Data Manager Quick Links

New Data Warehouse - Starting January 1, 2020 – Important Information for ALL SITES!

Database Transition Resources Page

STS National Database Webinars Page

Data Manager Education

Data Collection Resources (version specific abstraction documents)

Ask an Abstraction Question

STS National Database News - Publication for STS Data Managers

Public Reporting

Contact Information

CONGENITAL HEART SURGERY DATABASE TRAINING MANUAL

V3.41

STS National Database™
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Updated: 6/7/2023

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Current Date: 6/7/2023

Note: **- ALL fields defined in these specifications with "Core: Yes" are to be collected by all sites.**

- A data record must be created for each time the patient enters the Operating Room.

- Fields indicated with a gray background are no longer being collected.

Administrative

Long Name:	Participant ID	*SeqNo:*	10
Short Name:	**ParticID**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
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:			
Data Source:	User or Automatic		
Format:	Text		

Long Name:	STS Data Version	*SeqNo:*	20
Short Name:	**DataVrsn**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
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:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Software Vendor Identifier	*SeqNo:*	40
Short Name:	**VendorID**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Identifying code (assigned by STS) given to identify software vendor (up to 8 characters). Vendors should use standard name identification across sites. Changes to Software Vendor Identifier must be reported to the STS.		

Intent / Clarification:

Data Source: Automatic
Format: Text

Long Name:	Software Version	*SeqNo:*	50
Short Name:	**SoftVrsn**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Vendor's software product name and version number identifying the software which created this record. Vendor controls the value in this field.		

Intent / Clarification:

Data Source: Automatic
Format: Text

Long Name:	Operation Table Record Identifier	*SeqNo:*	60
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
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:

Data Source: Automatic
Format: Text

Long Name: Operations Link to Demographics Table
Short Name: **PatID**
Section Name: Administrative
DBTableName: Operations
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.

SeqNo: 70
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

Long Name: Patient Participating In STS-Related Clinical Trial
Short Name: **ClinTrial**
Section Name: Administrative
DBTableName: Operations
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.

SeqNo: 81
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

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

Long Name:	Patient Participating In STS-Related Clinical Trial - Patient ID	*SeqNo:*	82
Short Name:	**ClinTrialPatID**	*Core:*	Yes
Section Name:	Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the patient identifier used to identify the patient in the clinical trial.		

Intent / Clarification:

Data Source:	User
Format:	Text

ParentLongName:	Patient Participating In STS-Related Clinical Trial
ParentShortName:	**ClinTrial**
ParentHarvestCodes:	<>1 And Is Not Missing
ParentValues:	Is Not "None" And Is Not Missing

Demographics

Long Name:	Demographics Table Patient Identifier	*SeqNo:*	90
Short Name:	**PatID**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Demographics		
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 demographics record with the associated records in the Non-Cardiac Abnormalities, Noncardiac Congenital Anatomic Abnormalities, Chromosomal Abnormalities, and Syndromes tables.		

Intent / Clarification:

Data Source:	Automatic
Format:	Text

Long Name:	Demographics Table Data Version	*SeqNo:*	100
Short Name:	**DemogDataVrsn**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Optional
DBTableName:	Demographics		
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 the valid data are 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:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Patient National Identification (Social Security Number)	*SeqNo:*	110
Short Name:	**PatNationalID**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Optional
DBTableName:	Demographics		
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:			
Data Source:	User		
Format:	Text		

Long Name:	Medical Record Number	*SeqNo:*	120
Short Name:	**MedRecN**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Optional
DBTableName:	Demographics		
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:			

Data Source: User
Format: Text

Long Name: Patient Last Name
Short Name: **PatLName**
Section Name: Demographics
DBTableName: Demographics
Definition: Indicate the patient's last name documented in the medical record. This field should be collected in compliance with state/local privacy laws.

SeqNo: 140
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

Long Name: Patient First Name
Short Name: **PatFName**
Section Name: Demographics
DBTableName: Demographics
Definition: Indicate the patient's first name documented in the medical record. This field should be collected in compliance with state/local privacy laws.

SeqNo: 150
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

Long Name: Patient Middle Name
Short Name: **PatMName**
Section Name: Demographics
DBTableName: Demographics
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.

SeqNo: 170
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

Long Name: Patient's Region
Short Name: **PatRegion**
Section Name: Demographics
DBTableName: Demographics
Definition: Indicate the region of the country (i.e., state or province) in which the patient permanently resides at time of admission.

SeqNo: 180
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text

Long Name: Patient's Postal Code
Short Name: **PatPostalCode**
Section Name: Demographics
DBTableName: Demographics
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.

SeqNo: 190
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

Long Name: Patient's Country
Short Name: **PatientCountry**
Section Name: Demographics
DBTableName: Demographics
Definition: Indicate the patient's country of residence at time of admission. This field should be collected in compliance with state/local privacy laws.

SeqNo: 201
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

Birth Information

Long Name: Temporary Date Field *SeqNo:* 6723
Short Name: **TempDt**
Definition: **To further understand the impact of Covid-19 on surgical patients, STS will begin collecting the date of positive PCR testing for Covid-19 patients with surgery dates starting May 1, 2020. If there is more than one positive test date, collect the date that is closest to the OR date. Positive antibody testing is not captured in this field. Sites have the option to retroactively collect this field back to January 1 if they choose to do so. To achieve this, the temporary field (TempDt) will be utilized for patients who have a confirmed Covid-19 diagnosis through PCR testing.**

Intent / Clarification: Use only as directed by STS, do not add custom field here .

Long Name: Temporary Coded Field *SeqNo:* 6724
Short Name: **TempCode**
Definition: **This field will be used to collect data on Covid-19. Please complete on patients entered into the database starting April 1, 2020. Sites have the option to retroactively collect this field back to January 1 if they choose to do so.**

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

- **No (Harvest code 10)**
- **Yes, prior to hospitalization for this surgery (Harvest Code 11)**
- **Yes, in hospital prior to surgery (Harvest Code 12)**
- **Yes, in hospital after surgery (Harvest Code 13)**
- **Yes, after discharge within 30 days of surgery (Harvest Code 14)**

Intent / Clarification: Use only as directed by STS, do not add custom field here .

May 2020: **There are many tests for different types of coronavirus. The STS is only collecting data on the one that causes COVID 19 which is SARS-CoV-2.**

May 2020: **Code No for patients who are not tested and for patients who are tested for Covid-19 and that test is negative**

May 2020: Can I abstract a patient who is assumed to be Covid-19+ but was not tested**? No, only code yes for a patient who has been confirmed to have Covid-19 through laboratory testing.**

May 2020: **If the patient was tested within 30 days of surgery but the result comes back after 30 days, still code this as within 30 days.**

May 2020: During a follow up phone call, a patient says that they tested positive for COVID-19. Shall I take their word, or do I need an official result? **Code Yes, after discharge within 30 days of surgery for patients who self-report testing positive for COVID-19 within 30 days of surgery.**

May 2020: For Harvest Code 10, does this only apply to the pre-op status? How do we collect post-op hospitalized patients who test negative? **Harvest Code 10 - NO applies to any of the above timeframe's pre-op, during hospitalization, and post-op. For example, if the patient tested negative or was not tested pre-op, then code as NO. If the patient is then tested and is negative or not tested during the hospitalization, code NO. If the patient is discharged and is found to be COVID 19 positive within 30 days of surgery, remove code 10 and code Yes to Code 13.**

May 2020*:* For harvest Code 11 - Yes, prior to hospitalization for this surgery. Can you specify the time frame? **There is no timeframe for harvest Code 11. Capture any COVID 19 positive test pre-op and enter the date in SEQ 6723 TempDt**

January 2022: Appreciate clarifications about time frame to capture COVID-19 positive test on options below. Yes, prior to hospitalization for this surgery - How long prior to hospitalization? 30 days, Six months, One year? Yes, in hospital prior to surgery. Should we answer yes for a patient that was transferred from another facility and had COVID test positive during prior hospitalization? Yes, in hospital after surgery. For the time period between surgery date and hospital discharge or Surgery date and Database discharge? **Currently there is no time limit for a positive COVID-19 test prior to hospitalization. If the patient had a positive test any time prior to hospitalization, code this and include the date of the positive test. In the event the patient tested positive at another facility, code Yes, Prior to hospitalization for this surgery. For positive COVID-19 tests in hospital after surgery, use the hospital discharge date.**

May 2022: This question is in relation to a positive Covid-19 diagnosis. The patient first tested positive for Covid-19 on 1/11/2022. The patient had been hospitalized at the time and was discharged on 1/22/2022. The patient was readmitted on 3/14/2022, and tested negative for Covid-19 on 3/15/2022. He tested positive again on 3/22/2022. I am entering sequence number 6724 as a yes, but which date should I use for the Covid -19 positivity? The January date, or the March date, which is the date closest to surgery? AVSD repair was done on April 18, 2022. **Per the definition in the Training Manual, code the test closest to the date of surgery. In this scenario, code the test from 03/22/22.**

April 2023: Code yes for patients who self-report COVID-19. This includes self-reported positive home testing kits.

Long Name:	Born By IVF	*SeqNo:*	202
Short Name:	**BornByIVF**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		

Definition: Indicate whether the patient was conceived by in vitro fertilization.

Intent / Clarification: If Born By IVF is not known, leave the field blank.

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Patient Adopted
Short Name: **PatientAdopted**
Section Name: Demographics
DBTableName: Birth Information
SeqNo: 203
Core: Yes
Harvest: Yes

Definition: Indicate whether the patient is adopted by the current legal guardians/parents.

Intent / Clarification: If Patient Adopted is not known, leave the field blank.

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

January 2020: When a patient has been adopted by one, unrelated parent who married a birth parent after the patient's birth, is this considered "adopted"? (i.e the patient has one birth parent and one adoptive parent)When the mother changes her last name by marriage and/or remarriage (on this occasion, several times), do you want her name at the time of the patient's birth, or at the time of the current operative procedure? **Only select adopted if no biological parent is with the patient. Mother's name should be included as the name of the mother at the time of birth.**

Long Name: Birth Location Is Known
Short Name: **BirthLocKnown**
Section Name: Demographics
DBTableName: Birth Information
SeqNo: 208
Core: Yes
Harvest: Yes

Definition: Indicate whether the location (city, state, country) of the patient's birth is known.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes

2 No

Long Name: Born at Home
Short Name: **BornHome**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the patient was born at home.

SeqNo: 209
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Birth Location Is Known
ParentShortName: **BirthLocKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Hospital Name Known
Short Name: **HospNameKnown**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the name of the hospital is known.

SeqNo: 210
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Born at Home
ParentShortName: **BornHome**
ParentHarvestCodes: 2
ParentValues: = "No"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Birth Hospital Name	*SeqNo:*	211
Short Name:	**BirthHospName**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate the name of the hospital where the patient was born.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Hospital Name Known
ParentShortName: **HospNameKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name:	Birth Hospital TIN	*SeqNo:*	212
Short Name:	**BirthHospTIN**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate the Taxpayer Identification Number for the hospital where the patient was born. This field will be blank for Non-US participants.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Hospital Name Known
ParentShortName: **HospNameKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

May 2019: Our hospital serves patients from several states as well as Canada. I know that Canadian hospitals will not have a TIN, but I am having difficulty finding TINs for many of the other hospitals. Is there a database that that STS users can access or a download somewhere so we can get these numbers? Any information would be helpful.
Here's a link which may help: https://www.cms.gov/OpenPayments/Downloads/2018-Reporting-Cycle-Teaching-Hospital-List-pdf.pdf **It may not be exhaustive (as it specifies "teaching hospitals") but could be used to create a parred down list with relevant nearby hospitals for sites.**

Long Name:	City of Birth	*SeqNo:*	219
Short Name:	**BirthCit**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate the city in which the patient was born.		

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Birth Location Is Known
ParentShortName: **BirthLocKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Birth Region
Short Name: **BirthSta**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the region of the country (i.e., state or province) in which the patient was born.

SeqNo: 220
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Birth Location Is Known
ParentShortName: **BirthLocKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Country of Birth
Short Name: **BirthCountry**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the country in which patient was born. This field should be collected in compliance with state/local privacy laws.

SeqNo: 231
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Birth Location Is Known
ParentShortName: **BirthLocKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name:	Mode of Delivery Known	*SeqNo:*	232
Short Name:	**DelivModeKnown**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether the mode of delivery is known.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Mode of Delivery	*SeqNo:*	233
Short Name:	**DelivMode**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate the mode of delivery.		

Intent / Clarification: The intent is to collect how labor began. "Other C-Section" should be used to capture an unscheduled, emergent C-Section such as in a situation where the baby needs to be delivered emergently (severe eclampsia, abruption, fetal distress, etc.)

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Mode of Delivery Known
ParentShortName: **DelivModeKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Spontaneous onset labor with vaginal delivery
2	Spontaneous onset labor with cesarean section
3	Induction of labor with vaginal delivery
4	Induction of labor with subsequent cesarean section
5	Scheduled cesarean section
6	Other cesarean section

Long Name:	Mother's Gravidity And Parity Known	*SeqNo:*	234
Short Name:	**GravParKnown**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes

DBTableName: Birth Information
Definition: Indicate whether the patient's mother's gravidity and parity are known.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Mother's Gravidity
Short Name: **Gravidity**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the number of times the mother of the patient has been pregnant, regardless of whether these pregnancies were carried to term. This includes the current pregnancy.
Low Value: 1
High Value: 30

SeqNo: 235
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Mother's Gravidity And Parity Known
ParentShortName: **GravParKnown**
ParentHarvestCodes: 1
Parent Value: = "Yes"

July 2019: Do these refer to the mother's gravidity and parity at the time of the patient's birth, or at the time when the operation was performed? Particularly in older patients, the mother may have had several more pregnancies after the birth of the patient who is having the operation. **These are to be collected at the time of the patient's birth.**

Long Name: Mother's Parity
Short Name: **Parity**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the number of >20-week births the patient's mother has had. Pregnancies with multiple babies (twins, triplets, etc.) count as 1 birth.

SeqNo: 236
Core: Yes
Harvest: Yes

Low Value: 0
High Value: 30

Intent / Clarification: Include current patient in count.

Data Source: User
Format: Integer

ParentLongName: Mother's Gravidity And Parity Known
ParentShortName: **GravParKnown**
ParentHarvestCodes: 1
Parent Value: = "Yes"

June 2020: Does parity include the current birth or just the previous births? **Parity does include the current birth.**

Long Name: APGAR Scores Known
Short Name: **ApgarKnown**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the patient's APGAR scores are known.

SeqNo: 237
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)
Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: APGAR Score At 1 Minute
Short Name: **Apgar1**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's APGAR score at 1 minute after birth.
Low Value: 0
High Value: 10

SeqNo: 238
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: APGAR Scores Known
ParentShortName: **ApgarKnown**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: APGAR Score At 5 Minutes
Short Name: **Apgar5**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's APGAR score at 5 minutes after birth.
Low Value: 0
High Value: 10

SeqNo: 239
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: APGAR Scores Known
ParentShortName: **ApgarKnown**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Mother's Name Known
Short Name: **MatNameKnown**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the name of patient's biological mother at time of patient's birth is known. If the patient is adopted and the name of the patient's biological mother is not known, indicate whether the name of the patient's adopted mother is known. This field should be collected in compliance with state/local privacy laws.

SeqNo: 240
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Mother's Last Name
Short Name: **MatLName**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the last name of patient's biological mother at time of patient's birth, if it is known. If the patient is adopted, if the last name of the patient's biological mother is known, please enter the last initial of the patient's biological mother.

SeqNo: 250
Core: Yes
Harvest: Optional

If the patient is adopted, if the last name of the patient's biological mother is not known, please enter the last name of the patient's adopted mother.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Mother's Name Known
ParentShortName: **MatNameKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Mother's First Name
Short Name: **MatFName**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the first name of patient's biological mother at time of patient's birth, if it is known. If the patient is adopted, if the first name of the patient's biological mother is known, please enter the first name of the patient's biological mother. If the patient is adopted, if the first name of the patient's biological mother is not known, please enter the first name of the patient's adopted mother. This field should be collected in compliance with state/local privacy laws.

SeqNo: 260
Core: Yes
Harvest: Optional

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Mother's Name Known
ParentShortName: **MatNameKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Mother's Middle Name
Short Name: **MatMName**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the middle name of patient's biological mother at time of patient's birth, if it is known. If the patient is adopted, if the first name of the patient's biological mother is known, please enter the first name of the patient's biological mother. If the patient is adopted, if the first name of the patient's biological mother is not known, please enter the first name of the

SeqNo: 280
Core: Yes
Harvest: Optional

patient's adopted mother. This field should be collected in compliance with state/local privacy laws.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Mother's Name Known
ParentShortName: **MatNameKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Mother's National Identification (Social Security Number) Known
SeqNo: 290
Short Name: **MatSSNKnown**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the Social Security Number (SSN) of patient's biological mother at time of patient's birth is known. If the patient is adopted and the SSN of the patient's biological mother is not known, please indicate whether the SSN of the patient's adopted mother is known. This field should be collected in compliance with state/local privacy laws.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	Yes	The mother's national identification number (such as Social Security Number) is known and will be collected.
2	No	The mother's national identification number (such as Social Security Number) is not known and will be not collected.
3	Refused	Patient chose not to provide the information.

Long Name: Mother's National Identification (Social Security Number)
SeqNo: 300
Short Name: **MatSSN**
Core: Yes
Section Name: Demographics
Harvest: Optional
DBTableName: Birth Information
Definition: Indicate the Social Security Number (SSN) of patient's biological mother at time of patient's birth, if it is known. Although this is the SSN in the USA, other countries may

have a different National Patient Identifier Number. For example in Canada, this would be the Social Insurance Number. If the patient is adopted, if the SSN of the patient's biological mother is known, please enter the SSN of the patient's biological mother. If the patient is adopted, if the SSN of the patient's biological mother is not known, please enter the SSN of the patient's adopted mother. This field should be collected in compliance with state/local privacy laws.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Mother's National Identification (Social Security Number) Known
ParentShortName: **MatSSNKnown**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Date of Birth
Short Name: **DOB**
Section Name: Demographics
DBTableName: Birth Information
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.

