliance with state/local privacy laws.
ParentLongName:	Aorta Device - Location #15
ParentShortName:	ADevLoc15
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValue:	Is Not "No additional devices inserted" And Is Not Missing

Intent/Clarification:

See SeqNo 2495 for UDI information.

S1. POSTOPERATIVE

Long Name: Patient Expired in OR

SeqNo:	4665
Short Name:	ExpiredInOR
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient died prior to leaving the operating room during the ~~initial~~ surgery.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if the patient died while in the operating room or location where the procedure occurred. This is collecting a death that occurs between OR entry date/time and OR exit date/time.

Please collect this field for every operation, not just the initial surgery as stated above.

General Information Postoperative Labs

- Arterial or venous lab results are acceptable.
- If lab values are documented as < or > a value, enter the value as the next decimal point above or below the value; for example, total bilirubin is documented as <0.2, enter 0.19.

Long Name: Peak Postoperative Creatinine Level within 48 hours of OR Exit

SeqNo:	4670
Short Name:	PeakPostCreat48Hrs
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the patients peak creatinine level from OR Exit to 48 hours post OR Exit.
Low Value:	0.10
High Value:	30.00
ParentLongName:	Patient Expired in OR
ParentShortName:	ExpiredInOR
ParentHarvestCodes:	2
ParentValue:	= "No"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate the peak creatinine level from the time the patient exited the OR to 48-hours post OR exit. The unit of measurement for serum creatinine is mg/dl, or mg/100 ml, or mg %.

Refer to General Information Postoperative Labs for additional lab coding information.

Long Name: Peak Postoperative Creatinine Level prior to discharge

SeqNo:	4675
Short Name:	PostCreat
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the peak postoperative Creatinine level. If more than one level is obtained, code the highest level from OR Exit to Discharge. (This may be the same value as Peak PostOperative Creatinine within 48 hours of OR Exit.)
Low Value:	0.10
High Value:	30.00
ParentLongName:	Patient Expired in OR

ParentShortName:	ExpiredInOR
ParentHarvestCodes:	2
ParentValue:	= "No"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate the peak creatinine level from OR exit to discharge. This may be the same value as the Peak Postoperative Creatinine Level within 48 hours of OR Exit. The unit of measurement for serum creatinine is mg/dl, or mg/100 ml, or mg %.

Refer to General Information Postoperative Labs for additional lab coding information.

Long Name: Discharge Hemoglobin

SeqNo:	4680
Short Name:	PostopHemoglobin
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the postoperative hemoglobin closest to discharge.
Low Value:	1.00
High Value:	50.00
ParentLongName:	Patient Expired in OR
ParentShortName:	ExpiredInOR
ParentHarvestCodes:	2
ParentValue:	= "No"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate the postoperative hemoglobin closest to the time of surgical hospital discharge. The unit of measurement for hemoglobin is g/dl, or g/100 ml, or g %.

Refer to General Information Postoperative Labs for additional lab coding information.

Long Name: Discharge Hematocrit

SeqNo:	4685
Short Name:	PostopHct
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the postoperative hematocrit closest to discharge.
Low Value:	1.00
High Value:	99.99
ParentLongName:	Patient Expired in OR
ParentShortName:	ExpiredInOR
ParentHarvestCodes:	2
ParentValue:	= "No"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate the postoperative hematocrit closest to the time of surgical hospital discharge. The unit of measurement for hematocrit %.

Refer to General Information Postoperative Labs for additional lab coding information.

Long Name: Blood Prod

SeqNo:	4690
Short Name:	BldProd
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether blood products were transfused any time postoperatively. Postoperatively is defined as any blood started after OR Exit time of ~~initial~~ the index surgical procedure. Include

	blood transfused after the initial surgery, including any blood transfused during a reoperative surgery.
ParentLongName:	Patient Expired in OR
ParentShortName:	ExpiredInOR
ParentHarvestCodes:	2
ParentValue:	= "No"
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient did not expire in the OR and is age ≥ 18 years, indicate if any blood products were transfused any time after OR exit time. Do not include blood products started in the OR.

Please note, answer this field on *the index* operation, not the initial operation.

Does ***not*** include the following products:

- Pre-donated autologous blood
- Cell saver blood
- CPB pump residual blood
- Chest tube recirculated blood

Long Name: Blood Prod - RBC Units

SeqNo:	4695
Short Name:	BdRBCU
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of units of packed red blood cells that were transfused any time postoperatively. Do not include autologous, cell-saver or chest tube recirculated blood.
Low Value:	0
High Value:	300

ParentLongName:	Blood Prod
ParentShortName:	BldProd
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If blood products transfused after OR exit time, indicate the number of units of packed red blood cells (pRBC) transfused following OR exit. The start time of the transfusion must be after OR exit time. Include blood transfused after the index operation and any blood transfused during subsequent operations.

Long Name: Blood Prod - Fresh Frozen Plasma/Plasma Units

SeqNo:	4700
Short Name:	BdFFPU
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of units of fresh frozen plasma or plasma that were transfused any time postoperatively.
Low Value:	0
High Value:	300
ParentLongName:	Blood Prod
ParentShortName:	BldProd
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If blood products transfused after OR exit time, indicate the number of units of fresh frozen plasma or plasma transfused following OR exit. The start time of the transfusion must be after OR exit time. Include plasma transfused after the index operation and any plasma transfused during subsequent operations. Includes convalescent plasma transfusions.

Long Name: Blood Prod - Cryo Units

SeqNo:	4705
Short Name:	BdCryoU
Database Table Name:	Operations

Data Source:	User
Format:	Integer
Definition:	Indicate the number of units of cryoprecipitate that were transfused postoperatively. One bag of cryo = one unit. The number of units is not volume dependent.
Low Value:	0
High Value:	300
ParentLongName:	Blood Prod
ParentShortName:	BldProd
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If blood products transfused after OR exit time, indicate the number of units of cryoprecipitate transfused following OR exit. The start time of the transfusion must be after OR exit time. Include cryoprecipitate transfused after the index operation and any cryoprecipitate transfused during subsequent operations.

Long Name: Blood Prod - Platelet Dose Pack

SeqNo:	4710
Short Name:	BdPlatDosePk
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the total number of platelet dose packs administered postoperatively. A dose pack is not the same as a unit. Please see intent/clarification for further information.
Low Value:	0
High Value:	99
ParentLongName:	Blood Prod
ParentShortName:	BldProd
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If blood products transfused after OR exit time, indicate the number of platelet dose packs administered following OR exit. The start time of the transfusion must be after OR exit time.

Include platelets transfused after the index operation and any platelets transfused during subsequent operations.

A dose pack may consist of any number of donor platelet units each from a separate donor which is pooled into a single bag (dose pack) for transfusion. A dose pack (single bag) is counted as 1 despite the number of platelet units in a dose pack. For example, the nurse documents giving a 10 pack of platelets, code as 1 dose pack.

Platelets can be aggregated from several donors or be designated as single donor platelets. It is imperative each site understand their institution's definition for random donor platelets (RDP) and single donor platelets (SDP).

S2. POSTOPERATIVE EVENTS

General Information Timeframe for Postoperative Events

The timeframe for postoperative event coding is defined by the designation of the event: intraoperative, major postoperative event, and other postoperative event. Please refer to the specific definition for each event to determine the timeframe for data collection.

- **Intraoperative events** are collected while the patient is in the OR/during the procedure.

- **Major postoperative events** are collected through the end of the episode of care (End date of Database Tracking / Database Discharge Date).

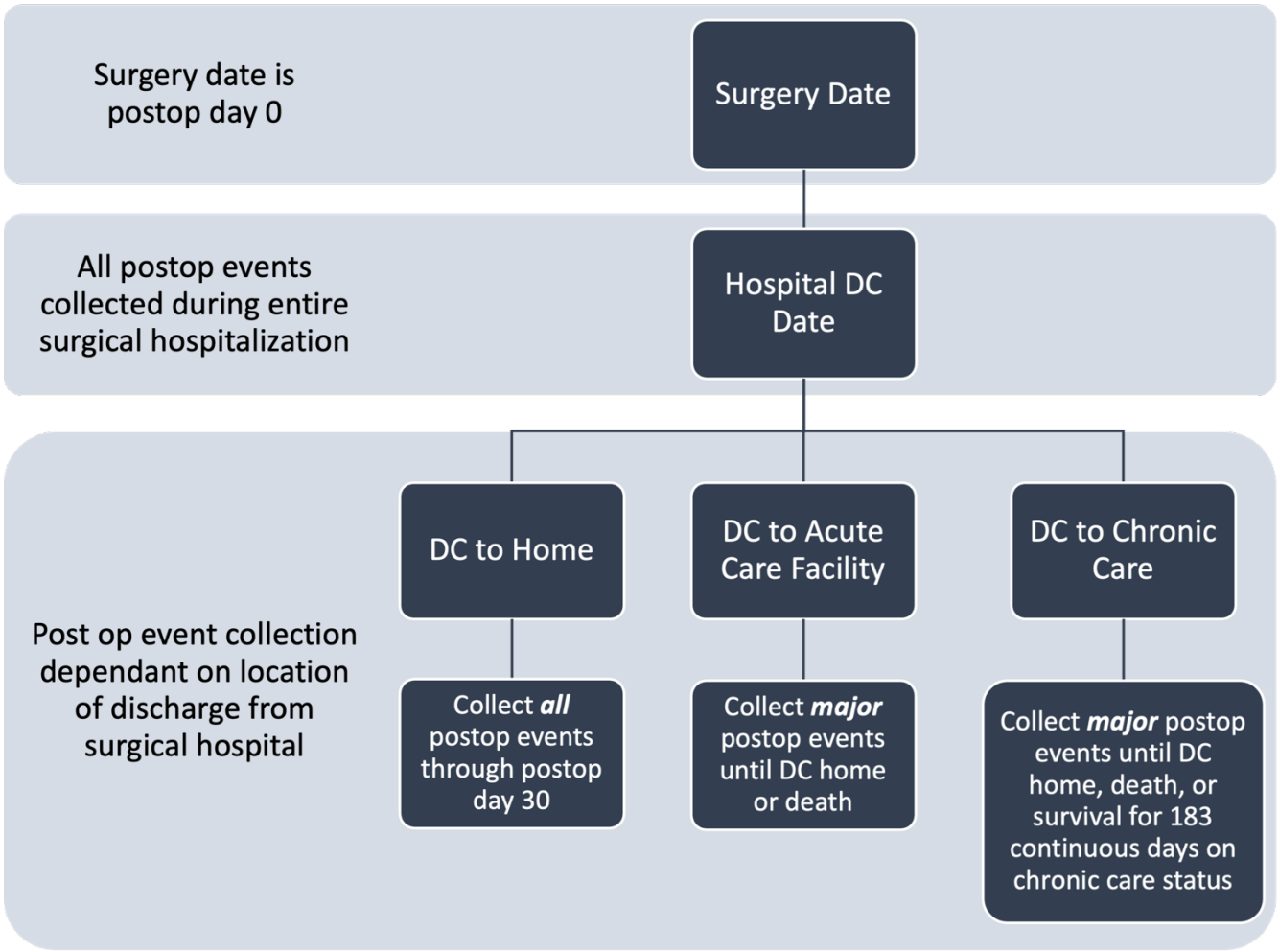
  Coding Notes: Collect for the timeframe that is the longest: (1) through the 30th postoperative day, *or* (2) through the end of the surgical hospitalization (Hospital Discharge Date), *or* (3) through the end of the episode of care (End Date of Database Tracking / Database Discharge Date).

  The timeframe includes the postoperative time-period through surgical hospital discharge, even if longer than 30 days. If transferred to another facility, collect through the end of the episode of care (End Date of Database Tracking / Database Discharge Date).

- **Other postoperative events** collected through the date of surgical hospital discharge or through the 30th postoperative day if discharged before 30-days.

  Coding Notes: Collect for the timeframe that is the longest: (1) through the 30th

postoperative day or (2) through the end of the surgical hospitalization (Hospital Discharge Date) even if the length of stay is longer than 30 days. If transferred to another facility, collect through the surgical hospital discharge date only.



Long Name: Postoperative Events - Multi-Select

SeqNo:	4740
Short Name:	PostopEventsMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select

Definition: Indicate all events that occurred postoperatively.

ParentLongName: Patient Expired in OR

ParentShortName: ExpiredInOR

ParentHarvestCodes: 2

ParentValue: = "No"

Harvest Codes and Display Conditions:

Code:	Value (Display Condition):
17	No intra or post operative events (No events during the relevant intra/post operative time period)
360	Unplanned readmission to the hospital within 30 days of surgery or intervention
370	Multi-System Organ Failure (MSOF) / Multi-Organ Dysfunction Syndrome (MODS)
30	Unexpected cardiac arrest, Timing = Cardiac arrest (MI) during or following procedure (Perioperative/Periprocedural = Intraoperative/Intraprocedural and/or Postoperative/Postprocedural)
384	Low systemic cardiac output state (LCOS)
280	Endocarditis-postprocedural infective endocarditis
110	Pericardial effusion, Requiring drainage
560	Severe pulmonary hypertension
130	Pulmonary vein obstruction
120	Systemic vein obstruction
22	Unplanned cardiac reoperation during the postoperative or postprocedural time period.
24	Unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period
26	Non-cardiac reoperation during the postoperative or postprocedural time period
40	Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)
72	Arrhythmia requiring drug therapy
73	Arrhythmia requiring electrical cardioversion or defibrillation
74	Arrhythmia necessitating pacemaker, Permanent pacemaker
75	Arrhythmia necessitating pacemaker, Temporary pacemaker
210	Chylothorax
200	Pleural effusion, Requiring drainage
180	Pneumonia
190	Pneumothorax, Requiring drainage or evacuation
150	Postoperative/Postprocedural respiratory insufficiency requiring mechanical invasive or non-invasive ventilatory support > 7 days
160	Postoperative/Postprocedural respiratory insufficiency requiring reintubation
170	Respiratory failure, Requiring tracheostomy
570	Acute renal failure
290	Sepsis
580	Necrotizing enterocolitis

590 Neurological deficit
300 Paralyzed diaphragm (possible phrenic nerve injury)
331 Seizure
470 Thrombus / thrombosis
310 Vocal cord dysfunction (possible recurrent laryngeal nerve dysfunction)
600 Iliac/femoral dissection (AgeDays>=6575)
601 Acute limb ischemia (AgeDays>=6575)
602 Aortic complication (AgeDays>=6575)
603 Anticoagulant bleeding event (AgeDays>=6575)
604 Heparin induced thrombocytopenia (HIT) (AgeDays>=6575)
605 Gastrointestinal event (AgeDays>=6575)
606 Wound complication
902 Compartment Syndrome
900 Other event
901 Other operative/procedural event

Intent/Clarification:

Capture all postoperative events regardless of their cause. The collection of postoperative events is designed to describe a patient's postoperative course. Note, some events will also be collected intraoperatively, please pay attention to the specific event definition.

- Each postoperative event has its own definition and timeline for coding and may include the intraoperative time-period. Please refer to each individual event's specific definition and time-period for coding specifics.
- All postoperative events will be collected through the surgical hospital discharge date. If the patient were to discharge to *home* prior to the 30th postoperative day, collect all postoperative events through the 30th postoperative day. See General Information Postoperative Event Timeframe for additional information.
  - In the event the patient discharges to an acute care facility, collect the specified *major postoperative events* until the patient is discharged to home or expires. The date the patient discharges home or expires will also be the patient's database discharge date for the episode of care.
  - In the event the patient discharges to a long-term/chronic care facility, collect the specified *major postoperative events* until the patients is discharged to home, expires, or survives for 183 continuous days on chronic care status. The date the patient discharges home, expires, or survives for 183 continuous days on chronic care status will also be the patient's database discharge date for the episode of care. Refer to the Report Overview located on the IQVIA platform for more information on determining operative mortality.
  - Regardless of discharge location (home, acute care, or chronic care facility) the non-major postoperative events are collected through the surgical hospital discharge date. If the surgical hospital discharge date is before the 30th

postoperative day, collect the non-major postoperative events through the 30th postoperative day.

- Assign the applicable postoperative events to (1) the index operation as that is where all events will be assigned upon analysis or (2) the operation that is most closely associated with the event.
- Code all applicable postoperative events. Some of the events will overlap. For example, a patient who cannot separate from mechanical ventilation and requires a tracheostomy will have the following postoperative events coded: (170) Respiratory failure, Requiring tracheostomy and (26) Non-cardiac reoperation during the postoperative or postprocedural time-period. And then under the child field for event (26) Non-cardiac reoperation, Tracheostomy should be selected.
- In the event the patient expires in the operating room, the postoperative events cannot be completed.

Code:	Value:	Definition:
17	No intra or post operative events (No events during the relevant intra/post operative time-period)	Defined: No intraoperative or postoperative events occurred. Timeframe: Major and Other event timeframe. See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient did not experience any listed events during the timeframe. The patient did not experience any major postoperative events during the episode of care *and* the patient did not experience any of the other listed (non-major) postoperative/intraoperative events during the surgical hospitalization (or through the 30th postoperative day if the patient discharged to home prior to postoperative day 30).
360	Unplanned readmission to the hospital within 30 days of surgery or intervention	Defined: Unplanned readmission to any hospital (not just the surgical hospital) within 30-days of a cardiac operation (operation types CPB Cardiovascular and No CPB cardiovascular). Timeframe: Other postop event timeframe. See General Information Postoperative Event

Code:	Value:	Definition:
		Timeframe for additional information. Code this Event: if the patient had an unplanned readmission to any acute care hospital, within 30 days of any cardiac operation (operation type CPB cardiovascular or No CPB cardiovascular) not just the index operation during the defined timeframe. Do not include patients on observation status, however if the observation results in an admission, do capture the event. Code the event if the patient is readmitted from home or if transferred in (readmitted) from another acute care hospital or chronic care facility to which the patient had been transferred to during this episode of care. *Example:* following mitral valve repair, a patient undergoes multiple reoperations utilizing CPB for continued valve insufficiency. The last valve repair was within 10 days of hospital discharge. Following discharge to home (60 days after the index operation), the patient is readmitted for mitral valve replacement. In this scenario, code (360) Unplanned readmission to the hospital within 30 days of surgery intervention as the readmission occurred within 30 days of a cardiac operation (op type CPB cardiovascular or No CPB cardiovascular).
370	Multi-System Organ Failure (MSOF) / Multi-Organ Dysfunction Syndrome (MODS)	Defined: a condition where more than one organ system has failed. Multi-System Organ Failure (MSOF) is synonymous with multiorgan dysfunction syndrome. Timeframe: Other postop event timeframe. See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences failure of two or more organ systems during the defined timeframe. For example, respiratory failure requiring mechanical ventilation combined with acute renal failure requiring dialysis.

Code:	Value:	Definition:
		Do not code if the only failed organs are the heart and lungs (for example, postoperative/postprocedural mechanical circulatory support and need for continued mechanical ventilation). Also code the individual organ system failures, for example if MSOF is associated with acute renal failure and sepsis, code all three events. Does not include disseminated intravascular coagulation (DIC). DIC can be included as (900) Other event.
30	Unexpected cardiac arrest, Timing = Cardiac arrest (MI) during or following procedure (Perioperative/Periprocedural = Intraoperative / Intraprocedural and/or Postoperative / Postprocedural)	Defined: the cessation of effective cardiac mechanical function. Timeframe: Major and Intraoperative event timeframe. See General Information Postoperative Event Timeframe for additional information. Code this Event: Code this event if the patient experienced an unexpected cardiac arrest after OR entry date and time through the end of the episode of care. Chest compressions are *not* required to code this event. Code this event if the patient experiences any of the following: • ventricular fibrillation (v-fib) • pulseless ventricular tachycardia (v-tach) • pulseless electrical activity (PEA) • acute events requiring cardiopulmonary resuscitation (CPR) or defibrillation • CPR for bradycardia or hypotension • implantable cardioverter defibrillator (ICD) shocks for v-tach/v-fib Intraoperatively, do not code cardiac arrest if the patient is still on cardiopulmonary bypass CPB). Do code cardiac arrests intraoperatively in the absence of CPB cannulas, i.e.,

Code:	Value:	Definition:
		after the patient enters the OR prior to cannulation or after removal of the CPB cannulas. Do not code for patients under hospice care or with a Do Not Resuscitate (DNR) status. Also code the events utilized in the treatment of the cardiac arrest, i.e., arrhythmia requiring drug therapy, arrhythmia requiring electrical cardioversion or defibrillation, or arrhythmia necessitating pacemaker, Temporary pacemaker etc.
384	Low systemic cardiac output state (LCOS)	Defined: low systemic cardiac output state related to cardiac dysfunction. Timeframe: Other postop event timeframe. See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences a low cardiac output state and cardiac dysfunction during the defined timeframe. Low cardiac output state may be characterized by some of the following: • tachycardia • oliguria • decreased skin perfusion • need for increased inotropic support 10% above baseline (baseline is at arrival to the unit postoperatively) • metabolic acidosis • widened arterial - venous oxygen saturation • need to open the chest • inotrope dependance - cannot be weaned from inotrope support 10% above baseline (baseline is at arrival to the unit postoperatively) after any period of 48 consecutive hours that occurs after the OR exit date/time.

Code:	Value:	Definition:
		Cardiac dysfunction can be characterized by the following: • reduced ejection fraction on echocardiogram • severe systemic atrioventricular valve insufficiency/regurgitation • cardiac chamber dilation Code this event regardless of the timing following the cardiac surgery and whether it was expected or unexpected in the patient's postoperative course. Excludes vasoplegia or hypovolemia causing low cardiac output in the setting of normal cardiac function. Treatment (e.g., volume or inotrope infusions) alone do not define this event; the patient must have a low cardiac output state with cardiac dysfunction.
280	Endocarditis-postprocedural infective endocarditis	Defined: an infection causing inflammation of the endocardium, the inner lining of the heart chambers and valves. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: in the setting of a heart which has been altered by surgery/intervention, a patient is diagnosed with infective endocarditis (IE) utilizing the Duke Criteria for the Diagnosis of IE: The definitive diagnosis of infective endocarditis requires *one of the following* four situations: (1) Histologic and/or microbiologic evidence of infection at surgery or autopsy such as positive valve culture or histology (2) Two major criteria (3) One major criterion and three minor criteria (4) Five minor criteria

Code:	Value:	Definition:
		The two major criteria are*:* • Blood cultures positive for IE • Evidence of endocardial involvement *<u>Blood cultures positive for IE requires</u>:* 1) Typical microorganism consistent with IE isolated from 2 separate blood cultures, as noted below in number two below. Typical microorganisms include viridans streptococci, Streptococcus bovis, Staphylococcus aureus, or HACEK group (HACEK, Haemophilus species [H. aprophilus and H. paraaphrophilus], Actinobacillus actinoinycetemcomitans, Cardiobacterium hominis, Eikenella corrodens, and Kingella kingae) or Community-acquired enterococci in the absence of a primary focus 2) Microorganisms consistent with IE isolated from persistently positive blood cultures defined as: – At least 2 positive cultures of blood samples obtained > 12-hours apart) *or* – All of 3 or a majority of 4 or more separate cultures of blood, the first and the last sample obtained > 1-hour apart 3) Single blood culture positive for Coxiella burnetii or an antiphase I IgG antibody titer of > 1:800. *<u>Evidence of endocardial involvement requires</u>:* 1) Positive results of echocardiography for IE defined as: oscillating intracardiac mass on the valve or supporting structures in the path of regurgitant jets or on implanted material in the absence of an alternative anatomic explanation; or abscess; or new partial dehiscence of a valvar prosthesis *or* 2) New valvar regurgitation (worsening or changing or preexisting murmur not sufficient).

Code:	Value:	Definition:
		The six minor criteria are: • Predisposing heart disease or injection drug use (intravenous drug abuse [IVDA]) • Temperature of > 38 degrees Celsius • Vascular phenomenon (major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial or conjunctival hemorrhage, Janeway's lesions) • Immunologic phenomenon (glomerulonephritis, Osler's nodes, Roth's spots, rheumatoid factor) • Microbiologic evidence (a positive blood culture that does not meet a major criterion as noted above) or serologic evidence of active infection with an organism consistent with IE • Echocardiographic findings that are consistent with IE but do not meet a major criterion as noted above. References: 1) Dhawan VK Infectious Endocarditis in Elderly Patients. Clin. Infect. Dis. 2002;34:806-812. 2) Durack DT, Lukes AS, Bright DK. New criteria for diagnosis of infective endocarditis: utilization of specific echocardiographic findings. Duke Endocarditis Service. Am. J. Med. 1994;96:200-209. 3) Li IS, Sexton DJ, Mick N, et al. Proposed modifications to the Duke criteria for the diagnosis of infective endocarditis. Clin. Infect. Dis. 2000;30:633-638. 4) http://gold.aecom.yu.edu/id/almanac/dukeendocarditis.htm, accessed July 5, 2006.
110	Pericardial effusion, Requiring drainage	Defined: Abnormal accumulation of fluid in the pericardial space requiring drainage by any technique. Pericardial effusions may compromise cardiac filling and may lead to tamponade (fluid accumulation between the myocardium and pericardium of the heart) inhibiting filling of the heart resulting in hemodynamic compromise. Timeframe: Other postop event timeframe. See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
		Code this Event: if the patient requires drainage (by any technique) of a pericardial effusion during the defined timeframe. Code the event regardless of the location of the required drainage procedure, i.e., cardiac catheterization lab, OR, or procedure suite etc. *Pericardial effusion vs. Reoperation for Bleeding:* Do not code if the pericardial effusion drainage is performed by the cardiothoracic surgeon within the first 48-hours postoperatively from a cardiac operation (48-hours from OR exit date/time); instead, code postoperative event (22) Unplanned cardiac reoperation during the postoperative or postprocedural time-period and select Reoperation for bleeding or suspected bleeding in Reop Reason (SeqNo 4755). After the first 48-hours postoperatively from a cardiac operation, code the most accurate event based on the findings, i.e., bleeding vs. pericardial effusion. In the event a cardiothoracic surgeon performs an open drainage of the pericardial effusion, also capture event (22) Unplanned cardiac reoperation during the postoperative or postprocedural time-period. *Example:* Patient develops a pericardial effusion 3-days following their index operation. The surgeon took the patient to the OR to drain the pericardial effusion using a pericardial window. Code events (110) Pericardial effusion, requiring drainage and (22) Unplanned cardiac reoperation. *Example:* Patient develops a pericardial effusion following their index operation and undergoes pericardiocentesis in the cardiac catheterization lab. Code event (110) Pericardial effusion, Requiring drainage. Do not code (24) Unplanned interventional cardiovascular catheterization procedure as this was not a catheter-based procedure where vessels/structure were intervened upon.