SeqNo: 310
Core: Yes
Harvest: Optional

Intent / Clarification: **Update March 2023:** Please include **all patients under 18 (age in days < 6575) who have cardiac surgery and all congenital patients** in the CHSD Database.

Data Source: User
Format: Date - mm/dd/yyyy

Long Name: Birth Weight Known
Short Name: **BirthWtKnown**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the patient's birth weight is known.

SeqNo: 320
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Birth Weight
Short Name: **BirthWtKg**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's ~~APGAR score at 1 minute after birth.~~ **Update Nov 2022 – weight in kilograms (kg) at the time of birth.**

SeqNo: 330
Core: Yes
Harvest: Yes

Low Value: 0.100
High Value: 10.000

Intent / Clarification:

Data Source: User
Format: Real, at least 3 decimal places

ParentLongName: Birth Weight Known
ParentShortName: **BirthWtKnown**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Sex At Birth
Short Name: **Gender**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's gender at birth as male, female or ambiguous.

SeqNo: 340
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Male
2	Female
3	Ambiguous

Long Name:	Premature Birth	*SeqNo:*	350
Short Name:	**Premature**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether the patient was born prematurely as defined by a gestational period of less than 37 weeks.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No
3	Unknown

Long Name:	Gestational Age At Birth Known	*SeqNo:*	360
Short Name:	**GestAgeKnown**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether the patient's gestational age at birth is known.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Gestational Age At Birth In Weeks	*SeqNo:*	370
Short Name:	**GestAgeWeeks**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
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		

Intent / Clarification: If the patient’s gestational age is 36 and 5/7, please enter ‘36’.

Data Source: User

Format:	Integer
ParentLongName:	Gestational Age At Birth Known
ParentShortName:	**GestAgeKnown**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

April 2021: If I can only find documentation that a child was born full time, but I can't find gestation age in weeks anywhere, is it acceptable to enter 40 weeks as gestation age? Or should I leave it blank. I know gestational age is important in newborns/infants in the risk model so I want to make sure I'm doing this correctly. **Gestational age should be coded as unknown, prematurity should be coded as No. To clarify – GestAgeWeeks is not used in the risk model. Prematurity is a risk model variable.**

Long Name:	Gestational Age at Birth In Days	*SeqNo:*	371
Short Name:	**GestAgeDays**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate the number of additional days in the patient's estimated gestational age at birth. (Example, for 36 weeks and 5 days, enter "5".) This field is a required field for neonates and infants and is an optional field for children and adults.		
Intent / Clarification:	If the patient's gestational age is 36 and 5/7, please enter '5'		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Gestational Age At Birth Known		
ParentShortName:	**GestAgeKnown**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Harvest Codes:

Code:	Value:
0	0
1	1
2	2
3	3
4	4
5	5
6	6
9	Unknown

Long Name:	Multiple Gestation	*SeqNo:*	372
Short Name:	**MultGest**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether the patient was part of a multiple gestation, such as twins or triplets.		

Intent / Clarification: Include multiples even if expired in utero as the pregnancy originated as multiple gestations.

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No
3	Unknown

Long Name: Antenatal Diagnosis of Congenital Heart Disease
Short Name: **AntenatalDiag**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether a cardiac anomaly was diagnosed antenatally (e.g., fetal ultrasound).

SeqNo: 373
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

May 2021: Do you answer yes or no to antenatal diagnosis of congenital heart disease if the antenatal diagnosis was incorrect or discrepant with the postnatal findings? Example - prenatally suspected a small VSD, postnatally found to have coarctation of aorta, hypoplastic arch, and large VSD. **If there was any diagnosis of congenital heart disease, answer yes. At this time we are not differentiating between whether the diagnosis was correct.**

June 2021: Should we check off yes if a cardiac defect is suspected, but not confirmed, on a fetal ultrasound? **Yes, if there is suspicion of a defect code yes to antenatal diagnosis.** Should we check off yes if a cardiac defect is confirmed but it is the incorrect type? Example: prenatal diagnosis of TOF, postnatal diagnosis of Truncus. **Yes, if any cardiac defect is diagnosed, code yes to antenatal diagnosis. This field is not capturing whether the prenatal diagnosis is correct, but that any congenital heart disease was diagnosed.**

Long Name: Pregnancy Related Complications
Short Name: **PregComplications**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the mother had any pregnancy-related complications.

SeqNo: 375
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No
3	Unknown

Long Name: Pre-Eclampsia *SeqNo:* 377
Short Name: **PregCompPreE** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had pre-eclampsia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Long Name: Gestational Diabetes (GDM) *SeqNo:* 378
Short Name: **PregCompGestDM** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had gestational diabetes.

Intent / Clarification: Code 'yes' to Gestational Diabetes if the Mother had any type of diabetes during pregnancy (Type 1, Type 2 or Gestational). The intent is to capture the presence of any diabetes during gestation.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

March 2019: What if the mom has type 1 diabetes? Should this be selected in that case or recorded under other? Although PregCompOther is to indicate whether the mother had PREGNANCY-RELATED complications and type 1 diabetes is not pregnancy related. **If there is maternal diabetes present (Type 1, 2 or gestational) code 'yes' to the field Gestational Diabetes**

Long Name: Hypertension *SeqNo:* 379
Short Name: **PregCompHTN** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had hypertension during pregnancy.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

February 2022: If the patient's mother had high blood pressure during the pregnancy, that wasn't officially diagnosed with hypertension, should we check off yes to hypertension? **No, only code the pregnancy complications when there is an official diagnosis made.**

Long Name: HELLPP Syndrome *SeqNo:* 380
Short Name: **PregCompHELLPP** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information

Definition: Indicate whether the mother had HELLP Syndrome (HELLP stands for H- hemolysis, EL-elevated liver enzymes, LP – low platelet counts).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Long Name: Polyhydramnios *SeqNo:* 381
Short Name: **PregCompPolyhydra** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had polyhydramnios.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Long Name: Oligohydramnios *SeqNo:* 382
Short Name: **PregCompOligohydra** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had oligohydramnios.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

May 2019: I have a patient who was delivered early due to anhydramnios. Since this is not an option, should I select oligohydramnios since no amniotic fluid (anhydramnios) is technically severe oligohydramnios? **Yes, code as oligohydramnios.**

Long Name: Hydrops *SeqNo:* 383
Short Name: **PregCompHydrops** *Core:* Yes
Section Name: Demographics *Harvest:* Yes
DBTableName: Birth Information
Definition: Indicate whether the mother had Hydrops.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Pregnancy Related Complications
ParentShortName: **PregComplications**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

Long Name: Other Pregnancy-Related Complications *SeqNo:* 384
Short Name: **PregCompOther** *Core:* Yes

Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether the mother had other pregnancy related complications.		
Intent / Clarification:	Maternal smoking and alcohol abuse which does not result in Fetal Alcohol Syndrome should be captured here, amongst other pregnancy-related complications.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Pregnancy Related Complications		
ParentShortName:	**PregComplications**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Unknown

August 2020: Is IUGR (intrauterine growth retardation) considered a pregnancy-related complication, or should it be considered under noncardiac congenital anatomic abnormalities? **Currently IUGR is not directly captured in the database, but will be considered. One can capture it as an Other pregnancy related complication.**

November 2022: I will often times see that the Neonatologist will describe a pregnancy as complicated by the heart defect the baby has. For example: "Pregnancy was complicated by large primum atrial septal defect with a concern for small transverse and distal aortic arch". Should we be answering yes to pregnancy related complications and then answering yes to "other"? Or, are we not to consider the heart defect as a pregnancy related complication? If possible, please provide an example of an "other" pregnancy related complication that is not maternal smoking and alcohol abuse which does not result in Fetal Alcohol Syndrome (as listed in the training manual). **The congenital heart defect is already included in the database so no need to also include as an Other pregnancy related complication. There is no formal definition for (3840 Other pregnancy related complication thus, programs can determine what they want to include as an Other pregnancy related complication.**

November 2022: For Seq 375 pregnancy related complications would you capture documented advanced maternal age under other seq 384? **You can code yes to any pregnancy related complication that is not listed. There is no formal definition for this field so programs can determine what pregnancy related complications to include.**

Long Name:	Race Documented	*SeqNo:*	385
Short Name:	**RaceDocumented**	*Core:*	Yes
Section Name:	Demographics	*Harvest:*	Yes
DBTableName:	Birth Information		
Definition:	Indicate whether race is documented.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

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

Long Name: Race - Caucasian
SeqNo: 390
Short Name: **RaceCaucasian**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes Caucasian. This includes a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. 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. (www.whitehouse.gov/omb/fedreg/1997standards.html)

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Race - Black / African American
SeqNo: 400
Short Name: **RaceBlack**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes Black / African American. 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." 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. (www.whitehouse.gov/omb/fedreg/1997standards.html)

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Race - Asian
SeqNo: 410
Short Name: **RaceAsian**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes Asian. This includes 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. 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. (www.whitehouse.gov/omb/fedreg/1997standards.html)

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Race - American Indian / Alaskan Native
SeqNo: 420
Short Name: **RaceNativeAm**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes American Indian / Alaskan Native. This includes 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. 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. (www.whitehouse.gov/omb/fedreg/1997standards.html)

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Race - Native Hawaiian / Pacific Islander
SeqNo: 430
Short Name: **RaceNativePacific**
Core: Yes
Section Name: Demographics
Harvest: Yes
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes Native Hawaiian / Pacific Islander. This includes a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. 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. (www.whitehouse.gov/omb/fedreg/1997standards.html)

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Race - Other
Short Name: **RaceOther**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate whether the patient's race, as determined by the patient or family, includes any other race.

SeqNo: 440
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Race Documented
ParentShortName: **RaceDocumented**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Hispanic Or Latino Ethnicity
Short Name: **Ethnicity**
Section Name: Demographics
DBTableName: Birth Information
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.

SeqNo: 450
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	
1	Yes	
2	No	
3	Not Documented	This includes unknown or patient declined.

Long Name: Date of Last Follow-Up
Short Name: **LFUDate**
Section Name: Demographics
DBTableName: Birth Information
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.

SeqNo: 460
Core: Yes
Harvest: Yes

Intent / Clarification: This field could be updated when the 30- or 365-day follow-up occurs or at any other point in which the patient's status is known (e.g. lab or clinic visits, subsequent admissions, contact with provider or family, etc.)

Update November 2022: Capture 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, this date would also be the mortality date of the patient.

Data Source: User
Format: Date - mm/dd/yyyy

July 2020: What is the purpose of this data collection field? If you are asking for a 30-day and 365-day follow-up, isn't that sufficient? **The date of last follow up fields allows the database to be longitudinal and allows for the creation of Kaplan Meier survival curves/long term survival analysis. Please update the field as often as possible**.

Long Name: Last Follow-Up New York Heart Association Classification
Short Name: **LFUNYHA**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's New York Heart Association (NYHA) classification at the time of the last follow-up. If no follow-up is

SeqNo: 470
Core: Yes
Harvest: Yes

made after patient is discharged, this value will be the same as the classification at the time of their last discharge.

Intent / Clarification:

Data Source: User
Format: Date - mm/dd/yyyy

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
5	Not assessed	The NYHA Classification was not assessed/documented at last follow-up
1	NYHA 1	Asymptomatic
2	NYHA 2	Symptomatic with exertion
3	NYHA 3	Symptomatic with activities of daily living
4	NYHA 4	Symptomatic at rest

Long Name: Mortality Status At Last Follow-Up
Short Name: **LFUMortStat**
Section Name: Demographics
DBTableName: Birth Information
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.

SeqNo: 480
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Alive
2	Dead

Long Name: Mortality Date
Short Name: **MtDate**
Section Name: Demographics
DBTableName: Birth Information
Definition: Indicate the patient's date of death.

SeqNo: 490
Core: *Yes*
Harvest: *Yes*

Intent / Clarification:

Data Source: User
Format: Date - mm/dd/yyyy

ParentLongName: Mortality Status At Last Follow-Up

ParentShortName:	**LFUMortStat**
ParentHarvestCodes:	2
Parent Value:	= "Dead"

January 2023: I have a patient that was transferred to another acute care facility for transplant evaluation who I was told by our surgeon had expired at that facility during the transfer admission. I have faxed requesting the medical record to complete the registry data and date of mortality. No records were received. I have attempted online obituary search as well without results found. What options to I have to complete the registry data for the mortality date? **It would be most accurate if the surgeon could recontact the other facility to get the specific date, however if this cannot be done, enter the date the surgeon was notified of the patient's death as the mortality date and database discharge date.**

Noncardiac Congenital Anatomic Abnormalities

Long Name:	Noncardiac Congenital Anatomic Abnormalities Table Unique Record Identifier	*SeqNo:*	510
Short Name:	**NCAAUniqueID**	*Core:*	Yes
Section Name:	Noncardiac Congenital Anatomic Abnormalities	*Harvest:*	Yes
DBTableName:	NCAA		
Definition:	Unique identifier for the record in the Noncardiac Congenital Anatomic Abnormalities table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Noncardiac Congenital Anatomic Abnormalities Link to Demographics Table	*SeqNo:*	520
Short Name:	**PatID**	*Core:*	Yes
Section Name:	Noncardiac Congenital Anatomic Abnormalities	*Harvest:*	Yes
DBTableName:	NCAA		
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:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Major Noncardiac Abnormality	*SeqNo:*	530

Short Name:	**NCAA**	*Core:*	Yes
Section Name:	Noncardiac Congenital Anatomic Abnormalities	*Harvest:*	Yes
DBTableName:	NCAA		
Definition:	Indicate all of the major noncardiac abnormalities the patient has or select None.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
5	None	No known major noncardiac abnormality.
80	Major abnormality of head, Choanal atresia	A congenital anomaly in which a bony or membranous occlusion blocks the passageway between the nose and pharynx. The condition, caused by the failure of the nasopharyngeal septum to rupture during embryonic development, may result in ventilation problems in the neonate and requires surgical correction.
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.
440	Major abnormality of head, Craniosynostosis	
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	
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 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	
160	Major abnormality of spinal cord, Myelomeningocele	Developmental defect of the central nervous systemprotrude through a gap in the vertebral column; 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	
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.
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	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 bronchus, Tracheomalacia	Abnormal laxity of the tracheal supporting structures resulting in inward collapse of the lumen during expiration during spontaneous ventilation. Characterized by expiratory stridor. May extend down into bronchi (tracheobronchial malacia).
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	
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)	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 lung, Cystic fibrosis	Cystic fibrosis (also known as CF or mucoviscidosis) is an autosomal recessive genetic disorder affecting most critically the lungs, and also 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	

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 abdominal wall, 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	
550	Major abnormality of gastrointestinal system, Pyloric stenosis	
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, Jujenal atresia	The congenital absence or closure of the middle section of the small intestine.
350	Major abnormality of gastrointestinal system, Jujenal 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.
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	Colonic atresia is usually segmental, most often involving the ascending

	gastrointestinal system, Atresia of large intestine	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	
570	Major abnormality of genitalia, Hypospadiasis	
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, Hydronephronsis	Hydronephrosis
620	Major abnormality of kidney, Polycystic kidney	
630	Major abnormality of kidney, Single kidney	
990	Other	Other major non-cardiac abnormality.

August 2019: Can we count kyphosis as scoliosis in the NCAAs? Or should kyphosis and lordosis be added to the list of NCAAs because why only have scoliosis, but not the others? If any of them are severe enough, it would cause the same strain on the spinal cord no matter which one of them a patient has. Is there a reason we are only capturing scoliosis? **Do not include kyphosis or lordosis as scoliosis as they are not scoliosis. You can include them as other NCAAs. These may be considered for inclusion in the future.**

January 2021: Should Single Kidney be selected if a patient has 2 kidneys but only one is functioning? **Yes, ONLY if it can be well documented that there is zero function in that kidney.**

May 2022: When a patient has Down Syndrome, should we code some of the distinct anatomical features of this syndrome in the NCAA field? Specifically, low set ears, shortened neck and flat nasal bridge. I have never done this before, but a new data manager from a conjoined database coded this on one of our patients (as well as T21 in the appropriate areas) and I wish to have an official answer. **There is no way to specifically capture the findings you have listed below including low set ears, shortened neck and flat nasal bridge. You can use NCAA Other and include those findings in free text should you desire to include them. They will not be analyzed and would be for your local use only. STS does not require anything to be included in the NCAA Other free text field.**

February 2023: Should secondary tracheomalacia caused by compression from a vascular ring (no other causes) be captured as a Non Cardiac Anatomic Abnormality in a patient who presents for vascular ring repair? **As long as tracheomalacia is documented and definition criteria are met, this may be coded in the NCAA section.**

Long Name:	Major Noncardiac Abnormality - Other - Specify	*SeqNo:*	540
Short Name:	**NCAAOthSp**	*Core:*	Yes
Section Name:	Noncardiac Congenital Anatomic Abnormalities	*Harvest:*	Yes
DBTableName:	NCAA		
Definition:	Indicate the other major noncardiac abnormality.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		
ParentLongName:	Major Noncardiac Abnormality		
ParentShortName:	**NCAA**		
ParentHarvestCodes:	990		
ParentValues:	= "Other"		

Chromosomal Abnormalities

Long Name:	Chromosomal Abnormalities Table Unique Record Identifier	*SeqNo:*	550
Short Name:	**ChromAbUniqueID**	*Core:*	Yes
Section Name:	Chromosomal Abnormalities	*Harvest:*	Yes
DBTableName:	ChromAbnormalities		
Definition:	Unique identifier for the record in the Chromosomal Abnormalities table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Chromosomal Abnormalities Link to Demographics Table	*SeqNo:*	560
Short Name:	**PatID**	*Core:*	Yes
Section Name:	Chromosomal Abnormalities	*Harvest:*	Yes
DBTableName:	ChromAbnormalities		
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:			
Data Source:	Automatic		

Format: Text

Long Name: Chromosomal Abnormality *SeqNo:* 570
Short Name: **ChromAb** *Core:* Yes
Section Name: Chromosomal Abnormalities *Harvest:* Yes
DBTableName: ChromAbnormalities
Definition: Indicate whether the patient has one of the following chromosomal abnormalities.

Intent / Clarification: **Update November 2022: Must have documentation of genetic testing or chromosomal analysis results.**

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code	Value	Definition
5	No chromosomal abnormality identified	This patient has no chromosomal abnormality identified.
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	Deletions or mutations involving the long arm of chromosome 22 (critical region 22q11.2) are associated with the DiGeorge sequence, velocardiofacial syndrome, conotruncal face anomaly syndrome, CATCH 22, and some isolated conotruncal malformations.
390	22q11 dup	
120	45X0	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.
130	47,XXY	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.
230	Monosomy X	
250	Trisomy 08	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
260	Trisomy 09	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.
270	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 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.
280	Trisomy 18	Edwards syndrome, or Trisomy 18, is a chromosomal abnormality. Incidence is 1:3000-5000 births. Sporadic cases of Edwards syndrome 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.
290	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.
310	Other chromosomal or genetic abnormality	This patient has other chromosomal abnormality(ies) that are not on this list.

February 2020: For Turner Syndrome patients, should both 45XO and Monosomy X be selected in the Chromosomal Abnormality table if, in fact, one entire X chromosome is missing? If it's only partially missing, do we select 45XO only? **If you have Turner Syndrome, only code 45XO.**

March 2020: We recently came across a patient that has Turner syndrome and our genetic counselors noticed in the Chromosomal Abnormalities drop-down, both 45X,O (code 120) and Monosomy X (code 230) are options to choose from. These are synonymous terms, so are we supposed to select both of them or is the 45X,O the only one preferred? This is also similar to the Trisomies where it was recently decided that it should only be entered as a chromosomal abnormality and not a syndrome. How should we be entering Turner's? And what is the reasoning behind it? To reduce redundancy and improve clarity of definitions? The Training Manual implies that it is fair to use both, but we want to make sure we are doing the right thing. **For Turner Syndrome, select 45XO under chromosomal abnormalities and select Turner Syndrome under syndromes. Do not use Monosomy X for Turner Syndrome. To additionally clarify, you should select the chromosomal abnormalities and syndromes for the trisomies. The current version upgrade duplicated them in the syndromes section and data managers were instructed to select only specific terms, but to also to continue to select the appropriate terms in the chromosomal abnormalities section.**

July 2020: We have coded Factor V leiden mutation in preop factors in coagulation hyper.
Should we also code it in chromosomal abnormalities or syndrome? **No, it should not be included as a syndrome or chromosomal abnormality.**

December 2021: When abnormalities are found that encompass multiple genes, do you list each gene affected separately or list one abnormality for the chromosome affected? **Yes, code/select each gene affected separately**

March 2022: If a patient has a pre-natal test that is positive for a chromosome abnormality (such as cffDNA or amniocentesis), should this be coded under sydromes even if NO testing was done after birth to confirm? I most often see this in babies with trisomy 21 whose physical exam correlates with the pre-natal diagnosis, so no further testing is done. **The definition does not specific pre or post-natal testing for inclusion. Thus, if the testing reveals a chromosomal abnormality, it can be included regardless of the timing of the testing.**

May 2022: Please advise how to capture multiple "other" chromosomal/genetic abnormalities when one or more is listed but you have others that you'd like to list. It isn't possible to use #310 more than once. I tried. **Different software vendors may handle this differently as people have reported they are able to use (310)**

Other chromosomal or genetic abnormality more than one time. You can check with your vendor to see if they have a solution or use a comma in the free text to separate the different abnormalities you are typing in.

September 2022: Some options in the drop-down for Chromosomal Abnormalities are less specific than others. For example, one is 11q. If a patient has a deletion of only part of 11q (such as 11q24.3q25), should they be coded as 11q or as "other" with the specific deletion specified in seq. 580? That is just an example, but I am inquiring for a general answer on how to handle similar circumstances for other similar situations as well. **When the chromosomal abnormality listed is less specific, select that less specific term for any abnormality on that location. For example, a deletion of a part of 11q, select 11q from the drop-down list. If a more specific code exists in the list, select that term. If there is no listed abnormality available, then use other and either select the gene or utilize the free text option to describe.**

September 2022: If a patient has a chromosome deletion that includes specific OMIM genes, should both the interstitial deletion AND the specific gene be coded separately, or only the gene? For example, a 26kb deletion within 4q23.1 which includes the gene ASIC5. **A deletion within 4q is adequately captured by selecting (410) 4q del. No need to code the individual gene as well.**

November 2022: The patient was 40 years old with Turner's syndrome. Turner's syndrome was coded in (610) Syndromes section of the database. There are no definitive genetic studies available to demonstrate (430) 45XO. Should I automatically code 45X0 when I see Turner's documentation? Or should I not code 45XO because the genetics study is not available in the chart? Is the 45XO coding required or optional? **Documentation of the syndrome is sufficient to code Syndromes. However, actual chromosomal/genetic studies are required to code the Chromosomal Abnormalities as you cannot code values you don't have. Regardless, a program only receives credit for one or the other and not both. For example, if a patient has documentation of Down syndrome and genetic studies to support the diagnosis, they only get credit for one in the risk model. You don't get more 'patient risk' in the model for coding the syndrome and the specific lab studies supporting the diagnosis.**

June 2023: Would it be possible to have guidance regarding collecting proof for chromosomal abnormalities? According to the November 2022 update: "Must have documentation of genetic testing or chromosomal analysis results." What can be included as proof for this documentation? We frequently have scenarios where our geneticist will receive phone results from an outside transferring facility with the genetics results and enter this information in their H&P. Would this be considered sufficient "documentation of chromosomal analysis results"? **In this situation, although not ideal, if the geneticist is documenting the diagnosis and results of the genetic testing, it would suffice. Ideally, these results would also be added to the patient's chart. We are working hard to provide further clarity on these fields for v6.23.2.**

Long Name:	Genes With Identified Abnormality	*SeqNo:*	572
Short Name:	**Gene**	*Core:*	Yes
Section Name:	Chromosomal Abnormalities	*Harvest:*	Yes
DBTableName:	ChromAbnormalities		
Definition:	Indicate whether the patient has one or more genes with identified abnormalities.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName: Chromosomal Abnormality
ParentShortName: **ChromAb**
ParentHarvestCodes: 310
ParentValues: = "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
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	DNAFF5 (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	EHTM1
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 MKSS (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
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
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 Anamoly

Long Name:	Unlisted Gene or Chromosomal Anomaly - Specify	*SeqNo:*	580
Short Name:	**ChromAbOthSp**	*Core:*	Yes
Section Name:	Chromosomal Abnormalities	*Harvest:*	Yes
DBTableName:	ChromAbnormalities		
Definition:	Indicate the other chromosomal abnormalities.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		
ParentLongName:	Genes With Identified Abnormality		
ParentShortName:	**Gene**		
ParentHarvestCodes:	9999		
ParentValues:	= "Unlisted Gene or Chromosomal Anomaly"		

Syndromes

Long Name:	Syndromes Table Unique Record Identifier	*SeqNo:*	590
Short Name:	**SynUniqueID**	*Core:*	Yes
Section Name:	Syndromes	*Harvest:*	Yes
DBTableName:	Syndromes		
Definition:	Unique identifier for the record in the Syndromes table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

August 2019: For the familial CHD syndromes, what is considered familial? Does it matter how many generations it goes back or is it if there is any family history of CHD, we should count it? **The definition is still pending. The surgeon task force is defining this field.**

Long Name:	Syndromes Link to Demographics Table	*SeqNo:*	600
Short Name:	**PatID**	*Core:*	Yes
Section Name:	Syndromes	*Harvest:*	Yes
DBTableName:	Syndromes		
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:

Data Source: Automatic
Format: Text

Long Name: Syndrome
Short Name: **Syndrome**
Section Name: Syndromes
DBTableName: Syndromes
Definition: Indicate whether the patient has a "Syndrome" or "Syndromic abnormality". A "syndrome" is defined as a group of signs and symptoms that occur together, and characterize a particular abnormality [1]. [1]. 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.

SeqNo: 610
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
5	No syndromic abnormality identified	This patient has no syndromic abnormality identified.
680	1p36 deletion syndrome	
690	1q21.1 duplication syndrome	
710	3q duplication syndrome	
720	4q deletion syndrome	
730	7q11.23 duplication syndrome	
740	8p23.1 deletion syndrome	
660	15q11.2 deletion syndrome	
670	16p11.2 deletion syndrome	
700	22q11.2 duplication 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 requiring a liver transplant. Typical manifestations include intrahepatic cholestasis, distinctive facies, anterior chamber abnormalities of the eye, and butterfly hemiverterbrae. The most common cardiovascular abnormality is peripheral pulmonary artery stenosis. Additional defects include ASD, VSD, coarctation of the aorta and TOF.
760	Alstrom syndrome	
580	Alveolar Capillary Dysplasia syndrome	
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 endocardial fibroelastosis.
770	Baller-Gerold syndrome	
780	Bardet-Biedl syndrome	
790	Beckwith-Wiedmann syndrome	
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 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	
810	Cantu syndrome	
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 acrocephalopolysyndactyly, type II. Incidence is 1:1,000,000 births. Cardiovascular abnormalities in 50% of cases include ASD, VSD, pulmonic stenosis, TOF, TGA and 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	
830	Char syndrome	
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 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 l Malformation	
840	Chromosome 17q12 deletion syndrome	
850	Coffin Lowry syndrome	
860	Coffin Siris syndrome	
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)	
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	
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, truncus arteriosus, and interrupted aortic arch, particularly type B IAA. Additional defects include VSD, right aortic arch, aberrant right subclavian artery, and PDA.
~~880~~	~~Distinct Disorder~~	DO NOT USE
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	
620	Duchenne Muscular Dystrophy	
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 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.
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.
~~900~~	~~Familial atrial septal defects~~	DO NOT USE
910	Familial CHD	
~~920~~	~~Familial non-syndromic CHD~~	DO NOT USE
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.
166	Fetal drug exposure	Indicate whether the patient has a history of Fetal drug exposure. Fetal drug exposure can lead to numerous problems including low birth weight, prematurity, small for Gestational Age (SGA), failure to Thrive (FTT), neurobehavioral symptoms, infectious diseases, and Sudden Infant Death Syndrome (SIDS). **Update March 2023:** DO NOT

		include maternal smoking or maternal tobacco use in this section. Maternal smoking or maternal tobacco use should be captured under (384) Other pregnancy related compilcations. See intent/clarification for (384).
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	
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 expectedusual 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 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	
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 similar to 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.
950	Kleefstra syndrome	
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.
960	Koolen-De Vries syndrome	
260	LEOPARD syndrome	LEOPARD is an acronym for multiple Lentigines, Electrocardiographic conduction abnormalities, Ocular hypertelorism, Pulmonic stenosis, Abnormal 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	
980	Meckel-Gruber syndrome	
990	Microphthalmia syndromic 9	
1000	Mowat Wilson syndrome	
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 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	
1020	Nephronophthisis	
1030	Neurofibromatosis	
~~1040~~	~~Non-syndromic CHD~~	**DO NOT USE** August 2019: I noticed changes in the syndromes available for coding in STS. "non-syndromic CHD" is not defined. Should we be marking this for our kids with no syndromes? **Nothing relational implied.**
350	Noonan syndrome	Noonan syndrome is an autosomal dominantcondition [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	
1060	Oral-facial-digital syndromes (types I-XVI and unclassified)	
360	Patau syndrome (Trisomy 13)	Patau or Bartholin-Patau syndrome, or Trisomy 13, isa 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 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	
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	
1090	Primary ciliary dyskinesia (PCD)	
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 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 ofurinary 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	
1110	Robinow syndrome	
390	Rubinstein-Taybi syndrome	Rubinstein-Taybi or Rubinstein syndrome is an autosomal dominant condition [mapped to 16p13.3 & 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	
1130	Short Rib Polydactyl Type I	
1140	Short rib thoracic dysplasias including Jeune chondrodysplasia, Saldino Mainzer	
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 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 (SIHWES)	

1160	Simpson-Golabi-Behemel syndrome	
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	
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	
630	Spinal Muscular Atrophy, Type II	
~~1190~~	~~Sporadic and familial CHD~~	DO NOT USE
~~1200~~	~~Syndromic CHD~~	DO NOT USE
1210	TAR Syndrome	
640	Thalassemia - Major	
650	Thalassemia – Minor	
~~1220~~	~~Trisomy 13~~	DO NOT USE
~~1230~~	~~Trisomy 18~~	DO NOT USE
~~1250~~	~~Trisomy 21~~	DO NOT USE
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/VATER R 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 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 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	
510	Other syndromic abnormality	This patient has other syndromic abnormality(ies) that are not on this list

September 2019: Was WPW once part of the new version under syndromes and is now no longer there? For a surgery at my center that was done in January this year, WPW was entered as a syndrome, but it came back as an error in my DQR and now it is not in the list of syndromes in my software or in the training manual. Trying to figure out how it got entered in the first place, especially with a code associated with it. **Correct, it was removed from the syndromes as it is an arrhythmia not a syndrome**.

October 2019: What's the difference between #880 "distinct syndrome" and #510 "other syndromic abnormality? **Distinct disorder should not be used and data managers will be notified. Other syndromic abnormality can be used to capture any other syndromic**.

December 2020: Where should mitochondrial disorders be coded? Syndrome? Pre-op factor? **These would be best included in the syndromes, not preoperative factors.**

February 2021: For fetal drug exposure, does this include legally prescribed medications that are known to be contraindicated in pregnancy, such as lithium? **Yes**

February 2021: The question involves field #166 - fetal drug exposure. Is there a set of drug classifications to be considered for this field? Is it only for illicit/illegal drug use? Are we to consider ANY drugs the mother took during pregnancy, i.e.: insulin, metformin, lovenox, antidepressants, etc.? **Consider any medications the mother took during pregnancy that are not normally prescribed during pregnancy. This will be clarified in the upcoming upgrade.**

May 2021: Does medical marijuana use during pregnancy count as fetal drug exposure? **Yes, code any medication/drug not normally prescribed during pregnancy.**

April 2022: I understand that prescribed drugs can be considered to say yes to fetal drug exposure if they are not normally prescribed during pregnancy. Would a category D antidepressant fall into this consideration? Not sure if antidepressants are 'normally' prescribed, but does the category D rating make a difference in saying yes to fetal drug exposure? **Per the current definition, code yes to Fetal drug exposure.**

May 2022: We have a patient whose molecular diagnostics report a variation in the PTPN11 gene and that she has Noonan Syndrome with multiple lentigines. Should we code Noonan Syndrome, Leopard Syndrome or both? Are these terms interchangeable? **Code syndrome (350) Noonan syndrome only.**

May 2022: Pt has 18p11.31p11.21 duplication, a partial Trisomy 18. Does this get counted as Trisomy 18? **Partial Trisomy 18 does not constitute Trisomy 18 and has a different life course from Trisomy 18. Do not code syndrome (280) Trisomy 18.**

July 2022: Patient has Emery-Dreifuss muscular dystrophy. Would I check the Duchenne muscular dystrophy under the listed syndromes?? Muscular dystrophy is a group of diseases that cause progressive weakness and loss of muscle mass. Duchenne being one and Emery-Dreifuss another. Although they are both MD, they have specific differences. Would it be better to have just muscular dystrophy under the syndromes or are you specifically looking for Duchenne type? **The dystrophies have different prognoses and different ieffects in relation to cardiovascular disease. Only include Duchenne Muscular Dystrophy under this preoperative factor and include other dystrophies as 'Other' preop factors.**

March 2023: Should maternal smoking be captured under Syndrome, Fetal Drug Exposure. **No, DO NOT capture maternal smoking or maternal tobacco use here. This should be captured under (384) Other pregnancy related complications. See intent/clarification for 384**

Long Name:	Syndrome - Other - Specify	*SeqNo:*	620
Short Name:	**SyndromeOthSp**	*Core:*	Yes
Section Name:	Syndromes	*Harvest:*	Yes
DBTableName:	Syndromes		
Definition:	Indicate the other “Syndrome” or “Syndromic abnormality”.		

Intent / Clarification:

Data Source:	User
Format:	Text

ParentLongName:	Syndrome
ParentShortName:	**Syndrome**
ParentHarvestCodes:	510
ParentValues:	= "Other syndromic abnormality"

Hospitalization

Long Name:	Hospital Name	*SeqNo:*	630
Short Name:	**HospName**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
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:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		

Long Name:	Hospital Zip Code	*SeqNo:*	640
Short Name:	**HospZIP**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
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:			
Data Source:	Lookup		
Format:	Text		

Long Name:	Hospital State	*SeqNo:*	650
Short Name:	**HospStat**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the region of the country (i.e., state or province) in which the hospital is located.		
Intent / Clarification:			
Data Source:	Lookup		
Format:	Text		

Long Name:	Hospital National Provider Identifier	*SeqNo:*	660
Short Name:	**HospNPI**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
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.		