Code:	Value:	Definition:
560	Severe pulmonary hypertension	Defined: Clinically significant elevation of pulmonary arterial pressure, requiring intervention such as nitric oxide, or other therapies. Typically, the mean pulmonary arterial pressure is greater than 25mmHg in the presence of a normal pulmonary arterial occlusion pressure (wedge pressure). A clinically significant event or condition is an event or condition that necessitates a change in treatment. Timeframe: Other postop event timeframe. See General Information Postoperative Event Timeframe for additional information Code this Event: if the patient has a clinical diagnosis of pulmonary hypertension or pulmonary hypertensive crisis during the defined timeframe. There must be a clinically significant event or condition that necessitates a change in treatment and a clinical diagnosis to code this event. In the event the patient has preoperative pulmonary hypertension, code this event if the patient experiences a pulmonary hypertensive crisis or severe pulmonary hypertension where the treatment was changed in the postoperative setting. Excludes nitric oxide given for hypoxemia or empiric reasons.
130	Pulmonary vein obstruction	Defined: A clinically significant obstruction of the pulmonary veins. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences clinically significant obstruction of the pulmonary veins during the defined timeframe. A clinically significant event is an event or condition that

Code:	Value:	Definition:
		necessitates a change in treatment. May be diagnosed by echocardiography, cardiac catheterization, or using advanced imaging (i.e., CT or MRI). Also code the events included in the treatment where applicable, i.e., event (22) Unplanned cardiac reoperation or (24) Unplanned interventional cardiovascular catheterization procedure.
120	Systemic vein obstruction	Defined: Clinically significant stenosis or obstruction of any major systemic vein (e.g., superior vena cava, inferior vena cava, femoral veins, internal jugular veins, etc.). Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences clinically significant obstruction of any major systemic vein including the superior vena cava, inferior vena cava, femoral vein, internal jugular vein etc. during the defined timeframe. A clinically significant event is an event or condition that necessitates a change in treatment. May be diagnosed by echocardiography, cardiac catheterization, or using advanced imaging (i.e., CT or MRI). Also code the events included in the treatment where applicable, i.e., event (22) Unplanned cardiac reoperation or (24) Unplanned interventional cardiovascular catheterization procedure. Also code any related events, i.e., a thrombus in the internal jugular vein causing obstruction requiring a change in treatment, also code (4805) Thrombus/Thrombosis: Peripheral deep vein.
22	Unplanned cardiac reoperation during the postoperative or	Defined: an unplanned operation of operation type CPB Cardiovascular or No CPB Cardiovascular that occurs after the OR exit date and time ***or*** reoperation for bleeding

Code:	Value:	Definition:
	postprocedural time period	(regardless of the operation type). Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient undergoes an unplanned cardiac operation (operation type CPB Cardiovascular and/or No CPB Cardiovascular) or bleeding requiring reoperation regardless of operation type during the defined timeframe. Staged repairs are *not* considered unplanned cardiac reoperations. For example, a Glenn procedure performed during the same episode of care as the Norwood procedure or a TOF repair following initial palliation with a BT shunt are not unplanned cardiac reoperations. Planned procedures are planned at the time of the index operation. Surgical plans that include statements like, "will plan to repair the valve if the initial repair does not work," do not make the subsequent procedures planned. The subsequent valve repair is an unplanned cardiac reoperation. Includes the following procedures: • mediastinal explorations for any reason including infection, hemodynamic instability, bleeding etc. • reoperations for residual or recurrent lesions • reoperations for bleeding or suspected bleeding • PA band reoperations/revisions • shunt reoperations/revisions (i.e., shunt clipping, upsizing, milking, conversion of one shunt type to another etc.) Does not include the following procedures as they are considered planned reoperations: • Delayed sternal closure • ECMO decannulation

Code:	Value:	Definition:
		• VAD decannulation • Broviac catheter removals Does not include chemical pleurodesis procedures where a chemical is injected into an existing chest tube to treat persistent pleural drainage. In the scenario where during the operation a patient requires an unplanned procedure, do not code as an unplanned cardiac reoperation as it occurred during the same operation (and did not require a reoperation).
24	Unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period	Defined: any unplanned interventional cardiovascular catheterization (procedures done with a catheter guided into a blood vessel) procedure. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient undergoes an unplanned interventional cardiovascular catheterization procedure, including any attempted interventional cardiovascular catheterization procedure. Includes unplanned interventional electrophysiology procedures (i.e., arrhythmia ablation), however excludes placement of pacemakers or automatic implantable cardioverter defibrillator (AICD) devices. Includes unplanned catheter-based techniques regardless of procedure location or provider; interventional radiology (IR), procedure suite, catheterization lab or cardiologist, interventional radiologist etc. For example, a patient goes to the cath lab for abscess drainage; code this factor and then select IR drainage of fluid collection as the Unplanned Interventional Cardiovascular Cath Reason (SeqNo 4760). Includes drainage of a fluid collection when draining something other than a pleural or pericardial effusions, e.g.,

Code:	Value:	Definition:
		seroma, abscess drainage, chylous ascites etc. In the event a pericardial or pleural effusion is drained, code postoperative event (200) Pleural effusion, Requiring drainage and/or (110) Pericardial effusion, Requiring drainage, as appropriate. Also includes lymphatic vessel occlusion and thoracic duct embolization procedures. Does not include diagnostic cardiac catheterizations, however, diagnostic cardiovascular catheterizations that reveal the need for further intervention and intervention is attempted/completed (i.e., vessel occlusion requiring dilation) are to be included as unplanned interventional cardiovascular catheterizations. Planned procedures are planned at the time of the index operation, for example surgical planning includes the patient undergoing an initial surgical procedure followed by a procedure in the catheterization lab. Surgical plans that include statements like, “will plan to go to the cardiac catheterization lab if the patient cannot extubate or tolerate being off inotropes,” do not make the subsequent cardiovascular catheterizations procedures planned.
26	Non-cardiac reoperation during the postoperative or postprocedural time period	Defined: any additional non-cardiac operation Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an additional non-cardiac operation occurring after the time of OR exit during the defined timeframe. Includes all non-cardiac reoperations that occur post-operatively whether planned or unplanned at the time of surgical planning. Includes the following procedures whether planned or unplanned:

Code:	Value:	Definition:
		• gastrostomy tube insertion • Nissen fundoplication • tracheostomy creation • vocal cord medialization • diaphragm plication • thoracic duct ligation • exploratory laparotomy • rigid bronchoscopy for mucous plug/secretion removal • other general surgery procedures • vascular surgery procedures • non-cardiac hematoma evacuation, i.e., abdominal or retroperitoneal hematomas Does not include flexible diagnostic bronchoscopies or flexible bronchoscopies for secretion clearance. Tracheostomy is listed twice in the postoperative events section; if the patient undergoes tracheostomy in the postoperative setting, code postoperative event (26) Non-cardiac reoperation during the postoperative or postprocedural time period and select Tracheostomy as the Non-cardiac reoperation reason (SeqNo 4770) and also code postoperative event (170) Respiratory failure, Requiring tracheostomy.
40	Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Defined: a device that provides hemodynamic support in the treatment of cardiac dysfunction/failure and includes intra-aortic balloon pump (IABP), ventricular assist device (VAD), extracorporeal mechanical support (ECMO), and cardiopulmonary support (CPS) for any reason. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient received mechanical circulatory support (MCS) via IABP, VAD, ECMO, or CPS

Code:	Value:	Definition:
		anytime during the defined timeframe. If the patient on preoperative MCS undergoes a cardiac operation (operation types CPB cardiovascular and No CPB cardiovascular) and exits the operating room on mechanical circulatory support, do code this postoperative event (and also include as a preoperative factor).
72	Arrhythmia requiring drug therapy	Defined: an arrhythmia requiring drug therapy. Timeframe: Intraoperative and Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an arrhythmia requiring drug therapy after OR entry date and time through the defined timeframe. Includes any medications (i.e., sedative or caffeine) given via any route used to treat arrhythmias excluding electrolyte replacement. Includes one time/bolus dosing of medications to treat an arrhythmia. Code this event if medications are used to treat arrhythmias during a cardiac arrest. Code this event if the patient received drug therapy to treat an arrhythmia during the postoperative/postprocedural time-period even if the patient has a preoperative history of arrhythmias. In the event the patient is maintained on preoperative antiarrhythmics, code this event if the patient required increased dosing or new medications are initiated. *Operating Room/Procedure Information:* Code arrhythmias that occur in the operating room where drug therapy was utilized to treat the arrhythmia. Do not code drug therapy used to treat arrhythmias that occur in the process of separating or preparing to separate

Code:	Value:	Definition:
		from cardiopulmonary bypass but resolve before leaving the operating room. Do not code the treatment of arrhythmias anytime the arrhythmias occur between the arterial/venous cardiopulmonary bypass cannula insertion and removal. Code the treatment of arrhythmias if the treatment continues after the patient leaves the operating room, for example, a continuous infusion of an antiarrhythmic medication started in the operating room still infusing as the patient arrives in the ICU. *Example:* Patient arrived in the OR and during induction experienced supraventricular tachycardia (SVT) requiring a bolus of adenosine. Code postoperative event (72) Arrhythmia requiring drug therapy as the arrhythmia requiring drug therapy occurred in the operating room but not during cardiopulmonary bypass.
73	Arrhythmia requiring electrical cardioversion or defibrillation	Defined: an arrhythmia requiring electrical cardioversion or defibrillation. Timeframe: Intraoperative and Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an arrhythmia requiring electrical cardioversion or defibrillation after OR entry date and time through the defined timeframe. Code this event if cardioversion and/or defibrillation is utilized during a cardiac arrest including shocks delivered from a patient's automatic implantable cardioverter defibrillator (AICD). Includes rapid atrial pacing/overdrive pacing for treating a rapid rhythm. *Operating Room/Procedure Information:* Code arrhythmias

Code:	Value:	Definition:
		that occur in the operating room where electrical cardioversion or defibrillation was utilized to treat the arrhythmia. Do not code cardioversion/defibrillation used to treat arrhythmias that occur in the process of separating or preparing to separate from cardiopulmonary bypass. Do not code the treatment of arrhythmias anytime the arrhythmias occur between the arterial/venous cardiopulmonary bypass cannula insertion and removal. *Example:* Patient arrived in the OR and during induction experienced supraventricular tachycardia (SVT) requiring cardioversion. Code postoperative event (73) Arrhythmia requiring electrical cardioversion or defibrillation as the arrhythmia requiring cardioversion occurred in the operating room but not during cardiopulmonary bypass.
74	Arrhythmia necessitating pacemaker, Permanent pacemaker	Defined: any arrhythmia requiring the implantation and utilization of a permanent pacemaker, including atrioventricular heart block. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an arrhythmia requiring implantation and utilization of a permanent pacemaker during the defined timeframe. Includes the need for a permanent pacemaker for any arrhythmia including atrioventricular heart block. Includes the placement of automatic implantable cardioverter defibrillator (AICD) devices. Includes the placement and utilization of a permanent pacemaker regardless of the procedure location, i.e., cardiac catheterization lab or operating room.

Code:	Value:	Definition:
		Does not include the use of a LifeVest wearable defibrillator. Do not code postoperative event Arrhythmia necessitating pacemaker, Permanent pacemaker if the patient initially went to the OR to receive a permanent pacemaker. For example, patient's index operation was pacemaker insertion for a history of complete heart block. Do not then code the postoperative event of Arrhythmia necessitating pacemaker, Permanent pacemaker as a postoperative event of the index operation to place the pacemaker.
75	Arrhythmia necessitating pacemaker, Temporary pacemaker	Defined: any arrhythmia requiring the implantation and utilization of a temporary pacemaker, including atrioventricular heart block. Timeframe: Intraoperative and Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an arrhythmia requiring implantation and utilization of a temporary pacemaker after OR entry date and time through the defined timeframe. Includes the need for a temporary pacemaker for any arrhythmia including atrioventricular heart block and temporary pacing used to augment cardiac output. Code this event if temporary pacing is utilized during a cardiac arrest. Does not include the use of a LifeVest wearable defibrillator. Do not code if the pacer is not actively pacing, i.e., patient returns from the operating room with wires in place and pacemaker sensing. Do not code temporary pacing unless there is active pacing. Does not include rapid atrial/overdrive pacing to treat a rapid rhythm, instead code arrhythmia requiring

Code:	Value:	Definition:
		cardioversion/defibrillation. *Operating Room/Procedure Information:* Code arrhythmias that occur in the operating room where temporary pacing was utilized to treat the arrhythmia. Do not code temporary pacemaker used to treat arrhythmias that occur in the process of separating or preparing to separate from cardiopulmonary bypass if the need for temporary pacing is no longer present at the time the patient leaves the operating room. Do not code the treatment of arrhythmias anytime the arrhythmias occur between the arterial/venous cardiopulmonary bypass cannula insertion and removal. *Example:* Patient arrived in the OR and during induction experienced bradycardia requiring temporary pacing. Code postoperative event (75) Arrhythmia necessitating pacemaker, Temporary pacemaker as the arrhythmia requiring temporary pacing occurred in the operating room but not during cardiopulmonary bypass.
210	Chylothorax	Defined: Presence of lymphatic fluid in the pleural space, commonly secondary to leakage from the thoracic duct or one of its main tributaries. Thoracocentesis is the gold standard for diagnosis. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if there is biochemical evidence with a predominance of lymphocytes and/or triglyceride level greater than 110 mg/dl ***and*** • placement of a new chest tube or • high outputs > 10 ml/kg/day for greater than 48-hours from an existing chest tube

Code:	Value:	Definition:
		And at least one of the following: • chest tube to stay longer than 7-days • change in enteral diet to fat free diet for longer than 7-days • NPO and total parenteral nutrition(TPN)/intralipid (IL) for longer than 7-days • medication infusions such as octreotide, albumin, or IVIG at any time • surgery for chyle leak
200	Pleural effusion, Requiring drainage	Defined: Abnormal accumulation of fluid in the pleural space requiring drainage by any technique. Includes hemothorax and chylothorax. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient requires drainage of a pleural effusion (including hemothorax and chylothorax) by any technique during the defined timeframe. Drainage techniques may include chest tube insertion, needle aspiration, or other invasive procedure. Code this event regardless of who performs the drainage procedure (i.e., surgeon, intensivist, radiologist, cardiologist etc.) and regardless of the location the drainage procedure occurs (i.e., OR, cath lab, procedure suite etc.). Code this event if the surgeon drains the pleural effusion as part of another operative procedure.
180	Pneumonia	Defined: a respiratory disease characterized by inflammation of the lung parenchyma (including alveolar spaces and interstitial tissue), most commonly caused by infection. Timeframe: Other postop event timeframe

Code:	Value:	Definition:
		See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient has a clinical diagnosis of pneumonia documented in the medical record associated with an alteration or initiation of therapy (e.g., antibiotic therapy) during the defined timeframe. Diagnosis is made by appropriate clinical findings (fever, leukopenia or leukocytosis, and new onset of purulent sputum) and one or more of the following: positive respiratory cultures (sputum or pulmonary secretions) and/or pulmonary infiltrate on chest radiograph. An endotracheal tube culture may or may not be positive. Patients commonly demonstrate an evolving area of focal lung consolidation accompanied by fever (temperature >38.5 C). Pneumonia (pneumonitis) may affect an entire lobe (lobar pneumonia), a segment of a lobe (segmental or lobular pneumonia), alveoli contiguous to bronchi (bronchopneumonia), or interstitial tissue (interstitial pneumonia). These distinctions are generally based on radiographs.
190	Pneumothorax, Requiring drainage or evacuation	Defined: a collection of gas in the pleural space resulting in collapse of some or all of the lung on the affected side, requiring intervention (drainage or evacuation). Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences a pneumothorax requiring intervention including chest tube insertion, needle aspiration, or other invasive procedure during the defined timeframe. Do not include pneumothorax followed with serial chest radiographs without intervention.

Code:	Value:	Definition:
150	Postoperative/ Postprocedural respiratory insufficiency requiring mechanical invasive or non-invasive ventilatory support > 7 days	Defined: inadequate gas exchange to avoid unacceptable hypercarbia, hypoxemia, or both without invasive or non-invasive mechanical ventilatory support for greater than 7 consecutive days. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences respiratory insufficiency requiring invasive or non-invasive mechanical ventilatory support for greater than 7 consecutive days during the defined timeframe. Includes any consecutive days of invasive/non-invasive mechanical ventilation, not just the initial timeframe of mechanical ventilation following the operation. Non-invasive support is defined as the delivery of respiratory support or positive pressure ventilation to treat cardiorespiratory failure without insertion of an artificial airway (endotracheal or tracheostomy tube). Support may be delivered using nasal masks, face masks, or nasal prongs. This support should be administered through a ventilator device/machine without the use of an endotracheal tube or tracheostomy tube. Includes continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP), and Vapotherm. If the patient is extubated and reintubated within 24-hours of the extubation for respiratory failure/insufficiency, do not restart the clock for counting 7-days of continuous mechanical ventilatory support. Includes 7 consecutive days of mechanical ventilatory support regardless of the support type. For example, the patient is intubated requiring invasive ventilatory support for 4-days and is extubated to nasal CPAP for an additional 4-days for a total of 8 consecutive days of mechanical ventilatory support. In the event a patient is tracheostomy and ventilator

Code:	Value:	Definition:
		dependent prior to surgery, only code this event if the patient does not return to their baseline (preoperative) ventilator settings after 7 consecutive days. *Example 1:* trach/ventilator dependent patient is intubated in the OR for cardiac repair and their tracheostomy tube is removed. On postoperative day 3, the patient's endotracheal tube is removed, and tracheostomy tube reinserted. On postoperative day 5, the patient is returned to their home ventilator and settings. Do not code this event as the patient returned to their baseline preoperative ventilator settings. *Example 2:* trach/ventilator dependent patient is intubated in the OR for cardiac repair and their tracheostomy tube is removed. On postoperative day 5, the patient's endotracheal tube is removed, and tracheostomy tube reinserted. On postoperative day 9, the patient is returned to their home ventilator and settings. Do code this event as the patient received higher than baseline support for greater than 7 consecutive days postoperatively.
160	Postoperative/Post-procedural respiratory insufficiency requiring reintubation	Defined: the need to reinstitute mechanical ventilation after the initial postoperative extubation. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient requires reintubation/return to mechanical ventilation during the timeframe for respiratory insufficiency or respiratory failure. Does not include elective intubation for additional operations or procedures, e.g., cardiac catheterizations or additional operations. This field is not intended to collect the need for prolonged mechanical ventilation but is capturing the need for reintubation for respiratory insufficiency or failure.

Code:	Value:	Definition:
		In the event a patient is electively intubated for an additional procedure and requires prolonged (> 7 days) ventilation, code postoperative event (150) Postoperative/Postprocedural respiratory insufficiency requiring mechanical invasive or non-invasive ventilatory support > 7 days.
170	Respiratory failure, Requiring tracheostomy	Defined: failure to wean from mechanical ventilation necessitating the creation of a surgical airway. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences respiratory failure and requires creation of a new tracheostomy during the defined timeframe. Does not include patients with a tracheostomy present preoperatively. Tracheostomy is listed twice in the postoperative events section; if the patient undergoes tracheostomy in the postoperative setting, code postoperative event (26) Non-cardiac reoperation during the postoperative or postprocedural time period and select Tracheostomy as the Non-cardiac reoperation reason (SeqNo 4770) and also code postoperative event (170) Respiratory failure, Requiring tracheostomy. Capture all newly created tracheostomies regardless of where the procedure occurs.
570	Acute renal failure	Defined: acute renal failure is defined as *at least one* of the following: • new requirement for dialysis (peritoneal and/or hemodialysis) or hemofiltration for acute renal failure ***and/or*** • if < 6575-days (<18-years) of age, new onset oliguria

Code:	Value:	Definition:
		with sustained urine output < 0.5 ml/kg/hr for 24-hours and/or a rise in serum creatinine > 1.5 times the upper limits of normal for age (or twice the most recent preoperative value if available) ***and/or*** • if ≥ 6575-days (≥ 18-years) of age, a 3x increase in serum creatinine level from the preoperative value, and/or a serum creatinine level ≥ 4.0 mg/dl with at least a 0.5 mg/dl rise from the preoperative value. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences new onset acute renal failure as defined above during the defined timeframe. Does not include the following: • peritoneal drains not used for dialysis • aquapheresis or ultrafiltration or slow continuous veno-venous ultrafiltration (SCUF) as these are used to remove fluid to achieve volume control and are not dialysis Includes new onset renal failure only, do not include patients with preoperative renal failure (i.e., chronic renal failure) already being treated with dialysis. Dialysis includes renal replacement therapy (RRT) for ARF including hemodialysis, peritoneal dialysis, hemofiltration and hemodiafiltration. RRT may be continuous (i.e., continuous veno-venous hemofiltration [CVVH]), or intermittent (i.e., intermittent hemodialysis [IHD]. Does not include patients with preoperative dialysis or hemofiltration who change modes of dialysis in the postoperative setting. For example, a patient with preoperative renal failure treated with home peritoneal dialysis who switches to hemodialysis postoperatively.

Code:	Value:	Definition:
290	Sepsis	Defined: evidence of a serious infection accompanied by a deleterious systemic response. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient has a clinical diagnosis of sepsis documented in the medical record during the defined timeframe. In the time-period of the first 48 postoperative or postprocedural hours, the diagnosis of sepsis requires the presence of a Systemic Inflammatory Response Syndrome (SIRS) resulting from a proven infection (such as bacteremia, fungemia or urinary tract infection). In the time-period after the first 48 postoperative or postprocedural hours, sepsis may be diagnosed by the presence of a SIRS resulting from suspected or proven infection. During the first 48 hours, a SIRS may result from the stress associated with surgery and/or cardiopulmonary bypass. Thus, the clinical criteria for sepsis during this time period should be more stringent. A systemic inflammatory response syndrome (SIRS) is present when at least two of the following criteria are present: hypo- or hyperthermia (>38.5 or <36.0), tachycardia or bradycardia, tachypnea, leukocytosis or leukopenia, and thrombocytopenia.
580	Necrotizing enterocolitis	Defined: an acute reduction of oxygenated blood to the small/large intestine, typically resulting in acidosis, abdominal distention, pneumatosis, and/or intestinal perforation that prompts initiation of antibiotics and/or exploratory laparotomy. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
		Code this Event: if the patient has a clinical diagnosis of necrotizing enterocolitis (NEC) in the medical record ***or*** if the patient was treated with bowel rest (NPO) and antibiotics for at least 7-days in the setting of suspected NEC. Includes whether the patient was managed medically or surgically.
590	Neurological deficit	Defined: Newly recognized and/or newly acquired deficit of neurologic function (abnormal neurological functioning caused by injuries to or conditions impacting the brain, spinal cord, muscles, or nerves) leading to inpatient referral, therapy, or intervention not otherwise practiced for a similar unaffected inpatient. Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences a newly recognized or newly acquired deficit of neurologic function. Injuries that lead to neurological deficit include but are not limited to the following: • peripheral nerve injury • spinal cord injury • stroke • subdural bleed • intraventricular hemorrhage > Grade 2 • hypoxic ischemic encephalopathy Does not include the following: • vocal cord paralysis • diaphragm paralysis • impaired judgement

Code:	Value:	Definition:
		• psychiatric delusions • delirium/agitation • conductive hearing loss • developmental delays
300	Paralyzed diaphragm (possible phrenic nerve injury)	Defined: a condition where the diaphragm(s) loses the ability to move/contract Timeframe: Major event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences paralyzed diaphragm/paresis with the presence of elevated hemi-diaphragm(s) (left, right, or both) on chest radiograph in conjunction with evidence of weak, immobile, or paradoxical movement assessed by ultrasound or fluoroscopy during the defined timeframe. In the event a diaphragm plication is performed to treat diaphragm paralysis, also code postoperative event (26) Non-cardiac reoperation during the postoperative or postprocedural time period and select diaphragm plication as the Non-cardiac reoperation reason (SeqNo 4770).
331	Seizure	Defined: the clinical and/or electroencephalographic recognition of epileptiform activity Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: code this event if the patient experienced a seizure noted by clinical documentation or by electroencephalographic (EEG) findings. Include patients with a preoperative history of seizure

Code:	Value:	Definition:
		and/or are receiving antiepileptic medications who have a documented postoperative/postprocedural seizure.
470	Thrombus / thrombosis	Defined: a mass of platelets, fibrin, or other blood elements (and potentially additional matter) Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experienced a newly diagnosed thrombus/thrombosis in one or more of the following locations: • Intracardiac • Central vein • Pulmonary artery • Peripheral deep vein • Systemic to pulmonary shunt • Systemic artery, in situ (central) • Systemic artery, in situ (peripheral) • Systemic artery, embolic Do not code Thrombus/thrombosis if the thrombus occurs outside of the listed locations. Only include thrombus diagnosed postoperatively; do not include thrombus that were present preoperatively or where treatment started preoperatively and continued postoperatively.
310	Vocal cord dysfunction (possible recurrent laryngeal nerve dysfunction)	Defined: Presence of poor or no vocal cord movement assessed by endoscopy or other definitive diagnostic modality such as ultrasound. Patient may have stridor, hoarseness, poor cry, or difficulty speaking. Timeframe: Other postop event (minor) See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
		Code this Event: if the patient as a diagnosis of vocal cord dysfunction assessed by endoscopy or other definitive diagnostic modality such as ultrasound. Includes vocal cord dysfunction that requires a vocal cord medialization procedure.
600	Iliac/femoral dissection (AgeDays>=6575)	Defined: a tear within the wall of the iliac or femoral arteries Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days experienced a postoperative dissection in the iliac or femoral artery. The origin may have been at the site of cannulation or a catheterization site.
601	Acute limb ischemia (AgeDays>=6575)	Defined: an acute or sudden decrease in perfusion to a limb associated with significant morbidity and mortality. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days experienced a postoperative event producing acute limb ischemia during the defined timeframe. This may include ischemia of the upper or lower extremities. Ischemic events are restricted to the arterial system and do not include venous system events (i.e., deep vein thrombosis). Do not include necrosis related to low perfusion states as acute limb ischemia. For example, necrotic tip of the great toe thought to be related to high dose vasopressor infusions. *Example*: Following intra-aortic balloon pump removal, a

Code:	Value:	Definition:
		patient experienced an embolus which resulted in a necrotic first toe. Code postoperative event (601) Acute limb ischemia.
602	Aortic complication (AgeDays>=6575)	Defined: an aortic related event including aortic dissection, aortic endoleak, aortic side branch malperfusion, and aortic stent graft induced entry tear. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days experiences any of the following postoperative aortic related events: aortic dissection, aortic endoleak, aortic side branch malperfusion, and aortic stent graft induced entry tear during the defined timeframe.
603	Anticoagulant bleeding event (AgeDays>=6575)	Defined: Bleeding, hemorrhage, and/or embolic events related to anticoagulant therapy. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days experiences an anticoagulant related bleeding event during the defined timeframe. Includes bleeding, hemorrhage, and/or embolic event related to anticoagulant therapy received postoperatively. Does not include the following: • disseminated intravascular coagulation (DIC) • abnormal coagulation lab results without related clinical bleeding events • patients with bleeding secondary to surgical suture leaking or general surgical oozing.

Code:	Value:	Definition:
604	Heparin induced thrombocytopenia (HIT) (AgeDays>=6575)	Defined: Heparin induced thrombocytopenia (HIT) is defined as a mild thrombocytopenia (decreased platelet count) occurring within 4-days of starting heparin and is a result of a direct effect of heparin on platelets. It is not immune mediated but appears to be caused by a direct agglutinating effect of heparin on platelets. It is not associated with thrombosis and resolves despite the continuation of heparin. HIT predisposes affected patients to thrombosis (the abnormal formation of blood clots inside a blood vessel) because platelets release microparticles that activate thrombin and can progress to HIT-Thrombosis (HITT). Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days was diagnosed with postoperative heparin induced thrombocytopenia (HIT). HIT is diagnosed with heparin assay and/or serotonin release assay (SRA) laboratory tests. *Note*: Patients with a positive HITA test followed by a negative SRA (Serotonin ReleaseAssay) should not be coded as being HIT positive, even if the SRA results come back after the patient was discharged, since oftentimes these labs are sent out to be read and may take a while to get back.
605	Gastrointestinal event (AgeDays>=6575)	Defined: a postoperative gastrointestinal (GI) event including but not limited to GI bleeding (with/without need for transfusion), pancreatitis with abnormal amylase/lipase requiring nasogastric (NG) suction therapy, cholecystitis requiring cholecystectomy or drainage, mesenteric ischemia requiring exploration, hepatic dysfunction/hepatic failure, prolonged ileus, clostridium difficile infection etc. Timeframe: Other postop event timeframe See General Information Postoperative Event

Code:	Value:	Definition:
		Timeframe for additional information. Code this Event: if the patient with an age of ≥ 6575-days experiences a postoperative GI event including but not limited to the following: • ischemic bowel • GI bleed (with/without need for transfusion) • pancreatitis with abnormal amylase/lipase requiring nasogastric (NG) suction therapy • cholecystitis requiring cholecystectomy or drainage • mesenteric ischemia requiring exploration • hepatic dysfunction/hepatic failure • prolonged ileus • clostridium difficile infection GI events may require medical, observational, or surgical management to control. Both intrinsic and extrinsic factors can cause GI events. Does include patients with documentation of a postoperative ileus that required invasive treatment or prolonged the postoperative length of stay (LOS). Do not capture postoperative ileus that did not require invasive treatment and did not increase the LOS. Do not include events such as prolonged nausea and/or vomiting with no other documented physiologic cause. Do not include the placement of percutaneous endoscopic gastrostomy (PEG) tubes for nutritional support. Do code for patients who experienced an anticoagulant related GI bleed and code postoperative event (603) Anticoagulant Bleeding Event and select Gastrointestinal.
606	Wound complication	Defined: any complication of the surgical incision or related surgical sites.

Code:	Value:	Definition:
		Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences a complication of the surgical incision or associated surgical sites. Wound complications may include dehiscence and/or infection. Incision/surgical sites may include sternotomy and thoracotomy incisions, incisions in the groin, neck, pacemaker wire sites, chest tube insertion sites, and cardiac catheterization incision sites. Includes surgical incisions from non-cardiac procedures, e.g., gastrostomy or tracheostomy incision sites.
902	Compartment Syndrome	Defined: a condition resulting from increased pressure within a confined body space, especially of the leg or forearm, but may also include the abdomen and other body spaces. This results in compromised tissue perfusion and ultimate dysfunction of neural and muscular and organ structures contained within that compartment. Timeframe: Other postop event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient has a clinical diagnosis of compartment syndrome of any body space. Pressure measurements of the affected body space are not required to make the diagnosis of compartment syndrome. Capture any other events related to the compartment syndrome, i.e., fasciotomy or limb amputation as postoperative event (26) non-cardiac reoperation during the postoperative or postprocedural time period or foot drop as postoperative event (590) Neurological Deficit.
900	Other event	Defined: any postoperative event not otherwise specified in

Code:	Value:	Definition:
		the Post Operative Events list. Timeframe: Major or Intraoperative event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences a postoperative event not otherwise listed. This field is to capture other events that occurred after OR exit date and time. This field is not included in the analysis but allows sites to capture events for local data use. Additionally, STS reviews the included information when considering new postoperative events to include.
901	Other operative/procedural event	Defined: any intraoperative event not otherwise specified in the Post Operative Events list. Timeframe: Major or Intraoperative event timeframe See General Information Postoperative Event Timeframe for additional information. Code this Event: if the patient experiences an intraoperative event not otherwise listed. This field is to capture other events that occurred during the operative time-period. This field is not included in the analysis but allows sites to capture events for local data use. Additionally, STS reviews the included information when considering new postoperative events to include.

Long Name: Postoperative Events - Multi-Select - Other Specify

SeqNo: 4745
Short Name: PostopEventsMultiSp
Database Table Name: Operations
Data Source: User

Format:	Text
Definition:	Indicate any other postoperative events.
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(900)
ParentValue:	Contains ("Other event")

Intent/Clarification:

If Other event, indicate what event(s) occurred using free text. This field will not be analyzed but may be useful for tracking additional data locally. It may assist in the development of events to track in future database versions.

Long Name: Postoperative Events - Other Operative/Procedural - Specify

SeqNo:	4750
Short Name:	PostopEventsMultiOpSp
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Indicate any other operative/procedural events.
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(901)
ParentValue:	Contains ("Other operative/procedural event")

Intent/Clarification:

If Other operative/procedural event, indicate what event(s) occurred using free text. This field will not be analyzed but may be useful for tracking additional data locally. It may assist in the development of events to track in future database versions.

Long Name: Postoperative Event - Reoperation Reason

SeqNo:	4755
Short Name:	POEReopRsn
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the reason for the unplanned cardiac reoperation.

ParentLongName: Postoperative Events - Multi-Select

ParentShortName: PostopEventsMulti

ParentHarvestCodes: contains(22)

ParentValue: Contains ("Unplanned cardiac reoperation during the postoperative or postprocedural time period.")

Harvest Codes:

Code: Value:

1 Residual or recurrent lesion
2 Reoperation for bleeding or suspected bleeding
3 Mediastinal reexploration for reasons other than recurrent bleeding or suspected bleeding, residual or recurrent lesion (includes washouts)

Intent/Clarification:

If unplanned cardiac reoperation, indicate the reason(s) for the cardiac reoperation. Select all reasons applicable to the reoperation and include reason(s) for all reoperations if multiple performed.

Cardiac operations are defined as operation types CPB Cardiovascular and No CPB Cardiovascular. Please note, reoperations for bleeding or suspected bleeding are included regardless of the operation type (includes all operation types).

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
1	Residual or recurrent lesion	Unplanned cardiac reoperation (an operation with operation type CPB Cardiovascular or No CPB Cardiovascular) for a residual or recurrent lesion after a previous operation. May include repairs for postoperative valve failure or dysfunction, patch dehiscence, arch obstruction etc. Does not include staged repairs. For example, a Glenn procedure performed during the same episode of care as the Norwood procedure or a TOF repair following initial palliation with a BT shunt are not unplanned cardiac reoperations. Does not include reoperations for bleeding, VAD/ECMO procedures, or mediastinal explorations.