Intent / Clarification:

Data Source: Lookup
Format: Text

Long Name:	Primary Payor	*SeqNo:*	771
Short Name:	**PayorPrim**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the primary insurance payor for this admission.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

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)

Long Name:	Primary Payor Medicare Fee For Service	*SeqNo:*	772
Short Name:	**PrimMCareFFS**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether the patient is covered by Medicare Fee For Service (Part B).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Primary Payor
ParentShortName: **PayorPrim**
ParentHarvestCodes: 2
ParentValues: = "Medicare"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Secondary (Supplemental) Payor
Short Name: **PayorSecond**
Section Name: Hospitalization
DBTableName: Operations
Definition: Indicate which if any secondary insurance payor was used for this admission.

SeqNo: 773
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Primary Payor
ParentShortName: **PayorPrim**
ParentHarvestCodes: <>1 And Is Not Missing
ParentValues: 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

Long Name:	Secondary Payor Medicare Fee For Service	*SeqNo:*	774
Short Name:	**SecondMCareFFS**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient is covered by Medicare Fee For Service (Part B).		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Secondary (Supplemental) Payor
ParentShortName: **PayorSecond**
ParentHarvestCodes: 2
ParentValues: = "Medicare"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Date of Admission	*SeqNo:*	780
Short Name:	**AdmitDt**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
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:	This is the date of admission to your facility, not necessarily the start of the patient's "episode of care".		
Data Source:	User		
Format:	Date - mm/dd/yyyy		

October 2019: I have a patient who had a long complex admission with multiple events. He was eventually discharged to a chronic care center so he has a hospital discharge date but no database discharge date. He was readmitted a week later to our hospital and then had another cpb cardiovascular operation. My question is when I add this latest surgery, do I create a new visit since he was discharged from the hospital or add it to the existing visit (where all his previous surgeries are) since it is within the same episode of care. My vendor offers these options to add events: create a new visit or add to existing visit. If I create a new visit, I am concerned it will count as an index procedure when it is not or just add to existing with the new admit date? **You should create a new hospital admission and discharge, however, upon analysis, this is 1 episode of care which will be linked by the common database discharge date.**

March 2021: I need clarification on admission date and time. The PC4 data manager and I are interpreting the definition differently. If a patient comes in for clinic visit to have cath, and then is admitted, do we capture date and time of the start to clinic visit? Or when they are admitted to the unit? Same goes for ED. If patient is admitted to ED, then goes to ICU, do we capture admit time and date to ED, or ICU? **STS does not collect admit time. The dates/times spent in ED or clinic are not included unless a cardiac operation procedure is completed. The billing status of the patient is also not a factor (observation or short stay status). The STS definition is the date the episode of care starts. If the patient goes from clinic to cath to the ICU, the STS episode of care would start the date the patient went to the cath lab. If the patient comes from the ED and goes to the ICU, the STS episode of care date is the date the patient arrived in the ICU. If cardiac surgery was performed in the ED, perhaps an ECMO cannulation etc., the episode of care starts the date the patient underwent the procedure.**

May 2021: I have a question on the FAQ: March 2021: on admission date and time. (see FAQ above) If for example a trauma patient goes from ED straight though to OR (late evening) and then to the ICU post-op (later the following morning), then the Episode of Care would start the Date the patient went to the OR? **Yes, the episode of care starts the date the patient went to the OR.**

May 2022: In regard to inclusion criteria do we only capture inpatient procedures? For this particular patient the coding is "hospital outpatient"-admission date, surgery date and discharge date (11/11/2020) are all the same. the procedure was performed by the cardiothoracic surgeon in the operating room, recovered in the PACU and then was discharged to home. One of the procedures performed was pacemaker lead removal (non-functional, not connected to pacemaker). The same patient then presented greater than 30 days but same scenario "hospital outpatient" for wound exploration and placement of wound vac from the site of the pacemaker lead removal, recovered in PACU and discharged home. Are these to be captured in the congenital data base? Both performed by a STS participating CT surgeon. **Yes, all procedures completed by a participating cardiac surgeon should be entered into the database. These will include inpatient and outpatient procedures. You are correct that the outpatient/same day procedures may have the same admit/discharge/and surgery dates.**

Long Name:	Location From Which Patient Admitted	*SeqNo:*	781
Short Name:	**AdmitFromLoc**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the location from which the patient was admitted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

Harvest Codes:

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

April 2019: If a patient presents at an outside hospital but is sent to our hospital, should this be admit from "home" or admit from "other acute care facility". **If the patient was admitted at the acute care facility, the answer is other**

acute care facility. If the patient was seen in a clinic or emergency department at the other hospital and then transferred to your facility, the answer is home.

Long Name:	Date of Surgery	*SeqNo:*	790
Short Name:	**SurgDt**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the date of surgery which equals the date the patient enters the OR or equivalent.		

Intent / Clarification:

Data Source:	User
Format:	Date - mm/dd/yyyy

September 2021: We have an adult CT surgeon who also operates on our adult congenital patients. Can you tell me if I should enter a patient with congenital AS s/p AVR who was admitted for a post-infective endocarditis embolic stroke, discovered to have valvular dysfunction and a new VSD (all likely from endocarditis). Since his disease is caused by infective endocarditis, and our adult surgeon would have operated on him regardless of his congenital AS, should I still enter him in the congenital registry? **This case can be entered into the Congenital database and also the Adult Cardiac Surgery database. Make sure you are being consistent at your center with how you determine which cases will be entered into 1 database or both. This should be a programmatic decision with a consistent data entry strategy, and not based on the patient's outcome.**

November 2021: I have a 30 year old w hx of TGA with acquired sick sinus syndrome in need of new atrial lead and generator system. EP team removed generator. Upon removal atrial lead was fractured at insertion site. Congenital cardiothoracic surgery was requested for exploration of the wound and repair of dissection to subclavian vein. EP team then replaced generator and atrial lead. My surgeon listed himself as primary for their section of the exploration/repair. EP dictated the replacement of generator/leads. Is this a case that I would include in the CHSD database? **Yes, include this case in the CHSD database and include all procedures done in the operative setting.**

December 2021: Our surgeon went to a sister hospital to perform a pacemaker insertion and would like it included in the database, under this Participant ID. Can we include cases performed at this sister hospital, since we share CMS numbers and the surgeons are contracted with STS? **The inclusion of cases into your database is dependent on your institutional contract with the STS. For example, if you have a single hospital contract, only the cases completed at your institution can be included in the database. Likewise, if your contract is for multiple institutions, then cases done at the institutions listed in the contract are to be included. The shared CMS number is not a factor in this determination.**

January 2022: I have a 49-year-old patient with a history of an endovascular aortic aneurysm repair by the Vascular surgeon in 2015 and 2020. She does not have documentation of congenital heart disease and she comes to our institution with excrutiating abdominal and back pain. CTA shows dissection of thoracic aorta from distal aortic arch to the level of prior infrarenal endoprothesis. She was taken to the OR for repair of a Type B aortic dissection done by an Adult Cardiac Surgeon that is also on our Congenital Surgeon list and she has no history of Congenital Heart disease. Is this patient appropriate to be in the Congenital database if we do have an Adult Cardiac database? Asking before I do all the work of abstracting as she returned to the OR for multiple washouts, delayed sternal closure, tracheostomy done in OR by the same surgeon (totaling 9 surgeries with the same surgeon) as this will entail abstracting 10 surgeries. **Given this patient has acquired adult heart disease, it is most appropriate to include this in the Adult Cardiac Surgery Database. If an institution has both the adult and congenital databases, the institution can come up with a consistent approach to determine which**

database (or both) is appropriate and make the determination prior to the operation.

Long Name:	Height in Centimeters	*SeqNo:*	800
Short Name:	**HeightCm**	*Core:*	*Yes*
Section Name:	Hospitalization	*Harvest:*	*Yes*
DBTableName:	Operations		
Definition:	Indicate the height of the patient in centimeters at the time of surgery.		
Low Value:	15.0		
High Value:	250.0		
Intent / Clarification:			
Data Source:	User		
Format:	Real		

Long Name:	Weight in Kilograms	*SeqNo:*	810
Short Name:	**WeightKg**	*Core:*	*Yes*
Section Name:	Hospitalization	*Harvest:*	*Yes*
DBTableName:	Operations		
Definition:	Indicate the weight of the patient in kilograms at the time of surgery.		
Low Value:	0.001		
High Value:	200.000		
Intent / Clarification:			
Data Source:	User		
Format:	Real, at least 3 decimal places		

Long Name:	Patient Age In Days	*SeqNo:*	820
Short Name:	**AgeDays**	*Core:*	Yes
Section Name:	Hospitalization	*Harvest:*	Yes
DBTableName:	Operations		
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:	0		
High Value:	40150		
Intent / Clarification:	**Update March 2023:** Please include **all patients under 18 (age in days < 6575) who have cardiac surgery and all congenital patients** in the CHSD Database.		
Data Source:	User or Automatic		
Format:	Integer		

Pre-Operative Factors

Long Name:	Preoperative Factor Table Unique Record Identifier	*SeqNo:*	830
Short Name:	**PoFUniqueID**	*Core:*	Yes
Section Name:	Preoperative Factors	*Harvest:*	Yes
DBTableName:	PreopFactors		
Definition:	Unique identifier for the record in the Preoperative Factors table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Preoperative Factor Link to Operations Table	*SeqNo:*	840
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Preoperative Factors	*Harvest:*	Yes
DBTableName:	PreopFactors		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Preoperative Factor record with the associated record in the Operations table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Preoperative Factor	*SeqNo:*	850
Short Name:	**PreopFactor**	*Core:*	Yes
Section Name:	PreopFactor	*Harvest:*	Yes
DBTableName:	PreopFactors		
Definition:	Indicate the factors that are present preoperatively that may impact the patient's outcome.		
Intent / Clarification:	Pay attention to defined time frames. Each Preoperative Factor has its own defined time frame for inclusion.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
10	No preoperative factors identified	This patient has no preoperative factors identified.
200	Cardio-pulmonary resuscitation	Chest compression with medications within 48 hours prior to surgery. Select this factor if chest compression took place within the 48 hours prior to OR Entry Date and Time, or at the time of OR Entry Date and Time.
210	Preoperative complete AV block	Arrhythmia-Atrioventricular conduction disorder, AV block, Third degree ROOT Definition. Third degree AV block is defined as the absence of AV node conduction. This factor should be selected if it developed / was present during this hospitalization before OR Entry Date and Time and was present at the time of OR Entry Date and Time
220	Preoperative/Preprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Code this factor if the patient is supported with mechanical support, of any type (IABP, VAD, ECMO, or CPS), for resuscitation/CPR or support, at the time of OR Entry Date and Time.
230	Shock, Persistent at time of surgery	Shock ROOT Definition = Shock is defined as "a state of inadequate tissue perfusion". A modern definition according to Simeone states that shock is a "clinical condition characterized by signs and symptoms which arise when the cardiac output is insufficient to fill the arterial tree with blood under sufficient pressure to provide organs and tissues with adequate blood flow." A historic definition according to Blalock in 1940 is that "Shock is a peripheral circulatory failure, resulting from a discrepancy in the size of the vascular bed and the volume of the intravascular fluid". ~~Code this factor if the patient had a metabolic acidosis with pH <= 7.2 and/or Lactate > 4 mmol /liter at the time of OR Entry Date and Time and /or on one or more inotropes at doses greater than: Dopamine/Dobutamine > 10 mcg/kg/min; Epinephrine/norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min~~ **Update Jan 2023: Code this factor if the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient and has a metabolic acidosis with a pH < 7.2 and/or Lactate > 4 mmol/liter and/or the patient is on one or more inotropes at doses greater than: Dopamine/Dobutamine > 10mcg/kg/min; Epinephrine/Norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min at the time of OR Entry Date and Time.**
240	Shock, Resolved at time of surgery	Shock ROOT Definition = Shock is defined as "a state of inadequate tissue perfusion". A modern definition according to Simeone states that shock is a "clinical condition characterized by signs and symptoms which arise when the cardiac output is insufficient to fill the arterial tree with blood under sufficient pressure to provide organs and tissues with adequate blood flow." A historic definition according to Blalock in 1940 is that "Shock is a peripheral circulatory failure, resulting from a discrepancy in the size of the vascular bed and the volume of the intravascular fluid". Code this factor if the patient had a metabolic acidosis with pH < 7.2 and/or Lactate > 4 mmol /liter at any time after the date and

		time of admission to the hospital but not at the time of OR Entry Date and Time. This factor should be coded if shock was present at any time after the date and time of admission to the hospital but not at the time of OR Entry Date and Time, including situations where shock was present after admission to the hospital where this operation was performed, and situations where shock was present while the patient was hospitalized at another "transferring facility" that subsequently transferred the patient who ultimately arrived at this hospital in this same hospitalization and /or on one or more inotropes at doses greater than: Dopamine/Dobutamine > 10 mcg/kg/min; Epinephrine/norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min **Update Jan 2023: Code this factor if the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient and has a metabolic acidosis with a pH < 7.2 and/or Lactate > 4 mmol/liter and/or the patient is on one or more inotropes at doses greater than: Dopamine/Dobutamine > 10mcg/kg/min; Epinephrine/Norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min at any time after the date and time of admission to the hospital but not at the time of OR Entry Date and Time** Clarify: we should code the shock present at transferring facility even if shock not present at this facility
250	Diabetes mellitus, Insulin dependent	Code this factor if the patient has evidence of insulin dependent diabetes mellitus at the time OR Entry Date and Time as manifested by the fact that the patient has the diagnosis of diabetes mellitus that is controlled with insulin.
260	Diabetes mellitus, Non-insulin dependent	Code this factor if the patient has evidence of non-insulin dependent diabetes mellitus at the time OR Entry Date and Time as manifested by the fact that the patient has the diagnosis of diabetes mellitus that is controlled with dietary modification with or without oral medications (oral anti-hyperglycemic agents).
270	Hypothyroidism	Hypothyroidism refers to decreased levels of triiodothyronine (T3) and thyroxine (T4), and reverse triiodothyronine (reverse T3), with high levels of thyroid-stimulating hormone (TSH). Symptoms of hypothyroidism include bradycardia, pericardial effusions, hypertension and a narrowed pulse pressure and myxedema. Studies have also shown decreases in cardiac output and cardiac contractility, decreased diastolic relaxation and diastolic filling. In those with congestive heart failure (CHF), decreased levels of T3 have been shown to be proportional to New York Heart Association class, poor outcomes, mortality, poor hemodynamics, and hyponatremia. This factor may be coded (1) if the TSH > 20 mU / liter, or (2) if the patient has pituitary failure with hypothyroidism, or (3) if the patient is receiving medication to treat hypothyroidism at the time of OR Entry Date and Time.
280	Currently taking steroids as treatment for adrenal insufficiency	Code this factor if the patient is taking steroids (as treatment for adrenal insufficiency) at the time of OR Entry Date and Time. Inhaled steroids should not be included as they are generally taken for reactive airway disease and are not the equivalent to systemic steroid ingestion. The intent of the field was probably related to factors such as: 1) potential increased infection risk, 2) potential

		impact on healing, and 3) potential for adrenal suppression (and need for "stress" steroid coverage). Clarify: Do not code if the only steroids that the patient received was a one time stress dose on call prior to the OR.
290	Currently taking steroids for any reason other than treatment of adrenal insufficiency	Code this factor if the patient is taking steroids (for any reason other than treatment of adrenal insufficiency) at the time of OR Entry Date and Time. Inhaled steroids should not be included as they are generally taken for reactive airway disease and are not the equivalent to systemic steroid ingestion. Clarify: Do not code if the only steroids that the patient received was a one time stress dose on call prior to the OR.
295	Colostomy present	Code this factor if the patient has a colostomy (involving the large intestine) present at the time of OR Entry Date and Time.
300	Enterostomy of small intestine present	Code this factor if the patient has an enterostomy (involving thesmall intestine) present at the time of OR Entry Date and Time.
305	Esophagostomy present	Code this factor if the patient has an esophagostomy present at the time of OR Entry Date and Time.
307	Gastrostomy present	Code this factor if the patient has a gastrostomy present at the time of OR Entry Date and Time.
310	Hepatic dysfunction	Hepatic dysfunction is defined as dysfunction of the liver that results in hypoalbuminemia (<2 grams/dL), coagulopathy (PT > 1.5 x upper limits of normal), and hyperbilirubinemia (> 3.0 x upper limits of normal). Code this factor if the patient develops 2 out of these 3 laboratory abnormalities within 24 hours of the time of OR entry Date and time.
320	Necrotizing entero-colitis, Treated medically	Necrotizing enterocolitis (NEC) ROOT Definition = Necrotizing enterocolitis 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. Select this factor if NEC is present during the same hospitalization as this operation (but prior to this operation) and was managed without surgery to treat the NEC. Code this factor if this occurred at any time during the same hospitalization but prior to surgery, do not code if NEC diagnosed at prior hospitalization or if it occurred at transferring hospital. Do not code if treatment was completed at an outside or transferring facility.
330	Necrotizing entero-colitis, Treated surgically	Necrotizing enterocolitis (NEC) ROOT Definition = Necrotizing enterocolitis 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, bowel rest, or exploratory laparotomy. Select this factor if NEC is present during the same hospitalization (but prior to this operation) as this operation and was managed with surgery to treat the NEC. Code this factor if this occurred at any time during the same hospitalization but prior to surgery, do not code if NEC diagnosed at prior hospitalization or if it occurred at transferring hospital. Do not coded if treatment was completed at an outside or transferring facility.
340	Coagulation disorder, Hypercoagulable state	Hypercoagulable state is characterized by elevation of prothrombotic factors that increase risk of thrombosis (clotting) in