Code:	Value:	Definition:
		<u>*Example*</u>: 5-days following atrioventricular septal defect repair, a patient returns to the OR for repair of their mitral/systemic AV valve insufficiency/regurgitation.
2	Reoperation for bleeding or suspected bleeding	Unplanned reoperation of *any operation type* for postoperative bleeding or suspected bleeding (with or without tamponade) after a previous operation. Includes the following: • mediastinal explorations to address/treat bleeding whether the sternum is open/closed • procedures to address/treat bleeding while a patient is cannulated for ECMO/VAD • procedures to address hemopericardium or removal of new/old blood in the chest (clots etc.) • may include pericardial drainage procedures Includes reoperations for bleeding at any surgical site related to a previous procedure. This may include bleeding at pacemaker wire sites, chest tube sites, VAD/ECMO cannulation sites etc. <u>*Pericardial effusion vs. Reoperation for Bleeding*</u>***:*** Do not code if the pericardial effusion drainage is performed by the cardiothoracic surgeon within the first 48-hours postoperatively (48-hours from OR exit date/time); instead, code postoperative event (22) Unplanned cardiac reoperation during the postoperative or postprocedural time-period and select Reoperation for bleeding or suspected bleeding in Reop Reason (SeqNo 4755). After the first 48-hours postoperatively, code the most accurate event based on the findings, i.e., bleeding vs. pericardial effusion. Note: During the delayed sternal closure the surgeon incidentally notes and removes an old hematoma, do not code this event.

Code:	Value:	Definition:
		Example: patient returns to OR for mediastinal exploration due to hemodynamic instability related to perfuse bleeding from the mediastinal/pleural chest tubes.
3	Mediastinal reexploration for reasons other than recurrent bleeding or suspected bleeding, residual or recurrent lesion (includes washouts)	Unplanned cardiac reoperation (an operation with operation type CPB Cardiovascular or No CPB Cardiovascular) for any reason other than recurrent bleeding or suspected bleeding, residual/recurrent lesions. Includes mediastinal explorations, mediastinal washouts, and sternal reopening when not done for bleeding or suspected bleeding. Includes mediastinal washouts and explorations even when part of 'routine open sternum care." *Example*: Patient undergoes mediastinal washout on postoperative day 2 following Norwood procedure.

Long Name: Postoperative Events - Reason For Unplanned Intervention

SeqNo:	4760
Short Name:	POEUnpIntRsn
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the reason for the unplanned interventional cardiovascular catheterization procedure
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(24)
ParentValue:	Contains ("Unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period")

Harvest Codes:

Code: Value:

1 Balloon dilation without stenting
2 Balloon dilation with stenting
3 Intracardiac or intravascular device placement(other than stent)
4 Recanalization of occluded native vessel
5 Coiling of abnormal vessels
6 IR drainage of fluid collection
7 IR Lymphatic vessel occlusion
8 Other

Intent/Clarification:

If unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period, indicate the reason(s) for the interventional cardiovascular catheterization. Select all reasons applicable to the cardiovascular catheterization and include reason(s) for all cardiovascular catheterizations if multiple performed.

The intent is to capture the listed procedures and vessel-based procedures regardless of the interventionalist (cardiologist or radiologist) or procedure location (cath lab or interventional radiology (IR) or procedure suite). For example, if a collateral vessel is coiled in IR by the radiologist, capture the procedure as (5) Coiling of abnormal vessels. Likewise, if the patient is in the cath lab and the cardiologist performs a lymphatic vessel occlusion procedure, code (7) IR lymphatic vessel occlusion.

Does not include diagnostic cardiac catheterizations.

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
1	Balloon dilation without stenting	Vessel-based procedure where a balloon is used to dilate or stretch a vessel or structure without the placement of a stent in the dilated area.
2	Balloon dilation with stenting	Vessel-based procedure where a balloon is used to dilate or stretch a vessel or structure with the placement of a stent in the dilated area.
3	Intracardiac or intravascular device placement(other than stent)	Vessel-based procedure where a device is placed into the heart or a vessel, other than a stent. Devices may include valves, devices used to close structural defects (i.e., PDA, ASD, VSD closure devices), or devices for atrial

Code:	Value:	Definition:
		appendage closure. Does not include placement of pacemakers or automatic implantable cardioverter defibrillators.
4	Recanalization of occluded native vessel	Vessel-based procedure where restoration of blood flow is performed or attempted in occluded native vessels.
5	Coiling of abnormal vessels	Vessel-based procedure where coils are placed to occlude abnormal vessels.
6	IR drainage of fluid collection	Procedure where a fluid collection, excluding drainage of a pleural or pericardial effusion is drained (e.g., seroma, abscess drainage, chylous ascites etc.). Do not code for the drainage of a pericardial or pleural effusion; instead, code postoperative event (200) Pleural effusion, Requiring drainage and/or (110) Pericardial effusion, Requiring drainage, as appropriate.
7	IR Lymphatic vessel occlusion	Procedure for occlusion of lymphatic vessel which may include injection of glue, plugs, and/or coils. Includes thoracic duct embolization.
8	Other	Cardiovascular catheterization procedure not otherwise listed.

Long Name: Postoperative Events - Reason For Unplanned Intervention - Other Specify

SeqNo: 4765
Short Name: POEUnpIntRsnSp
Database Table Name: Operations
Data Source: User
Format: Text

Definition:	Indicate the other reason for the unplanned interventional cardiovascular catheterization.
ParentLongName:	Postoperative Events - Reason For Unplanned Intervention
ParentShortName:	POEUnpIntRsn
ParentHarvestCodes:	contains(8)
ParentValue:	Contains ("Other")

Intent/Clarification:

If reason for unplanned interventional cardiovascular catheterization is Other, enter the other reason for the catheterization/vessel-based procedure via free text.

Long Name: Postoperative Events - Reason For Non-Cardiac Reoperation

SeqNo:	4770
Short Name:	POENonCarReopRsn
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate the reason for the other non-cardiac reoperation.
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(26)
ParentValue:	Contains ("Non-cardiac reoperation during the postoperative or postprocedural time period.")

Harvest Codes:

Code:	Value:
1	Diaphragm plication
2	Thoracic duct ligation
3	Bowel resection
4	Ladd procedure
5	Enteral feeding tube placement (surgical, endoscopic, percutaneous, or other)
6	Tracheostomy
7	Vocal fold medialization
8	Vascular surgery to repair fistula, pseduoaneurysms, or vessel disruptions
9	Other

Intent/Clarification:

If non-cardiac reoperation, indicate the reason(s) for the non-cardiac reoperation. Select all reasons applicable to the reoperation and include reason(s) for all reoperations if multiple performed.

Includes all non-cardiac operation procedures performed, whether planned or unplanned. The intent is to capture the patient's postoperative course and any subsequent procedures completed as these may require additional anesthesia, recovery, and time in the hospital setting.

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Example: During the same operative setting, a patient undergoes an unplanned tracheostomy and planned gastrostomy tube placement. Code the following reasons for non-cardiac reoperation: (5) Enteral feeding tube placement (for the gastrostomy tube placement) and (6) Tracheostomy.

Code:	Value:	Definition:
1	Diaphragm plication	Non-cardiac operation to treat diaphragm paralysis or eventration (abnormal diaphragm shape or elevation) involving surgical flattening and tightening of the diaphragm to allow for greater lung expansion. Includes diaphragm plications whether planned or unplanned at the time of surgical planning.
2	Thoracic duct ligation	Non-cardiac operation to treat chylothorax involving the ligation or interruption of the thoracic duct. Includes all thoracic duct ligations whether planned or unplanned at the time of surgical planning.
3	Bowel resection	Non-cardiac operation involving the surgical removal of portions of the small (enterectomy) or large (colectomy) intestines. Includes all bowel resections whether planned or unplanned at the time of surgical planning.
4	Ladd procedure	Non-cardiac operation to treat intestinal malrotation involving the division of Ladd's (peritoneal) bands, duodenal lengthening, appendectomy, volvulus reduction, and reorientation of the bowel. Includes all Ladd procedures whether planned or unplanned at the time of surgical planning.
5	Enteral feeding tube	Non-cardiac operation or procedure to place an

Code:	Value:	Definition:
	placement (surgical, endoscopic, percutaneous, or other)	enteral(into the gastrointestinal tract) feeding tube. Includes surgical, endoscopic, and percutaneous placements of feeding tubes. Includes the placement of the following enteral tubes: • gastrostomy tubes • jejunostomy tubes • gastrojejunal tubes Includes all enteral feeding tube placements whether planned or unplanned at the time of surgical planning.
6	Tracheostomy	Non-cardiac operation to surgically create an opening into the trachea. Tracheostomy is listed twice in the postoperative events section; if the patient undergoes tracheostomy in the postoperative setting, code postoperative event (26) Non-cardiac reoperation during the postoperative or postprocedural time period and select Tracheostomy as the Non-cardiac reoperation reason (SeqNo 4770) and also code postoperative event (170) Respiratory failure, Requiring tracheostomy. Includes all tracheostomy creations whether planned or unplanned at the time of surgical planning.
7	Vocal fold medialization	Non-cardiac operation to treat a paralyzed vocal cord (vocal fold) involving moving the paralyzed vocal cord to the center closer to the working cord to allow for voice improvement. Includes all vocal cord medialization procedures whether planned or unplanned at the time of surgical planning.
8	Vascular surgery to repair fistula, pseduoaneurysms, or vessel disruptions	Vascular (non-cardiac) operation to repair fistula, pseudoaneurysms, or vessel disruptions. Includes all vascular surgery reoperations to repair fistula, pseudoaneurysms, or vessel disruptions whether planned or unplanned at the time of surgical planning.
9	Other	Non-cardiac operation not otherwise listed.

Code:	Value:	Definition:
		Includes all other non-cardiac reoperations whether planned or unplanned at the time of surgical planning.

Long Name: Postoperative Events - Reason For Non-Cardiac Reoperation - Other Specify

SeqNo: 4775
Short Name: POENonCarReopRsnSp
Database Table Name: Operations
Data Source: User
Format: Text
Definition: Specify the other reason for the non-cardiac reoperation.
ParentLongName: Postoperative Events - Reason For Non-Cardiac Reoperation
ParentShortName: POENonCarReopRsn
ParentHarvestCodes: contains(9)
ParentValue: Contains ("Other")

Intent/Clarification:

If reason for non-cardiac reoperation is Other, enter the other reason for the reoperation utilizing free text.

Long Name: Postoperative Events - Mechanical Circulatory Support

SeqNo: 4780
Short Name: POEMechCircSup
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all postoperative/postprocedural mechanical circulatory support.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(40)

ParentValue: Contains ("Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)")

Harvest Codes:

Code: Value:

1 IAPB
2 VAD
3 ECMO/CPS
4 Other (Impella/Tandem Heart)

Intent/Clarification:

If postoperative/postprocedural mechanical circulatory support, indicate the type(s) of mechanical circulatory support (MCS) utilized. Select all types of mechanical circulatory support utilized in the postoperative/postprocedural time-period.

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Code:	Value:	Definition:
1	IAPB	Intra-aortic balloon pump (IABP) is a type of mechanical circulatory support (MCS) involving the placement of a balloon into the aorta.
2	VAD	Ventricular assist device (VAD) is a type of MCS involving the placement of an implantable pump. A VAD may be placed in the left ventricle (LVAD), right ventricle (RVAD), or both ventricles (biventricular). Includes Total artificial heart (TAH).
3	ECMO/CPS	Cardiopulmonary support (CPS) or extracorporeal membrane oxygenation (ECMO) is type of MCS that utilizes a pump outside of the body.
4	Other (Impella/Tandem Heart)	Other types of MCS not otherwise listed including catheter-based support devices, i.e., Impella and percutaneous centrifugal pump devices, i.e., Tandem Heart.

Long Name: Postoperative Events - Acute Renal Failure Dialysis

SeqNo: 4785

Short Name: POEAcRenFailDial

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the level of dialysis for the postoperative acute renal failure. If the patient did not require hemofiltration or dialysis, select "No hemofiltration or dialysis required".

ParentLongName: Postoperative Events - Multi-Select

ParentShortName: PostopEventsMulti

ParentHarvestCodes: contains(570)

ParentValue: Contains ("Acute renal failure")

Harvest Codes:

Code: Value:

1 Requiring dialysis at the time of ~~hospital~~ discharge from the episode of care
2 Temporary dialysis with no dialysis required at the time of discharge from the episode of care
3 Temporary hemofiltration with no dialysis at the time of discharge from the episode of care
4 No hemofiltration or dialysis required during the episode of care

Intent/Clarification:

If acute renal failure (ARF), indicate the level of dialysis required.

Timeframe: Collect acute renal failure and the level of dialysis through the ***end of the episode of care*** (major event timeframe), not hospital discharge as listed above.

Code:	Value:	Definition:
1	Requiring dialysis at the time of ~~hospital~~ discharge from the episode of care	Patient with ARF required dialysis of any type (peritoneal and/or hemodialysis) or hemofiltration at the time of discharge from the episode of care (database discharge date). Dialysis includes renal replacement therapy (RRT) for ARF including hemodialysis, peritoneal dialysis, hemofiltration and hemodiafiltration. RRT may be continuous (i.e., continuous veno-venous hemofiltration [CVVH]), or intermittent (i.e., intermittent hemodialysis [IHD].

Code:	Value:	Definition:
		Dialysis does not include the following: • peritoneal drains not used for dialysis • ultrafiltration or slow continuous veno-venous ultrafiltration (SCUF) as these are used to remove fluid to achieve volume control and are not dialysis Does not include patients who met the definition for ARF who ***did not*** receive dialysis or hemofiltration for any reason (patient death or parent/patient refusal etc.); instead, code (4) No hemofiltration or dialysis required. *Example*: Patient with newly diagnosed postoperative ARF is initially treated with hemofiltration and is discharged home with peritoneal dialysis. Select this dialysis type.
2	Temporary dialysis with no dialysis required at the time of discharge from the episode of care	Patient with acute renal failure (ARF) where dialysis including peritoneal and/or hemodialysis was utilized during the episode of care but was no longer required at the time of discharge from the episode of care (database discharge date). Dialysis includes renal replacement therapy (RRT) for ARF including hemodialysis and peritoneal dialysis. Dialysis does not include the following: • peritoneal drains not used for dialysis • ultrafiltration or slow continuous veno-venous ultrafiltration (SCUF) as these are used to remove fluid to achieve volume control and are not dialysis Does not include patients who met the definition for ARF who ***did not*** receive dialysis for any reason (patient death or parent/patient refusal etc.); instead, code (4) No hemofiltration or dialysis required.

Code:	Value:	Definition:
		Example: patient with postoperative ARF is initially treated with hemofiltration and is switched to peritoneal dialysis. Renal function recovers and the patient no longer needs dialysis upon discharge to home. Select this dialysis type.
3	Temporary hemofiltration with no dialysis at the time of discharge from the episode of care	Patient with ARF where hemofiltration utilized during the episode of care but was no longer required at the time of discharge from the episode of care (database discharge date). Does not include the following: ultrafiltration or slow continuous veno-venous ultrafiltration (SCUF) as these are used to remove fluid to achieve volume control and are not dialysis. Does not include patients who met the definition for ARF who *did not* receive dialysis or hemofiltration for any reason (patient death or parent/patient refusal etc.); instead, code (4) No hemofiltration or dialysis required. *Example*: Patient with postoperative ARF is treated with hemofiltration and renal function recovered prior to discharge to home. Select this dialysis type.
4	No hemofiltration or dialysis required during the episode of care	Patient with ARF who did not receive dialysis (peritoneal or hemodialysis) or hemofiltration during the episode of care. Includes patients who met the definition of ARF, but dialysis was not instituted for any reason including patient death or patient/family refusal.

Long Name: Postoperative Events - Necrotizing Enterocolitis

SeqNo: 4790

Short Name: POENecroEnt
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the management method for necrotizing enterocolitis.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(580)
ParentValue: Contains ("Necrotizing enterocolitis")
Harvest Codes:

Code:	Value:
1	Surgically managed
2	Medically managed

Intent/Clarification:

If necrotizing enterocolitis (NEC), indicate the management method for the NEC.

Coding Notes:

Do *not* select more than one NEC management method.

- In the event the patient required surgery to manage NEC, only code (1) Surgically managed. Surgical management may include resection of the affected bowel or creation of an ostomy.
    - In the event NEC is surgically managed, also code postoperative event (26) Non-cardiac reoperation during the postoperative or postprocedural time-period and select the applicable Non-cardiac reoperation reason(s) (SeqNo 4770).
- Code (2) Medically managed if the patient received medical management including bowel rest, antibiotic therapy etc.

Long Name: Postoperative Events - Neurological Deficit Type Of Injury

SeqNo: 4801
Short Name: POENeuroDefType
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all types of injury related to neurological deficit that were present in the postoperative period.
ParentLongName: Postoperative Events - Multi-Select

ParentShortName: PostopEventsMulti

ParentHarvestCodes: contains(590)

ParentValue: Contains ("Neurological deficit")

Harvest Codes:

Code: Value:

1 Peripheral nerve injury
2 Spinal cord injury
3 Stroke
4 Subdural bleed
5 IVH > Grade 2
6 Other/Unknown

Intent/Clarification:

If neurological deficit during the episode of care, indicate the type of injury or injuries that led to the neurological deficit that occurred during the episode of care.

Select the most specific injury that led to the neurological deficit; if unknown, select (6) Other/Unknown.

Timeframe: Major event timeframe

Code:	Value:	Definition:
1	Peripheral nerve injury	Newly acquired or newly recognized deficit of unilateral or bilateral peripheral nerve function indicated by physical exam findings, imaging studies, or both. Includes brachial plexus injuries.
2	Spinal code injury	Newly acquired or newly recognized deficit of spinal cord function indicated by physical exam findings, imaging studies, or both. Includes lower extremity paralysis lasting greater than 24-hours not related to stroke but related to spinal cord ischemia. Paralysis is defined as a loss of purposeful movement as a result of a neurological injury, drugs, or toxins. Loss of motor function may be complete (paralysis);unilateral (hemiplegic) or bilateral confined to the lower extremities

Code:	Value:	Definition:
		(paraplegic) or present in all four extremities (quadriplegic); and may be accompanied by increased muscular tension and hyperactive reflexes (spastic) or by loss of reflexes (flaccid). Includes paresis lasting greater than 24-hours related to spinal cord ischemia and not stroke. Paresis is a condition typified by a weakness or partial loss of voluntary movement or by impaired movement.
3	Stroke	Any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain when the neurologic deficit does not resolve within 24-hours. Stroke occurs when the blood supply to part of the brain is suddenly interrupted or whena blood vessel in the brain bursts, spilling blood into the spaces surrounding brain cells. Brain cells die when they no longer receive oxygen and nutrients from the blood or thereis sudden bleeding into or around the brain. There are 2 forms of strokes: • ischemic: Blockage of a blood vessel supplying the brain. Includes embolic. • hemorrhagic: Bleeding into or around the brain Neurological deficits suchas confusion, delirium and/or encephalopathic (anoxic or metabolic) events are not to be coded in this field.
4	Subdural bleed	A bleed within the skull but outside of the brain tissue below the dura mater. Also called subdural hemorrhage or subdural hematoma.
5	IVH > Grade 2	Intraventricular hemorrhage (IVH) is defined as bleeding inside or around the brain. Any imaging

Code:	Value:	Definition:
		utilized to make the diagnosis is acceptable including ultrasound, CT, or MRI. IVH Grade III requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that involves at least 50% of the ventricular cross-sectional area in sagittal view, but not an intraparenchymal component. IVH Grade IV requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that includes an intraparenchymal component extending beyond the germinal matrix.
6	Other/Unknown	A neurological injury that is not otherwise listed that led to a neurologic deficit.

Long Name: Postoperative Events - Neurological Deficit Present At Discharge

SeqNo: 4802
Short Name: POENeuroDefPAtDis
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether any of the injuries related to neurological deficit were still present at discharge.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(590)
ParentValue: Contains ("Neurological deficit")
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If neurological deficit during the episode of care, indicate if the neurologic deficit was present at the time of discharge from the episode of care.

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Long Name: Postoperative Events - Neurological Deficit Type Of Injury Present At Discharge

SeqNo:	4803
Short Name:	POENeuroDefPAtDisType
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all types of injuries related to neurological deficit that were still present at discharge.
ParentLongName:	Postoperative Events - Neurological Deficit Present At Discharge
ParentShortName:	POENeuroDefPAtDis
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Peripheral nerve injury
2	Spinal cord injury
3	Stroke
4	Subdural bleed
5	IVH > Grade 2
6	Other/Unknown

Intent/Clarification:

If neurological deficit present at the time of discharge from the episode of care, indicate the injury/injuries that led to the neurological deficit that was present at the time of discharge from the episode of care.

See SeqNo 4801 for descriptions of injuries. Select the most specific injury that led to the neurological deficit; if unknown, select (6) Other/Unknown.

Timeframe: Major postoperative event timeframe. See General Information Postoperative Event Timeframe for additional information.

Example: following their index operation, a patient experiences position related foot drop and also experiences a hemorrhagic stroke leading to a right upper extremity motor abnormality. At the time of discharge to home from the surgical hospital, the patient's footdrop is resolved, however there is continued upper extremity weakness present. Collect the following postoperative events:

- SeqNo 4740 - Postoperative Events – Multi-Select, select (520) Neurological deficit
- SeqNo 4801 - Neurological Deficit Type Of Injury, select (1) Peripheral nerve injury and (3) Stroke.
- Seq 4802 - Neurological Deficit Present At Discharge, select (1) Yes
- SeqNo 4803 – Neurological Deficit Type Of Injury Present At Discharge, select (3) stroke

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Long Name: Postoperative Events - Thrombus / Thrombosis Location

SeqNo:	4805
Short Name:	POEThromLoc
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all locations of postoperative thrombus / thrombosis.
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(470)
ParentValue:	Contains ("Thrombus / thrombosis")

Harvest Codes:

Code:	Value:
1	Intracardiac
2	Central vein
3	Pulmonary artery
4	Peripheral deep vein
5	Systemic to pulmonary shunt
6	Systemic artery, in situ (central)
7	Systemic artery, in situ (Peripheral)
8	Systemic artery, embolic

Intent/Clarification:

If thrombus/thrombosis, indicate the location(s).

Code:	Value:	Definition:
1	Intracardiac	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in any of the 4 chambers of the heart (right atrium, left atrium, right ventricle, left ventricle).
2	Central vein	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in any of the major veins of the body within the space shared with the thoracic and abdominal organs. Includes a thrombus/thrombosis in the Glenn shunt; does not include thrombus/thrombosis in the Fontan circuit.
3	Pulmonary artery	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in or at least partially within the main pulmonary artery trunk, right and/or left pulmonary artery, or their respective branches causing partial or complete obstruction of blood flow to the heart. May be called pulmonary thromboembolism. The thrombus may have developed in this location (in situ) or may have embolized from another point of origin and lodged within the pulmonary arteries. Include this event if a thrombus in the fontan circuit extended into the pulmonary artery. Diagnosis may be made by radiologic study including ventilation-perfusion (VQ) scan, pulmonary angiogram, MRI, or CT pulmonary angiography/spiral CT.
4	Peripheral deep vein	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in any of the major deep veins of the extremities or the extrathoracic portion of the internal jugular vein. May be called deep vein thrombosis (DVT). Major deep veins of the extremities include the popliteal, femoral, cephalic, brachial, axillary veins etc. Do not include superficial thrombosis in a vein.

Code:	Value:	Definition:
5	Systemic to pulmonary shunt	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) occupying the lumen of a systemic-to-pulmonary artery shunt. The thombus may be obstructive, occlusive, or neither.
6	Systemic artery, in situ (central)	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in any of the major arteries of the body within the space shared with the thoracic and abdominal organs.
7	Systemic artery, in situ (peripheral)	A mass of platelets, fibrin, or other blood elements (and potentially additional matter) located in any of the deep arteries of the extremities or the extrathoracic portion of the common, external, and internal carotid artery or vertebral artery. The deep arteries of the extremities include: the popliteal, femoral, brachial, axillary arteries etc.
8	Systemic artery, Embolic	A piece of a blood clot, foreign object, or other bodily substance has broken off from elsewhere (such as the heart) and becomes stuck in a systemic artery and may obstruct the flow of blood distally causing ischemia or infarct (i.e., embolic stroke, splenic infarction, bowel infarction, ischemia of the extremities etc.).

Long Name: Postoperative Events - Aortic Complication Location

SeqNo: 4810
Short Name: POEAortEventLoc
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all locations of postoperative aortic complications.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(602)

ParentValue: Contains ("Aortic complication")

ParentLongName2: Patient Age In Days

ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code: Value:

1 Aortic dissection
2 Postoperative aortic endoleak
3 Aortic side branch malperfusion
4 Aortic stent graft induced entry tear

Intent/Clarification:

If aortic complication and the patient is ≥ 18-years of age, indicate the location(s) of the aortic complication(s).

Code:	Value:	Definition:
1	Aortic dissection	A tear/bleeding into or along the inner layer of the aorta occurring in any part of the aorta. This includes the ascending, arch, descending, thoracic, or abdominal aorta. Does not include an aneurysmal event in the aorta unless it goes on to rupture or dissect.
2	Postoperative aortic endoleak	Persistent blood flow in the aneurysm sac through and around the endovascular seal. It is the most common complication after endovascular aneurysm repair.
3	Aortic side branch malperfusion	Inadequate/compromised blood flow to any aortic branch vessel A radiology report or surgeon's evaluation may be used to define this event.
4	Aortic stent graft induced entry tear	A new tear in the aorta caused by the stent graft. Also called stent graft-induced new entry (SINE), it is typically due to fracture by a balloon or endograft and results in the creation of a new fenestration/connection between the true and false lumens of the dissection. This event would typically be determined by the surgeon's assessment of the intraoperative completion angiogram, intravascular ultrasound, and/or

Code:	Value:	Definition:
		transesophageal echocardiography.

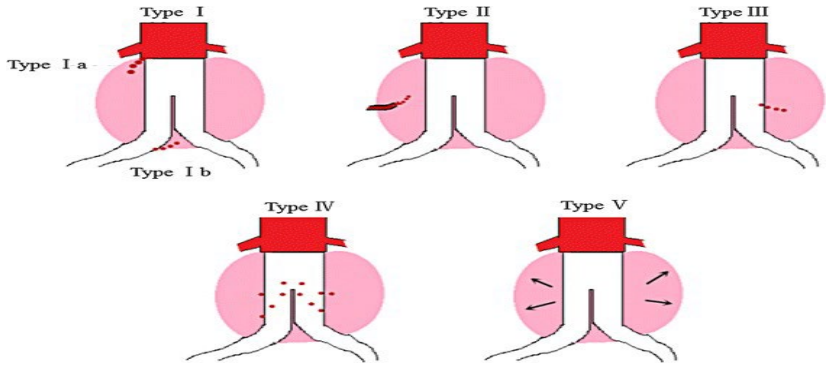
Long Name: Postoperative Events - Aortic Endoleak Type

SeqNo: 4815
Short Name: COtAortEndoTy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate they type of postoperative endoleak
ParentLongName: Postoperative Events - Aortic Complication Location
ParentShortName: POEAortEventLoc
ParentHarvestCodes: contains(2)
ParentValue: Contains ("Postoperative aortic endoleak")
Harvest Codes:

Code:	Value:
1	Ia
2	Ib
3	II
4	III
5	IV
6	V

Intent/Clarification:

If aortic complication aortic endoleak, indicate the type of endoleak.



Code:	Value:	Definition:
1	Ia	A leak occurring at the proximal seal zone
2	Ib	A leak occurring at the distal seal zone
3	II	Retrograde filling of the aneurysm sac or false lumen in the case of dissection by aortic branch vessels (e.g., left subclavian artery, intercostal arteries etc.).
4	III	Leakage of blood into the aneurysm sac or false lumen in the case of dissection, due to either a gap between separate endograft components or a defect in the fabric of the graft secondary to graft strut fracture or erosion.
5	IV	Presence of an endoleak secondary to graft porosity. All other types of endoleaks must be ruled out prior to coding this type of endoleak.
6	V	Persistent aneurysm expansion in the absence of a confirmed endoleak; also known as endotension.

Long Name: Postoperative Events - Anticoagulant Bleeding Event - Type

SeqNo: 4820
Short Name: AnticoagBleedEvntType
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of anticoagulation bleeding event. Anticoagulation bleeding events include Intracerebral, subdural, or Gastrointestinal.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(603)
ParentValue: Contains ("Anticoagulant bleeding event")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays

ParentHarvestCodes2: >=6575

ParentValue2: >=6575

Harvest Codes:

Code: Value:

1 Intracerebral
2 Subdural
3 Gastrointestinal

Intent/Clarification:

If anticoagulant bleeding event and the patient is ≥ 18-years of age, indicate the type(s) of anticoagulant bleeding event.

Code:	Value:	Definition:
1	Intracerebral	Intracerebral hemorrhage (ICH) or cerebral bleed is a type of intracranial bleed that occurs within the brain tissue or ventricles. A subarachnoid hemorrhage (SAH) is bleeding in the space between your brain and surrounding membrane (subarachnoid space). Code if the ICH/SAH are related to anticoagulant therapy received postoperatively. Capture intracerebral and subarachnoid hemorrhages.
2	Subdural	An accumulating mass of blood, usually clotted, or a swelling that is confined to the space between the dura mater and the subarachnoid membrane. Code if the subdural bleed is related to anticoagulant therapy received postoperatively.
3	Gastrointestinal	Gastrointestinal bleeding (GI bleed) or gastrointestinal hemorrhage is defined as any form of bleeding in the GI tract, from the mouth to the rectum related to anticoagulant therapy received postoperatively. Also capture postoperative event (605) gastrointestinal event and select event Gastrointestinal Bleed.