		blood vessels. Laboratory findings may include Anti thrombin III deficiency, primary (hereditary) thrombophilia, Protein C deficiency, Protein S deficiency, factor V Leiden mutation, or prothrombin gene mutation. If a TEG is performed, the R and K times are decreased and the MA and Angle (alpha) are increased. Code this factor if the patient has evidence of a hypercoagulable state at the time OR Entry Date and Time.
350	Coagulation disorder, Hypocoagulable state not secondary to medication(intrinsic hypocoagulable state)	Code this factor if the patient has evidence of a coagulopathy at the time OR Entry Date and Time or within 24 hours as manifest by one or more of the following: PT/PTT above normal, Thrombocytopenia <100,000 or Fibrinogen split products positive (>10%), TEG findings of prolonged R and K times and decreased MA and Angle (alpha) and the coagulopathy is NOT secondary to medications such as Heparin or Warfarin or aspirin.
360	Coagulation disorder, Hypocoagulable state secondary to medication	Code this factor if the patient has evidence of a coagulopathy at the time OR Entry Date and Time or within 24 hours as manifest by one or more of the following: PT/PTT above normal, Thrombocytopenia <100,000 or Fibrinogen split products positive (>10%), TEG findings of prolonged R and K times and decreased MA and Angle (alpha), and the coagulopathy is secondary to medications such as Heparin or Warfarin or aspirin. **September 2022: Includes patients with on-going use of anticoagulant medication (i.e., Coumadin) with proven induction of Hypocoagulable state (labs drawn prior to the 24-hour time frame showing a hypocoagulable state) labs not redrawn and medication was not held/discontinued prior to the surgical case.**
590	Dyslipidemia	Current or previous diagnosis of dyslipidemia according to National Cholesterol Education Program criteria, defined as any of the following: - Total cholesterol greater than or equal to 200 mg/dL (5.18 mmol/L) - LDL greater than or equal to 130 mg/dL (3.37 mmol/L) - HDL less than or equal to 40 mg/dL (1.04 mmol/L) in males and less than or equal to 50 mg/dL (1.30 mmol/L) in females Code this factor if the patient meets one of the above criteria at time of hospitalization for surgery.
370	Endocarditis	This factor should be coded if endocarditis present at any time after the date and time of admission to the hospital and prior to OR Entry Date and Time, including situations where endocarditis was present after admission to the hospital where this operation was performed, and situations where endocarditis was present while the patient was hospitalized at another "transferring facility" that subsequently transferred the patient who ultimately arrived at this hospital in this same hospitalization. Code this factor if endocarditis is diagnosed prior to OR Entry Date and Time, using the Duke Criteria for the Diagnosis of Infective Endocarditis (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. The two major criteria are: 1) Blood cultures positive for IE 2) Evidence of endocardial involvement. Blood cultures positive for IE requires: 1) Typical microorganism consistent with IE isolated from 2 separate blood

		cultures, as noted in number two below (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 hr apart); 3) Single blood culture positive for Coxiella burnetii or an antiphase I IgG antibody titer of >1 :800. Evidence of endocardial involvement requires 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: 1) Predisposing heart disease or injection drug use (IVDA); 2) Temperature of > 38C; 3) Vascular phenomenon (major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial or conjunctival hemorrhage, Janeway's lesions); 4) Immunologic phenomenon (glomerulonephritis, Osler's nodes, Roth's spots, rheumatoid factor); 5) 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; 6) 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.
380	Sepsis	Sepsis ROOT Definition = Sepsis is defined as "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. A systemic inflammatory response syndrome (SIRS) is present when <u>at least two</u> of the following criteria are present: hypo- or hyperthermia (>38.5 or <36.0), tachycardia or bradycardia, tachypnea, leukocytosis or leukopenia, and thrombocytopenia. Code this factor if the patient has signs of sepsis <u>within 48</u> hours of OR Entry Date and Time. PC4 definition: Temperature instability and abnormal WBC (leukopenia or leukocytosis) and hemodynamic instability requiring at least one of the following: (1) volume > 40 cc/kg; (2) new or increased inotropic support; or (3) new or increased mechanical ventilation support.
390	Sepsis with positive blood	Code this factor if the patient has a positive blood culture within 48

	culture	hours of OR Entry Date and Time, combined with the diagnosis of sepsis. Sepsis ROOT Definition = Sepsis is defined as "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. 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. Code this factor if the patient has signs of sepsis and a positive blood culture within 48 hours of OR Entry Date and Time.
400	Preoperative neurological deficit	Code this factor if the patient has any deficit of neurologic function identified by the care team (during the hospitalization of this operation prior to the time of OR Entry Date and Time). Define further – Do include central or systemic neurologic deficits including muscular dystrophy, cerebral palsy, neurologic deficits manifesting from a previous stroke. Do not include vocal cord paralysis or diaphragm paralysis. Do not include ADHD, ADD, autism, or developmental delays. Do include sensorineural hearing loss, but not conductive hearing loss. These should be not what is included/covered by the NCAA, syndromes, or chromosomal abnormalities.
410	Seizure during lifetime	Seizure ROOT Definition = A seizure is defined as the clinical and/or electroencephalographic recognition of epileptiform activity. Select this preoperative factor for any prior seizure during the lifetime of the patient.
420	Seizure within 48 hours prior to surgery	Seizure ROOT Definition = A seizure is defined as the clinical and/or electroencephalographic recognition of epileptiform activity. Select this preoperative factor for any prior seizure during the 48 hours prior to surgery.
430	Stroke, CVA, or Intracranial hemorrhage > Grade 2 during lifetime	Indicate whether the patient had a stroke, CVA, or intracranial hemorrhage > Grade 2 at any time during the patient's lifetime. Stroke ROOT Definition = A stroke is any confirmed neurological deficit of abrupt onset caused by a disturbance in blood flow to the brain, when the neurologic deficit does not resolve within 24 hours. An IVH (Intraventricular hemorrhage) is diagnosed by the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that may extend to include an intraparenchymal component. A Grade 1 IVH requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage with a limited germinal matrix involvement. A Grade 2 IVH requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that involves an area of up to, but not more than 50% of the ventricular cross-sectional area in sagittal view. A Grade 3 IVH 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. A Grade 4 IVH 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.
440	Stroke, CVA, or Intracranial hemorrhage > Grade 2 within 48 hours prior to surgery	Indicate whether the patient had a stroke, CVA, or intracranial hemorrhage > Grade 2 occurring within the 48 hours prior to surgery. Stroke ROOT Definition = A stroke is any confirmed neurological deficit of abrupt onset caused by a disturbance in blood flow to the brain, when the neurologic deficit does not resolve within 24 hours. An IVH (Intraventricular hemorrhage) is diagnosed by the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that may extend to include an intraparenchymal component. A Grade 1 IVH requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage with a limited germinal matrix involvement. A Grade 2 IVH requires the existence of a neurologic imaging study indicating a new or previously unsuspected collection of intraventricular hemorrhage that involves an area of up to, but not more than 50% of the ventricular cross-sectional area in sagittal view. A Grade 3 IVH 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. A Grade 4 IVH 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.
450	Renal dysfunction	Renal dysfunction is defined as the oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine > 1.5 times upper limits of normal for age, without needing dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration present at the Date and Time of OR Entry or within 24 hours of Date and Time of OR Entry.
460	Renal failure requiring dialysis	Renal failure is defined as oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine > 1.5 times upper limits of normal for age, with need for dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration present at the Date and Time of OR Entry or within 24 hours of Date and Time of OR Entry.
470	Mechanical ventilation to treat cardiorespiratory failure	This patient was supported with mechanical ventilation to treat cardiorespiratory failure during the hospitalization of this operation and prior to OR Entry Date and Time. Pre-operative non-invasive ventilation should NOT be coded as pre-operative mechanical ventilation. The intent of the field is to capture patients on support with a mechanical ventilator for cardiorespiratory failure via intubation or tracheostomy. Hi-flow gases, VapoTherm, and other "non-invasive" forms of respiratory support (up to and including BiPap without an endotracheal tube) would not meet this definition.
600	Non-Invasive respiratory support to treat cardiorespiratory failure	The timeframe of anytime during the hospitalization should be applied. Non-Invasive respiratory support should be administered through a ventilator support machine (i.e. CPAP, BiPAP) without the presence of an endotracheal tube or tracheostomy tube. This does not include high flow nasal cannula.
480	Respiratory Syncytial Virus	Code this factor if the patient is diagnosed with Respiratory Syncytial Virus (RSV) during the hospitalization of this operation within 4 weeks prior to the time of OR Entry Date and time and

		was present at the time of OR Entry Date and Time. Do not include if RSV diagnosed at outside hospital or transferring hospital unless diagnosis reconfirmed.
490	Single lung	Code this factor if the patient has only one lung present at the time of OR Entry Date and Time
500	Tracheostomy present	Code this factor if the patient has a tracheostomy present at the time of OR Entry Date and Time.
510	Asthma	Asthma is the common chronic inflammatory disease 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. Code this factor if the clinician documents the patient has a diagnosis of asthma or reactive airway disease.
520	Bronchopulmonary dysplasia (BPD)	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. Code this factor if the clinician documents the diagnosis of BPD.
530	ICD (AICD) ([automatic] implantable cardioverter defibrillator) present	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 biventricular pacing for asystole or bradycardia. Code this factor if an AICD or life vest is present at the time and date of OR entry.
540	Pacemaker present	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. Code this factor if the patient is actively being paced with a temporary or

		permanent pacemaker. Do not include if the patient has pacing wires but is not actively being paced.
570	Tobacco use	Code this factor if there is current or previous patient use of any tobacco product, including cigarettes, cigars, pipes, and chewing tobacco. Do not include maternal smoking or secondhand exposure to tobacco products. Do not include other products including marijuana use.
580	Family History of Coronary artery disease	Code this factor if the patient has/had any direct blood relatives (only include if parents, siblings, children) who have had any 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)
590	Dyslipidemia	Current or previous diagnosis of dyslipidemia according to National Cholesterol Education Program criteria, defined as any of the following: - Total cholesterol greater than or equal to 200 mg/dL (5.18 mmol/L) - LDL greater than or equal to 130 mg/dL (3.37 mmol/L) - HDL less than or equal to 40 mg/dL (1.04 mmol/L) in males and less than or equal to 50 mg/dL (1.30 mmol/L) in females Code this factor if the patient meets <u>one of the above criteria</u> at time of hospitalization for surgery
610	Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care	
620	Admitted from home after undergone a cardiac surgical operation within the past 30 days.	
777	Other preoperative factors	This patient has other preoperative factor(s) that are not on this list.

<u>February 2019</u>: Should invasive mechanical ventilation be coded as a preoperative factor for a patient on their sternal closure operation who was NOT intubated prior to their index surgery, but was intubated for their sternal closure because of their index operation? **Select all applicable preoperative factors prior to the sternal closure, including mechanical ventilation for respiratory failure. Please note that only the preoperative factors for the index operation will be analyzed.**

<u>February 2019:</u> Please define 'hospitalization'. Is this synonymous with 'episode of care'? Does the start of the hospitalization include time spent at an OSH leading up to the admission to the surgical center? Does it also include time after hospital discharge until they qualify for having a 'database discharge date' (i.e. if they are discharged to another facility)? **Hospitalization is the date of hospital admission to the date of hospital discharge at the hospital where the surgery was performed. Episode of care is defined by the date of hospital admission to the date of database discharge at the hospital where the surgery was performed. Please refer to your data analysis report for more detailed information. Some preoperative factors may be coded if they occurred at an outside hospital but the dates of admission/discharge do not change – just code the preoperative factors that allow for this.**

<u>February 2019:</u> For Coagulation disorder, Hypocoagulable state not secondary to medication (intrinsic hypocoagulable state), I don't understand the parts that were added to the definition with v3.41 "TEG findings

of prolonged R and K times and decreased MA and Angle (alpha)". I have a neonate with congenital syphilis with a platelet count 107,000 at entry to OR . But my team feels it should count as a factor. Their reasons: (1) thrombocytopenia diagnosis from hematology given (2) platelets were transfused which is why the level was over 100 (3) platelets on peripheral smear were large cell meaning they do not function normally. Should we assign it as a pre-op factor? **Include preoperative factor Coagulation disorder, Hypocoagulable state not secondary to medication if the thrombocytopenia (<100,000) occurred within 24 hours prior to going to the OR.**

April 2019: If a patient has a long-term (e.g. >1 month) NG tube, should we mark gastrostomy present as a preop risk factor? One of my surgeons feels like it should be since at our institution, we like to wait quite some time before doing a gastrostomy. **No, a nasogastric tube is not a gastrostomy tube. Only select this field if a gastrostomy tube is present.**

April 2019: Preop Factor: Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care. Question: In reference to "cardiac surgical operation", does this include only CPB and no CPB cases done at that hospital or can it include CPB, no CPB, ECMO, thoracic, VAD etc. I have a patient that was cannulated for ECMO at an OSH. This patient was transferred to our facility, where days later he was decannulated from ECMO. Would he qualify for the preop factor listed; Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care. **Cardiac surgical operation includes CPB or No CPB Cardiovascular operations only. Only code the preoperative factor Cardiac Surgical Operation if the patient underwent a CPB or No CPB Cardiovascular operation at the previous hospital. In this scenario, do not code this factor.**

May 2019: The definition for hepatic dysfunction gives only one test result to determine coagulopathy (PT > 1.5 x upper limits of normal), but the definition for coagulation disorder, hypocoagulable state gives a couple test results to determine coagulopathy (PT/PTT above normal, Thrombocytopenia <100,000 or Fibrinogen split products positive (>10%), TEG findings of prolonged R and K times and decreased MA and Angle (alpha)). If a patient has hypoalbuminemia and thrombocytopenia <100,000 (PT level was increased but doesn't meet 1.5x limit) can I code him as having hepatic dysfunction, or is the increased PT level the only way to determine a coagulopathy in this specific situation? **No, this scenario does not represent hepatic dysfunction as the thrombocytopenia is not caused by hepatic dysfunction.**

July 2019: Do preop factors count for subsequent surgeries in risk stratification calculations, or are the preop factors only accounted for on the index operation? For example, is it important to enter preop factors for cases such as sternal closures where there is no STAT category associated with it? **Preop factors are only analyzed for the index case. We recommend completing the prep factors for local use for subsequent operations**.

August 2019: A patient is on immunosuppressive therapy for vasculitis, using Imuran (azathioprine) and adalimumab. Would you capture this under "Currently taking steroids for any reason other than treatment of adrenal insufficiency"? **The patient is not taking steroids.**

August 2019: If patient has his/her initial surgery (Index operation) and have preop factors such as seizure during lifetime, gastrostomy, etc., would I list those same preop factors for any/all subsequent surgeries during the same admission? **Yes, list all applicable pre-operative factors with each surgery.**

August 2019: For patients who progressed from requiring non-invasive respiratory support to requiring mechanical ventilation in the CICU (before surgery), should I only capture the pre-op risk factor of #470 Invasive Mechanical Ventilation or use both 470 and 600 (Non-invasive? **Code both. Gives a more complete picture of the patient**

August 2019: Should hypotonia be counted as a preop neurologic deficit? **No. Hypotonia is too nonspecific by itself, only include if the hypotonia is associated with a well-defined condition or neurologic disorder.**

September 2019: If a patient is taken into the OR for a scheduled surgery, and arrests prior to going on bypass, is this arrest considered a Preop Factor? Or is it a complication because it happened during surgery? Or is it

neither? **If the patient was already in the OR, the arrest would be considered a complication and not a preoperative factors.**

October 2019: I am looking for clarification as to if this should be entered for all patients with Complete AV block or only patients for which Complete AV block developed within the hospitalization.
For example, I have a patient with a history of a primum ASD with cleft mitral valve status post repair that subsequently developed complete heart block. She then had an epicardial single chamber pacemaker placed. She recently came in for surgery for placement of a new permanent epicardial dual chamber pacemaker/explantation of old permanent pacemaker system. I know that I should select 'Pacemaker present' as a preop factor for this operation but am unsure if I should also select 'Preoperative complete AV block' as well. The 'Preoperative complete AV block' didn't develop during the hospitalization but technically it was present. **Yes, capture the AV block complete for all patients where this is present, whether the patient is actively being treated for it (and not in complete AV block).**

November 2019: For infants and neonates, are the terms bronchopulmonary dysplasia and chronic lung disease interchangeable? We had not been coding this way, but after further discussion with other data managers and looking into the terms more thoroughly, it seems the terms mean the same thing. Is it correct to code BPD for an infant (ex-preemie) with chronic lung disease? **May code BPD for neonate and infant patients with chronic lung disease as BPD is the most common form of chronic lung disease in this population.**

November 2019: What type of surgical operation would '*Admitted from home after having undergone a cardiac surgical operation within the past 30 days*' preop factor apply to? If a patient is readmitted within 30 days of a surgical operation, would it only be added to a subsequent operation in a readmission if the operation type was 'CPB' or 'No CPB'? or any operation type? **Yes, only coded for CPB cardiovascular and NO CPB cardiovascular.**

December 2019: Should Prematurity be collected as an "Other" preop factor? If so, then would it only be collected for any CPB/No CPB operation that occurred during the 1st year of life? or only the Index Operation for any hospitalization during the first year of life? **Do not collect as preop factor. This information is collected for Sequence #350- (Premature Birth).**

January 2020: If this preoperative factor is selected (transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care) will this prevent the first cardiac procedure of the current admission in our facility from being coded as the index case? **No, the first cardiac procedure done at your facility will be the index operation for this episode of care at your facility**

January 2020: The patient in question has Down's syndrome/Trisomy 21, fetal alcohol syndrome, microcephaly, developmental delay. The patient is cared for by family, can bath and feed self. There is documentation of mild retardation, insight and judgement impaired, psychiatric delusions. There are no CT/MRI brain tests available. Besides entering in the above issues in syndromes, chromosomal abnormalities, and NCAA, should I also mark this patient as having preop factor 400 - preop neurological deficit? **No, do not include neurologic deficit as a preoperative factor.**

February 2020: We just noticed that the PC4 definition for Sepsis has been added to the training manual under preop risk factors. What is the purpose of this? If a patient meets the PC4 definition criteria, can we count it? The STS and PC4 definition are different. **The difference in the definitions is related to time. In the STS database, the patient only meets the definition of sepsis if it was present within 48 hours of OR Entry Date and Time. Only utilize the STS definition as the PC4 definition will be reviewed.**

March 2020: Should data managers be coding for #470, Mechanical ventilation to treat cardiorespiratory failure when a patient was intubated for a cath procedure (or any other procedure requiring anesthesia) and the team decides to leave the patient intubated overnight for the index procedure the following day (or sometime shortly afterward)? I am referring to patients who were definitely not experiencing cardiorespiratory failure. It does not seem as though we should capture this as a preoperative factor based on this clarification in the STS training manual: "The intent of the field is to capture patients on support with a mechanical ventilator for

cardiorespiratory failure via intubation or tracheostomy." **Correct, do not use this for patients with elective intubations/periods of mechanical ventilation. Only code for patients with respiratory failure**

March 2020: 290 - Currently taking steroids for any reason other than treatment of adrenal insufficiency Code this factor if the patient is taking steroids (for any reason other than treatment of adrenal insufficiency) at the time of OR Entry Date and Time. Inhaled steroids should not be included as they are generally taken for reactive airway disease and are not the equivalent to systemic steroid ingestion. My surgeon questioned if this should be coded when steroids are given for about 24 hours pre-operative for the surgical case**. This should only be coded when the steroids are given to treat a medical problem not just as a standing pre-op order. Steroids given only as a preoperative or pre-bypass medication/prophylaxis should not be included as a preoperative factor.**

June 2020: With vaping becoming more and more popular, used among a younger age group, and increasing harm on lung tissue, we feel like it should be reconsidered to be included in the tobacco use preop risk factor. Will you please look into this and let us know if we can code tobacco use when a patient uses vaping? **If the patient vaped tobacco, select yes. If the patient vaped a different substance, select no.**

September 2020: Is lab documentation required (and what would that be?) to confirm a preop factor hypercoag state diagnosis of Factor V Leiden mutation or is the H&P mention of diagnosis of Factor V Leiden mutation sufficient? Are there other diagnoses that are considered hypercoag conditions? Are there any diagnoses for preop factor hypo coag state that would not need to meet the need for abnormal PT/PTT/platelet count preop labwork?) **Factor V Leiden mutation can be included as a hypercoagulable state if there is documentation of the mutation in the medical record (seq number 340). The lab values in the definition must be met to code the associated coagulopathy for sequence number 350 and 360, hypocoagulable state related to medication or unrelated to medication.**

September 2020: Our patient has a pre-op diagnosis of transient abnormal myelopoiesis. How is this best documented under the choices provided, if able? **It can be included as an 'other' preoperative factor and included as free text.**

October 2020: I have a patient who was put on VA ECMO in another hospital and then was transferred to us and had a surgery. In the preop factors should I check the option of: Transferred from another hospital after undergoing cardiac surgical operation at that hospital during this episode of care? Can you please add a definition to this category? The Task Force is working on defintions. **No, do not check. This factor is to be utilized for prior cardiac interventions (CPB or No CPB Cardiovascular cases only).**

January 2021: For the preop factor 620: Admitted from home after undergone a cardiac surgical operation within the past 30 days, should this be coded if the patient was admitted within 30 days of a previous surgery but did not have another surgery until after 30 days, or does the surgery also need to be within 30 days and not just the admit? **Use the preop factor if the patient was re-admitted within 30 days regardless of when the subsequent surgery took place. Also code the applicable complications on the index operation.**

February 2021: Would a patient that comes in and is on CPAP at night (as he is at home), be considered a preop factor for Non invasive therapy? Sleep apnea not resp failure, but a condition. **Yes, code Non-invasive support as a preoperative factor.**

March 2021: A patient has cardiac catheterization X2 with iodine contrast prior to CT surgery for ASD/PDA repair. Postoperatively the patient required temporary pacing due to bradycardia. An endocrine consult was obtained and a TSH level drawn (postoperatively) which resulted 196uU/ml. The endocrine note reads this is most likely related to the preoperative iodine contrast and recommends thyroid replacement. Can hypothyroidism be listed as a preoperative risk factor? **No, the lab value needs to be measured prior to the cardiac surgery before hypothyroidism can be coded.**

June 2021: Patient had a pre Fontan cath the day before surgery. During the cath procedure, patient received heparin and PT/PTT was drawn one hour later and was also less than 24 hours prior to surgery. No further

PT/PTT level was drawn until post surgery. Question #1: PT/PTT level was high. Can this PT/PTT level that is being drawn during cath coded as Coagulation disorder, Hypocoagulable state secondary to medication in Preoperative Factor when the patient is specially being heparinized for the cath? Question 2# If PT/PTT level was not drawn, can the high level of ACT that was measured during the cath procedure coded as Coagulation disorder, Hypocoagulable state secondary to medication as a Preoperative Factor? **The half-life of heparin is small (approximately 60-90 minutes) and a dose given in the cath lab will not maintain a hypocoagulable state for the patient prior to surgery the following day. Do not use this to determine if a patient is in a hypocoagulable state. Likewise, the ACT obtained during the cath cannot be used to determine a hypocoagulable state.**

August 2021: For the pre-op factor of "Stroke, CVA, or Intracranial hemorrhage > Grade 2" (430/440), would hypoxic-ischemic encephalopathy be included in this definition? **Hypoxic ischemic encephalopathy is not a stroke and should not be included as a Preoperative stroke, CVA, or intracranial hemorrhage. This can be included as a Preoperative neurological deficit.**

August 2021: About a Fontan patient with PLE coming in for Transplant procedure and the coding definition for hepatic dysfunction as a preoperative factor. Can this be coded for a patient who has hyperbilirubinemia but doesn't meet the lab value criteria for hypoalbuminemia as they had been receiving albumin infusions? If so, would there be a timeframe limitation in when the patient was last given. **Utilizing the definition in the Training Manual, this patient does not meet the criteria for Hepatic dysfunction. You may be able to code diagnoses (2590) Protein-losing enteropathy or (2600) Plastic bronchitis under the surgical diagnoses section.**

September 2021: Based off the current descriptions in our Training Manual and discussions with other data collectors, I'm confused if the patient described in my scenario would or would not qualify for Preoperative risk factors STS 470 and 600, please advise.If a patient was mechanically ventilated at another facility for a week, extubated to non-invasive support, transferred to my facility on that respiratory support, weaned to room air on day 7 at my facility then went to the OR for a CPB CV operation on day 10.

Based off the above description of hospitalization, it does not seem like mechanical ventilation should be captured and non-invasive support should. In conversation with others and explanations offered during last years AQO meeting, there seems to be discrepancies with how this data is captured. If ventilation prior to transfer is not to be considered, I think it would be helpful to add further explanation to each factor. **Per the current data specifications, do not code PreopFactor (470) Mechanical ventilation to treat cardiorespiratory failure as the patient did not receive mechanical ventilation prior to surgery during the hospitalization at the surgical center. Do code PreopFactor Non-onvasive respiratory support to treat cardiorespiratory failure as the patient did receive non-invasive support prior to their cardiac operation at the surgical hospital. Hospitalization refers to the time spent at the surgical institution and does not inclue the time spent at the outside hospital.**

September 2021: I have a question about the timing of labs when coding preop factors (310) hepatic dysfunction, (350) hypocoag state secondary to medication, (360) hypocoag state not secondary to medication, (590) dyslipidemia, and (450) renal dysfunction. In order to code any of these mentioned preop factors, must the lab results be 1) be in the chart within 24 hours of OR, 2) be in the chart any time during the hospitalization, 3) any time during lifetime? And if a lab value is closer to the OR entry date/time and is normal, does this exclude the code from being used? **Time points for inclusion/exclusion spelled out in the TM definitions. The lab value closest to the OR date and time would exclude the preoperative factor, i.e. the patient no longer has renal dysfunction....**

Hepatic dysfunction - Code this factor if the patient develops 2 out of these 3 laboratory abnormalities *within 24 hours of the time of OR entry Date and time.*

Coagulation disorder, Hypocoagulable state +/- med: Code this factor if the patient has evidence of a coagulopathy *at the time OR Entry Date and Time or within 24 hours*

Dyslipidemia - ...Code this factor if the patient meets one of the above criteria *at time of hospitalization for surgery*.

Renal dysfunction - ... without needing dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration *present at the Date and Time of OR Entry or within 24 hours of Date and Time of OR Entry.*

December 2021: I need clarification on preop factor 470 - mechanical ventilation to treat cardiorespiratory failure. In our facility when a patient leaves the OR with their chest open, they remain sedated and intubated on a ventilator. Therefore, it's unknown if the patient is intubated/mech vent is due to cardiorespiratory failure as it is PURPOSEFUL to leave them intubated/mech ventilated. Please advise on if this situation should be abstracted as a preop factor and why. **A patient with an open sternum is incapable of breathing spontaneously due to the inability to create negative intrathoracic pressure. Thus, code preoperative factor (470) Mechanical ventilation to treat cardiorespiratory failure.**

December 2021: There are conflicting instructions in the training manual for coding preop factor Seq 470-Invasive Mechanical Ventilation to treat cardiorespiratory failure. pg 79 and pg 81
Can you please clarify if it's appropriate to add Preop factor Seq470-Invasive mechanical ventilation to treat cardiorespiratory failure if a patient remains intubated until their delayed sternal closure? **A patient with an open sternum is incapable of breathing spontaneously due to the inability to create negative intrathoracic pressure. Thus, code preoperative factor (470) Mechanical ventilation to treat cardiorespiratory failure.**

December 2021: It seems the sepsis definition was derived from the SIRS criteria for diagnosing sepsis. The STS sepsis definition contains every element of the SIRS criteria except the inclusion of presence of >10% of neutrophilic bands. Is there a possibility to expand the STS sepsis definition to include >10% of bands because we have come across some patients that would meet criteria if this was included? **The current defintion was developed in collaboration with infectious disease experts. The Congenital Core Group and Congenital Task Force will revisit this complication and consider the inclusion of >10% bands for the 6.22 upgrade.**

January 2022: For preop factor code #360, if you do not have any current lab results to meet criteria but patient was on therapeutic doses of heparin or lovenox, is it appropriate to use "Coagulation disorder, Hypocoagulable state secondary to medication"? **The definition for Preoperative factor (360) states the patient must have evidence of a coagulopathy at the time of OR Entry Date and Time or within 24-hours of the OR Entry Date and Time as shown by the lab values. If labs were not drawn, do not code this preoperative factor.**

January 2022: If a patient has surgery (or other procedure) and then remains intubated for a short time afterward (say, 1-3 days or so), should that be considered to qualify as a pre-op factor of "mechanical ventilation for cardiorespiratory failure" for all subsequent operations? At what point is it considered respiratory failure vs. normal post-op recovery? **Preoperative factor (470) Mechanical ventilation to treat cardiorespiratory failure should only be coded when the mechanical ventilation is being used for cardiorespiratory failure, not elective periods of mechanical ventilation between procedures. Thus, there is no timeframe in the definition. If the medical record is not clear, it can be helpful to work with your clinicians/intensivists to determine the need for the mechanical ventilation.**

January 2022: If the patient is on an antiseizure medication at home and preop, and has history of seizure, can I code Yes to Seizure within 48 hours priorto surgery? **Only code Preoperative factor (420) Seizure within 48 hours prior to surgery if there is history of seizure activity occurring within 48 hours prior to surgery (for example, reported by parents or documented in the medical record etc). Being on antiseizure medication does not mean the patient had a seizure. If there is a history of seizure prior to 48-hours before the surgery, code Preoperative factor (410) Seizure during lifetime.**

January 2022: I have several cases where the main purpose of the surgery was to implant a VAD, but an additional procedure was done to facilitate the VAD and would not have been done otherwise. Usually, it is a PFO closure or something similar. Should the primary be the PFO closure, since it has a STAT score? If so, should the op type still be VAD (w/ or w/o CPB, depending?) **When procedures are completed to facilitate the VAD,**

the operation type remains VAD (with or without CPB depending on the scenario). Cases with an Operation type of VAD are not analyzed as part of the mortality analysis and thus, it is recommended to code the VAD implant procedure as primary in this scenario and code the procedures done to support the VAD circuit as secondary as the intent of the procedure in your given scenario was the VAD implant. This may currently cause a mismatch in IQVIA Primary Procedure Mismatch Report which is fine given the rules of the report were designed for Operation types CPB Cardiovascular and No CPB Cardiovascular only.

March 2022: Regarding the pre-op factor for invasive mechanical ventilation, is the time frame intended to be ONLY during the hospitalization of the facility where surgery occurred, or also when the patient was mechanically ventilated while at another "transferring facility" before the patient was transferred to the hospital where surgery occurred? I have read previous FAQs, but our surgeons would like this specifically clarified since it is part of the risk model, and this would have a significant effect on hospitals that accept a lot of high-risk transfers. **Per the current data specifications, preoperative factor (470) Mechanical ventilation to treat cardiorespiratory failure is for the timeframe spent at the surgical hospital and not the transferring facility. This is currently under discussion for the upcoming version 6.22 data specifications.**

March 2022: We're looking for clarification for Preop Risk Factor 200 Cardio-pulmonary resuscitation.
If a patient experiences a cardiac arrest related to an airway issue in the OR but prior to the sternal incision requiring emergent cannulation during active CPR, can you code Preop Risk Factor 200 Cardio-pulmonary resuscitation? **Only code Preoperative factor (200) Cardio-pulmonary resuscitation if the patient was received chest compressions with medications within 48 hours of OR entry date and time *or* at the date and time of OR entry. Once the patient is in the OR, this is no longer a preoperative factor.**

March 2022: After reviewing the data definition for stroke, CVA, or intracranial hemorrhage, I noticed that the definition title and introductory sentence uses the word intraCRANIAL while later on the definition refers to intraVENTRICULAR. Obviously, intraCRANIAL encompasses more anomalies and could include subdural hematomas, etc. I have always limited this preop factor to strokes and IVHs. **While the field name does state Intracranial hemorrhage, the definition clearly focuses on IVH greater than grade 2. Only code this Preoperative factor if the patient experienced a Stroke, CVA, or IVH greater than grade 2. Do not include subdural hematomas.**

April 2022: Could you please clarify when the preop factor Shock Persistent at time of surgery (230) and Resolved at time of surgery (240) should be coded? Does the patient need to have the lab values (ph < 7.2 and/or Lactate > 4 mmol /liter) and be on one of more the listed med doses? Or is it just lab value/s or med doses? The definition states "Code this factor if the patient had a metabolic acidosis with pH < 7.2 and/or Lactate > 4 mmol /liter." Later in the definition ii then states "and/or on one or more mcg/kg/min; Epinephrine/norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min. Sorry I have always thought the latter that it was just one or the other or both but I seem to getting confused by the and/or language today. **If the patient meets the definition with the lab values of pH<7.2 and or Lactate >4 mmol/L *and/or* if the patient was on one or more inotropes greater than the doses listed.**

May 2022**:** Pre op pulmonary hypertension - what is the best place to capture this - a) Pulmonary vascular resistance (even if there is no direct measurement by cath), b) as a diagnosis, or c) somewhere else. Additional, if the patient was dx with pulm htn pre op and dx with pulm htn post op - capture it in the complications section if a) only if treatment is different, b) type of treatment doesn't matter, c) only ICU level of treatment, d) don't capture it since it was present preop, or e) something else. **There is no preoperative factor to address pulmonary hypertension. Can be included as a surgical diagnosis. (1770) Pulmonary Vascular Resistance Measured within 6-months requires a measurement by cardiac catheterization. Complication (850) Pulmonary hypertension is to be coded if the definition is met regardless of whether the patient had a diagnosis of pulmonary hypertension preoperatively. Code this compliction if the patient if the patient experienced a clinically significant elevation of pulmonary arterial pressure requiring treatment. This will not include the emperic use of Nitric Oxide when a patient is NPO in the postoperative period or treatment for hypoxia. If the treatment for a patient changed because there was an increase in the pulmonary artery pressure, this would**

meet the definition. The STS database does not differentiate the difference between ICU or other level treatments.