Long Name: Heparin Induced Thrombocytopenia Thrombosis

SeqNo:	4825
Short Name:	HITT
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate if the patient was diagnosed with Heparin Induced Thrombocytopenia Thrombosis.
ParentLongName:	Postoperative Events - Multi-Select
ParentShortName:	PostopEventsMulti
ParentHarvestCodes:	contains(604)
ParentValue:	Contains ("Heparin induced thrombocytopenia (HIT)")
ParentLongName2:	Patient Age In Days
ParentShortName2:	AgeDays
ParentHarvestCodes2:	>=6575
ParentValue2:	>=6575

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If heparin induced thrombocytopenia (HIT) and the patient is ≥ 18-years of age, indicate whether the patient was diagnosed with HIT thrombosis (HITT).

Heparin induced thrombocytopenia thrombosis (HITT or HIT/T) is defined as severe thrombocytopenia (decreased platelet count) usually occurring within 4-14 days after starting heparin and is associated with both arterial and venous thrombosis. It appears to be immune mediated. Immune HITT or HIT/T should be considered whenever the platelet count falls by 50% in a patient receiving heparin. It is associated with high morbidity and mortality.

Long Name: Gastro-Intestinal Event - Type

SeqNo:	4830
Short Name:	GIEventType
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all types of gastrointestinal events.
ParentLongName:	Postoperative Events - Multi-Select

ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(605)
ParentValue: Contains ("Gastrointestinal event")
ParentLongName2: Patient Age In Days
ParentShortName2: AgeDays
ParentHarvestCodes2: >=6575
ParentValue2: >=6575

Harvest Codes:

Code: Value:

1 Ischemic Bowel
2 Gastrointestinal bleed
3 Pancreatitis
4 Cholecystitis
5 Liver Dysfunction/Liver Failure
6 Ileus
7 Other

Intent/Clarification:

If gastrointestinal event and the patient is ≥ 18-years of age, indicate the type(s) of gastrointestinal event(s).

Code:	Value:	Definition:
1	Ischemic bowel	Intestinal ischemia describes a variety of conditions that occur when blood flow to the intestines decreases due to a blocked blood vessel, usually an artery. Intestinal ischemia can affect the small intestine, large intestine (colon) or both. Includes ischemic colitis, acute mesenteric ischemia, pneumoperitoneum, and abdominal compartment syndrome.
2	Gastrointestinal bleed	Gastrointestinal (GI) bleed/hemorrhage is any form of bleeding in the GI tract, from the mouth to the rectum.
3	Pancreatitis	A condition characterized by inflammation of the pancreas.
4	Cholecystitis	Inflammation of the gallbladder.
5	Liver Dysfunction/ Liver Failure	The inability of the liver to perform its normal synthetic and metabolic function as part of normal physiology. Includes shock liver, hepatitis B, hepatitis C, drug induced hepatitis, auto-immune hepatitis, cirrhosis, portal hypertension,

Code:	Value:	Definition:
		esophageal varices, liver transplant, or congestive hepatopathy. Excludes nonalcoholic steatohepatitis (NASH) in the absence of cirrhosis. The following are not included in liver dysfunction/failure: Hepatitis A, hepatitis E, Gilbert's syndrome, fatty liver, liver cancer, and transient elevation of liver enzymes.
6	Ileus	Inability of the intestine to contract and move waste out of the body without a structural cause. It is characterized by abdominal distention, nausea, vomiting, and delayed passage of flatus and stool.
7	Other	Other postoperative GI events not otherwise listed. Includes Clostridium difficile infections. Does not include the placement of percutaneous endoscopic gastrostomy (PEG) tubes for nutritional support.

Long Name: Wound Event Locations

SeqNo: 4835
Short Name: WoundLoc
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all locations of wound events.
ParentLongName: Postoperative Events - Multi-Select
ParentShortName: PostopEventsMulti
ParentHarvestCodes: contains(606)
ParentValue: Contains ("Wound complication")
Harvest Codes:

Code:	Value:
1	Sternotomy
2	Thoracotomy

3 Groin
4 Neck
5 Other

Intent/Clarification:

If wound complication, indicate the location(s) of wound event(s).

Code:	Value:	Definition:
1	Sternotomy	Surgical incision through the sternum intended to expose the heart and lungs. Includes median sternotomy incisions and partial sternotomy incisions (upper and lower).
2	Thoracotomy	Surgical incision between the ribs to expose the lungs/thoracic organs. Includes posterolateral, anterolateral, and axillary thoracotomy incisions.
3	Groin	Surgical incision site in the groin. May include surgical incision sites for bypass/ECMO/VAD cannulation or cardiac catheterization procedure sites.
4	Neck	Surgical incision site in the neck. May include surgical incision sites for bypass/ECMO/VAD cannulation or cardiac catheterization procedure sites.
5	Other	Surgical incision or associated surgical incision sites not otherwise listed. Includes chest tube insertion sites, arterial/venous line insertion sites, pacemaker wire sites and non-cardiac incision sites.

Long Name: Wound Event - Sternotomy

SeqNo: 4840
Short Name: WoundStern
Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of sternotomy wound event.

ParentLongName: Wound Event Locations

ParentShortName: WoundLoc

ParentHarvestCodes: contains(1)

ParentValue: Contains ("Sternotomy")

Harvest Codes:

Code: Value:

1 Wound dehiscence (sterile)

2 Wound infection

3 Sternal instability

Intent/Clarification:

If wound event location sternotomy, indicate the type of sternotomy wound event.

Code:	Value:	Definition:
1	Wound dehiscence (sterile)	Partial or total separation of the layers of the sternotomy incision that is not related to infection. The separation may be superficial or deep. Causes of wound dehiscence can include tissue ischemia, nutritional deficiencies, use of corticosteroids, vitamin C deficiency, and others. Do not code this event for infectious related dehiscence of the sternotomy incision; instead, code (2) wound infection. Do not code this event when the superficial and deep layers of the sternal incision remain intact, but non-union of the sternal edges is present; instead, code (3) sternal instability.
2	Wound infection	Wound infection of the sternotomy incision. Includes superficial, deep, and mediastinitis infections. See SeqNo 4845 for types of wound infection definitions.
3	Sternal instability	Non-physiologic or abnormal motion of the sternum after either bone fracture or disruption of the wires reuniting the surgically divided sternum. Includes the presence of sternal instability with movement of the edges of sternum on palpation. Include this event if the patient experiences sternal instability

Code:	Value:	Definition:
		and/or the sternal instability requires further wound manipulation or surgical intervention. Do include this event if the sternal instability is infection related; instead, code (2) Wound infection.

Long Name: Sternotomy Wound Infection Type

SeqNo: 4845
Short Name: SternWoundInfTy
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of sternotomy wound infection.
ParentLongName: Wound Event - Sternotomy
ParentShortName: WoundStern
ParentHarvestCodes: 2
ParentValue: = "Wound infection"
Harvest Codes:

Code:	Value:
1	Superficial
2	Deep
3	Mediastinitis

Intent/Clarification:

If sternotomy wound event wound infection, indicate the type of sternotomy wound infection.

Code:	Value:	Definition:
1	Superficial	A superficial wound infection involves only the skin and the subcutaneous tissue of the incision ***and*** the patient has *at least one* of the following lettered features: A. purulent drainage from the superficial portion of the

Code:	Value:	Definition:
		incision B. organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial portion of the incision C. at least *one* of the following numbered signs or symptoms: (4) pain or tenderness (5) localized swelling, redness, or heat (6) the superficial portion of the incision is deliberately opened by a surgeon, unless the incision is culture negative D. a diagnosis of superficial wound infection by the surgeon or by the attending physician. The following do not qualify as a superficial wound infection: • diagnosis/treatment of cellulitis (redness/warmth/ swelling), by itself, does not meet criterion (D) for superficial SSI. Conversely, an incision that is draining or that has organisms identified by culture or non-culture-based testing is not considered a cellulitis. • stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration).
2	Deep	A deep wound infection involves the deep soft tissues (e.g., fascial and muscle layers) of the incision ***and*** the patient has at least one of the following numbered features: 5. purulent drainage from the deep portion of the incision (but not from the organ / space component of the surgical site and no evidence of sternal osteomyelitis) 6. the deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has *one* of the following lettered signs or symptoms (unless the incision is culture negative): d) fever (> 38 C) e) localized pain

Code:	Value:	Definition:
		f) tenderness 7. an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination 8. a diagnosis of a deep wound infection by a surgeon or by an attending physician.
3	Mediastinitis	Infection involves any part of the body deeper than the fascia/muscle layers that is opened or manipulated during the operative procedure **<u>and</u>** the patient must meet *at least one* of the following numbered criteria: 5. patient has organisms cultured from mediastinal tissue or fluid that is obtained during a surgical operation or by needle aspiration. 6. patient has evidence of mediastinitis by histopathologic examination or visual evidence of mediastinitis seen during a surgical operation. 7. patient has *at least one* of the following signs or symptoms with no other recognized cause: • fever • chest pain • sternal instability *and at least one* of the following: • purulent mediastinal drainage • widening of the cardio-mediastinal silhouette 8. patient ≤ 1-year of age has at least one of the following signs or symptoms with no other recognized cause: • fever • hypothermia • apnea • bradycardia

Code:	Value:	Definition:
		• sternal instability *and at least one* of the following: • purulent mediastinal drainage • widening of the cardio-mediastinal silhouette Infections of the sternum (sternal osteomyelitis) should be classified as mediastinitis.

Long Name: Wound Event Thoracotomy Type

SeqNo: 4850
Short Name: WoundThorac
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of thoracotomy wound.
ParentLongName: Wound Event Locations
ParentShortName: WoundLoc
ParentHarvestCodes: contains(2)
ParentValue: Contains ("Thoracotomy")
Harvest Codes:

Code: Value:
1 Wound dehiscence (sterile)
2 Wound infection

Intent/Clarification:

If wound event location thoracotomy, indicate the type of thoracotomy wound event.

Code:	Value:	Definition:
1	Wound dehiscence (sterile)	Partial or total separation of the layers of the thoracotomy incision that is not related to infection. The separation may be superficial or deep. Causes of wound dehiscence can include tissue ischemia,

Code:	Value:	Definition:
		nutritional deficiencies, use of corticosteroids, vitamin C deficiency, and others. Do not code this event for infectious related dehiscence of the incision; instead, code (2) wound infection.
2	Wound infection	See SeqNo 4845 for types of wound infection. This will exclude mediastinitis.

Long Name: Wound Event Groin Type

SeqNo: 4855
Short Name: WoundGroin
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of groin wound event.
ParentLongName: Wound Event Locations
ParentShortName: WoundLoc
ParentHarvestCodes: contains(3)
ParentValue: Contains ("Groin")
Harvest Codes:

Code: Value:
1 Wound dehiscence (sterile)
2 Wound infection

Intent/Clarification:

If wound event location groin, indicate the type of groin wound event.

Code:	Value:	Definition:
1	Wound dehiscence (sterile)	Partial or total separation of the layers of the incision that is not related to infection. The separation may be superficial or deep. Causes of wound dehiscence can include tissue ischemia, nutritional deficiencies, use of corticosteroids, vitamin C deficiency,

Code:	Value:	Definition:
		and others. Do not code this event for infectious related dehiscence of the incision; instead, code (2) wound infection.
2	Wound infection	See SeqNo 4845 for types of wound infection. This will exclude mediastinitis.

Long Name: Wound Event Neck Type

SeqNo: 4860
Short Name: WoundNeck
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of neck wound event.
ParentLongName: Wound Event Locations
ParentShortName: WoundLoc
ParentHarvestCodes: contains(4)
ParentValue: Contains ("Neck")
Harvest Codes:

Code: Value:
1 Wound dehiscence (sterile)
2 Wound infection

Intent/Clarification:

If wound event location neck, indicate the type of neck wound event.

Code:	Value:	Definition:
1	Wound dehiscence (sterile)	Partial or total separation of the layers of the thoracotomy incision that is not related to infection. The separation may be superficial or deep. Causes of wound dehiscence can include tissue ischemia, nutritional deficiencies, use of corticosteroids, vitamin C deficiency,

Code:	Value:	Definition:
		and others. Do not code this event for infectious related dehiscence of the incision; instead, code (2) wound infection.
2	Wound infection	See SeqNo 4845 for types of wound infection. This will exclude mediastinitis.

Long Name: Wound Event Other Type

SeqNo: 4865
Short Name: WoundOther
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the type of other wound event.
ParentLongName: Wound Event Locations
ParentShortName: WoundLoc
ParentHarvestCodes: contains(5)
ParentValue: Contains ("Other")
Harvest Codes:

Code: Value:
1 Wound dehiscence (sterile)
2 Wound infection

Intent/Clarification:

If wound event location other, indicate the type of other wound event.

Code:	Value:	Definition:
1	Wound dehiscence (sterile)	Partial or total separation of the layers of the thoracotomy incision that is not related to infection. The separation may be superficial or deep. Causes of wound dehiscence can include tissue ischemia, nutritional deficiencies, use of corticosteroids, vitamin C deficiency,

Code:	Value:	Definition:
		and others. Do not code this event for infectious related dehiscence of the incision; instead, code (2) wound infection.
2	Wound infection	See SeqNo 4845 for types of wound infection. This will exclude mediastinitis.

T. DISCHARGE / READMISSION

Long Name: Patient Remains Hospitalized During this Episode of Care

SeqNo: 4870
Short Name: EpisodeCarePatInHosp
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient remains hospitalized ~~in the acute care setting~~ for this episode of care.

Harvest Codes:

Code:	Value:
3	Yes, at this hospital
4	Yes, transferred to another facility
2	No

Intent/Clarification:

Indicate if the patient remains in the hospitalized in any setting during this episode of care. This field is useful at the time of harvest to indicate the patient remains hospitalized.

This field will need to be updated when the patient *initially leaves the surgical hospital only*. **Do not update this field later after capturing the initial discharge from the surgical hospital.**

Examples:

1. Patient discharges to home following cardiac surgery; code (2) No. Do not again update this field despite any further patient admissions/discharges/transfers as this field is intended to capture the *initial* discharge/transfer from the surgical hospital.

2. Patient remains hospitalized at the time of a database harvest close; code (3) Yes, at this hospital. Later, the patient discharges to another acute care hospital; update this field to (4) Yes, transferred to another facility. Do not again update this field despite any further patient admissions/discharges/transfers as this field is intended to capture the *initial* discharge/transfer from the surgical hospital.

Code:	Value:	Definition:
3	Yes, at this hospital	The patient remains hospitalized at the surgical hospital. There is no date of hospital discharge yet.
4	Yes, transferred to another facility	The patient discharged from the surgical hospital; however, remains hospitalized at another facility. Select this option if the patient transferred from the surgical hospital to another acute care hospital or chronic care setting.
5	No	The patient discharged to home or expired during the surgical hospital admission.

Long Name: Date of Hospital Discharge

SeqNo: 4875
Short Name: HospDischDt
Database Table Name: Operations
Data Source: User
Format: Date - mm/dd/yyyy
Definition: Indicate the date that the patient is discharged from the hospital where this surgery took place.
ParentLongName: Patient Remains Hospitalized During this Episode of Care
ParentShortName: EpisodeCarePatInHosp
ParentHarvestCodes: 4|2
ParentValue: = "Yes, transferred to another facility" or "No"

Intent/Clarification:

If the patient is no longer hospitalized at the surgical hospital (transferred to another facility, expired, or discharged to home), indicate the date the patient discharged from the ***surgical hospital***.

If the patient expired in the surgical hospital, enter the mortality date (the date the patient was pronounced dead) as the date of hospital discharge.

If the patient transferred to any other facility, enter the date the patient transferred from the surgical hospital to the other facility.

If the patient expired in the surgical hospital and is an organ donor, use the date on the death certificate (the date the patient was pronounced dead) as the date of hospital discharge even if the organ(s) were harvested at a later date/time.

Long Name: Mortality Status At Hospital Discharge

SeqNo:	4880
Short Name:	MtHospDisStat
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the status of the patient at the time when they were discharged from the hospital where this surgery took place.
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	EpisodeCarePatInHosp
ParentHarvestCodes:	4|2
ParentValue:	= "Yes, transferred to another facility" or "No"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead

Intent/Clarification:

If the patient is no longer hospitalized at the surgical hospital, indicate the patient's mortality status at the time of discharge from the s*urgical hospital.*

Long Name: Hospital Discharge Location

SeqNo: 4885

Short Name:	DisLoctn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition: Indicate the location to where the patient was discharged after leaving the hospital where this surgery took place.

ParentLongName: Mortality Status At Hospital Discharge

ParentShortName: MtHospDisStat

ParentHarvestCodes: 1

ParentValue: = "Alive"

Harvest Codes:

Code: Value:

1 Home
2 Other Acute Care Center
3 Chronic Care Center

Intent/Clarification:

If the patient's mortality status at the time of discharge from the surgical hospital is alive, indicate the location to where the patient was discharged from the surgical hospital.

Only complete this field *once* following the initial patient discharge from the surgical hospital. Do not update this field for any subsequent admissions/discharges/transfers.

Institutions have a formal designation based on the level of care they are licensed to provide, i.e., acute care facility vs. rehabilitation hospital.

Code:	Value:	Definition:
1	Home	The patient discharged to home.
2	Other Acute Care Center	The patient discharged/transferred to another acute care hospital. Includes transfers to another acute care center for a higher or lower level of care. *Example*: patient transfers from the surgical hospital to a neonatal intensive care unit closer to home for continued feeding therapy.
3	Chronic Care Center	The patient discharged/transferred to a chronic care facility/center. Includes rehabilitation centers, skilled nursing facilities, and long-term care facilities where acute care services are not provided.

Long Name: Readmission Within 30 Days

SeqNo:	4890
Short Name:	Readmit30
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was readmitted within thirty days of discharge from the hospital where this surgery took place.
ParentLongName:	Mortality Status At Hospital Discharge
ParentShortName:	MtHospDisStat
ParentHarvestCodes:	1
ParentValue:	= "Alive"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient's mortality status at the time of discharge from the surgical hospital is alive, indicate whether the patient was readmitted within 30-days of discharge from the surgical hospital. Day of hospital discharge = day 0.

Includes readmissions to the surgical hospital and/or another acute care facility.

Includes all readmissions whether planned/unplanned or related/unrelated to the cardiac surgery.

Readmissions do not include emergency room, outpatient, or urgent care visits or admissions to a skilled facility or nursing home.

Readmissions do not include observation status stays (regardless of the duration) at an acute care facility unless the observation visit turns into an inpatient admission. In the event an observation visit becomes an inpatient admission, use the first day of the observation visit as the readmission date.

Long Name: Readmission Date

SeqNo:	4895
Short Name:	ReadmitDt

Database Table Name:	Operations
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the date on which the patient was readmitted.
ParentLongName:	Readmission Within 30 Days
ParentShortName:	Readmit30
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient was readmitted within 30-days of discharge from the surgical hospital, indicate the date the patient was readmitted to the surgical hospital or other acute care facility.

In the event an observation visit becomes an inpatient admission, use the first day of the observation visit as the readmission date.

In the event a patient experiences multiple readmissions within 30 days of discharge from the surgical hospital, enter the date of the first readmission (the readmission date closest to the hospital discharge date).

Long Name: Primary Readmission Reason

SeqNo:	4900
Short Name:	ReadmitRsn
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the primary reason for readmission. Whenever possible, use the most appropriate specific organ system and/or lesion-based choice from the list to document the reason for admission. Please only use one of the three choices beginning with the word “Other”’ when no other choice is appropriate. If the readmission is for the patient to undergo a procedure related to the index operation (the first operation of the given hospitalization that has an Operation Type of "CPB" or "No CPB Cardiovascular"), please document the cause of this readmission to be assigned to the specific organ system and/or lesion-based choice if possible.

If no specific organ system and/or lesion based choice is appropriate and the readmission is for the patient to undergo a procedure related to the index operation, please choose “Other Cardiovascular Complication” if the planned procedure is cardiac, and “Other - Readmission related to this index operation" if the planned procedure is noncardiac.

ParentLongName: Readmission Within 30 Days

ParentShortName: Readmit30

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
26	Thrombotic Complication
27	Embolic Complication
28	Hemorrhagic Complication
29	Stenotic Complication
2	Arrhythmia
3	Congestive Heart Failure
30	Cardiac Transplant Rejection
31	Myocardial Ischemia
14	Renal Failure
6	Pericardial Effusion and/or Tamponade
32	Pleural Effusion
33	Neurologic Complication
7	Respiratory Complication/Airway Complication
34	Septic/Infectious Complication
35	Cardiovascular Device Complications
36	Residual/Recurrent Cardiovascular Defects
37	Failure to Thrive
25	VAD Complications
39	Gastrointestinal Complication
40	Wound Complication
38	Other Cardiovascular Complication
998	Other – Readmission related to this index operation
999	Other – Readmission not related to this index operation

Intent/Clarification:

If the patient was readmitted within 30-days of discharge from the surgical hospital, indicate the primary reason for readmission.

While the primary reason for readmission may overlap with one another, be as specific as possible when selecting the primary reason.

In the event a patient experiences multiple readmissions within 30-days of discharge from the surgical hospital, select the primary reason for the first readmission (the readmission date closest to the hospital discharge date).

Only use one of the three choices beginning with the word “Other”’ when no other choice is appropriate.

Code:	Value:	Definition:
26	Thrombotic complication	Primary reason for readmission related to the development of a blood clot possible leading to vascular obstruction, i.e., deep vein thrombosis.
27	Embolic complication	Primary reason for readmission related to the migration of a blot clot or other matter possibly leading to vascular obstruction, i.e., pulmonary embolus.
28	Hemorrhagic complication	Primary reason for readmission related to life threatening bleeding.
29	Stenotic complication	Primary reason for readmission related to the narrowing of a lumen resulting in flow disruption, i.e., shunt stenosis or pulmonary vein stenosis
2	Arrhythmia	Primary reason for readmission related to an arrhythmia.
3	Congestive heart failure	Primary reason for readmission related to a diagnosis of congestive heart failure (CHF) with physician documentation/report of insufficient cardiac output leading to fluid retention, rales, jugular venous distension, hepatic congestion, or pulmonary edema. Does not include low ejection fraction without clinical evidence of heart failure.
30	Cardiac transplant rejection	Primary reason for readmission related to rejection of a transplanted heart. Rejection refers to the organ recipient’s immune system recognizing the transplanted organ as foreign and mounting a response to it via cellular

Code:	Value:	Definition:
		and/or humoral (antibody-mediated) mechanisms. Routine endomyocardial biopsy remains the criterion standard for monitoring for rejection.
31	Myocardial ischemia	Primary reason for readmission related to insufficient oxygen delivery to meet the demand of myocardial tissue and may result in pain, wall motion abnormality, and EKG changes. Untreated ischemia may progress to myocardial infarction.
14	Renal failure	Primary reason for readmission related to renal failure: • if < 6575-days (<18-years) of age, new onset oliguria with sustained urine output < 0.5 ml/kg/hr for 24-hours and/or a rise in serum creatinine > 1.5 times the upper limits of normal for age (or twice the most recent preoperative value if available) • if ≥ 6575-days (≥ 18-years) of age, a 3x increase in serum creatinine level from the preoperative value, and/or a serum creatinine level ≥ 4.0 mg/dl with at least a 0.5 mg/dl rise from the preoperative value.
6	Pericardial effusion and/or tamponade	Primary reason for readmission related to abnormal accumulation of fluid in the pericardial space requiring drainage.
32	Pleural effusion	Primary reason for readmission related to an abnormal accumulation of fluid in the pleural space. Includes whether the effusion required drainage or not.
33	Neurologic complication	Primary reason for readmission related to newly recognized and/or newly acquired deficit of neurologic function leading to inpatient referral, therapy, or intervention not otherwise practiced for a similar unaffected patient.

Code:	Value:	Definition:
		Includes strokes, acute neurologic changes, transient ischemic attacks (TIA) etc.
7	Respiratory complication/Airway complication	Primary reason for readmission related to complications of the respiratory system not otherwise listed, i.e., airway issues, acute respiratory failure, hypoxemia, pulmonary edema, respiratory acidosis etc. Does not include primary readmission for pneumonia, instead code as Septic/Infectious complication.
34	Septic/Infectious complication	Primary reason for readmission related to infection, including endocarditis, pneumonia, sepsis, and other infectious conditions.
35	Cardiovascular device complications	Primary reason for readmission related to
36	Residual/Recurrent Cardiovascular Defects	Primary reason for readmission related to residual or recurrent cardiovascular defects, i.e. valve dysfunction in a patient who underwent valve repair or replacement.
37	Failure to thrive	Primary reason for readmission related to failure to thrive (FTT), where current weight or weight gain is significantly lower than that of other patients of similar age and gender.
25	VAD complications	Primary reason for readmission related to device failure or malfunction of an implanted ventricular assist device (VAD).
39	Gastrointestinal complication	Primary reason for readmission related to gastrointestinal (GI) issues excluding failure to thrive. Includes readmission for gastrostomy tube (GT) placement and Nissen fundoplication procedures. Includes readmission for GT problems, intolerance of feeds, nausea and vomiting, GI bleeding, gastroesophageal reflux disease (GERD),

Code:	Value:	Definition:
		or diarrhea.
40	Wound complication	Primary reason for readmission related to a complication of a surgical wound. Includes infection, cellulitis, and dehiscence of a surgical wound.
38	Other cardiovascular complication	Primary reason for readmission related to any other cardiovascular system complication not otherwise listed. Includes readmissions where no specific organ system and/or lesion-based choice is appropriate, and the readmission is for the patient to undergo a *cardiac* procedure related to the index operation.
998	Other – Readmission related to this index operation	Primary reason for readmission related to any other reason not listed but related to this index operation. Includes readmissions where no specific organ system and/or lesion-based choice is appropriate, and the readmission is for the patient to undergo a *non-cardiac* procedure related to the index operation.
999	Other – Readmission not related to this index operation	Primary reason for readmission related to any other reason not listed and not related to this index operation, e.g., readmission for an orthopedic procedure in a patient who underwent a Norwood.

Long Name: Discharged with Nasoenteric Tube

SeqNo: 4905
Short Name: NasoTubeDisc
Database Table Name: Operations
Data Source: User

Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was discharged from the hospital where this surgery took place with a nasoentereric tube.
ParentLongName:	Mortality Status At Hospital Discharge
ParentShortName:	MtHospDisStat
ParentHarvestCodes:	1
ParentValue:	= "Alive"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient's mortality status at the time of discharge from the surgical hospital is alive, indicate if the patient was discharged from the *surgical hospital* with a nasoenteric tube.

Includes nasogastric, nasoduodenal, and nasojejunal tubes.

Code (1) Yes:

- if the patient is discharged with a nasoenteric tube regardless of how it is being used (i.e., feeding).
- if the patient expires in the surgical hospital with a nasoenteric tube in place at the time of death.

Long Name: Discharged with Transabdominal Gastrostomy or Jejunostomy Tube

SeqNo:	4910
Short Name:	TransGasDisc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was discharged from the hospital where this surgery took place with a transabdominal gastrostomy or jejunostomy tube.
ParentLongName:	Mortality Status At Hospital Discharge
ParentShortName:	MtHospDisStat
ParentHarvestCodes:	1
ParentValue:	= "Alive"

Harvest Codes:

Code:	Value:

1 Yes
2 No

Intent/Clarification:

If the patient's mortality status at the time of discharge from the surgical hospital is alive, indicate if the patient was discharged from the *surgical hospital* with a transabdominal (through the abdominal wall) gastrostomy or jejunostomy tube.

Includes gastrostomy and jejunostomy tubes regardless of the method used to place the tube (i.e., percutaneous, surgical etc.).

Coding Notes:

Code (1) Yes:

- if the patient is discharged with a transabdominal gastrostomy or jejunostomy tube regardless of how it is being used (i.e., feeding).
- if the patient expires in the surgical hospital with a transabdominal gastrostomy or jejunostomy tube in place at the time of death.

Long Name: VAD-Discharge Status

SeqNo:	4915
Short Name:	VADDiscS
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient had a VAD in place at discharge from the hospital where this surgery took place.
ParentLongName:	Mortality Status At Hospital Discharge
ParentShortName:	MtHospDisStat
ParentHarvestCodes:	1
ParentValue:	= "Alive"

Harvest Codes:

Code: Value:

5 No VAD used during this admission
1 Discharged with a VAD
4 VAD removed prior to discharge
~~3 Expired in Hospital~~

Intent/Clarification:

If the patient had a ventricular assist device (VAD) inserted during the admission to the surgical

hospital, indicate whether the VAD was in place at the time of discharge from the surgical hospital.

Answer this question regardless of whether the implanted device is providing durable prolonged or short-term support.

Code:	Value:	Definition:
5	No VAD used during this admission	No VAD was placed or utilized during the admission at the surgical hospital.
1	Discharged with a VAD	A VAD was placed or utilized during the surgical admission and the patient discharged from the surgical hospital with a VAD in place. Includes patients who transferred to the surgical hospital with a VAD in place and discharged from the surgical hospital with a VAD in place. Includes patients who discharged to home or to another facility with a VAD in place.
4	VAD removed prior to discharge	A VAD was placed or utilized during the surgical admission and was removed before the patient discharged from the surgical hospital. Does not include patients who expire with a VAD in place, instead select (3) Expired in hospital.
~~3~~	~~Expired in hospital~~	~~A VAD was placed or utilized during the surgical admission and the patient expired in the surgical hospital with the VAD in place.~~ **This should not be selected as a patient that expired in the surgical hospital does not have a Mortality Status at Hospital Discharge of Alive.**

Long Name: End Date Of Database Tracking

SeqNo: 4920
Short Name: EndDtDBTracking
Database Table Name: Operations

Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the date on which tracking of the patient through the entire episode of care ended. Refer to the intent clarification section of the Training Manual to determine the appropriate value. This field is only collected for patients not discharged to home from the hopsital where this surgery took place.
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	EpisodeCarePatInHosp
ParentHarvestCodes:	4
ParentValue:	= "Yes, transferred to another facility"

Intent/Clarification:

If the patient transferred to another facility, other acute care center or chronic care center, indicate the date the episode of care (EOC) ended for this patient. This is the End Date of Database Tracking.

The end of the EOC is defined as the date that is determined by three rules (rules A, B, and C) which specify how to complete this field:

- Rule A: If a patient was admitted from their home, they must be either dead or discharged to home prior to completing the field End Date of Database Tracking.
    - The patient's End Date of Database Tracking is the date they are discharged to home or their date of mortality.
    - *However*, If the patient transferred to a chronic care facility and survives in the chronic care facility for 183 consecutive postoperative days, the patient can be assigned an End Date of Database Tracking.
    - Some institutions do not have a mechanism that allows transfer to a chronic care facility and instead utilizes their own institution as the chronic care facility. If an institution does not utilize a chronic care facility and instead keeps these chronic patients in-house, the Rule A applies whenever one of their patients survives for 183 consecutive postoperative days on "chronic care status" within their institution.
- Rule B: If a patient was admitted or transferred from a chronic care facility where they chronically reside, they must be either dead or discharged to home or to a chronic care facility prior to completing the field End Date of Database Tracking.
    - The patient's End Date of Database Tracking is the date they are discharged to home or to a chronic care facility, or their date of mortality.
- Rule C: If a patient was admitted (or transferred from) another acute care facility,

- Rule A as previously stated applies if they lived at home prior to their admission to the transferring acute care facility.
- Rule B as previously states applies if they lived in a chronic care facility prior to their admission to the transferring acute care facility.

These three rules are consistent with previously published rules defining Operative Mortality [1] a Operative Morbidity [2] in the following published manuscripts [1, 2]. [1]. Jacobs JP, Mavroudis C, Jacobs ML, Maruszewski B, Tchervenkov CI, Lacour-Gayet FG, Clarke DR, Yeh T, Walters HL 3rd, Kurosawa H, Stellin G, Ebels T, Elliott MJ. What is Operative Mortality? Defining Death in a Surgical Registry Database: A Report from the STS Congenital Database Task Force and the Joint EACTS-STS Congenital Database Committee. The Annals of Thoracic Surgery, 81(5):1937-41, May 2006. [2]. Jacobs JP, Jacobs ML, Mavroudis C, Maruszewski B, Tchervenkov CI, Lacour-Gayet FG, Clarke DR, Yeh T, Walters HL 3rd, Kurosawa H, Stellin G, Ebels T, Elliott MJ, Vener DF, Barach P, Benavidez OJ, Bacha EA.. What is Operative Morbidity? Defining Complications in a Surgical Registry Database: A Report from the STS Congenital Database Task Force and the Joint EACTS-STS Congenital Database Committee. The Annals of Thoracic Surgery; 84:1416-1421, October 2007.

Notes on Determining the End Date of Database Tracking:

- Acute care, acute rehabilitation, or step-down units are not considered places where a patient would receive chronic care or be on chronic care status. To be considered a chronic care unit, the unit should serve chronic care to all patients housed within the unit, not a few of the patients.
- The reason the patient is sent to chronic care (i.e., social/medical) is not considered when determining the End Date of Database Tracking.
- The patient must remain on chronic care status for 183 consecutive postoperative days, discharge to home, or expire before the End Date of Database Tracking can be completed.
- In the event a patient discharges from the surgical hospital to a chronic care facility, is subsequently readmitted to an acute care facility, and then returns to the chronic care facility, the 183-day timeframe restarts when the patient returns to the chronic care facility. The same is true for chronic care status.
- Returns from chronic care status to observation status do not count as readmissions to acute care and the 183-day timeframe does not restart.
- The survival of 183 postoperative consecutive days applies only to patients on chronic care status or those who transferred to a chronic care facility. It does not apply to patients with long postoperative inpatient acute care stays.
- Newborns who have not yet ever gone home are considered to reside at home when applying the rules above.

Long Name: Status At End Of Database Tracking

SeqNo: 4925
Short Name: StatEndDBTrack
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the status of the patient at the end of database tracking.
ParentLongName: Patient Remains Hospitalized During this Episode of Care
ParentShortName: EpisodeCarePatInHosp
ParentHarvestCodes: 4
ParentValue: = "Yes, transferred to another facility"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

If the patient transferred to another facility, other acute care center or chronic care center, indicate the date the patient's mortality status at the end of database tracking (end of the episode of care).

Code:	Value:	Definition:
1	Alive	The patient was alive at the End of Database Tracking (the end of the episode of care).
2	Dead	The patient was dead at the End of Database Tracking (the end of the episode of care).
3	Unknown	The patient's mortality status, alive or dead, is unknown at the End of Database Tracking (the end of the episode of care). Unknown values count as missing upon analysis.

Long Name: Location At End Of Database Tracking

SeqNo: 4930
Short Name: LocEndDBTrack

Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the status of the patient at the end of database tracking.
ParentLongName: Status At End Of Database Tracking
ParentShortName: StatEndDBTrack
ParentHarvestCodes: 1
ParentValue: = "Alive"
Harvest Codes:

Code: Value:
1 Home
2 Chronic care center >183 continuous days

Intent/Clarification:

If the patient's mortality status at the end of database tracking is alive, indicate the location of the patient at the time of the end of database tracking.

Code:	Value:	Definition:
1	Home	The patient was discharged to home signifying the end of database tracking (episode of care end).
2	Chronic care center > 183 continuous days	The patient survived for greater than 183 continuous days in a chronic care center or on chronic care status signifying the end of database tracking (episode of care end).

Long Name: Date of Database Discharge

SeqNo: 4935
Short Name: DBDischDt
Database Table Name: Operations
Data Source: Calculated
Format: Date - mm/dd/yyyy
Definition: This is a software-calculated date that is either the date of discharge to home from the hospital where this surgery took place or the end date of database tracking.

	Please refer to the intent clarification portion of the training manual for additional clarification.
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	EpisodeCarePatInHosp
ParentHarvestCodes:	4|2
ParentValue:	= "Yes, transferred to another facility" or "No"

Intent/Clarification:

Software generated field based on the completion of the discharge fields.

- If the patient discharged to home from the surgical hospital or expired in the surgical hospital, the Date of Database Discharge is the Date of Hospital Discharge (4875).
- If the patient transferred from the surgical hospital to another facility, the Date of Database Discharge is the End Date of Database Tracking (4920).

Long Name: Mortality Status At Database Discharge

SeqNo:	4940
Short Name:	MtDBDisStat
Database Table Name:	Operations
Data Source:	Calculated
Format:	Text (categorical values specified by STS)
Definition:	This is the software-calculated status of the patient that is either the status of the patient at discharge to home from the hospital where this surgery took place, or the status of the patient at end of database tracking.

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

Software generated field based on the completion of the discharge mortality status fields.

- If the patient discharged to home from the surgical hospital or expired in the surgical hospital, the Mortality Status at Database Discharge is the Mortality Status at Hospital Discharge (4880).
- If the patient transferred from the surgical hospital to another facility, the Mortality Status at Database Discharge is the mortality Status at End of Database Tracking (4925).

General Information Mortality Status

Accurate capture of mortality status (alive or dead) is important to the database. Data managers must have proof of life or death at the required time-points in the database.

Mortality status can never be assumed. In the event the patient's mortality status cannot be validated in the institution's medical record, the data manager must track and be able to provide additional information regarding how the patient's mortality status was obtained. Data managers are required to provide the following information:

- information source (e.g., pediatrician or parent)
- date the information was obtained (e.g., date phone call made)
- mortality status (e.g., date of last appointment)
- readmissions
- postoperative events

A separate log should be maintained (within or outside of the database) – the new site-specific fields are a suggested place to maintain this information.

Example: when attempting to determine the patient's 30-day mortality status (SeqNo 4945), the data manager noted the patient had not been seen since a postoperative follow up visit on postoperative day 25. Thus, the data manager called the patient's pediatrician and documented the following: phone call to Dr. Baby Doctor on 11/01/23, spoke with Nurse Jon, patient followed up for routine school physical on 10/01/23 (3-months postoperatively), physical exam negative, cleared for school sports and physical activity without restriction. No readmissions noted.

Mortality Validation Sources

Multiple sources can be used to determine a patient's mortality status, both in and outside of the patient's medical record at the required database time-points. The following are ideas generated from data managers:

- look for proof of life within the medical record (visits to other providers, test results, phone calls to patient, readmissions etc.)
- contact other service providers (home health care providers, primary care offices, dental providers, developmental care clinics, therapy providers

etc.)

- contact the patient or family directly via mechanisms allowable by the institution (i.e., email, phone call, secure messaging etc.)
- utilize the social security death master file, national death index, or obituary listings (absence of a name in these files is not proof of life)

Long Name: Mortality - 30-Day Status

SeqNo: 4945
Short Name: Mt30Stat
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient was alive or dead on the 30th day post-surgical procedure whether in hospital or not.

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

Indicate the patient's mortality status on the 30th post-operative day. The date of surgery = day 0.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Alive	The patient was alive on the 30th postoperative day. In the event the patient dies on the 30th postoperative day, code (2) Dead.
2	Dead	The patient was dead on the 30th postoperative day.

Code:	Value:	Definition:
3	Unknown	The patient's mortality status, alive or dead, is unknown on the 30th postoperative day. Unknown values count as missing upon analysis.

Long Name: Mortality - 30-Day Status - Method Of Verification

SeqNo: 4950
Short Name: Mt30StatMeth
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the primary method used to verify the patient's 30-day mortality status.
ParentLongName: Mortality - 30-Day Status
ParentShortName: Mt30Stat
ParentHarvestCodes: 1|2
ParentValue: = "Alive" or "Dead"

Harvest Codes:

Code: Value:

1 Evidence of life or death in the medical record
2 Contact with patient or family
3 Contact with medical provider
4 Office visit to provider greater than or equal to 30 days after procedure
5 Social Security Death Master File
9 Other

Intent/Clarification:

Indicate the method utilized to validate the patient's mortality status on the 30th postoperative day.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:

Code:	Value:	Definition:
1	Evidence of life or death in the medical record	The patient's 30-day postoperative mortality status was determined by documentation in the medical record. *Example:* a discharge summary or emergency room visit after the 30th postoperative day.
2	Contact with patient or family	The patient's 30-day postoperative mortality status was determined through contact with the patient or family. *Example:* a phone call to the patient/family on or after the 30th postoperative day where the patient or family reported the patient's mortality status.
3	Contact with medical provider	The patient's 30-day postoperative mortality status was determined through contact with the patient's medical provider. *Example:* communication with a patient's medical provider on or after the 30th postoperative day where the medical provider provides information regarding the patient's 30-day postoperative mortality status.
4	Office visit to provider greater than or equal to 30 days after procedure	The patient's 30-day postoperative mortality status was determined by report or documentation of an office visit to a provider on or after the 30th postoperative day.
5	Social Security Death Master File	The patient's 30-day postoperative mortality status was determined by utilizing the Social Security Death Master File (SSDF). The SSDF can be used for validation of death, but absence of a patient in the file does not provide proof of life or survival.
9	Other	The patient's 30-day postoperative mortality status was determined by some other method not otherwise listed.

Long Name: Status at 365 days after Surgery

SeqNo: 4955
Short Name: Mt365Stat
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the mortality status for the patient at 365 days following the index operation for this hospitalization.
ParentLongName: Mortality - 30-Day Status
ParentShortName: Mt30Stat
ParentHarvestCodes: 1
ParentValue: = "Alive"
Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

Indicate the patient's mortality status on the 365th post-operative day (1-year from the date of surgery). The date of surgery = day 0.

While only the 365-day status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Alive	The patient was alive on the 365th postoperative day.
2	Dead	The patient was dead on the 365th postoperative day.
3	Unknown	The patient's mortality status, alive or dead, is unknown on the 365th postoperative day. Unknown values count as missing upon analysis.

Long Name: 365 Day Status Method Verification

SeqNo: 4960

Short Name: Mt365StatMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the source of information for the patient's status at 365 days following the index operation for this hospitalization.

ParentLongName: Status at 365 days after Surgery

ParentShortName: Mt365Stat

ParentHarvestCodes: 1|2

ParentValue: = "Alive" or "Dead"

Harvest Codes:

Code: Value:

1 Evidence of life or death in the medical record
2 Contact with patient or family
3 Contact with medical provider
4 Office visit to provider greater than or equal to 30 days after procedure
5 Social Security Death Master File
9 Other

Intent/Clarification:

Indicate the method utilized to validate the patient's mortality status on the 365th postoperative day.

While only the 365-day status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Evidence of life or death in the medical record	The patient's 365-day postoperative mortality status was determined by documentation in the medical record. *For example:* a visit note or emergency room visit after the 365th postoperative day.

Code:	Value:	Definition:
2	Contact with patient or family	The patient's 365-day postoperative mortality status was determined through contact with the patient or family. *For example:* a phone call to the patient/family on or after the 365th postoperative day where the patient or family reported the patient's mortality status.
3	Contact with medical provider	The patient's 365-day postoperative mortality status was determined through contact with the patient's medical provider. *For example:* communication with a patient's medical provider on or after the 365th postoperative day where the medical provider provides information regarding the patient's 365-day postoperative mortality status.
4	Office visit to provider greater than or equal to 30 days after procedure	The patient's 365-day postoperative mortality status was determined by report or documentation of an office visit to a provider on or after the 365th postoperative day.
5	Social Security Death Master File	The patient's 365-day postoperative mortality status was determined by utilizing the Social Security Death Master File (SSDF). The SSDF can be used for validation of death, but absence of a patient in the file does not provide proof of life or survival.
9	Other	The patient's 365-day postoperative mortality status was determined by some other method not otherwise listed.

Long Name: Status at 2 years after Surgery

SeqNo: 4965

Short Name: Mt2YearStat

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the mortality status for the patient at 2 years following the index operation for this hospitalization.

ParentLongName: Status at 365 days after Surgery

ParentShortName: Mt365Stat

ParentHarvestCodes: 1

ParentValue: = "Alive"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

Indicate the patient's mortality status at 2-years following the procedure. The date of surgery = day 0.

While only the 2-year status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Alive	The patient was alive at 2-years following the procedure.
2	Dead	The patient was dead at 2-years following the procedure.
3	Unknown	The patient's mortality status, alive or dead, is unknown at 2-years following the procedure. Unknown values count as missing upon analysis.

Long Name: Two Year Status Method Verification

SeqNo: 4970

Short Name: Mt2YearStatMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the source of information for the patient's status at 2 years following the index operation for this hospitalization.

ParentLongName: Status at 2 years after Surgery

ParentShortName: Mt2YearStat

ParentHarvestCodes: 1|2

ParentValue: = "Alive" or "Dead"

Harvest Codes:

Code: Value:

1 Evidence of life or death in the medical record
2 Contact with patient or family
3 Contact with medical provider
4 Office visit to provider greater than or equal to 30 days after procedure
5 Social Security Death Master File
9 Other

Intent/Clarification:

Indicate the method utilized to validate the patient's mortality status at 2-years following the procedure.

While only the 2-year status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Evidence of life or death in the medical record	The patient's 2-year postoperative mortality status was determined by documentation in the medical record. *Example:* a visit note or emergency room visit on or after the 2-years following the procedure.
2	Contact with patient or family	The patient's 2-year postoperative mortality status was determined through contact with the patient or family. *Example:* a phone call to the patient/family on or after 2-years following the procedure where the patient or

Code:	Value:	Definition:
		family reported the patient's mortality status.
3	Contact with medical provider	The patient's 2-year postoperative mortality status was determined through contact with the patient's medical provider. *Example:* communication with a patient's medical provider on or after 2-years following the procedure where the medical provider provides information regarding the patient's 2-year postoperative mortality status.
4	Office visit to provider greater than or equal to 30 days after procedure	The patient's 2-year postoperative mortality status was determined by report or documentation of an office visit to a provider on or after 2-years following the procedure.
5	Social Security Death Master File	The patient's 2-year postoperative mortality status was determined by utilizing the Social Security Death Master File (SSDF). The SSDF can be used for validation of death, but absence of a patient in the file does not provide proof of life or survival.
9	Other	The patient's 2-year postoperative mortality status was determined by some other method not otherwise listed.

Long Name: Status at 5 years after Surgery

SeqNo:	4975
Short Name:	Mt5YearStat
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the mortality status for the patient at 5 years following the index operation for this hospitalization.
ParentLongName:	Status at 2 years after Surgery

ParentShortName: Mt2YearStat

ParentHarvestCodes: 1

ParentValue: = "Alive"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Intent/Clarification:

Indicate the patient's mortality status at 5-years following the procedure. The date of surgery = day 0.

While only the 5-year status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Alive	The patient was alive at 5-years following the procedure.
2	Dead	The patient was dead at 5-years following the procedure.
3	Unknown	The patient's mortality status, alive or dead, is unknown at 5-years following the procedure. Unknown values count as missing upon analysis.

Long Name: Five Year Status Method Verification

SeqNo: 4980

Short Name: Mt5YearStatMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the source of information for the patient's status at 5 years following the index operation for this hospitalization.

ParentLongName: Status at 5 years after Surgery

ParentShortName: Mt5YearStat

ParentHarvestCodes: 1|2

ParentValue: = "Alive" or "Dead"

Harvest Codes:

Code: Value:

1 Evidence of life or death in the medical record
2 Contact with patient or family
3 Contact with medical provider
4 Office visit to provider greater than or equal to 30 days after procedure
5 Social Security Death Master File
9 Other

Intent/Clarification:

Indicate the method utilized to validate the patient's mortality status at 5-years following the procedure.

While only the 5-year status following the index operation will be analyzed, for granularity and use at the local level, this field can be completed for each operation performed.

See General information mortality status for additional information on validation of mortality status.

Code:	Value:	Definition:
1	Evidence of life or death in the medical record	The patient's 5-year postoperative mortality status was determined by documentation in the medical record. *Example:* a visit note or emergency room visit on or after the 2-years following the procedure.
2	Contact with patient or family	The patient's 5-year postoperative mortality status was determined through contact with the patient or family. *Example:* a phone call to the patient/family on or after 5-years following the procedure where the patient or family reported the patient's mortality status.
3	Contact with medical provider	The patient's 5-year postoperative mortality status was determined through contact with the patient's

Code:	Value:	Definition:
		medical provider. *Example:* communication with a patient's medical provider on or after 5-years following the procedure where the medical provider provides information regarding the patient's 5-year postoperative mortality status.
4	Office visit to provider greater than or equal to 30 days after procedure	The patient's 5-year postoperative mortality status was determined by report or documentation of an office visit to a provider on or after 5-years following the procedure.
5	Social Security Death Master File	The patient's 5-year postoperative mortality status was determined by utilizing the Social Security Death Master File (SSDF). The SSDF can be used for validation of death, but absence of a patient in the file does not provide proof of life or survival.
9	Other	The patient's 5-year postoperative mortality status was determined by some other method not otherwise listed.

Long Name: Mortality - Operative Death

SeqNo: 4985

Short Name: MtOpD

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Operative Mortality includes: (1) all deaths, regardless of cause, occurring during the hospitalization in which the operation was performed, even if after 30 days (including patients transferred to other acute care facilities); and (2) all deaths, regardless of cause, occurring after discharge from the hospital, but before the end of the thirtieth postoperative day.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

This field should be completed accurately for all procedures performed (index and non-index) including all operation types regardless of whether the case will be analyzed or included in a specific analysis table.

This field cannot be completed until the patient's episode of care has ended.

The definition for operative mortality in the CHSD is slightly different from the adult databases. Unlike the CHSD, the adult databases collect discharge to hospice and have considerations for palliative care consults which assist in determining operative mortality. Please follow the CHSD definition for operative mortality.

Code (1) Yes for the following:

- All mortalities regardless of the cause of death that occur during the surgical hospitalization
    - Includes all mortalities that occur after the 30th postoperative day if the mortality is during the surgical hospitalization
    - In the event the patient transfers to another acute care center, this includes all mortalities that occur while the patient remains in the acute care facility (through the episode of care).
- All mortalities regardless of the cause of death that occur after discharge to home from the surgical hospital but before the end of the 30th postoperative day. The date of surgery is day 0.

<u>Examples</u>:

- Following an index operation, a patient undergoes ECMO cannulation and ultimately expires. Code (1) Yes for both the index operation and the ECMO cannulation.
- Following an index operation, a patient transfers to another acute care facility and then discharges to home. The patient expires at home 75-days after discharge from the surgical hospital and after 25-days of discharge from the acute care facility (end date of database tracking). Code (2) No as the patient discharged to home ending the episode of care. The patient did not expire within the episode of care.
- Following an index operation, a patient transfers to another acute care facility and ultimately is readmitted to the surgical hospital where the patient expired. Code (1) Yes as the patient died during the episode of care.
- Following an index operation, a patient is transferred to a rehabilitation facility for

chronic care. The patient expires after 3-months at the facility. Code (1) Yes as the patient died during the episode of care.

See General information mortality status for additional information on validation of mortality status.

Long Name: Eligibility For CHSS Study

SeqNo: 4990
Short Name: CHSSElig
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate patient's eligibility for the Congenital Heart Surgeon Society (CHSS) study.

Harvest Codes:

Code: Value:

1 Patient is eligible and enrolled
2 Patient is eligible, but declined enrollment
3 Patient is eligible, but not invited to participate
4 Patient is eligible, but institution is not a CHSS participant
5 Patient is eligible, but not enrolled for other reason
6 Patient is not eligible for CHSS study

Intent/Clarification:

Indicate if the patient is eligible to enroll into a Congenital Heart Surgeon Society (CHSS) study.

Refer to the CHSS study website for enrollment criteria for each individual study. The study availability and enrollment criteria do periodically change periodically.

Code:	Value:	Definition:
1	Patient is eligible and enrolled	The patient is eligible for a CHSS study and was consented and enrolled into the study.
2	Patient is eligible, but declined enrollment	The patient is eligible for a CHSS study; however, the patient/parents/legally authorized representative declined or refused enrollment.
3	Patient is eligible, but not invited to participate	The patient is eligible for a CHSS study; however, the patient was not invited or approached for

Code:	Value:	Definition:
		enrollment into the study
4	Patient is eligible, but institution is not a CHSS participant	The patient is eligible for a CHSS study; however, the surgical institution is not a CHSS participant. Work with your surgeon/research office to determine if your center is a participant.
5	Patient is eligible, but not enrolled for other reason	The patient is eligible for a CHSS study; however, the patient was not enrolled into a study for a reason not otherwise listed.
6	Patient is not eligible for CHSS study	The patient is not eligible for a CHSS study.

T2. LONGITUDINAL FOLLOW-UP

Long Name: Date of Last Follow-Up

SeqNo: 4995
Short Name: LFUDate
Database Table Name: Demographics
Data Source: User
Format: Date - mm/dd/yyyy
Definition: Indicate the date on which the last follow-up was made. If patient dies in the hospital, this value will be the same as the date of death. If no follow-up is made after patient is discharged, this value will be the same as the discharge date.

Intent/Clarification:

Indicate the last known date of contact with the patient. This is not intended to capture the date the data manager followed up on the patient, but the last known date of contact.

In the event of patient mortality, enter the mortality date.

In the event no follow up is made after the patient discharges from the surgical hospital, enter the date of hospital discharge.

Long Name: Mortality Status At Last Follow-Up

SeqNo:	5000
Short Name:	LFUMortStat
Database Table Name:	Demographics
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the mortality status of the patient at the time of the last follow-up. If no follow-up is made after patient is discharged, this value will be the same as the Mortality Status At Hospital Discharge.

Harvest Codes:

Code:	Value:
1	Alive
2	Dead

Intent/Clarification:

Indicate the patient's mortality status at the time of the last follow-up (last known date of contact with the patient).

In the event no follow up is made after the patient discharges from the surgical hospital, enter the same status as at the time of hospital discharge.

Long Name: Mortality Date

SeqNo:	5005
Short Name:	MtDate
Database Table Name:	Demographics
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the patient's date of death.
ParentLongName:	Mortality Status At Last Follow-Up
ParentShortName:	LFUMortStat
ParentHarvestCodes:	2
ParentValue:	= "Dead"

Intent/Clarification:

If the mortality status at last follow-up is dead, enter the date the patient was declared dead.

In the event the patient is an organ donor, use the date on the death certificate (the date the patient was pronounced dead) even if the organ(s) were harvested at a later date/time.

Use the exact date of death if possible. In the event the date is not available, e.g., another facility notifies the surgeon a former patient died but no exact date was given, enter the date the surgeon was notified of the death.

U. PATIENT PROCESS MEASURES

Long Name: Patient's care discussed at preoperative multidisciplinary planning conference

SeqNo:	5010
Short Name:	CareDiscussed
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether this patient's care was discussed at a preoperative multidisciplinary planning conference to plan pediatric and congenital heart surgery cases. A preoperative multidisciplinary planning conference involves attendance by multiple members of the healthcare team, with recommended participation including but not limited to: cardiology, cardiac surgery, anesthesia, and critical care.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2|9
ParentValue:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For procedures with operation types CPB Cardiovascular, No CPB Cardiovascular and CPB Non-Cardiovascular, indicate if the patient's care was discussed at a preoperative multidisciplinary conference.

Long Name: Reason why patient's care was not discussed

SeqNo: 5015
Short Name: CareDiscussedRsn
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the reason why the patient's case was not discussed at a preoperative multidisciplinary planning conference.
ParentLongName: Patient's care discussed at preoperative multidisciplinary planning conference
ParentShortName: CareDiscussed
ParentHarvestCodes: 2
ParentValue: = "No"
Harvest Codes:

Code: Value:

1 Urgent / Emergent / salvage case
2 Patient admitted between conferences
3 Program does not routinely discuss all cases
4 Program does not have regular conferences
5 Other

Intent/Clarification:

If the patient's care was not discussed at a preoperative multidisciplinary planning conference, indicate why.

Code:	Value:	Definition:
1	Urgent / Emergent / salvage case	The patient underwent an urgent / emergent / salvage case, and the patient went to surgery before the next scheduled conference.
2	Patient admitted between conferences	The patient was admitted after the previous conference and went to surgery prior to the next scheduled conference.
3	Program does not routinely discuss all cases	The program does not routinely discuss all cases at a preoperative multidisciplinary planning conference.

Code:	Value:	Definition:
4	Program does not have regular conferences	The program does not have a regularly scheduled preoperative multidisciplinary planning conference.
5	Other	Patient not discussed for a reason not otherwise listed.

Long Name: Transesophageal Echocardiography (TEE) available for case

SeqNo: 5020

Short Name: TEEAvail

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether intraoperative transesophageal echocardiography (TEE) was available for this case (or epicardial echocardiography if TEE contraindicated or not informative).

Availability is defined as the presence and availability of equipment and staff to perform the study. Reporting of compliance will be as the fraction of all Cardiac Operations with availability (as opposed to use) of TEE and/or epicardial echocardiography.

ParentLongName: Operation Type

ParentShortName: OpType

ParentHarvestCodes: 1|2|9

ParentValue: = "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

For procedures with operation types CPB Cardiovascular, No CPB Cardiovascular and CPB Non-Cardiovascular, indicate if transesophageal echocardiography (TEE) was available (equipment present and staff available to perform the study) for this surgical case.

Includes the use of epicardial echocardiography if TEE was contraindicated or not informative.

Long Name: Intraoperative transesophageal echocardiography (TEE) performance

SeqNo:	5025
Short Name:	TEEEpicEchoPerf
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether TEE / epicardial echocardiography was performed for this case. If available, TEE may not be performed due to surgeon preference, size of patient, not indicated, etc.
ParentLongName:	Transesophageal Echocardiography (TEE) available for case
ParentShortName:	TEEAvail
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If transesophageal echocardiography (TEE) was available, indicate whether a TEE or epicardial echocardiography was performed, regardless of the reason not performed.

Long Name: Preoperative antibiotic prophylaxis given

SeqNo:	5030
Short Name:	PreopAntiProph
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a preoperative antibiotic prophylaxis was given to this patient. Measure is satisfied for each Cardiac Operation, when there is documentation that the patient has received prophylactic antibiotic(s) within the hour immediately preceding surgical

incision (two hours if receiving vancomycin). To satisfy this measure, the field named “Skin Incision Start Time” must be completed.

ParentLongName: Operation Type

ParentShortName: OpType

ParentHarvestCodes: 1|2|9

ParentValue: = "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Patient on ongoing antibiotic therapy, prophylaxis not indicated

Intent/Clarification:

For procedures with operation types CPB Cardiovascular, No CPB Cardiovascular and CPB Non-Cardiovascular, indicate if the patient received prophylactic antibiotics within the hour immediately preceding the surgical incision (skin incision start time) or within 2-hours of the surgical incision if the patient received Vancomycin.

Long Name: Preoperative antibiotic prophylaxis - Multi-Select

SeqNo: 5060

Short Name: PreopAntiProphMulti

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all preoperative antibiotic prophylaxis given to the patient.

ParentLongName: Preoperative antibiotic prophylaxis given

ParentShortName: PreopAntiProph

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Cephalosporin
2	Aminoglycoside
3	Penicillin or related medication
4	Vancomycin
5	Other

Intent/Clarification:

If the patient received preoperative antibiotic prophylaxis, indicate the antibiotic(s) the patient received.

Long Name: Preoperative antibiotic prophylaxis - Time started

SeqNo:	5065
Short Name:	PreopAntiProphTime
Database Table Name:	Operations
Data Source:	User
Format:	Time - hh:mm (24-hour clock)
Definition:	Indicate the time when the antibiotic infusion started.
ParentLongName:	Preoperative antibiotic prophylaxis given
ParentShortName:	PreopAntiProph
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received preoperative antibiotic prophylaxis, indicate the time the first antibiotic was started.

Long Name: Conventional preprocedure time-out.

SeqNo:	5070
Short Name:	ConvTimeOut
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a conventional preprocedural “time-out”, which includes identification of patient, operative site, procedure, and history of any allergies, was performed.
ParentLongName:	Operation Type
ParentShortName:	OpType
ParentHarvestCodes:	1|2|9
ParentValue:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code: Value:
1 Yes
2 No

Intent/Clarification:

For procedures with operation types CPB Cardiovascular, No CPB Cardiovascular and CPB Non-Cardiovascular, indicate whether a conventional preprocedural time-out was performed.

A time-out includes identification of the patient, operative site, procedure, and history of allergies.

Long Name: Patient management and outcomes reviewed

SeqNo: 5115
Short Name: PostOpReview
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient's management and outcomes were reviewed as a part of a regularly scheduled Quality Assurance and Quality Improvement Cardiac Care Conference (i.e., Morbidity and Mortality conference).

Harvest Codes:

Code: Value:
1 Reviewed at conference
2 Scheduled to be reviewed at next conference
3 Not reviewed and not scheduled to be reviewed
4 Program does not have regularly scheduled conferences

Intent/Clarification:

For all procedures, indicate whether a patient's management and outcomes were reviewed as part of a regularly scheduled quality assurance and quality improvement cardiac care conference. Includes morbidity and mortality conference.