June 2022: We have a patient that meets criteria for Coagulation disorder, Hypocoagulable state secondary to medication, but they also have Factor V Leiden. Is it accurate to code both Coagulation disorder, Hypercoagulable state (code 340) and Coagulation disorder, Hypocoagulable state secondary to medication (code 360)? **Yes, both preoperative factors can be coded in this scenario if the patient has documented Factor V Leiden and is receiving anticoagulation medications and meets the laboratory criteria.**

July 2022: Coagulation disorder, Hypocoagulable state secondary to medication - The definition states to code this if patient is on Heparin, Warfarin or Aspirin. Many of our patients are on a slow Heparin/NS drip (0.5ml/hr or 1ml/hr) for patency of PICC lines, RA lines, UAC and UVC. Would this use of Heparin meet this definition? Patient was on no other Heparin, Warfarin or Aspirin with an elevated PT. **The heparin infusion to keep venous/arterial lines patent is not systemic heparin and would not have impact on systemic anticoagulation. Also, systemic heparin impacts the activated partial thromboplastin time (aPTT) not the prothrombin time (PT). In this scenario, code preop factor (350) Coagulation disorder, Hypocoagulable state not secondary to medication (intrinsic hypocoagulable state).**

August 2022: If a patient has a temp. pacemaker attached and sensing but not pacing at time of OR entry, should I include temporary pacer preop? If patient is on ECMO and they are using SCUF, should we be include renal dysfunction req. dialysis? **Only capture preoperative factor (540) if the pacemaker is actively pacing and not just sensing. Slow Continuous Venovenous Ultrafiltration (SCUF) is the removal fluid to achieve volume control and is ineffective for blood purification. No dialysate is used. Do not code preoperative factor (460) Renal failure requiring dialysis as SCUF is not dialysis.**

September 2022: Patient was continuously hospitalized s/p VAD, on coumadin. Transplant done however had PT/PTT evidence of hypocoag state due to medication 48 hours prior to transplant and not within the data defintion of "Code this factor if the patient has evidence of a coagulopathy at the time OR Entry Date and Time or within 24 hours". It seems incorrect not to code hypo coag state but the timeframe limits coding this factor. Am I correct not to code hypocoag state due to medication because the most recent PT/PTT was outside the required time window? Would there be thoughts of expanded that timeframe to 7 days? **The timeframe will not be amended. Code preoperative factor (360) Coagulation disorder, Hypocoagulable state secondary to medication if the patient is on a medication impacting bleeding times and has resultant lab values within 24-hours of the procedure or the patient is receiving ongoing use of medication with proven induction of hypocoagulable state. In this scenario, you can code this factor as the patient is receiving therapeutic dosing of Coumadin up to the time of the transplant. Clarification November 2022: In general, preoperative labs are required to provide evidence of a hypocoagulable state related to medications. In the rare event a patient had labs drawn prior to the 24-hours before OR entry date and time and showed evidence of a hypocoagulable state, labs were not redrawn, and the medication not changed or held or discontinued prior to surgery, this factor can be coded. An example may be a patient listed for transplant is admitted to the hospital for ongoing care and has labs drawn at admission revealing a hypocoagulable state related to anticoagulant medications the patient is taking. Three days later, the patient receives a heart transplant and labs were not redrawn prior to the transplant and the anticoagulant medication was never held or discontinued or changed from when the patient was admitted to the hospital.**

December 2022: Adult patient had a pacemaker implanted as a child. It is still in place, but no longer functional. Do I still code her as having a pre-op risk factor of pacemaker present? **Preoperative factor (540) Pacemaker present is intended to capture only pacemakers that are actively pacing. This preoperative factor does not capture the presence of temporary wires or permanent pacing systems (wires and generators) if they are not actively pacing.**

December 2022: A patient had their tracheostomy tube and gastrostomy tube removed 13 months ago, but the stomas were left open. Should these still be included as pre-op factors? **If the tracheal and/or gastric stomata**

are still open at the time of surgery, then you can code gastrostomy tube and tracheostomy tube as preoperative factors. If the stomata have spontaneously closed which is likely after a year, do not code gastrostomy tube and tracheostomy tube as preoperative factors.
December 2022: Should I capture scoliosis (190) if the pre-op chest xray documented the following with no progress notes documenting scoliosis: Findings/Impression: Levoconvex thoracolumbar spinal curve, Cobb angle of 10 degrees. No other osseous abnormality noted. **The diagnosis of scoliosis should be noted in the medical record either by a clinical diagnosis or through imaging reports. In this scenario, the radiograph does note a levoconvex thoracolumbar spinal curve, the preoperative factor (190) Scoliosis can be coded.**

January 2023: Preop factors 230 and 240 - shock prior to surgery, resolved and persistent. Are there any limitations to the method of blood draw? Can capillary blood draws be used, knowing the pH/lactate could be higher depending on the level of squeezing used for specimen collection? Can newborn venous cord blood be used knowing that pH is often low and lactates higher due to the birth process? Is the lactate level and/or pH requirement limited to just arterial blood? **Code preoperative factors (230/240 depending on the scenario) if the patient's clinical condition is characterized by signs and symptoms of inadequate tissue perfusion when the cardiac output is insufficient and has a metabolic acidosis with a pH < 7.2 and/or Lactate > 4 mmol/liter and/or the patient is on one or more inotropes at doses greater than: Dopamine/Dobutamine > 10mcg/kg/min; Epinephrine/Norepinephrine > 0.1 mcg/kg/min; Vasopressin > 0.5 milliunits/kg/min at the time of OR Entry Date and Time for persistent shock, or after admission but prior to OR Entry Date and Time for shock resolved. If the above criteria are met, the location of the blood draw does not matter. The Training Manual will be updated to reflect this clarification.**

February 2023: If a patient has a documented platelet disorder, Dense Granular Deficiency, would it always qualify as a preop factor or only if the preop labs meet criteria? **For now, please only code if preop labs meet criteria (consistent with previous FAQ responses). Of note, how best to include "documented decreased platelet dysfunction" is being considered with the next version.**

June 2023: A patient initially presented to his home hospital with pulmonary valve Streptococcus Mutans endocarditis. From this admission, he was discharged home with a plan to repair his pulmonary valve regurgitation after completing 6 weeks of IV antibiotics. After completion of his treatment, he was readmitted to his home hospital for septic PE and PNA. Then, he was transferred to our center to have pulmonary valve surgery. A pulmonary valve vegetation culture was obtained during surgery, which resulted as negative. Since, he was discharged home after he was initially diagnosed with endocarditis and his culture obtained during surgery was negative, does he still qualify for endocarditis as a risk factor? **Per the definition, since the patient was home and readmitted with negative cultures, the preoperative factor (370) Endocarditis should not be selected.**

June 2023: Does "abnormalities within 24 hours of the time of OR entry Date and time" mean pre- or post-procedure? The 24 hours before surgery or within 24 hours after surgery? **For the preoperative factor Hepatic Dysfunction, the lab values must meet definition within 24 hours prior to OR Entry date/time.**

Long Name:	PreOpFactor Other - Specify	*SeqNo:*	851
Short Name:	**PreOpFactorSpecify**	*Core:*	Yes
Section Name:	Preoperative Factors	*Harvest:*	Yes
DBTableName:	PreopFactor		
Definition:	Indicate any other factors that are present pre-operatively that may impact the patient's outcome.		

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Preoperative Factor
ParentShortName: **PreopFactor**
ParentHarvestCodes: 777
ParentValues: = "Other preoperative factors"

Diagnosis

Long Name: Diagnosis Table Unique Record Identifier
Short Name: **DiagUniqueID**
Section Name: Diagnosis
DBTableName: Diagnosis
Definition: Unique identifier for the record in the Diagnosis table.

SeqNo: 870
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

Long Name: Diagnosis Link to Operations Table
Short Name: **OperationID**
Section Name: Diagnosis
DBTableName: Diagnosis
Definition: An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Diagnosis record with the associated record in the Operations table.

SeqNo: 880
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

Long Name: Diagnoses
Short Name: **Diagnosis**
Section Name: Diagnosis
DBTableName: Diagnosis
Definition: Indicate all diagnoses noted at the time of the surgical procedure or documented by preoperative studies. This entry may duplicate the Fundamental Diagnosis.

SeqNo: 890
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
10	PFO	A small interatrial communication (or potential 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 (or veins) 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."Single atrium" is applied to defects with no associated malformation of the atrioventricular valves."Common atrium" is applied to defects with associated malformation of the atrioventricular valves.
2150	ASD, Postoperative interatrial communication	A surgically created communication between the atria.
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)	A VSD that lies beneath the semilunar valve(s) in the conal or outlet septum.
73	VSD, Type 2(Perimembranous) (Paramembranous) (Conoventricular)	A VSD 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 that involves the inlet of the right ventricular septum immediately inferior to the AV valve apparatus.
77	VSD, Type 4 (Muscular)	A VSD completely surrounded by muscle.
79	VSD, Type: Gerbode type(LV-RA communication)	A rare form of VSD 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 exists. Each individual VSD may be coded separately to specify the individual VSD types.
100	AVC (AVSD), Complete(CAVSD)	Indicate if the patient has the diagnosis of “AVC (AVSD), Complete (CAVSD).” An “AVC (AVSD), Complete (CAVSD)” is a “complete atrioventricular canal” or a “complete atrioventricular septal defect” and occurs in a heart with the phenotypic feature of a common

		atrioventricular junction. An “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. 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. Rastelli type A: The common superior (anterior) bridging leaflet is effectively split in two at the septum. The left superior (anterior) leaflet is entirely over the left ventricle and the right superior (anterior) leaflet is similarly entirely over the right ventricle. The division of the common superior (anterior) bridging leaflet into left and right components is caused by extensive attachment of the superior (anterior) bridging leaflet tothe crest of the ventricular septum by chordae tendineae. Rastelli type B: Rare, involves anomalous papillary muscle attachment from the right side of the ventricular septum to the left side of the common superior (anterior) bridging leaflet. Rastelli type C: Marked bridging of the ventricular septum by the superior (anterior) bridging leaflet, which floats freely (often termed a "free-floater") over the ventricular septum without chordal attachment to the crest of the ventricular septum.
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.
120	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)	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.
140	AP window (aortopulmonary window)	Indicate if the patient has the diagnosis of “AP window (aortopulmonary window).” An “AP window (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. Type 1 proximal defect: AP window located just above the sinus of Valsalva, a few millimeters above the semilunar valves, with a superior rim but little inferior rim separating the AP window from the semilunar valves. Type 2 distal defect: AP window located in the uppermost portion of the ascending aorta, with a well-formed inferior rim but little superior rim. Type 3 total defect: AP window involving the majority of the ascending aorta, with little superior and inferior rims. The intermediate type of AP window is similar to the total defect but with adequate superior and inferior rims. In the event of AP window occurring

		in association with interrupted aortic arch, code “Interrupted aortic arch + AP window (aortopulmonary window)”, and then use additional (secondary) diagnostic codes to describe the interrupted aortic arch and AP window separately to provide further documentation about the individual interrupted arch and AP window types.)
150	Pulmonary artery origin from ascending aorta (hemitruncus)	One pulmonary artery 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	Indicate if the patient has the diagnosis of “Truncus arteriosus.” A truncus arteriosus is also known as a common arterial trunk and is defined as a heart in which a single arterial trunk arises from the heart, giving origin to the coronary arteries, the pulmonary arteries, and the systemic arterial circulation. In the majority of instances 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.
170	Truncal valve insufficiency	Functional abnormality - insufficiency - of the truncal valve. May be further subdivided into grade of insufficiency (I, II, III, IV or mild, moderate, severe).
2470	Truncal valve stenosis	
2010	Truncus arteriosus + Interrupted aortic arch	Indicate if the patient has the diagnosis of “Truncus arteriosus + Interrupted aortic arch.” {A truncus arteriosus is also known as a common arterial trunk and is defined as a heart in which a single arterial trunk arises from the heart, giving origin to the coronary arteries, the pulmonary arteries, and the systemic arterial circulation. In the majority of instances there is a ventricular septal defect and a single semilunar valve which may contain two, three, four, or more leaflets and is occasionally dysplastic. 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. If in such case there is no ventricular septal defect, then the left ventricle and mitral valve may be extremely hypoplastic.} {Interrupted aortic arch 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.}
180	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	The right pulmonary vein(s) connect anomalously to the inferior vena cava

	pulmonary venous connection (PAPVC), scimitar	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. 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)	All of the pulmonary veins connect anomalously with the right atrium or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In Type 1 (supracardiac) TAPVC, the anomalous connection is at the supracardiac level and can be obstructed or nonobstructed.
210	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)	All of the pulmonary veins connect anomalously with the right atrium or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In Type 2 (cardiac) TAPVC, the anomalous connection is to the heart, either to the right atrium directly or to the coronary sinus. Most patients with type 2 TAPVC are nonobstructed.
220	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)	All of the pulmonary veins connect anomalously with the right atrium or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In Type 3 (infracardiac) TAPVC, the anomalous connection is at the infracardiac level (below the diaphragm), with the pulmonary venous return entering the right atrium ultimately via the inferior vena cava. In the vast majority of patients infracardiac TAPVC is obstructed.
230	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)	All of the pulmonary veins connect anomalously with the right atrium or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium. In Type 4 (mixed) TAPVC, the anomalous connection is at two or more of the above levels (supracardiac, cardiac, infracardiac) and can be obstructed or nonobstructed.
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. In 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. Cor triatriatum dexter (prominent venous valve producing obstruction of the IVC and tricuspid valve) is to be coded as a systemic venous obstruction, not as a form of cor triatriatum.
260	Pulmonary venous stenosis	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 focal/tubular stenosis, discrete stenosis).
2480	Pulmonary venous stenosis, Acquired	Any pathologic narrowing of one or more pulmonary veins that develops after previous surgery or transcatheter intervention involving the pulmonary veins. (def added Nov 2020)
2490	Pulmonary venous stenosis, Spontaneous	Any pathologic narrowing of one or more pulmonary veins that develops without a history of previous surgery or transcatheter intervention involving the pulmonary veins. (def added Nov 2020)
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.
280	Systemic venous obstruction	Obstruction 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. Cor triatriatum dexter (prominent venous valve producing obstruction of the IVC and tricuspid valve) is to be coded as a systemic venous obstruction, not as a form of cor triatriatum.
290	TOF	Indicate if the patient has the diagnosis of “TOF”. Only use this diagnosis if it is NOT known if the patient has one of the following four more specific diagnoses: (1). “TOF, Pulmonary stenosis”, (2). “TOF, AVC (AVSD)”, (3). “TOF, Absent pulmonary valve”, (4). “Pulmonary atresia, VSD (Including TOF, PA)”, or (5). “Pulmonary atresia, VSD-MAPCA (pseudotruncus)”. {“TOF” is “Tetralogy of Fallot” and 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 of the malalignment type, and biventricular origin of the aorta. Hearts with tetralogy of Fallot will always have a ventricular septal defect, narrowing or atresia of the pulmonary outflow, and aortic override; hearts with tetralogy of Fallot will most often have right ventricular hypertrophy.} (An additional, often muscular [Type 4] VSD may be seen with TOF and should be coded separately as a secondary diagnosis as “VSD, Type 4 (Muscular)”. 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. Abnormal coronary artery distribution may also be associated with tetralogy of Fallot and may be coded separately under coronary artery anomalies. The presence of associated anomalies such as additional VSD, atrial septal defect, right aortic arch, left superior vena cava, and coronary artery anomalies must be subspecified as an additional or secondary diagnosis under the primary TOF diagnosis. TOF with absent pulmonary valve or TOF with associated complete atrioventricular canal are NOT to be secondary diagnoses under TOF - they are separate entities and should be coded as such. 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. TOF with pulmonary atresia is to be coded under "Pulmonary atresia-VSD.")

2140	TOF, Pulmonary stenosis	Indicate if the patient has the diagnosis of “TOF, Pulmonary stenosis”. Use this diagnosis if the patient has tetralogy of Fallot and pulmonary stenosis. Do not use this diagnosis if the patient has tetralogy of Fallot and pulmonary atresia. Do not use this diagnosis if the patient has tetralogy of Fallot and absent pulmonary valve. Do not use this diagnosis if the patient has tetralogy of Fallot and atrioventricular canal. {Tetralogy of Fallot is defined as a group of malformations withbiventricular 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 of the malalignment type, and biventricular origin of the aorta. Hearts with tetralogy of Fallot will always have a ventricular septal defect, narrowing or atresia of the pulmonary outflow, and aortic override; hearts with tetralogy of Fallot will most often have right ventricular hypertrophy. (An additional, often muscular [Type 4] VSD may be seen with TOF and should be codedseparately as a secondary diagnosis as “VSD, Type 4 (Muscular)”. 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. Abnormal coronary artery distribution may also be associated with tetralogy of Fallot and may be coded separately under coronary artery anomalies. The presence of associated anomalies such as additional VSD, atrial septal defect, right aortic arch, left superior vena cava, and coronary artery anomalies must be subspecified as an additional or secondary diagnosis under the primary TOF diagnosis. TOF with absent pulmonary valve or TOF with associated complete atrioventricular canal are NOT to be secondary diagnoses under TOF - they are separate entities and should be coded as such. 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. TOF with pulmonary atresia is to be coded under "Pulmonary atresia-VSD.")}
300	TOF, AVC (AVSD)	TOF with complete common atrioventricular canal defect is a rare variant of common atrioventricular 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.
310	TOF, Absent pulmonary valve	Indicate if the patient has the diagnosis of “TOF, Absent pulmonary valve.” “TOF, Absent pulmonary valve” is “Tetralogy of Fallot with Absent pulmonary valve” and 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 ventriculo-arterial 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. (Tetralogy of Fallot with Absent Pulmonary Valve Syndrome is a term 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 defects which do not readily fall into pulmonary atresia-intact ventricular septum or pulmonary atresia-VSD (with or without MAPCAs) categories. These may include complex lesions in which pulmonary atresia is a secondary diagnosis, for example, complex single ventricle malformations with associated pulmonary atresia.
330	Pulmonary atresia, IVS	Pulmonary atresia (PA) and intact ventricular septum (IVS) is a duct-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 ventricle (in cases with ventriculo-arterial 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 with pulmonary atresia. Tetralogy of Fallot 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 the vast majority of 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. If MAPCAs are present this code should not be used; instead, Pulmonary atresia, VSD-MAPCA (pseudotruncus) should be used.
350	Pulmonary atresia, VSD-MAPCA	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. 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). 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)	Rarely MAPCA(s) may occur in patents who do not have PA-VSD, but have severe pulmonary stenosis. The intracardiac anatomy in patients who have MAPCA(s) without PA should be specifically coded in each case as well.
370	Ebstein's anomaly	Indicate if the patient has the diagnosis of “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 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. (Varying degrees of right ventricular outflow tract obstruction may be present, including pulmonary atresia in some cases. Such cases of Ebstein's anomaly with pulmonary atresia should be coded witha Primary Diagnosis of “Ebstein’s anomaly”, and a Secondary Diagnosis of “Pulmonary atresia”.) (Some patients with atrioventricular discordance and ventriculoarterial discordance in situs solitus [congenitally corrected transposition] have an Ebstein-like deformity of the left-sided morphologically tricuspid valve. The nature of the displacement of the septal and posterior leaflets is similar to that in right-sided Ebstein's anomaly in patients with atrioventricular concordance and ventriculoarterial concordance in situs solitus. These patients with “Congenitally corrected TGA” and an Ebstein-like deformity of the left-sided morphologically tricuspid valve should be coded with a Primary Diagnosis of “Congenitally corrected TGA”, and a Secondary Diagnosis of “Ebstein's anomaly”.)
380	Tricuspid regurgitation, non- Ebstein's related	Non-Ebstein's tricuspid regurgitation may be due to congenital factors (primary annular dilation, prolapse, leaflet underdevelopment, absent papillary muscle/chordae) or acquired (post cardiac surgery or secondary to rheumatic fever, endocarditis, trauma, tumor, cardiomyopathy, iatrogenic or other causes).
390	Tricuspid stenosis	Tricuspid stenosis 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).