Code:	Value:	Definition:
1	Reviewed at conference	The patient's postoperative management and outcome were reviewed at a regularly scheduled quality assurance and quality improvement cardiac care conference (i.e., morbidity and mortality conference).

Code:	Value:	Definition:
2	Scheduled to be reviewed at next conference	The patient is on the schedule to be discussed at an upcoming quality assurance and quality improvement cardiac care conference (i.e., morbidity and mortality conference). Update this answer to (1) Reviewed at conference once the patient is discussed at the quality assurance and quality improvement cardiac care conference.
3	Not reviewed and not scheduled to be reviewed	The patient's postoperative management and outcome were not reviewed at a regularly scheduled quality assurance and quality improvement cardiac care conference (i.e., morbidity and mortality conference) and is not currently on the schedule to be discussed at an upcoming quality assurance and quality improvement cardiac care conference.
4	Program does not have regularly scheduled conferences	The program does not have a regularly scheduled quality assurance and quality improvement cardiac care conference.

Long Name: Patient management and outcomes reviewed - date

SeqNo:	5120
Short Name:	PostOpReviewDate
Database Table Name:	Operations
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Indicate the date this patient's management and outcome was reviewed as a part of a regularly scheduled Quality Assurance and Quality Improvement Cardiac Care Conference (i.e., Morbidity and Mortality conference).
ParentLongName:	Patient management and outcomes reviewed
ParentShortName:	PostOpReview
ParentHarvestCodes:	1

ParentValue: = "Reviewed at conference"

Intent/Clarification:

If the patient's management and outcomes were reviewed as part of a regularly scheduled quality assurance and quality improvement cardiac care conference, indicate the date of the conference.

ANESTHESIA ADMINISTRATIVE

Long Name: Anesthesiology Data Collected

SeqNo: 5125
Short Name: Anesthesia
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether anesthesia data is being collected.
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Indicate if anesthesia data is being collected for this procedure.

Long Name: Anesthesiologist Present

SeqNo: 5130
Short Name: AnesPresent
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether an anesthesiologist was present for the procedure.
ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if an anesthesiologist was present for the procedure.

Long Name: Primary Anesthesiologist Attending Name

SeqNo: 5135

Short Name: PrimAnesName

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by user)

Definition: Indicate the name of the primary anesthesiologist (attending physician present at induction of anesthesia).

The name, NPI and signature of all anesthesiologists contributing data to the database must be on file with the STS for data files to be accepted.

ParentLongName: Anesthesiologist Present

ParentShortName: AnesPresent

ParentHarvestCodes: 1

ParentValue: = "Yes"

Intent/Clarification:

If an anesthesiologist is present for the procedure, indicate the name of the primary attending anesthesiologist present at induction of anesthesia.

Long Name: Primary Anesthesiologist National Provider Identifier

SeqNo: 5140

Short Name: PrimAnesNPI

Database Table Name: Operations

Data Source:	Lookup
Format:	Text (categorical values specified by User)
Definition:	Indicate the individual-level National Provider Identifier (NPI) of the anesthesiologist performing the procedure.
ParentLongName:	Anesthesiologist Present
ParentShortName:	AnesPresent
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If an anesthesiologist is present for the procedure, indicate the National Provider Identifier (NPI) of the primary attending anesthesiologist. This field must be populated as missing/inaccurate data will cause problems with the data file submission.

This link provides an NPI search tool NPI Registry.

Long Name: Secondary Anesthesiologist Attending

SeqNo:	5145
Short Name:	SecAnes
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a relieving anesthesiologist and/or second anesthesiology attending was present during this procedure.
ParentLongName:	Anesthesiologist Present
ParentShortName:	AnesPresent
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If an anesthesiologist is present for the procedure, indicate if a second attending anesthesiologist or relieving anesthesiologist was present for the procedure.

Long Name: Fellow or Resident Present

SeqNo: 5150

Short Name: FelRes

Database Table Name: Operations Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a Fellow or Resident was present during this procedure.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a fellow or resident was present during the procedure.

Long Name: Mid-Level Provider (CRNA, AA) Present

SeqNo: 5155

Short Name: CRNA

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a Certified Registered Nurse Anesthetist (CRNA) or Anesthesia Assistant (AA) participated in patient care during all or part of this procedure.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a certified registered nurse anesthetist (CRNA) or anesthesia assistant (AA) participated in patient care during the procedure, including part or all of the procedure.

ANESTHESIA PREOPERATIVE

Long Name: Preoperative Medications Taken

SeqNo: 5171
ShortName: PreopMedTaken
Database Table Name: Operations Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether the patient was taking any of the listed medications preoperatively.
ParentLongName: Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentHarvestCodes: 1
ParentValue: "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient was taking any of the listed medications preoperatively within 24-hours of anesthesia start time (PLocTransDT) or within 5 days of anesthesia start time for aspirin or other platelet inhibitor (under Preoperative anticoagulation).

- Amiodarone
- Angiotensin Converting Enzyme (ACE) Inhibitors
- Angiotensin Receptor Blockers (ARB)
- Anti-arrhythmics Not Otherwise Listed
- Anti-seizure Medications
- Beta blockers
- Birth Control (Oral, Intramuscular)
- Calcium Channel Blockers
- Calcium Chloride Infusion
- Clonidine
- Dexmedetomidine
- Digoxin
- Diuretics
- Dobutamine

- Dopamine
- Epinephrine
- Inotropes Not Otherwise Listed
- Insulin
- Milrinone
- Nitroglycerin
- Nitroprusside
- Norepinephrine
- Prostaglandin
- Psychiatric Medications (including ADHD and antidepressants)
- Statins
- Steroids (oral/intravenous)
- Thyroid Hormone
- Transplant Rejection Inhibition Meds (other than steroids)
- Vasoconstrictors Not Otherwise Listed
- Vasodilators Not Otherwise Listed
- Vasopressin
- Erythropoietin
- Preoperative anticoagulation
- Supplemental iron
- Preoperative pulmonary vasodilators

Long Name: Preoperative Medication Category - Multi-Select

SeqNo:	5175
Short Name:	PreopMedCatMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all preoperative medication(s) from the list provided given to the patient within 24 hours (unless noted otherwise) prior to the period of anesthetic care.
ParentLongName:	Preoperative Medications Taken
ParentShortName:	PreopMedTaken
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
10	Amiodarone
20	Angiotensin Converting Enzyme (ACE) Inhibitors
760	Angiotensin Receptor Blockers (ARB)
700	Anti-arrhythmics Not Otherwise Listed
40	Anti-seizure Medications
70	Beta blockers
80	Birth Control (Oral, Intramuscular)
90	Calcium Channel Blockers
100	Calcium Chloride Infusion
750	Clonidine

740 Dexmedetomidine
120 Digoxin
140 Diuretics
150 Dobutamine
160 Dopamine
180 Epinephrine
710 Inotropes Not Otherwise Listed
210 Insulin
230 Milrinone
260 Nitroglycerin
270 Nitroprusside
280 Norepinephrine
320 Prostaglandin
330 Psychiatric Medications (including ADHD and antidepressants)
340 Statins
350 Steroids (oral/intravenous)
360 Thyroid Hormone
370 Transplant Rejection Inhibition Meds (other than steroids)
720 Vasoconstrictors Not Otherwise Listed
730 Vasodilators Not Otherwise Listed
380 Vasopressin
780 Erythropoietin
790 Preoperative anticoagulation
800 Supplemental iron
810 Preoperative pulmonary vasodilators

Intent/Clarification:

If the patient is taking preoperative medications, select the medications the patients received preoperatively within 24-hours of anesthesia start time (PLocTransDT) or within 5 days of anesthesia start time for aspirin or other platelet inhibitor (under Preoperative anticoagulation).

Long Name: Preoperative Anticoagulation Type - Multi-Select

SeqNo:	5180
Short Name:	PreopAnticoagType
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all types of preoperative anticoagulation medications given to the patient.

ParentLongName: Preoperative Medication Category - Multi-Select

ParentShortName: PreopMedCatMulti

ParentHarvestCodes: contains(790)

ParentValue: Contains ("Preoperative anticoagulation")

Harvest Codes:

Code:	Value:
1	Aspirin (within 5 days)
2	Coumadin
3	Direct thrombin inhibitor (e.g., Bivalirudin)
4	Heparin
5	Heparin, Low molecular weight
6	Platelet inhibitor other than aspirin (e.g., Plavix) (within 5 days)
7	Novel Oral Anticoagulant (NOAC) (e.g., Apixaban (Xarelto))
8	Anticoagulant not otherwise listed

Intent/Clarification:

If the patient received preoperative anticoagulation, indicate which anticoagulant medications the patient received.

Long Name: Preoperative Pulmonary Vasodilators - Multi-Select

SeqNo: 5185

Short Name: PreopPulVasType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all preoperative pulmonary vasodilators given to the patient.

ParentLongName: Preoperative Medication Category - Multi-Select

ParentShortName: PreopMedCatMulti

ParentHarvestCodes: contains(810)

ParentValue: Contains ("Preoperative pulmonary vasodilators")

Harvest Codes:

Code:	Value:
1	Endothelin antagonist (e.g., Bosentan)
2	Nitric Oxide
3	PDE05 inhibitor (e.g., Sildenafil)

4 Prostacyclin (e.g., Flolan, Remodulin)

Intent/Clarification:

If the patient received preoperative pulmonary vasodilators, indicate which pulmonary vasodilators the patient received.

Long Name: Preoperative Baseline Oxygen Saturation

SeqNo:	5255
Short Name:	PreopO2Sat
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the preoperative resting pulse oximeter saturation (%) recorded either in the clinic or immediately prior to the procedure.
Low Value:	30.0
High Value:	100.0
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the preoperative resting oxygen saturation (%) recorded prior to the procedure.

Long Name: Preoperative Oxygen Supplementation

SeqNo:	5260
Short Name:	PreopOxygen
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether the patient received preoperative oxygen supplementation.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient received preoperative oxygen supplementation. Includes all routes of oxygen supplementation (e.g., nasal cannula, face mask, etc.).

Long Name: Transport to Procedure Location Date and Time

SeqNo:	5265
Short Name:	PLocTransDT
Database Table Name:	Operations
Data Source:	User
Format:	Date/Time - mm/dd/yyyy hh:mm
Definition:	Indicate the date (mm/dd/yyyy) and time (hh:mm 24-hour clock) of day when the patient was transferred to the procedure location or when anesthesia started.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the date and time the patient was transferred to the procedure location, or if not available, use the anesthesia start time.

ANESTHESIA MONITORING

Long Name: Arterial Line

SeqNo:	5270
Short Name:	ArtLine
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an arterial line was used during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if an arterial line was utilized during the procedure. Includes arterial lines placed in the operating room and existing arterial lines the patient has prior to entering the operating room.

Long Name: Arterial Line Location - Multi-Select

SeqNo:	5315
Short Name:	ArtLineLocMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all arterial line locations.
ParentLongName:	Arterial Line
ParentShortName:	ArtLine
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:

Code	Value
1	Radial
2	Brachial
3	Axillary
4	Femoral
5	Ulnar
6	Dorsalis Pedis
7	Posterior tibial
8	Umbilical

Intent/Clarification:

If an arterial line was utilized during the procedure, indicate the location(s) of the arterial line(s).

Long Name: Arterial Line In-Situ Pre-Procedure

SeqNo:	5320
Short Name:	Procedure ArtLinePreProc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the arterial line was in-situ pre-procedure.
ParentLongName:	Arterial Line
ParentShortName:	ArtLine
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code: Value:

Code	Value
1	Yes
2	No

Intent/Clarification:

If an arterial line was utilized during the procedure, indicate if an arterial line was present prior to the procedure, i.e., the patient arrived to the operating room with an arterial line in place.

Long Name: Cutdown

SeqNo:	5325
Short Name:	Cutdown

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a cutdown was used during this procedure.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If an arterial line was utilized during the procedure (SeqNo 5270 is Yes), indicate if a cutdown was performed during the procedure.

Only answer this question if an arterial line was used, otherwise leave blank. This field is known to be missing a parent field, SeqNo 5270 = Yes.

Long Name: Cutdown Location - Multi-Select

SeqNo: 5350

Short Name: CutdownLocMulti

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all cutdown locations.

ParentLongName: Cutdown

ParentShortName: Cutdown

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Radial
2	Femoral
3	Ulnar
4	Other

Intent/Clarification:

If a cutdown was performed, indicate the location(s) of the cutdown(s).

Long Name: Percutaneous Central Pressure

SeqNo:	5355
Short Name:	PercCentPress
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether percutaneous central pressure monitoring was used during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a percutaneous central pressure was monitored during the procedure. Includes lines used for monitoring percutaneous central pressure placed in the operating room and existing lines the patient has prior to entering the operating room.

Long Name: Percutaneous Central Pressure Monitoring Locations - Multi-Select

SeqNo:	5400
Short Name:	PCPLocMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all percutaneous central pressure monitoring locations.
ParentLongName:	Percutaneous Central Pressure
ParentShortName:	PercCentPress
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:

1 Right internal jugular
2 Left internal jugular
3 Right subclavian
4 Left subclavian
5 Right femoral vein
6 Left femoral vein
7 PICC
8 Umbilical
9 Other

Intent/Clarification:

If percutaneous central pressure monitoring was utilized, indicate the location(s).

Long Name: CVP, PICC, LA or RA Line(s) In-Situ Pre-Procedure

SeqNo:	5405
Short Name:	CVPPICCPreProc
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether CVP, PICC, LA or RA line(s) were in place prior to entering the OR.
ParentLongName:	Percutaneous Central Pressure
ParentShortName:	PercCentPress
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If percutaneous central pressure monitoring was utilized, indicate if lines used to monitor percutaneous central pressure were present at the time the patient entered the operating room. Includes central venous pressure (CVP) line, peripherally inserted central catheter (PICC), left atrial (LA) line, and right atrial (RA) line.

Long Name: CVP Placed By Anesthesia

SeqNo:	5410

Short Name:	CVPPlaced
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a CVP was placed by anesthesia during this procedure.
ParentLongName:	Percutaneous Central Pressure
ParentShortName:	PercCentPress
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If percutaneous central pressure monitoring was utilized, indicate if a central venous pressure (CVP) line was placed by anesthesia during the procedure.

Long Name: Surgeon Placed Lines INSTEAD of Anesthesia Placed Central Lines

SeqNo:	5415
Short Name:	SurgMonLines
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the surgeon placed one or more central monitoring / medication lines directly in the Right, Left or Common Atria during the procedure INSTEAD of pre-incision placement of a central line by anesthesia or the use of existing percutaneous CVL or PICC. This does not include monitoring lines placed during the procedure in addition to the anesthesia or in-situ catheters.
ParentLongName:	Percutaneous Central Pressure
ParentShortName:	PercCentPress
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:

1 Yes
2 No

Intent/Clarification:

If percutaneous central pressure monitoring was utilized, indicate if the surgeon placed a line for central monitoring or medication administration directly into the right, left, or common atria during the procedure instead of anesthesia placement of a central line prior to the procedure or the use of an existing central line (central venous line or peripherally inserted central catheter).

Do not include lines placed during the procedure in addition to existing central lines or anesthesia placed lines, e.g., surgeon placement of a right atrial line at the end of the case.

Long Name: Swan-Ganz Catheter

SeqNo:	5420
Short Name:	SGCath
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a Swan-Ganz catheter was inserted or utilized by anesthesia during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a Swan-Ganz catheter (also known as a pulmonary artery catheter) was either inserted or utilized by anesthesia during the procedure.

Long Name: Oximetric Central Line

SeqNo:	5425
Short Name:	ScVO2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether an oximetric central line was inserted or utilized by anesthesia during this procedure.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if an oximetric central line was either inserted or utilized by anesthesia during the procedure.

Long Name: Ultrasound Guidance Used For Catheter Placement

SeqNo: 5435

Short Name: UltraGuideUsed

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether real-time ultrasound imaging was used for catheter placement (i.e., Sonosite or equivalent).

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if ultrasound imaging in real-time was used for line/catheter placement, including arterial, central venous, or peripheral lines.

Long Name: Ultrasound Guidance Location

SeqNo:	5440
Short Name:	UltraGuideLoc
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all locations of ultrasound guidance used for catheter placement.
ParentLongName:	Ultrasound Guidance Used For Catheter Placement
ParentShortName:	UltraGuideUsed
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Arterial catheter
2	Central venous catheter
3	Peripheral IV catheter

Intent/Clarification:

If real-time ultrasound guidance used for catheter/line placement, indicate the locations where ultrasound guidance was used.

Long Name: Neurologic Monitoring

SeqNo:	5445
Short Name:	NeuroMonitor
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received neurological monitoring during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient received neurologic monitoring during the procedure.

Long Name: Neurological Monitoring Type - Multi-Select

SeqNo: 5470

Short Name: NeuroMonType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all types of neurological monitoring.

ParentLongName: Neurologic Monitoring

ParentShortName: NeuroMonitor

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	BIS, pEEG, Brainz
2	Transcranial doppler
3	NIRS (cerebral)
4	Other

Intent/Clarification:

If the patient received neurologic monitoring during the procedure, indicate the type(s) of monitoring the patient received.

Long Name: Lowest Recorded Intraoperative Temperature

SeqNo: 5475

Short Name: LowIntraopTemp

Database Table Name: Operations

Data Source: User

Format:	Real
Definition:	Indicate the patient's lowest temperature (in degrees Centigrade) recorded during the intraoperative period.
Low Value:	0.1
High Value:	40.9
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the lowest recorded temperature between anesthesia start and anesthesia stop time.

Long Name: Lowest Intraoperative Temperature Monitoring Site

SeqNo:	5480
Short Name:	IntraopTempSite
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the site where the patient's lowest temperature was being recorded intraoperatively.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Nasal
2	Esophageal
3	Bladder
4	Rectal
5	Axillary
6	Skin
7	Tympanic
9	Other

Intent/Clarification:

If anesthesia data is being collected, indicate the site where the lowest intraoperative temperature was recorded.

Long Name: Transesophageal Echocardiography

SeqNo:	5485
Short Name:	TEE
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether a transesophageal echocardiography probe was placed or attempted during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a transesophageal echocardiography probe was placed, or attempted to be placed, during the procedure.

ANESTHESIA ANESTHESTIC TECHNIQUE

Long Name: Induction Date and Time

SeqNo:	5490
Short Name:	InductionDT
Database Table Name:	Operations
Data Source:	User
Format:	Date/Time - mm/dd/yyyy hh:mm

Definition:	Indicate the date (mm/dd/yyyy) and time (hh:mm 24-hour clock) when the patient was first induced.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the date and time when the patient underwent anesthesia induction. Induction is the reversible transition from a conscious to an unconscious state at the start of anesthesia care. Induction is achieved using medications including inhalation agents and intramuscular and intravenous medications.

Long Name: Anesthesia Ready Time / End of Induction

SeqNo:	5495
Short Name:	EndOfInductDT
Database Table Name:	Operations
Data Source:	User
Format:	Date/Time - mm/dd/yyyy hh:mm
Definition:	Indicate the date and time at which anesthesia preparations for surgery, such as placement of desired airway and vascular access, have been completed.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the date and time anesthesia has completed their procedure related preparations (i.e., line placement, airway securement etc.). This is the time anesthesia is ready for the procedure to start.

Long Name: Regional Anesthetic

SeqNo:	5580
Short Name:	RegionalAnes
Database Table Name:	Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a regional anesthetic was used during this operation.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a regional anesthetic was used during the procedure. Regional anesthesia is when a specific regional anesthetic block is performed to achieve numbness or pain relief and includes spinal anesthesia, epidural anesthesia, and nerve blocks.

Long Name: Regional Anesthetic Site

SeqNo: 5585

Short Name: RegAnesSite

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the technique used for the regional anesthetic.

ParentLongName: Regional Anesthetic

ParentShortName: RegionalAnes

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Thoracic Epidural Catheter
2	Lumbar Epidural Catheter
3	Caudal Epidural Catheter
4	Lumbar Epidural - Single shot
5	Caudal Epidural - Single shot
6	Lumbar Intrathecal - Single Shot
7	Paravertebral Block - Single Shot

8	Paravertebral Block - Catheter
10	Erector spinae block(s) - single
11	Erector spinae block(s) - catheter
12	Transversus thoracic blocks
13	PECS (I~~, II~~) block(s)
14	PECS (II) block(s) ~~intercostal block~~
15	Parasternal block - single shot
16	Serratus block
9	Other

Intent/Clarification:

If a regional anesthetic was used during the procedure, indicate the site used for the regional anesthetic.

Please note, selection (13) should be PECS (I) block(s) and (14) should be PECS (II) block(s).

Long Name: Intercostal Nerve Infiltration By Surgeon or Anesthesia

SeqNo:	5645
Short Name:	IntNerveInf
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether intercostal nerve infiltration was performed by the surgeon or anesthesiologist
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate whether intercostal nerve infiltration was performed by either the surgeon or the anesthesiologist. Intercostal nerve infiltration may be documented as intercostal nerve block or local anesthetic.

Long Name: Incisional Field Block by Surgeon or Anesthesia

SeqNo: 5650

Short Name: RegFieldBlock

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether a regional field block was performed by the surgeon or anesthesiologist

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a regional field block was performed during the procedure by the surgeon or the anesthesiologist. A regional field block is when a local anesthetic is injected into the subcutaneous/skin tissue. Most often, it is completed by a surgeon.

ANESTHESIA AIRWAY

Long Name: Airway In-situ (ETT or Tracheostomy)

SeqNo: 5655

Short Name: AirwayInsitu

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether an Endotracheal Tube (ETT) or tracheostomy was in place prior to arrival in the procedure area.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if an invasive artificial airway (endotracheal or tracheostomy tube) was in place at the time the patient arrived to the operating room.

Long Name: ETT or Tracheostomy Replaced For Procedure

SeqNo: 5660

Short Name: AirwayReplaced

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether the Endotracheal Tube or tracheostomy was electively replaced prior to the procedure. For example, oral to nasal ETT, tracheostomy to ETT, uncuffed to cuffed ETT.

ParentLongName: Airway In-situ (ETT or Tracheostomy)

ParentShortName: AirwayInsitu

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If an endotracheal (ETT) or tracheostomy tube was in place at the time the patient arrived to the operating room, was the tube electively replaced prior to the start of the procedure. This may include an exchange of a tube, an exchange to a larger size, position (e.g., nasal to oral), or type (uncuffed to cuffed), or change of tube type, (e.g., tracheostomy to ETT).

Long Name: Airway Type

SeqNo: 5665

Short Name:	AirwayType
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the type of airway support that was used during this procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	No airway support
7	Simple face mask
2	Bag-mask
3	Nasal cannulae
4	Laryngeal Mask Airway (LMA)
5	Endotracheal intubation
6	Tracheostomy

Intent/Clarification:

If anesthesia data is being collected, indicate the type of airway support used during the procedure. This is the primary form of airway support used during the procedure.

For example, the patient arrived with a tracheostomy which was exchanged for an endotracheal tube before the start of the procedure, code (5) Endotracheal intubation.

Long Name: Cuffed

SeqNo:	5680
Short Name:	Cuffed
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS) Definition: Indicate whether the endotracheal tube was cuffed.
ParentLongName:	Airway Type
ParentShortName:	AirwayType
ParentHarvestCodes:	5
ParentValue:	= "Endotracheal intubation"
Harvest Codes:	

Code: Value:
1 Yes
2 No

Intent/Clarification:

If endotracheal intubation was utilized as the primary airway support during the procedure, indicate if the endotracheal tube was cuffed.

Long Name: Airway Site

SeqNo: 5685
Short Name: AirwaySite
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate the endotracheal intubation site.
ParentLongName: Airway Type

ParentShortName: AirwayType
ParentHarvestCodes: 5|6
ParentValue: = "Endotracheal intubation" or "Tracheostomy"
Harvest Codes:

Code: Value:
1 Oral
2 Nasal
3 Tracheostomy

Intent/Clarification:

If endotracheal intubation or tracheostomy was utilized as the primary airway support during the procedure, indicate the site of the endotracheal intubation.

Long Name: Endobronchial Isolation (DLETT, Bronchial Blocker)

SeqNo: 5690
Short Name: EndobroncIso
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)

Definition: Indicate whether endobronchial isolation was employed using a double lumen ETT or bronchial blocker.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if endobronchial isolation was utilized during the procedure with use of a double lumen endotracheal tube or bronchial blocker. Endobronchial isolation is the use of a device, i.e., double lumen ETT or bronchial blocker, to separate the lungs to function as separate units to facilitate a surgical procedure.

Long Name: Endobronchial Isolation Method

SeqNo: 5695

Short Name: EndobroncIsoMeth

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the method used to isolate the lung.

ParentLongName: Endobronchial Isolation (DLETT, Bronchial Blocker)

ParentShortName: EndobroncIso

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	YDouble Lumen ETT
2	Arndt Bronchial Blocker
3	Fogarty Catheter
4	Intentional Mainstem ETT
5	Univent ETT
6	Other

Intent/Clarification:

If endobronchial isolation was utilized during the procedure, indicate the method used.

Long Name: ICU-Type Ventilator Used Intraop

SeqNo:	5700
Short Name:	ICUTypeVent
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether an ICU-type ventilator was used during the procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if an ICU type ventilator was used during the procedure.

ANESTHESIA INTRAOPERATIVE PHARMACOLOGY

Long Name: Intraoperative Medication Given

SeqNo:	5720
Short Name:	IntraopMedGiven
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether any intraoperative medications were given to the patient.
ParentLongName:	Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if any of the listed medications were administered to the patient during the procedure. Infusion, where listed, means a continuous infusion of the medication, not intermittent bolus doses or a series of bolus doses.

- 5-HT3 Agents (e.g., Ondansetron)
- Acetaminophen
- Adenosine bolus
- Amiodarone
- Bronchodilators - Inhaled
- Calcium Chloride / gluconate infusion
- Dexmetetomidine (Precedex)
- Dobutamine infusion
- Dopamine infusion
- Epinephrine (Adrenalin) infusion
- Esmolol
- Fenoldopam Infusion
- Furosemide
- Inotrope, Other
- Insulin
- Isoproterenol infusion
- Ketorolac
- Magnesium Sulfate
- Milrinone
- Methylene blue
- Nesiritide Infusion
- Nicardipine Infusion
- Nitric Oxide inhalation
- Nitroglycerin (Tridil) infusion
- Nitroprusside (Nipride)
- Norepinephrine (Levophed) infusion
- Phentolamine (Regitine)
- Phenylephrine infusion
- Procainamide
- Propofol (Diprivan) infusion
- Prostaglandin infusion
- Steroids IV / CPB (Hydrocortisone / Methylprednisolone / Dexamethasone)
- Thyroid Hormone
- Vasoconstrictor, Other
- Vasodilator, Other
- Vasopressin infusion

Long Name: IntraOperative Pharmacology (Including CPB) - Multi-Select

SeqNo: 5725

Short Name: IntraopPharmMulti

Database Table Name: Operations

Data Source: User

Format:	Multi-Select
Definition:	Indicate all medications that were given during the intraoperative time period.
ParentLongName:	Intraoperative Medication Given
ParentShortName:	IntraopMedGiven
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
450	5-HT3 Agents (e.g., Ondansetron)
520	Acetaminophen
20	Adenosine bolus
50	Amiodarone
420	Bronchodilators - Inhaled
70	Calcium Chloride / gluconate infusion
80	Dexmetetomidine (Precedex)
90	Dobutamine infusion
100	Dopamine infusion
110	Epinephrine (Adrenalin) infusion
120	Esmolol
510	Fenoldopam Infusion
140	Furosemide
370	Inotrope, Other
150	Insulin
170	Isoproterenol infusion
530	Ketorolac
190	Magnesium Sulfate
210	Milrinone
550	Methylene blue
230	Nesiritide Infusion
240	Nicardipine Infusion
250	Nitric Oxide inhalation
260	Nitroglycerin (Tridil) infusion
270	Nitroprusside (Nipride)
180	Norepinephrine (Levophed) infusion
290	Phentolamine (Regitine)
300	Phenylephrine infusion
500	Procainamide
310	Propofol (Diprivan) infusion
320	Prostaglandin infusion
160	Steroids IV / CPB (Hydrocortisone/Methylprednisolone/Dexamethasone)
340	Thyroid Hormone
390	Vasoconstrictor, Other

380 Vasodilator, Other
360 Vasopressin infusion

Intent/Clarification:

If intraoperative medications were administered during the procedure, indicate which medications were administered. Infusion, where listed, means a continuous infusion of the medication, not intermittent bolus doses or a series of bolus doses.

ANESTHESIA PHARMACOLOGY ON ARRIVAL TO ICU/PACU

Long Name: Medications Given At Time Of Arrival To ICU/PACU

SeqNo:	5815
Short Name:	ArriveICUMeds
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether medications were being given at time of arrival to the ICU/PACU.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if medications from the following list were being administered at the time of arrival to the post anesthesia care unit (PACU) or intensive care unit (ICU).

- Amiodarone infusion
- Calcium Chloride / gluconate infusion
- Dexmetetomidine (Precedex) infusion
- Dobutamine infusion
- Dopamine infusion

- Epinephrine (Adrenalin) infusion
- Esmolol infusion
- Fenoldopam Infusion
- Inotrope, Other
- Insulin infusion
- Isoproterenol infusion
- Milrinone infusion
- Muscle Relaxant infusion
- Nesiritide Infusion
- Nicardipine infusion
- Nitric Oxide inhalation
- Nitroglycerin (Tridil) infusion
- Nitroprusside (Nipride) infusion
- Norepinephrine (Levophed) infusion
- Phentolamine (Regitine)Infusion
- Phenylephrine infusion
- Procainamide bolus/infusion
- Propofol (Diprivan) infusion
- Prostaglandin infusion
- Thyroid Hormone infusion
- Vasoconstrictor, Other
- Vasodilator, Other
- Vasopressin infusion

Long Name: Medications Given At Time Of Arrival

SeqNo:	5820
Short Name:	ICUPharmMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all medications being given to the patient at time of arrival to the ICU/PACU.
ParentLongName:	Medications Given At Time Of Arrival To ICU/PACU
ParentShortName:	ArriveICUMeds
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
30	Amiodarone infusion
50	Calcium Chloride / gluconate infusion
70	Dexmetetomidine (Precedex) infusion
80	Dobutamine infusion
90	Dopamine infusion
100	Epinephrine (Adrenalin) infusion
340	Esmolol infusion
390	Fenoldopam Infusion
310	Inotrope, Other
120	Insulin infusion
130	Isoproterenol infusion

150 Milrinone infusion
170 Muscle Relaxant infusion
180 Nesiritide Infusion
190 Nicardipine infusion
200 Nitric Oxide inhalation
210 Nitroglycerin (Tridil) infusion
220 Nitroprusside (Nipride) infusion
230 Norepinephrine (Levophed) infusion
240 Phentolamine (Regitine)Infusion
250 Phenylephrine infusion
380 Procainamide bolus/infusion
260 Propofol (Diprivan) infusion
270 Prostaglandin infusion
280 Thyroid Hormone infusion
330 Vasoconstrictor, Other
320 Vasodilator, Other
300 Vasopressin infusion

Intent/Clarification:

If medications are being administered to the patient upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the medication(s) being given.

ANESTHESIA ICU/PACU CARE

Long Name: ICU/PACU Arrival Date and Time

SeqNo:	5825
Short Name:	ICUArrDT
Database Table Name:	Operations Data Source: User
Format:	Date/Time - mm/dd/yyyy hh:mm
Definition:	Indicate the date (mm/dd/yyyy) and time (hh:mm 24-hour clock) the patient arrived to the ICU / PACU.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the date and time the patient arrived at the intensive care unit (ICU) or post anesthesia care unit (PACU).

Long Name: Initial FiO2

SeqNo:	5830
Short Name:	InitialFiO2
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the initial FiO2 closest to the patient's arrival to the ICU / PACU.
Low Value:	0.17
High Value:	1.00
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the initial amount (fraction of inspired oxygen/FiO2) of oxygen the patient was receiving upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU). This is the time closest to the arrival time.

FiO2 is reported as a percentage. The database collects the FiO2 percentage as a decimal. If reported as a percentage in the medical record, convert the percentage to a decimal by dividing the percentage by 100. For example, room air is 21% and should be entered as 0.21 (21/100 = 0.21).

Long Name: Mechanical Circulatory Support (ECMO/VAD)

SeqNo:	5835
Short Name:	MechCircSup
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient was on extracorporeal membrane oxygenation (ECMO) or on Ventricular Assist Device (VAD) on arrival.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient arrived to the intensive care unit (ICU) or post anesthesia care unit (PACU) with extracorporeal membrane oxygenation (ECMO) or ventricular assist device (VAD) support including right/left heart assist devices.

Long Name: ICU/PACU Arrival Labs

SeqNo: 5840

Short Name: ICUPACULabs

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether lab tests were drawn upon arrival to PACU or ICU.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if any of the following labs were drawn up to 1-hour of arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU).

- pH
- pCO2
- pO2
- Base excess
- Lactate
- Hematocrit

Long Name: pH

SeqNo:	5845
Short Name:	pH
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the pH level from the first ABG obtained after arrival to the ICU / PACU.
Low Value:	6.00
High Value:	8.00
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial pH level. Do not use value from a venous blood gas (VBG).

Long Name: pCO2

SeqNo:	5850
Short Name:	pCO2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the pCO2 level from the first ABG obtained after arrival to the ICU / PACU.
Low Value:	20
High Value:	150
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial pCO2 level. Do not use value from a venous blood gas (VBG).

Long Name: pO2

SeqNo:	5855
Short Name:	pO2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the pO2 level from the first ABG obtained after arrival to the ICU / PACU.
Low Value:	15
High Value:	650
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial pO2 level. Do not use value from a venous blood gas (VBG).

Long Name: Base Excess

SeqNo:	5860
Short Name:	BaseExcess
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the Base Excess level from the first ABG obtained after arrival to the ICU / PACU.
Low Value:	-30
High Value:	30
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1

ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial base excess. Do not use value from a venous blood gas (VBG).

Long Name: Lactate

SeqNo:	5865
Short Name:	Lactate
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the first Lactate level obtained after arrival to the ICU / PACU.
Low Value:	0.1
High Value:	30.0
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial lactate level.

Long Name: Hematocrit

SeqNo:	5870
Short Name:	Hematocrit
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the hematocrit level obtained after arrival to the ICU / PACU.
Low Value:	1.00
High Value:	99.99

ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	ICUPACULabs
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If labs were drawn upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the initial arterial hematocrit level.

In the event the hematocrit level is not available on the initial arterial blood gas, the hematocrit level from the initial CBC can be utilized, or it can be calculated using the patient's initial arterial hemoglobin level.

Long Name: Initial Pulse Oximeter

SeqNo:	5875
Short Name:	InitPulseOx
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the first pulse oximeter measurement after arrival to ICU / PACU.
Low Value:	40.0
High Value:	100.0
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	"Yes"

Intent/Clarification:

If anesthesia data is being collected, indicate the patient's initial pulse oximeter measurement upon arrival to the upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU).

Long Name: Temperature ICU/PACU Arrival

SeqNo:	5880
Short Name:	TempICUArr

Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the patient's temperature in degrees centigrade on arrival to the ICU/PACU.
Low Value:	30.0
High Value:	44.0
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Intent/Clarification:

If anesthesia data is being collected, indicate the patient’s initial temperature upon arrival to the upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU). Enter the first temperature measured upon arrival regardless of the timeframe following arrival to the unit.

Long Name: Temperature Measurement Site

SeqNo: 5885

Short Name:	TempSite
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the location where the patient's temperature was measured.
ParentLongName:	Temperature ICU/PACU Arrival
ParentShortName:	TempICUArr
ParentHarvestCodes:	Is Not Missing
ParentValue:	Is Not Missing

Harvest Codes:

Code:	Value:
1	Forehead scan
2	Tympanic membrane
3	Skin
4	Rectal
5	Bladder
6	Oral

7 Axillary
9 Other

Intent/Clarification:

If the patient's temperature was collected, indicate the location where the first temperature was measured.

Long Name: Temporary Pacemaker on Arrival In ICU/PACU

SeqNo:	5890
Short Name:	TempPace
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the need for a temporary pacemaker on arrival to the ICU/PACU.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	"Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient is being temporarily paced upon arrival to the to the intensive care unit (ICU) or post anesthesia care unit (PACU). Includes active pacing from a temporary pacemaker only. Does not include permanent pacemakers or the presence of pacemaker wires that are not being utilized for active pacing.

Long Name: Temporary Pacemaker Site

SeqNo:	5895
Short Name:	TempPaceSite
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate the site of the temporary pacemaker.

ParentLongName: Temporary Pacemaker on Arrival In ICU/PACU

ParentShortName: TempPace

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Epicardial
2	Transvenous

Intent/Clarification:

If a temporary pacemaker is being utilized upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the site of the temporary pacemaker.

Long Name: Type of Temporary Pacing

SeqNo: 5900

Short Name: TempPaceType

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate the type of temporary pacing.

ParentLongName: Temporary Pacemaker on Arrival In ICU/PACU

ParentShortName: TempPace

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Atrial
2	Atrio-ventricular
3	Ventricular
9	Other

Intent/Clarification:

If a temporary pacemaker is being utilized upon arrival to the intensive care unit (ICU) or post anesthesia care unit (PACU), indicate the type of temporary pacing.

Long Name: Disposition Under Anesthesia

SeqNo: 5905

Short Name: DispUnderAnes

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate patient disposition after completion of anesthetic management.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: "Yes"

Harvest Codes:

Code: Value:

1 Discharge planned after PACU/Recovery
2 Admit to hospital floor as planned
3 Admit to ICU as planned
4 Unplanned admission to hospital or ICU
8 Other location not listed above
9 Patient expired while under anesthetic management

Intent/Clarification:

If anesthesia data is being collected, indicate where the patient went at the end of anesthesia care.

Code:	Value:	Definition:
1	Discharge planned after PACU/Recovery	The discharge to home following procedure recovery was part of the presurgical plan.
2	Admit to hospital floor as planned	The admission to the general floor/acute care unit following the procedure was part of the presurgical plan. *Example:* The presurgical plan was for the patient to admit to an inpatient acute care floor for the night. Following the procedure, the patient transferred to the acute care cardiology unit.
3	Admit to ICU as planned	The admission to the intensive care unit (ICU) following the procedure was part of the presurgical plan.

Code:	Value:	Definition:
		Example: The presurgical plan was for the patient to admit to the ICU. Following the procedure, the patient transferred to the cardiovascular intensive care unit.
4	Unplanned admission to hospital or ICU	The admission to the hospital (regardless of location, i.e., the ICU or acute care unit etc., was unplanned and not part of the presurgical planning. *Example:* The presurgical plan was for the patient to recover in the PACU and discharge home. The patient experienced respiratory distress and was transferred to the acute care unit for monitoring overnight.
8	Other location not listed above	The patient went to any other location outside of a hospital admission (planned or unplanned) or discharge to home.
9	Patient expired while under anesthetic management	The patient expired while under the care of anesthesia. This includes all deaths of all causes while under anesthesia care, regardless of whether the death is related to anesthesia care or not.

Long Name: Peri-Anesthetic Demise (Within 24 Hours of Last Anesthesia End Time)

SeqNo:	5910
Short Name:	PeriAnesDemise
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient died within 24 hours of end of anesthesia.
ParentLongName:	Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if the patient expired within 24-hours of the end of anesthesia care. Includes deaths of all causes regardless of whether the death is related to anesthesia care.

ANESTHESIA ADVERSE EVENTS

Long Name: Anesthesia Adverse Event Occurred

SeqNo: 5935

Short Name: AAdvEventsOcc

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether any anesthesia-related adverse events occurred.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: “Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if any adverse events occurred related to anesthesia care.

The timing of anesthesia related adverse events generally occurs within the operating room or around the immediate postoperative time-period. However, if there is an adverse event that occurs that is documented as being related to anesthesia care, code the adverse event regardless of timing.

Long Name: Anesthesia Adverse Event - Multi-Select

SeqNo:	5940
Short Name:	AnesAdvEventMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all anesthesia-related adverse events that occurred.
ParentLongName:	Anesthesia Adverse Event Occurred
ParentShortName:	AAdvEventsOcc
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
20	Oral/Nasal Injury-Bleeding
30	Respiratory Arrest
40	Difficult Intubation/Reintubation
50	Stridor / Sub-glottic stenosis
60	Extubation
70	Endotracheal Tube Migration
80	Airway Injury
410	Hemoptysis
450	Laryngospasm requiring medication
400	Bronchospasm
470	Unplanned need to remain intubated post- procedure due to anesthesia factors
90	Arrhythmia - CVL Placement
100	Myocardial Injury - CVL Placement
110	Vascular Compromise - CVL Placement
120	Pneumothorax - CVL Placement
130	Vascular access greater than 60 minutes
140	Hematoma requiring relocation of catheter placement
150	Arterial Puncture
160	IV/IA Air Embolism
350	Arterial Line Placement - Extremity Ischemia
380	Intravenous Infiltration

170 Bleeding - Regional Anesthesia site
180 Intrathecal Puncture - Regional
190 Local Anesthetic Toxicity - Regional
200 Neurologic Injury - Regional
210 Anaphylaxis/Anaphylactoid Reaction
220 Non-Allergic Drug Reaction
230 Medication Administration
240 Medication Dosage
250 Intraoperative Recall
260 Malignant Hyperthermia
270 Protamine Reaction
280 Cardiac Arrest related to anesthesia care
490 Cardiac Arrest UNRELATED to anesthesia care
510 Hypercyanotic Episode ("Tet spell") UNRELATED to surgical manipulation
500 Pulmonary Hypertensive Crisis unrelated to surgical manipulation
290 TEE-Related esophageal bleeding/rupture
300 TEE-related Esophageal Chemical Burn
310 TEE-Related AIRWAY COMPROMISE
315 TEE-Related HEMODYNAMIC COMPROMISE
320 TEE-Related EXTUBATION
330 Complications during patient transfer
340 Peripheral Nerve Injury due to positioning
370 Anesthesia Equipment Malfunction/Failure
390 Integument Injury (skin breakdown or dehiscence)
480 Ocular Injury (corneal abrasion or injury)
420 Post-operative Nausea/Vomiting requiring Medication
430 Vomiting or Aspiration on Induction/Emergence
440 Emergence Delirium requiring Medication
900 Other

Intent/Clarification:

If an anesthesia related adverse event occurred, indicate which event(s) occurred.

The timing of anesthesia related adverse events generally occurs within the operating room or around the immediate postoperative time-period. However, if there is an adverse event that occurs that is documented as being related to anesthesia care, code the adverse event.

Code:	Value:	Definition:
20	Oral/Nasal Injury - Bleeding	Indicate whether the patient experienced an oral or nasal injury such as lip or gum laceration or injury or epistaxis.

Code:	Value:	Definition:
30	Respiratory Arrest	Indicate whether the patient experienced pre-operative, intraop or postop respiratory arrest requiring UNANTICIPATED airway support such as placement of an LMA or ETT where NOT part of the original anesthetic plan.
40	Difficult Intubation / Reintubation	Indicate whether the patient experienced an UNANTICIPATED difficult intubation or re-intubation (not for a KNOWN difficult intubation that was planned for).
50	Stridor / Sub-glottic stenosis	Indicate whether the patient experienced post extubation stridor or sub-glottic stenosis requiring therapy such as racemic epinephrine, steroids or HeliOx therapy.
60	Extubation	Indicate whether the patient experienced an extubation in the OR (or procedure location) or during patient transfer that was NOT PART of anesthetic plan.
70	Endotracheal Tube Migration	Indicate whether the patient's ETT required repositioning after initial intubation and securing (either too deep or too high). I.e., Mainstem intubation recognized only in ICU after CXR.
80	Airway Injury	Indicate whether the patient experienced an airway injury RELATED TO VENTILATION such as barotrauma or pneumothorax.
410	Hemoptysis	Blood or blood-stained sputum expectorated or suctioned from the bronchi, trachea, larynx, or lungs. This MIGHT NOT be due to anesthesia (i.e., after balloon dilation of pulmonary arteries).
450	Laryngospasm requiring medication	An uncontrolled/involuntary spasm of vocal cords REQUIRING MEDICATION to treat (i.e., NOT positive pressure alone).
400	Bronchospasm	A sudden constriction of the muscles in the walls of the bronchioles presenting with expiratory wheeze,

Code:	Value:	Definition:
		prolonged exhalation or complete silence on auscultation associated with high airway pressures.
470	Unplanned need to remain intubated post-procedure due to anesthesia factors	Examples might include excessive sedation at end of procedure or muscle weakness due to residual paralysis or muscle weakness due to residual paralysis.
90	Arrythmia – CVL Placement	Indicate whether the patient experienced an arrhythmia during CVL placement REQUIRING TREATMENT OTHER THAN WITHDRAWAL OF WIRE.
100	Myocardial Injury – CVL Placement	Indicate whether the patient experienced a myocardial perforation or injury during CVL placement. This might only be recognized by finding bloody pericardial fluid or effusion after sternotomy or may cause tamponade physiology.
110	Vascular Compromise – CVL Placement	Indicate whether the patient experienced a vascular compromise (e.g., ischemic leg, venous obstruction) SECONDARY TO CVL placement.
120	Pneumothorax – CVL Placement	Indicate whether the patient experienced a pneumothorax during CVL placement.
130	Vascular Access	Indicate whether the anesthesiologist had difficulty with vascular access requiring MORE THAN ONE HOUR OF ATTEMPTED IV/CVL/ARTERIAL access time.
140	Hematoma requiring relocation of catheter placement	Indicate whether the patient experienced a hematoma requiring cancellation of procedure, an additional surgical exploration or relocation of a catheter due to hematoma at the original attempt site.
150	Arterial Puncture	Indicate whether the patient experienced an arterial puncture with hematoma formation, hemodynamic consequence, or neurologic injury.
160	IV/IA Air Embolism	Indicate whether the patient experienced an

Code:	Value:	Definition:
		intravenous or intraarterial AIR EMBOLUS causing hemodynamic, local, or systemic injury.
350	Arterial Line Placement – Extremity Ischemia	Impaired perfusion or ischemia distal to arterial line insertion site or attempted insertion site.
380	Intravenous Infiltration	Extravasation of fluid, blood or medication into tissue surrounding IV access site.
170	Bleeding – Regional Anesthesia site	Indicate whether the patient experienced bleeding at the regional anesthetic site or with aspiration or recognized post-operatively such as epidural hematoma.
180	Intrathecal Puncture – Regional	Indicate if during placement of an epidural injection an intrathecal puncture occurred (wet tap) that was not part of the anesthetic plan
190	Local Anesthetic Toxicity – Regional	Indicate whether the patient experienced signs or symptoms of local anesthetic toxicity during administration of regional anesthesia.
200	Neurologic Injury – Regional	Indicate if a neurologic injury occurred potentially associated with regional anesthetic (i.e., epidural hematoma leading to neurologic symptoms.
210	Anaphylaxis/Anaphylactoid Reaction	Indicate whether the patient experienced an anaphylaxis/anaphylactoid type reaction temporally associated with the administration of a medication OTHER THAN PROTAMINE. May manifest as bronchospasm or hypotension or cutaneous changes.
220	Non-Allergic Drug Reaction	Indicate whether the patient experienced a non-allergic response to a medication (i.e., “Red Man” syndrome with vancomycin or hemodynamic changes associated with speed of administration).
230	Medication Administration	Indicate if a medication was administered that was NOT part of the anesthetic plan at the time of administration.

Code:	Value:	Definition:
240	Medication Dosage	Indicate if a medication that WAS part of the anesthetic plan was given at the WRONG DOSE or WRONG TIME.
250	Intraoperative Recall	Indicate whether the patient experienced any recall of intra-procedural events.
260	Malignant Hyperthermia	Indicate whether patient experienced either a SUSPECTED or CONFIRMED MH episode REQUIRING DANTROLENE ADMINISTRATION.
270	Protamine Reaction	Indicate whether the patient experienced a SIGNIFICANT reaction requiring additional intervention other than slowing the rate of administration.
280	Cardiac Arrest related to anesthesia care	Indicate whether the patient experienced a cardiac arrest REQUIRING CPR related to anesthesia care.
490	Cardiac Arrest UNRELATED to anesthesia care	Indicate whether the patient experienced an event requiring CPR that was NOT DIRECTLY RELATED TO ANESTHESIA (i.e., during surgical or cardiac cath manipulations).
510	Hypercyanotic Episode ("Tet spell") UNRELATED to surgical manipulation	Indicate whether the patient experienced a hypercyanotic episode (desaturation MORE THAN 20% from baseline) NOT related to surgical or catheter manipulation.
500	Pulmonary Hypertensive Crisis unrelated to surgical manipulation	A suspected or proven rise in pulmonary artery resistance/pressure that was NOT related to surgical manipulation.
290	TEE-Related esophageal bleeding/rupture	Indicate whether the patient experienced esophageal bleeding or rupture during TEE placement or manipulation.
300	TEE-related Esophageal Chemical Burn	Indicate whether the patient experienced esophageal injury due to the TEE probe cleaning solution.

Code:	Value:	Definition:
310	TEE-Related AIRWAY COMPROMISE	Indicate whether the patient experienced an airway compromise during TEE placement or manipulation REQUIRING REMOVAL OF TEE.
315	TEE-Related HEMODYNAMIC COMPROMISE	Indicate whether the patient experienced a hemodynamic compromise during TEE placement or manipulation.
320	TEE-Related EXTUBATION	Indicate if the ETT was displaced from the trachea during TEE placement/manipulation/removal.
330	Complications during patient transfer	Indicate if the patient experienced any trauma related to transfers from the bed to procedure table or bed to stretcher or similar transfers. Might include inadvertent removal of lines or patient falls. Inadvertent extubation is coded under (60) Extubation.
340	Peripheral Nerve Injury due to positioning	Indicate if the patient experienced a neurologic deficit (permanent or temporary) due to patient positioning during anesthesia.
370	Anesthesia Equipment Malfunction/Failure	Mechanical equipment failure or malfunction impacting delivery of anesthesia care (such as delaying surgery for repair or changing planned room.
390	Integument Injury (skin breakdown or dehiscence)	Integument injury such as skin breakdown, dehiscence of wound, pressure ulcer, or alopecia caused by positioning during anesthesia or adhesive tape or monitors (i.e., NIRS probes).
480	Ocular Injury (corneal abrasion or injury)	Injury to the eyes during anesthetic management.
420	Post-operative Nausea / Vomiting requiring Medication	Sustained period of Nausea/Vomiting REQUIRING UNPLANNED ADMISSION OR READMISSION OR DELAYED DISCHARGE and intervention.

Code:	Value:	Definition:
430	Vomiting or Aspiration on Induction/Emergence	Vomiting, with OR without aspiration, during induction of anesthesia or emergence from anesthesia.
440	Emergence Delirium requiring Medication	A dissociated state of consciousness following general anesthesia with inconsolable crying, irritability or un-cooperation REQUIRING MEDICATION ADMINISTRATION OTHER THAN FOR PAIN.
900	Other	Unlisted adverse event related to anesthesia care.

Long Name: Anesthesia Adverse Event Required Additional Intervention

SeqNo: 5945
Short Name: AdvEventReqInt
Database Table Name: Operations
Data Source: User
Format: Text (categorical values specified by STS)
Definition: Indicate whether any of the anesthesia adverse events required additional intervention.
ParentLongName: Anesthesia Adverse Event Occurred
ParentShortName: AAdvEventsOcc
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If an anesthesia related adverse event occurred, indicate whether any of the adverse events required intervention.

For example, a patient entered the OR with a loose tooth and subsequently following intubation, it was noted the patient's tooth was missing. ENT was notified and came to the OR to retrieve the tooth. Code (1) Yes, an additional intervention was required.

Long Name: Anesthesia Adverse Event - Additional Intervention Required - Multi-Select

SeqNo: 5950

Short Name:	AnesAdvEventIntMulti
Database Table Name:	Operations
Data Source:	User
Format:	Multi-Select
Definition:	Indicate all events that occurred that required additional intervention.
ParentLongName:	Anesthesia Adverse Event Required Additional Intervention
ParentShortName:	AdvEventReqInt
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
20	Oral/Nasal Injury-Bleeding
30	Respiratory Arrest
40	Difficult Intubation/Reintubation
50	Stridor / Sub-glottic stenosis
60	Extubation
70	Endotracheal Tube Migration
80	Airway Injury
410	Hemoptysis
450	Laryngospasm requiring medication
400	Bronchospasm
470	Unplanned need to remain intubated post- procedure due to anesthesia factors
90	Arrhythmia - CVL Placement
100	Myocardial Injury - CVL Placement
110	Vascular Compromise - CVL Placement
120	Pneumothorax - CVL Placement
130	Vascular access greater than 60 minutes
140	Hematoma requiring relocation of catheter placement
150	Arterial Puncture
160	IV/IA Air Embolism
350	Arterial Line Placement - Extremity Ischemia

380 Intravenous Infiltration
170 Bleeding - Regional Anesthesia site
180 Intrathecal Puncture - Regional
190 Local Anesthetic Toxicity - Regional
200 Neurologic Injury - Regional
210 Anaphylaxis/Anaphylactoid Reaction
220 Non-Allergic Drug Reaction
230 Medication Administration
240 Medication Dosage
250 Intraoperative Recall
260 Malignant Hyperthermia
270 Protamine Reaction
280 Cardiac Arrest related to anesthesia care
490 Cardiac Arrest UNRELATED to anesthesia care
510 Hypercyanotic Episode ("Tet spell") UNRELATED to surgical manipulation
500 Pulmonary Hypertensive Crisis unrelated to surgical manipulation
290 TEE-Related esophageal bleeding/rupture
300 TEE-related Esophageal Chemical Burn
310 TEE-Related AIRWAY COMPROMISE
315 TEE-Related HEMODYNAMIC COMPROMISE
320 TEE-Related EXTUBATION
330 Complications during patient transfer
340 Peripheral Nerve Injury due to positioning
370 Anesthesia Equipment Malfunction/Failure
390 Integument Injury (skin breakdown or dehiscence)
480 Ocular Injury (corneal abrasion or injury)
420 Post-operative Nausea/Vomiting requiring Medication
430 Vomiting or Aspiration on Induction/Emergence
440 Emergence Delirium requiring Medication
900 Other

Intent/Clarification:

If an additional intervention was performed related to an anesthesia related adverse event, indicate which anesthesia related adverse events required an additional intervention.

ANESTHESIA BLOOD AND BLOOD RELATED PRODUCTS

Long Name: Cell Saver/Cell Salvage

SeqNo:	5955
Short Name:	CellSavSal
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether cell saver / cell salvage was used for blood conservation during the procedure.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”
ParentLongName2:	Operation Type
ParentShortName2:	OpType
ParentHarvestCodes2:	1|9|6
ParentValue2:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collect and the procedure operation type is CPB Cardiovascular, CPB Non-Cardiovascular, or VAD Operation done with CPB, indicate whether cell saver or cell salvage was used as a blood conservation strategy during the procedure.

Cell saver in the CHSD is different from autologous transfusion as cell saver involves recovering and reinfusing the patient’s own blood lost during surgery. Autologous transfusion for the purposes of the CHSD involves the patient donating blood in preparation for surgery.

Long Name: Cell Saver/Cell Salvage in mL

SeqNo:	5960
Short Name:	CellSavSalML
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the volume in mL of cell saver / cell salvage used for blood conservation during the procedure.

Low Value:	0
High Value:	10000
ParentLongName:	Cell Saver/Cell Salvage
ParentShortName:	CellSavSal
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If cell saver or cell salvage is used as a blood conservation technique, indicate the volume of cell saver / salvage used during the procedure. Include the total volume infused even if the infusion continues after the patient leaves the operating room.

Long Name: Blood Products Transfused - Packed Red Blood Cells (PRBC) in mL - Initiated Before Leaving OR

SeqNo:	5965
Short Name:	BldProdPRBCMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Packed Red Blood Cells (PRBC) the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of packed red blood cells (pRBC) the patient received.

The volume includes the PRBC used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any pRBC volume initiated in the operating room even if the infusion completed after leaving the operating room.

Complete this on all cases where anesthesia data is collected.

Long Name: Blood Products Transfused - Fresh Frozen Plasma (FFP) in mL - Initiated Before Leaving OR

SeqNo:	5970
Short Name:	BldProdFFPMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Fresh Frozen Plasma (FFP) the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName: Leaving OR	Transfusion of Non-Autologous Blood Products Initiated Before
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of fresh frozen plasma (FFP) the patient received.

The volume includes the FFP used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any FFP volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Blood Products Transfused - Fresh Plasma in mL - Initiated Before Leaving OR

SeqNo:	5975
Short Name:	BldProdFreshPMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer

Definition:	Indicate the number of mL of Fresh Plasma (<72 Hours Post-collection, never frozen) the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of fresh plasma the patient received.

The volume includes the fresh plasma used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any fresh plasma volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Blood Products Transfused - Platelets in mL - Initiated Before Leaving OR

SeqNo:	5980
Short Name:	BldProdPlatMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Individual Platelets, including concentrated, the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of platelets the patient received.

The volume includes the platelets used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any platelet volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Blood Products Transfused - Cryoprecipitate in mL - Initiated Before Leaving OR

SeqNo:	5985
Short Name:	BldProdCryoMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Cryoprecipitate the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of cryoprecipitate the patient received.

The volume includes the cryoprecipitate used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any cryoprecipitate volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Blood Products Transfused - Fresh Whole Blood in mL - Initiated Before Leaving OR

SeqNo:	5990
Short Name:	BldProdFreshWBMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Fresh Whole Blood (< 72 Hours post-collection) the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of fresh whole blood the patient received.

The volume includes the fresh whole blood used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any fresh whole blood volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Blood Products Transfused - Whole Blood in mL - Initiated Before Leaving OR

SeqNo:	5995
Short Name:	BldProdWBMLBef
Database Table Name:	Operations
Data Source:	User
Format:	Integer

Definition:	Indicate the number of mL of Whole Blood (> 72 hours post-collection) the patient received during the procedure (including CPB PRIME).
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate the volume (in ml) of whole blood the patient received.

The volume includes the whole blood used in the cardiopulmonary bypass (CPB) pump prime and ECMO circuit prime.

Also include any whole blood volume initiated in the operating room even if the infusion completed after leaving the operating room.

Long Name: Directed Donor Units

SeqNo:	6000
Short Name:	DirDonorUnits
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received any directed donor transfusions during this procedure.
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	TransfusBldProdBefore
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the intraoperative time-period, indicate if the patient received a transfusion of packed red blood cells from a directed donor.

A directed donation may come from ABO and Rh compatible family members and/or friends etc.

Long Name: Blood Products Transfused - Packed Red Blood Cells (PRBC) in mL - Transfused Within 24 Hours Post-Procedure

SeqNo:	6005
Short Name:	BldProdPRBCMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Packed Red Blood Cells (PRBC) the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of packed red blood cells (pRBC) the patient received during this time-period.

This includes pRBCs that were initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Fresh Frozen Plasma (FFP) in mL - Transfused Within 24 Hours Post-Procedure

SeqNo:	6010
Short Name:	BldProdFFPMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Fresh Frozen Plasma (FFP) the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of fresh frozen plasma (FFP) the patient received during this time-period.

This includes FFP that was initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Fresh Plasma in mL - Transfused Within 24 Hours Post- Procedure

SeqNo:	6015
Short Name:	BldProdFreshPMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Fresh Plasma (<72 Hours Post-collection, never frozen) the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000

ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of fresh plasma the patient received during this time-period.

This includes fresh plasma that was initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Platelets in mL - Transfused Within 24 Hours Post- Procedure

SeqNo:	6020
Short Name:	BldProdPlatMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Individual Platelets, including concentrated, the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of platelets the patient received during this time-period.

This includes platelets that were initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Cryoprecipitate in mL - Transfused Within 24 Hours Post-Procedure

SeqNo:	6025
Short Name:	BldProdCryoMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Cryoprecipitate the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of cryoprecipitate the patient received during this time-period.

This includes cryoprecipitate that was initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Fresh Whole Blood in mL - Transfused Within 24 Hours Post-Procedure

SeqNo:	6030
Short Name:	BldProdFreshWBMLLT24
Database Table Name:	Operations

Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Fresh Whole Blood (< 72 Hours post-collection) the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of fresh whole blood the patient received during this time period.

This includes fresh whole blood that was initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Blood Products Transfused - Whole Blood in mL - Transfused Within 24 Hours Post- Procedure

SeqNo:	6035
Short Name:	BldProdWBMLLT24
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of mL of Whole Blood (> 72 hours post-collection) the patient received within 24 hours post-procedure.
Low Value:	0
High Value:	10000
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate the volume (in ml) of whole blood the patient received during this time period.

This includes whole blood that was initiated after OR Exit Time through 24-hours following the OR Exit Time.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Direct Donor Units Less Than 24 Hours

SeqNo:	6036
Short Name:	DirDonorUnitsLT24
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the patient received any directed donor transfusions within 24 hours post procedure.
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	TransfusBldProdLT24
ParentHarvestCodes:	1
ParentValue:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If the patient received transfusion of non-autologous (not from the patient) blood products during the first 24-hours postop, indicate if the patient received a transfusion of packed red blood cells from a directed donor.

A directed donation may come from ABO and Rh compatible family members and/or friends etc.

Complete this for every procedure where anesthesia data is being collected. In the event another operation occurs within 24-hours, stop collection on the first event and begin collection on the subsequent procedure.

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Load mg

SeqNo:	6075
Short Name:	AntifibEpLoadMG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the loading dose in mg of epsilon aminocaproic acid (Amicar) given during this procedure. Enter zero if no loading dose given.
Low Value:	0
High Value:	30000
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	1
ParentValue:	Contains ("Epsilon Amino-Caproic Acid (Amicar, EACA)")

Intent/Clarification:

If Epsilon Amino-Caproic Acid was used during the procedure, indicate the loading dose (in mg) given by anesthesia to the patient, not to the cardiopulmonary bypass (CPB) pump.

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Pump Prime mg

SeqNo:	6080
Short Name:	AntifibEpPrimeMG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the pump priming dose in mg of epsilon aminocaproic acid (Amicar) given during this procedure. Enter zero if no pump priming dose given.
Low Value:	0
High Value:	30000
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	1
ParentValue:	Contains ("Epsilon Amino-Caproic Acid (Amicar, EACA)")

Intent/Clarification:

If Epsilon Amino-Caproic Acid was used during the procedure, indicate the loading dose (in mg) given to the cardiopulmonary bypass (CPB) pump. Enter 0 if no pump prime dose was administered.

Long Name: EACA Dosed As mg per ml of Pump Prime

SeqNo:	6085
Short Name:	AntifibEpPrimeDose
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the Epsilon Amino-Caproic Acid was dosed as mg per ml of Pump Prime.
ParentLongName:	Epsilon Amino-Caproic Acid (Amicar,EACA) Pump Prime mg
ParentShortName:	AntifibEpPrimeMG
ParentHarvestCodes:	>0
ParentValue:	>0

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If a pump priming dose of Epsilon Amino-Caproic Acid was administered during the procedure, indicate if it was dosed as mg/ml of the pump prime.

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Infusion Rate mg/kg/hr

SeqNo:	6090
Short Name:	AntifibEpInfRate
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the infusion rate in mg/kg/hour of epsilon aminocaproic acid (Amicar) given during this procedure. Enter zero if no infusion initiated.
Low Value:	0

High Value:	200
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	contains(1)
ParentValue:	Contains ("Epsilon Amino-Caproic Acid (Amicar, EACA)")

Intent/Clarification:

If Epsilon Amino-Caproic Acid was used during the procedure, indicate the infusion rate in mg/kg/hour. If no infusion, enter 0.

Long Name: Tranexamic Acid Load mg

SeqNo:	6095
Short Name:	AntifibTranexLoadMG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the loading dose in mg of tranexamic acid given during this procedure. Enter zero if no loading dose given.
Low Value:	0
High Value:	15000
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Tranexamic Acid")

Intent/Clarification:

If Tranexamic Acid was used during the procedure, indicate the loading dose (in mg) given by anesthesia to the patient, not to the cardiopulmonary bypass (CPB) pump.

Long Name: Tranexamic Acid Pump Prime mg

SeqNo:	6100
Short Name:	AntifibTranexPrimeMG
Database Table Name:	Operations
Data Source:	User
Format:	Integer

Definition:	Indicate the pump priming dose in mg of tranexamic acid given during this procedure. Enter zero if no pump priming dose given.
Low Value:	0
High Value:	15000
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Tranexamic Acid")

Intent/Clarification:

If Tranexamic Acid was used during the procedure, indicate the loading dose (in mg) given to the cardiopulmonary bypass (CPB) pump. Enter 0 if no pump prime dose was administered.

Long Name: Tranexamic Dosed As mg per ml of Pump Prime

SeqNo:	6105
Short Name:	AntifibTranexPrimeDose
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether the Tranexamic was dosed as mg per ml of Pump Prime.
ParentLongName:	Tranexamic Acid Pump Prime mg
ParentShortName:	AntifibTranexPrimeMG
ParentHarvestCodes:	>0
ParentValue:	>0

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Intent/Clarification:

If a pump priming dose of Tranexamic Acid was administered during the procedure, indicate if it was dosed as mg/ml of the pump prime.

Long Name: Tranexamic Acid Infusion Rate mg/kg/hr

SeqNo:	6110
Short Name:	AntifibTranexInfRate
Database Table Name:	Operations
Data Source:	User
Format:	Real
Definition:	Indicate the infusion rate in mg/kg/hour of tranexamic acid given during this procedure. Enter zero if no infusion initiated.
Low Value:	0.0
High Value:	25.0
ParentLongName:	Antifibrinolytic Type - Multi-Select
ParentShortName:	AntifibType
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Tranexamic Acid")

Intent/Clarification:

If Tranexamic Acid was used during the procedure, indicate the infusion rate in mg/kg/hour. If no infusion, enter 0.

Long Name: Factor VIIa (Novoseven) mcg - Dose 1

SeqNo:	6130
Short Name:	ProcoagFactorVIIa1MCG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in micrograms of Factor VIIa given during this procedure.
Low Value:	1
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(1)
ParentValue:	Contains ("Factor VIIa (Novoseven)")

Intent/Clarification:

If Factor VIIa (Novoseven) was used, enter the first dose (in mcg) given during the procedure.

Long Name: Factor VIIa (Novoseven) mcg - Dose 2

SeqNo:	6135
Short Name:	ProcoagFactorVIIa2MCG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in micrograms of Factor VIIa given during this procedure. Enter zero if no second dose given.
Low Value:	0
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(1)
ParentValue:	Contains ("Factor VIIa (Novoseven)")

Intent/Clarification:

If Factor VIIa (Novoseven) was used, enter the second dose (in mcg) given during the procedure. If no second dose was administered, enter 0.

Long Name: Factor VIIa (Novoseven) mcg - Dose 3

SeqNo:	6140
Short Name:	ProcoagFactorVIIa3MCG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in micrograms of Factor VIIa given during this procedure. Enter zero if no third dose given.
Low Value:	0
High Value:	20000
ParentLongName:	Factor VIIa (Novoseven) mcg - Dose 2
ParentShortName:	ProcoagFactorVIIa2MCG
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Factor VIIa (Novoseven) was administered, enter the third dose (in mcg) given during the procedure. If no third dose was administered, enter 0.

Long Name: Factor VIIa (SevenFact) Dose 1

SeqNo:	6145
Short Name:	SevenFactDose1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose of factor VIIa (SevenFact) measured in micrograms.
Low Value:	1
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Factor VIIa (SevenFact)")

Intent/Clarification:

If Factor VIIa (SevenFact) was administered, enter the first dose(in mcg) given during the procedure.

Long Name: Factor VIIa (SevenFact) Dose 2

SeqNo:	6150
Short Name:	SevenFactDose2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose of factor VIIa (SevenFact) measured in micrograms.
Low Value:	0
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(2)

ParentValue: Contains ("Factor VIIa (SevenFact)")

Intent/Clarification:

If Factor VIIa (SevenFact) was administered, enter the second dose (in mcg) given during the procedure. If no second dose was administered, enter 0

Long Name: Factor VIIa (SevenFact) Dose 3

SeqNo: 6155
Short Name: SevenFactDose3
Database Table Name: Operations
Data Source: User
Format: Integer
Definition: Indicate the third dose of factor VIIa (SevenFact) measured in micrograms.
Low Value: 0
High Value: 20000
ParentLongName: Factor VIIa (SevenFact) Dose 2
ParentShortName: SevenFactDose2
ParentHarvestCodes: >0
ParentValue: >0

Intent/Clarification:

If a second dose of Factor VIIa (SevenFact) was administered, enter the third dose (in mcg) given during the procedure. If no third dose was administered, enter 0

Long Name: Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 1

SeqNo: 6160
Short Name: ProCmplxCon4Ds1UN
Database Table Name: Operations
Data Source: User
Format: Integer
Definition: Indicate the first dose in units of Prothrombin Complex Concentrate - 4 (PCC-4, KCentra).
Low Value: 1
High Value: 10000
ParentLongName: Procoagulant Type - Mutli-Select

ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(3)
ParentValue:	Contains ("Prothrombin Complex Concentrate-4 (PCC-4, KCentra)")

Intent/Clarification:

If Prothrombin Complex Concentrate – 4 (PCC-4, KCentra) was administered, enter the first dose (in units) given during the procedure.

Long Name: Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 2

SeqNo:	6165
Short Name:	ProCmplxCon4Ds2UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in units of Prothrombin Complex Concentrate - 4 (PCC-4, KCentra). Enter zero if no second dose given.
Low Value:	0
High Value:	10000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(3)
ParentValue:	Contains ("Prothrombin Complex Concentrate-4 (PCC-4, KCentra)")

Intent/Clarification:

If Prothrombin Complex Concentrate – 4 (PCC-4, KCentra) was administered, enter the second dose (in units) given during the procedure. If no second dose was administered, enter 0.

Long Name: Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 3

SeqNo:	6170
Short Name:	ProCmplxCon4Ds3UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer

Definition:	Indicate the third dose in units of Prothrombin Complex Concentrate - 4 (PCC-4, KCentra). Enter zero if no third dose given.
Low Value:	0
High Value:	10000
ParentLongName:	Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 2
ParentShortName:	ProCmplxCon4Ds2UN
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Prothrombin Complex Concentrate – 4 (PCC-4, KCentra) was administered, enter the third dose (in units) given during the procedure. If no third dose was administered, enter 0

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 1

SeqNo:	6175
Short Name:	ProCmplxCon4W7a1UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in units of Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA).
Low Value:	1
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(4)
ParentValue:	Contains ("Prothrombin Complex Concentrate-4 with Factor VIIa (FEIBA)")

Intent/Clarification:

If Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) was administered, enter the first dose (in units) given during the procedure.

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 2

SeqNo:	6180
Short Name:	ProCmplxCon4W7a2UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in units of Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA). Enter zero if no second dose given.
Low Value:	0
High Value:	20000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(4)
ParentValue:	Contains ("Prothrombin Complex Concentrate-4 with Factor VIIa (FEIBA)")

Intent/Clarification:

If Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) was administered, enter the second dose (in units) given during the procedure. If no second dose was administered, enter 0.

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 3

SeqNo:	6185
Short Name:	ProCmplxCon4W7a3UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in units of Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA). Enter zero if no third dose given.
Low Value:	0
High Value:	20000
ParentLongName:	Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 2

ParentShortName:	ProCmplxCon4W7a2UN
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) was administered, enter the third dose (in units) given during the procedure. If no third dose was administered, enter 0.

Long Name: Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 1

SeqNo:	6190
Short Name:	ProCmplxCon3Ds1UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in units of Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD).
Low Value:	1
High Value:	2000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(5)
ParentValue:	Contains ("Prothrombin Complex Concentrate-3 (PCC-3, ProfilNine-SD)")

Intent/Clarification:

If Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) was administered, enter the first dose (in units) given during the procedure.

Long Name: Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 2

SeqNo:	6195
Short Name:	ProCmplxCon3Ds2UN
Database Table Name:	Operations
Data Source:	User

Format:	Integer
Definition:	Indicate the second dose in units of Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD). Enter zero if no second dose given.
Low Value:	0
High Value:	2000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(5)
ParentValue:	Contains ("Prothrombin Complex Concentrate-3 (PCC-3, ProfilNine-SD)")

Intent/Clarification:

If Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) was administered, enter the second dose (in units) given during the procedure. If no second dose was administered, enter 0.

Long Name: Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 3

SeqNo:	6200
Short Name:	ProCmplxCon3Ds3UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in units of Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD). Enter zero if no third dose given.
Low Value:	0
High Value:	2000
ParentLongName:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 2
ParentShortName:	ProCmplxCon3Ds2UN
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) was administered, enter the third dose (in units) given during the procedure. If no third dose was administered, enter 0.

Long Name: Octaplex Prothrombin Concentrate Units - Dose 1

SeqNo:	6205
Short Name:	OctaplexDs1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in international units (IU) of Octaplex Prothrombin Concentrate.
Low Value:	1
High Value:	6000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(6)
ParentValue:	Contains ("Octaplex Prothrombin Concentrate")

Intent/Clarification:

If Octaplex Prothrombin Concentrate was administered, enter the first dose (in units) given during the procedure.

Long Name: Octaplex Prothrombin Concentrate Units - Dose 2

SeqNo:	6210
Short Name:	OctaplexDs2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in international units (IU) of Octaplex Prothrombin Concentrate.
Low Value:	0
High Value:	6000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(6)
ParentValue:	Contains ("Octaplex Prothrombin Concentrate")

Intent/Clarification:

If Octaplex Prothrombin Concentrate was administered, enter the second dose (in units) given during the procedure. If no second dose was administered, enter 0.

Long Name: Octaplex Prothrombin Concentrate Units – Dose 3

SeqNo:	6215
Short Name:	OctaplexDs3
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in international units (IU) of Octaplex Prothrombin Concentrate.
Low Value:	0
High Value:	6000
ParentLongName:	Octaplex Prothrombin Concentrate Units - Dose 2
ParentShortName:	OctaplexDs2
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Octaplex Prothrombin Concentrate was administered, enter the third dose (in units) given during the procedure. If no third dose was administered, enter 0.

Long Name: Fibrinogen Concentrate mg - Dose 1

SeqNo:	6220
Short Name:	ProcoagFibrin1MG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in mg of fibrinogen concentrate given during this procedure.
Low Value:	1
High Value:	10000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(7)

ParentValue:	Contains ("Fibrinogen Concentrate")

Intent/Clarification:

If Fibrinogen Concentrate was administered, enter the first dose (in mg) given during the procedure.

Long Name: Fibrinogen Concentrate mg - Dose 2

SeqNo:	6225
Short Name:	ProcoagFibrin2MG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in mg of fibrinogen concentrate given during this procedure. Enter zero if no second dose given.
Low Value:	0
High Value:	10000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(7)
ParentValue:	Contains ("Fibrinogen Concentrate")

Intent/Clarification:

If Fibrinogen Concentrate was administered, enter the second dose (in mg) given during the procedure. If no second dose administered, enter 0.

Long Name: Fibrinogen Concentrate mg - Dose 3

SeqNo:	6230
Short Name:	ProcoagFibrin3MG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in mg of fibrinogen concentrate given during this procedure. Enter zero if no third dose given.
Low Value:	0
High Value:	10000

ParentLongName:	Fibrinogen Concentrate mg - Dose 2
ParentShortName:	ProcoagFibrin2MG
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Fibrinogen Concentrate was administered, enter the third dose (in mg) given during the procedure. If no third dose administered, enter 0.

Long Name: Antithrombin 3 Concentrate units - Dose 1

SeqNo:	6235
Short Name:	ProcoagAntithrom1
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the first dose in units of antithrombin 3 concentrate given during this procedure.
Low Value:	1
High Value:	5000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(8)
ParentValue:	Contains ("Antithrombin 3 Concentrate (AT3)")

Intent/Clarification:

If Antithrombin 3 Concentrate was administered, enter the first dose (in units) given during the procedure.

Long Name: Antithrombin 3 Concentrate units - Dose 2

SeqNo:	6240
Short Name:	ProcoagAntithrom2
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in units of antithrombin 3 concentrate given during this procedure. Enter zero if no second dose given.

Low Value:	0
High Value:	5000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(8)
ParentValue:	Contains ("Antithrombin 3 Concentrate (AT3)")

Intent/Clarification:

If Antithrombin 3 Concentrate was administered, enter the second dose (in units) given during the procedure. If no second dose administered, enter 0.

Long Name: Antithrombin 3 Concentrate units - Dose 3

SeqNo:	6245
Short Name:	ProcoagAntithrom3
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the third dose in units of antithrombin 3 concentrate given during this procedure. Enter zero if no third dose given.
Low Value:	0
High Value:	5000
ParentLongName:	Antithrombin 3 Concentrate units - Dose 2
ParentShortName:	ProcoagAntithrom2
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Antithrombin 3 Concentrate was administered, enter the third dose (in units) given during the procedure. If no third dose administered, enter 0.

Long Name: Desmopressin (DDAVP) mcg - Dose 1

SeqNo:	6250
Short Name:	ProcoagDesmo1MCG
Database Table Name:	Operations
Data Source:	User
Format:	Integer

Definition:	Indicate the first dose in micrograms of desmopressin (DDAVP) given during this procedure.
Low Value:	1
High Value:	1000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(9)
ParentValue:	Contains ("Desmopressin (DDAVP)")

Intent/Clarification:

If Desmopressin was administered, enter the first dose (in mcg) given during the procedure.

Long Name: Desmopressin (DDAVP) mcg - Dose 2

SeqNo:	6255
Short Name:	ProcoagDesmo2MCG
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the second dose in micrograms of desmopressin (DDAVP) given during this procedure. Enter zero if no second dose given.
Low Value:	0
High Value:	1000
ParentLongName:	Procoagulant Type - Mutli-Select
ParentShortName:	ProcoagType
ParentHarvestCodes:	contains(9)
ParentValue:	Contains ("Desmopressin (DDAVP)")

Intent/Clarification:

If Desmopressin was administered, enter the second dose (in mcg) given during the procedure. If no second dose administered, enter 0.

Long Name: Desmopressin (DDAVP) mcg - Dose 3

SeqNo:	6260
Short Name:	ProcoagDesmo3MCG
Database Table Name:	Operations
Data Source:	User

Format:	Integer
Definition:	Indicate the third dose in micrograms of desmopressin (DDAVP) given during this procedure. Enter zero if no third dose given.
Low Value:	0
High Value:	1000
ParentLongName:	Desmopressin (DDAVP) mcg - Dose 2
ParentShortName:	ProcoagDesmo2MCG:
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Desmopressin was administered, enter the third dose (in mcg) given during the procedure. If no third dose administered, enter 0.

Long Name: Humate P Units - Dose 1

SeqNo:	6265
Short Name:	ProcoagHumateP1UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of units in the first dosage of Humate P.
Low Value:	1
High Value:	10000
ParentLongName:	ProcoagType
ParentShortName:	Procoagulant Type - Mutli-Select
ParentHarvestCodes:	contains(10)
ParentValue:	Contains ("Humate P")

Intent/Clarification:

If Humate P was administered, enter the first dose (in units) given during the procedure.

Long Name: Humate P Units – Dose 2

SeqNo:	6270
Short Name:	ProcoagHumateP2UN
Database Table Name:	Operations

Data Source:	User
Format:	Integer
Definition:	Indicate the number of units in the second dosage of Humate. Enter zero if no second dose given.
Low Value:	0
High Value:	10000
ParentLongName:	ProcoagType
ParentShortName:	Procoagulant Type - Mutli-Select
ParentHarvestCodes:	contains(10)
ParentValue:	Contains ("Humate P")

Intent/Clarification:

If Humate P was administered, enter the second dose (in units) given during the procedure. If no second dose administered, enter 0.

Long Name: Humate P Units - Dose 3

SeqNo:	6275
Short Name:	ProcoagHumateP3UN
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the number of units in the third dosage of Humate P. Enter zero if no third dose given.
Low Value:	0
High Value:	10000
ParentLongName:	Humate P Units - Dose 2
ParentShortName:	ProcoagHumateP2UN
ParentHarvestCodes:	>0
ParentValue:	>0

Intent/Clarification:

If a second dose of Humate P was administered, enter the third dose (in units) given during the procedure. If no third dose administered, enter 0.

Long Name: Point Of Care Coagulation Testing Utilized Intraoperatively

SeqNo:	6280

Short Name: POCCoagTstUtil

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether point of care coagulation testing was utilized intraoperatively.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if point of care (POC) coagulation testing was used in the operating room for any of the following:

- Thromboelastography (TEG)
- ROTEM
- Sonoclot
- Heparin Concentration (Hepcon, HMS)
- INR/PT/aPPP (iStat or equivalent)
- ACT

Long Name: Point Of Care Coagulation Testing Type - Multi-Select

SeqNo: 6315

Short Name: POCCoagTstType

Database Table Name: Operations

Data Source: User

Format: Multi-Select

Definition: Indicate all types of point of care coagulation testing used intraoperatively.

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively

ParentShortName: POCCoagTstUtil

ParentHarvestCodes: 1

ParentValue: = "Yes"

Harvest Codes:

Code:	Value:
1	Thromboelastography (TEG)

2 ROTEM
3 Sonoclot
4 Heparin Concentration (Hepcon, HMS)
5 INR/PT/aPPP (iStat or equivalent)
6 ACT

Intent/Clarification:

If point of care (POC) coagulation testing was used intraoperatively, indicate the type(s) of tests used.

Long Name: AT III Measured Preoperatively

SeqNo:	6320
Short Name:	ATMeasPreop
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether antithrombin III level was measured prior to arrival in the operating room.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if antithrombin III (ATIII) levels were drawn prior to OR entry date/time.

Long Name: Transfusion/Bleeding Algorithm Utilized For Post-Protamine Bleeding

SeqNo:	6325
Short Name:	TransBleedAlgoUtil
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)

Definition:	Indicate whether transfusion/bleeding algorithm was utilized for post-protamine bleeding.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected, indicate if a transfusion or bleeding algorithm was used for post-protamine bleeding.

Long Name: Labs Checked During CPB

SeqNo:	6330
Short Name:	LabsChkdDurCPB
Database Table Name:	Operations
Data Source:	User
Format:	Text (categorical values specified by STS)
Definition:	Indicate whether labs were checked during CPB.
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentHarvestCodes:	1
ParentValue:	“Yes”
ParentLongName2:	Operation Type
ParentShortName2:	OpType
ParentHarvestCodes2:	1|9|6
ParentValue2:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected and the procedure operation type is CPB Cardiovascular, CPB Non-Cardiovascular, or VAD Operation Done with CPB, indicate if any of the following labs were collected/checked during the time the patient was on cardiopulmonary bypass (CPB).

- Fibrinogen
- Platelet count
- TEG on CPB
- TEF – FF on CPB
- ROTEM on CPB
- FIBTEM on CPB
- SONOCLOT on CPB

Long Name: Labs During CPB

SeqNo: 6335
Short Name: LabsDuringCPB
Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate which of the following labs were checked during CPB.
ParentLongName: Labs Checked During CPB
ParentShortName: LabsChkdDurCPB
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Fibrinogen
2	Platelet count
3	TEG on CPB
4	TEF – FF on CPB
5	ROTEM on CPB
6	FIBTEM on CPB
7	SONOCLOT on CPB

Intent/Clarification:

If labs were drawn/checked while the patient was on cardiopulmonary bypass (CPB), indicate which labs were drawn/checked.

Long Name: Fibrinogen Value - mg/dL

SeqNo:	6340
Short Name:	CPBLabFibVal
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the fibrinogen value in mg/dl.
Low Value:	1
High Value:	500
ParentLongName:	Labs During CPB
ParentShortName:	LabsDuringCPB
ParentHarvestCodes:	contains(1)
ParentValue:	Contains ("Fibrinogen")

Intent/Clarification:

If a fibrinogen level was drawn/checked while the patient was on cardiopulmonary bypass (CPB), indicate the fibrinogen level in mg/dl.

Long Name: Platelet Count Value

SeqNo:	6345
Short Name:	CPBLabPlateletVal
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the platelet count value reported in 10^3 / mcl.
Low Value:	1
High Value:	500
ParentLongName:	Labs During CPB
ParentShortName:	LabsDuringCPB
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Platelet count")

Intent/Clarification:

If a platelet level drawn/checked while the patient was on cardiopulmonary bypass (CPB), indicate the platelet level in 10^3/microliter.

Long Name: Labs Checked In Operating Room After CPB

SeqNo: 6350

Short Name: LabsChkdAftCPB

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Indicate whether labs were checked in the operating room after CPB.

ParentLongName: Anesthesiology Data Collected

ParentShortName: Anesthesia

ParentHarvestCodes: 1

ParentValue: = "Yes"

ParentLongName2: Operation Type

ParentShortName2: OpType

ParentHarvestCodes2: 1|9|6

ParentValue2: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

If anesthesia data is being collected and the procedure operation type is CPB Cardiovascular, CPB Non-Cardiovascular, or VAD Operation Done with CPB, indicate if any of the following labs were collected/checked while the patient was in the operating room after cardiopulmonary bypass (CPB) ended.

- Fibrinogen
- Platelet count
- TEG on CPB
- TEF – FF on CPB
- ROTEM on CPB
- FIBTEM on CPB
- SONOCLOT on CPB

Long Name: Labs In Operating Room After CPB

SeqNo: 6355

Short Name: LabsAfterCPB

Database Table Name: Operations
Data Source: User
Format: Multi-Select
Definition: Indicate all labs that were checked in the operating room after CPB.
ParentLongName: Labs Checked In Operating Room After CPB
ParentShortName: LabsChkdAftCPB
ParentHarvestCodes: 1
ParentValue: = "Yes"
Harvest Codes:

Code:	Value:
1	Fibrinogen
2	Platelet count
3	TEG on CPB
4	TEF – FF on CPB
5	ROTEM on CPB
6	FIBTEM on CPB
7	SONOCLOT on CPB

Intent/Clarification:

If labs were drawn/checked in the operating room after cardiopulmonary bypass (CPB) ended, indicate which lab(s) were checked.

Long Name: Post CPB - Fibrinogen Value - mg/dL

SeqNo: 6360
Short Name: PostCPBLabFibVal
Database Table Name: Operations
Data Source: User
Format: Integer
Definition: Indicate the fibrinogen value in mg / dL.
Low Value: 1
High Value: 500
ParentLongName: Labs In Operating Room After CPB
ParentShortName: LabsAfterCPB
ParentHarvestCodes: contains(1)
ParentValue: Contains ("Fibrinogen")

Intent/Clarification:

If a fibrinogen level was drawn/checked after the end of cardiopulmonary bypass (CPB), indicate the fibrinogen level in mg/dl.

Long Name: Post CPB - Platelet Count Value

SeqNo:	6365
Short Name:	PostCPBLabPlateletVal
Database Table Name:	Operations
Data Source:	User
Format:	Integer
Definition:	Indicate the platelet count value measured in 10^3 / mcl.
Low Value:	1
High Value:	500
ParentLongName:	Labs In Operating Room After CPB
ParentShortName:	LabsAfterCPB
ParentHarvestCodes:	contains(2)
ParentValue:	Contains ("Platelet count")

Intent/Clarification:

If a platelet level was drawn/checked after the end of cardiopulmonary bypass (CPB), indicate the platelet level in 10^3/microliter.

SITE SPECIFIC FIELDS

Long Name: Participant-Specific Text Field 1

SeqNo:	6385
Short Name:	PSText1
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Text field 1 for participant-specific use. Field will not be included in harvest files.

Intent/Clarification:

This is a free text field for local use only. Potential uses for this field may include patient follow up methods when it is not located in the medical record, for example documenting a phone call to a parent or contact with a provider outside of your institution…

Long Name: Participant-Specific Text Field 2

SeqNo:	6390
Short Name:	PSText2
Database Table Name:	Operations
Data Source:	User
Format:	Text
Definition:	Text field 2 for participant-specific use. Field will not be included in harvest files.

Intent/Clarification:

This is a free text field for local use only. Users are free to enter any information in this field. It will not be harvested by the STS. Potential uses for this field may include patient follow up methods when it is not located in the medical record, for example documenting a phone call to a parent or contact with a provider outside of your institution.

Long Name: Participant-Specific Date Field

SeqNo:	6395
Short Name:	PSDate
Database Table Name:	Operations
Data Source:	User
Format:	Date - mm/dd/yyyy
Definition:	Date field for participant-specific use. Field will not be included in harvest files.

Intent/Clarification:

This is a date field for local use only. Users are free to enter any information in this field in the form of a date. It will not be harvested by the STS. Potential uses for this field may include patient follow up methods when it is not located in the medical record, for example documenting the date of a phone call to a parent or date of contact with a provider outside of your institution.

Long Name: Participant-Specific Yes / No Field 1

SeqNo: 6400

Short Name: PSYN1

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Yes/No field 1 for participant-specific use. Field will not be included in harvest files.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

This is a field for local use only. Users are free to enter any information in this field in the form of Yes/No responses. It will not be harvested by the STS.

Long Name: Participant-Specific Yes / No Field 2

SeqNo: 6405

Short Name: PSYN2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Yes/No field 2 for participant-specific use. Field will not be included in harvest files.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

This is a field for local use only. Users are free to enter any information in this field in the form of Yes/No responses. It will not be harvested by the STS.

Long Name: Participant-Specific Code Field

SeqNo: 6410

Short Name: PSCode

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: Code field for participant-specific use. Field will not be included in harvest files.

Harvest Codes:

Code:	Value:
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20

Intent/Clarification:

This is a field for local use only. Users are free to enter any information in this field in the form of a participant determined code. It will not be harvested by the STS.

STS TEMPORARY FIELDS

Long Name: Temporary Yes/No Field #1

SeqNo: 6420

Short Name: TempYN1

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: This is a temporary field that should not be used for data collection until expressly instructed to by the STS.

Harvest Codes:

Code:	Value:
1	Yes
2	No

Intent/Clarification:

Yes/No field; do not use until instructed by the STS.

Long Name: Temporary Yes/No Field #2

SeqNo: 6430

Short Name: TempYN2

Database Table Name: Operations

Data Source: User

Format: Text (categorical values specified by STS)

Definition: This is a temporary field that should not be used for data collection until expressly instructed to by the STS.

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Not Applicable

Intent/Clarification:

Yes/No/NA field; do not use until instructed by the STS.

Long Name: Temporary Text Field

SeqNo: 6440

Short Name: TempText

Database Table Name: Operations

Data Source: User

Format: Text

Definition:	This is a temporary field that should not be used for data collection until expressly instructed to by the STS.

Intent/Clarification:

Text field; do not use until instructed by the STS.