400	Tricuspid regurgitation and tricuspid stenosis	Tricuspid regurgitation present with tricuspid stenosis may be due to congenital factors or acquired.
410	Tricuspid valve, Other	Tricuspid valve pathology not otherwise specified in diagnosis definitions 370, 380, 390 and 400.
420	Pulmonary stenosis, Valvar	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. Only 10% of neonates with 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.
430	Pulmonary artery stenosis (hypoplasia), Main (trunk)	Indicate if the patient has the diagnosis of “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)	Indicate if the patient has the diagnosis of “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)	Indicate if the patient has the diagnosis of “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.
470	Pulmonary artery, Discontinuous	Indicate if the patient has the diagnosis of “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 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 valve, Other	Other anomalies of the pulmonary valve may be listed here including but not restricted to absent pulmonary valve.
530	Pulmonary insufficiency	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.).
540	Pulmonary insufficiency and pulmonary stenosis	Pulmonary valve insufficiency and pulmonary 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.
2130	Shunt failure	Indicate if the patient has the diagnosis of “Shunt failure.” This diagnostic subgroup includes failure of any of a variety of shunts (“Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)”, “Shunt, Systemic to pulmonary, Central (from aorta or to main pulmonary artery)”, “Shunt, Systemic to pulmonary, Other”, and “Sano Shunt”), secondary to any of the following etiologies: shunt thrombosis, shunt occlusion, shunt stenosis, shunt obstruction, and shunt outgrowth. This diagnosis (“Shunt failure”) would be the primary diagnosis in a patient with, for example, “Hypoplastic left heart syndrome (HLHS)” who underwent a “Norwood procedure” with a “Modified Blalock-Taussig Shunt” and now requires reoperation for thrombosis of the “Modified Blalock-Taussig Shunt.” The underlying or fundamental diagnosis in this patient is “Hypoplastic left heart syndrome (HLHS)”, but the primary diagnosis for the operation to be performed to treat the thrombosis of the “Modified Blalock-Taussig Shunt” would be “Shunt failure.” Please note that the choice “2130 Shunt failure” does not include “520 Conduit failure.”
520	Conduit failure	Indicate if the patient has the diagnosis of “Conduit failure.” This diagnostic subgroup includes failure of any of a variety of conduits (ventricular [right or left]-to-PA conduits, as well as a variety of other types of conduits [ventricular {right or left}-to-aorta, RA-to-RV, etc.]), secondary to any of the following etiologies: conduit outgrowth, obstruction, stenosis, insufficiency, or insufficiency and stenosis. This diagnosis (“Conduit failure”) would be the primary diagnosis in a patient with, for example, “Truncus arteriosus” repaired in infancy 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 “Conduit failure.” Please note that the choice “520 Conduit failure” does not include “2130 Shunt failure.”
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. Subvalvar aortic stenosis may be categorized into two types: localized subvalvar aortic stenosis, which consists of a fibrous

		or fibromuscular ridge, and diffuse tunnel subvalvar aortic stenosis, in which circumferential narrowing commences at the annular level and extends downward for 1-3 cm. 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 obstruction from a thickened ventricular wall and anterior motion of the mitral valve. Definitive nomenclature and therapeutic options for IHSS are listed under cardiomyopathy.
2500	Aortic stenosis, Subvalvar, Discrete	
2510	Aortic stenosis, Subvalvar, IHSS	
2520	Aortic stenosis, Subvalvar, Tunnel-like	
560	Aortic stenosis, Valvar	Valvar aortic stenosis 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. Acquired valvar stenosis may be seen after as a result of rheumatic valvar disease, or from stenotic changes of an aortic valve prosthesis. Congenital valvar stenosis may result: (1) from 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) from 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.
570	Aortic stenosis, Supravalvar	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 also 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 will most often be coded under the Hypoplastic left heart syndrome/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 have a well-developed left ventricle and mitral valve and a large VSD nonrestrictive or restrictive). The diagnostic code "Aortic valve atresia" 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 insufficiency	Congenital aortic regurgitation/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 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. Aortic regurgitation secondary to prosthetic failure should be coded first as either conduit failure or prosthetic valve failure, as applicable, and secondarily as aortic regurgitation secondary to prosthetic failure (perivalvar or due to structural failure). The underlying fundamental diagnosis that led to the initial conduit or valve prosthesis placement should also be described.
610	Aortic insufficiency and aortic stenosis	Aortic insufficiency is often seen in association with stenotic aortic valve, commonly the stenotic congenital bicuspid aortic valve. The degree of aortic regurgitation is due to the severity of the aortic leaflet abnormality.
620	Aortic valve, Other	This diagnostic subgroup may be used to delineate aortic valve cusp number (unicuspid, bicuspid, tricuspid, more than three cusps), commissural fusion (normal, partially fused, completely fused), and valve leaflet (normal, thickened, dysplastic, calcified, gelatinous), annulus (normal, hypoplastic, calcified), or sinus description (normal, dilated). Note that any extensive descriptors chosen within those made available by a vendor will be converted, at harvest, to Aortic valve, Other.
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. A congenital sinus of Valsalva aneurysm 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 sinus of Valsalva aneurysm presents above the aortic annulus. The hierarchical coding system distinguishes between congenital versus acquired, ruptured versus nonruptured, sinus of origin, and chamber/site of penetration (right atrium, right ventricle, left atrium, left ventricle, pulmonary artery, pericardium). A nonruptured congenital sinus of Valsalva aneurysm may vary from a mild dilation of a single aortic sinus to an extensive windsock deformity. Rupture of a congenital sinus of

		Valsalva aneurysm into an adjacent chamber occurs most commonly between the 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 sinus of Valsalva aneurysms with VSDs. Other disease processes are also associated with sinus of Valsalva aneurysm and include: syphilis, endocarditis, cystic medial necrosis, atherosclerosis, and trauma. Acquired sinus of Valsalva aneurysms more frequently involve multiple sinuses of Valsalva; when present in multiple form they are more appropriately classified as aneurysms of the aortic root.
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. If a LV-to-aorta tunnel communicates with the right ventricle, many feel that the defect is really a ruptured sinus of Valsalva aneurysm.
650	Mitral stenosis, Supravalvar mitral ring	Supravalvar mitral ring is formed by a circumferential ridge of tissue that is attached to the anterior mitral 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 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 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 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 ring, the posterior compartment contains the pulmonary veins and the left atrial appendage; the anterior compartment contains only the mitral valve orifice. When coding multiple mitral valvar lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.
660	Mitral stenosis, Valvar	Valvar mitral stenosis may arise from congenital (annular and / or leaflet) or acquired causes, both surgical (after mitral valve repair or replacement or other cardiac surgery) and non-surgical (post rheumatic heart disease, infective endocarditis, ischemia, myxomatous degeneration, trauma, or cardiomyopathy). Mitral valve annular hypoplasia is distinguished from severe mitral valve hypoplasia and mitral valve atresia, which are typically components of hypoplastic left heart syndrome. When coding multiple mitral valvar lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.

670	Mitral stenosis, Subvalvar	Congenital subvalvar mitral stenosis may be due to obstructive pathology of either the chordae tendineae and / or papillary muscles which support the valve leaflets. When coding multiple mitral valvar lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.
680	Mitral stenosis, Subvalvar, Parachute	In parachute mitral 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. When coding multiple mitral valvar lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.
695	Mitral stenosis	Stenotic lesions of the mitral valve not otherwise specified in the diagnosis definitions 650, 660, 670, and 680.
700	Mitral regurgitation and mitral stenosis	Mitral regurgitation and mitral stenosis may arise from congenital or acquired causes or after cardiac surgery. Additional details to aid in coding specific components of the diagnosis are available in the individual mitral stenosis or mitral regurgitation field definitions. When coding multiple mitral valve lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.
710	Mitral regurgitation	Mitral 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 regurgitation 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 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). When coding multiple mitral valvar lesions the predominant defect causing the functional effect (regurgitation, stenosis, or regurgitation and stenosis) should be listed as the primary defect.
720	Mitral valve, Other	Mitral valve pathology not otherwise coded in diagnosis definitions 650 through 710.
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.
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]. [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.Please note that the term "2080 Shone's syndrome" may be the "Fundamental Diagnosis" of a patient; however, the term "2080 Shone's syndrome" may not be the "Primary Diagnosis" of an operation. The term "2080 Shone's syndrome" may be a "Secondary Diagnosis" of an operation.
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.
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.
790	Single ventricle, DILV	A congenital cardiac malformation in which both atria connect to a single, morphologically left ventricle. 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, and other cardiovascular malformations. 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.
800	Single ventricle, DIRV	A congenital cardiac malformation in which both atria connect to a single, morphologically right ventricle. 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, and other cardiovascular alformations. 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.
810	Single ventricle, Mitral atresia	A congenital cardiac malformation in which there is no orifice of mitral valve. 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, and other cardiovascular malformations. 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.
820	Single ventricle, Tricuspid atresia	A congenital cardiac malformation in which there is no orifice of tricuspid valve. 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, and other cardiovascular malformations. 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.
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 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. 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, and other cardiovascular malformations. Specific diagnostic codes should be used whenever possible, and not the term "functionally univentricular heart.”
840	Single ventricle, 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’.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, and other cardiovascular malformations. 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.
850	Single ventricle, Other	If the single ventricle is of primitive or indeterminate type, other is chosen in coding. 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. They are not to be coded in this section of the nomenclature, but according to the underlying lesions. 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, and other cardiovascular malformations. 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.
851	Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)	Indicate if the patient has the diagnosis of "Single Ventricle + Total anomalous pulmonary venous connection (TAPVC).” In the event of Single Ventricle occurring in association with Total anomalous pulmonary venous connection (TAPVC), code "Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)", and then use additional (secondary) diagnostic codes to describe the Single Ventricle and the Total anomalous pulmonary venous connection (TAPVC) separately to provide further documentation about the Single ventricle and Total anomalous pulmonary venous connection (TAPVC) types. {"Total anomalous pulmonary venous connection (TAPVC)" is defined as a heart where all of the pulmonary veins connect anomalously with the right atrium or to one or more of its venous tributaries. None of the pulmonary veins connect normally to the left atrium.} 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, and other cardiovascular malformations. 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.
870	Congenitally corrected TGA	Indicate if the patient has the diagnosis of “Congenitally corrected TGA.” Congenitally corrected transposition is synonymous with the terms ‘corrected transposition’ and ‘discordant atrioventricular connections with discordant ventriculo-arterial 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]. [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.
872	Congenitally corrected TGA, IVS	Indicate if the patient has the diagnosis of "Congenitally corrected TGA, IVS." "Congenitally corrected TGA, IVS" is "Congenitally corrected transposition with an intact ventricular septum", in other words, "Congenitally corrected transposition with no VSD." (Congenitally corrected transposition is synonymous with the terms 'corrected transposition' and 'discordant atrioventricular connections with discordant ventriculo-arterial 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]. [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.)
874	Congenitally corrected TGA, IVS-LVOTO	Indicate if the patient has the diagnosis of "Congenitally corrected TGA, IVS-LVOTO." "Congenitally corrected TGA, IVS-LVOTO" is Congenitally corrected transposition with an intact ventricular septum and left ventricular outflow tract obstruction", in other words, "Congenitally corrected transposition with left ventricular outflow tract obstruction and no VSD." (Congenitally corrected transposition is synonymous with the terms 'corrected transposition' and 'discordant atrioventricular connections with discordant ventriculo-arterial 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]. [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.)
876	Congenitally corrected TGA, VSD	Indicate if the patient has the diagnosis of "Congenitally corrected TGA, VSD." "Congenitally corrected TGA, VSD" is "Congenitally corrected transposition with a VSD." (Congenitally corrected transposition is synonymous with the terms 'corrected transposition' and 'discordant

		atrioventricular connections with discordant ventriculo-arterial 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]. [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 Supplementto 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.)
878	Congenitally corrected TGA, VSD-LVOTO	Indicate if the patient has the diagnosis of "Congenitally corrected TGA, VSD-LVOTO." "Congenitally corrected TGA, VSD-LVOTO" is "Congenitally corrected transposition with a VSD and left ventricular outflow tract obstruction." (Congenitally corrected transposition is synonymous with the terms 'corrected transposition' and 'discordant atrioventricular connections with discordant ventriculo-arterial 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]. [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 Supplementto 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.)
880	TGA, IVS	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with an intact ventricular septum. 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).88
890	TGA, IVS-LVOTO	A malformation of the heart in which there is atrioventricular concordance and ventriculoarterial discordance with an intact ventricular septum and associated left ventricular obstruction. 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).
900	TGA, VSD	A malformation of the heart in which there is atrioventricular concordance

		and ventriculoarterial discordance with one or more ventricular septal defects. 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).
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 and left ventricular outflow tract obstruction. 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).
930	DORV, VSD type	Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In double outlet right ventricle, 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). 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.
940	DORV, TOF type	Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In double outlet right ventricle, 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, keeping in mind in coding that in the nomenclature developed for DORV, there must be usual atrial arrangements and concordant atrioventricular connections, and normal or near-normal sized ventricles (in this situation DORV is coded as a primary diagnosis). 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.
950	DORV, TGA type	Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In double outlet right ventricle, TGA type, there is an associated subpulmonary 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 and if present should be coded as a secondary diagnosis. Rarely, there is associated pulmonary outflow tract obstruction. 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.
960	DORV, Remote VSD (uncommitted VSD)	Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In double outlet right ventricle, Remote 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 VSD's are in hearts with DORV and common atrioventricular canal/septal defect. 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.
2030	DORV + AVSD (AV Canal)	Indicate if the patient has the diagnosis of “DORV + AVSD (AV Canal).” In the event of DORV occurring in association with AVSD (AV Canal), code “DORV + AVSD (AV Canal)”, and then use additional (secondary) diagnostic codes to describe the DORV and the AVSD (AV Canal) separately to provide further documentation about the DORV and AVSD (AV Canal) types. {“DORV” is “Double outlet right ventricle” and is defined as a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle.} In this case, the DORV exists in combination with an atrioventricular septal defect and common atrioventricular junction guarded by a common atrioventricular valve.
975	DORV, IVS	Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In the rare case of double outlet right ventricle with IVS the ventricular septum is intact. 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 connections with DORV are 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.
980	DOLV	Double outlet left ventricle 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. Discordant atrioventricular connection with DOLV is to be coded under congenitally corrected TGA. 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	Indicate if the patient has the diagnosis of “Coarctation of aorta.” A “Coarctation of the aorta” 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.
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.
92	VSD + Aortic arch hypoplasia	A ventricular septal defect, any type, associated with hypoplasia of the aortic arch. (See diagnosis definition 1000 for a definition of hypoplasia of the aortic arch.)
94	VSD + Coarctation of aorta	Indicate if the patient has the diagnosis of “VSD + Coarctation of aorta.” In the event of a VSD occurring in association with Coarctation of aorta, code “VSD + Coarctation of aorta”, and then use additional (secondary) diagnostic codes to describe the VSD and the Coarctation of aorta separately to provide further documentation about the individual VSD and Coarctation of aorta types. {A "VSD" is a "Ventricular Septal Defect" and is also known as an "Interventricular communication." A VSD is defined as "a hole between the ventricular chambers or their remnants.” (The VSD is defined on the basis of its margins as seen from the aspect of the morphologically right ventricle. In the setting of double outlet right ventricle, the defect provides the outflow from the morphologically left ventricle. In univentricular atrioventricular connections with functionally single left ventricle with an outflow chamber, the communication is referred to by some as a bulboventricular foramen.)} {A “Coarctation of the aorta” 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.}
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: 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.
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 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 primary diagnosis and the coronary artery fistula should be as an additional secondary diagnoses.
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	
1050	Coronary artery anomaly, Other	Coronary artery anomalies which may fall within this category include coronary artery bridging and coronary artery stenosis, as well as secondary coronary artery variations seen in congenital heart defects such as tetralogy of Fallot, transposition of the great arteries, and truncus arteriosus (with the exception of variations that can be addressed by a more specific coronary artery anomaly code).
1070	Interrupted aortic arch	Indicate if the patient has the diagnosis of “Interrupted aortic arch.” Interrupted aortic arch 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.
2020	Interrupted aortic arch + VSD	Indicate if the patient has the diagnosis of “Interrupted aortic arch + VSD.” In the event of interrupted aortic arch occurring in association with VSD, code “Interrupted aortic arch + VSD”, and then use additional (secondary) diagnostic codes to describe the interrupted aortic arch and the VSD separately to provide further documentation about the individual interrupted aortic arch and VSD types. {Interrupted aortic arch 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.} {A "VSD" is a "Ventricular Septal Defect" and is also known as an "Interventricular communication.” A VSD is defined as "a hole between the ventricular chambers or their remnants.” (The VSD is defined on the basis of its margins as seen from the aspect of the morphologically right ventricle. In the setting of double outlet right ventricle, the defect provides the outflow from the morphologically left ventricle. In univentricular atrioventricular connections with functionally single left ventricle with an outflow chamber, the communication is referred to by some as a bulboventricular foramen.)}
2000	Interrupted aortic arch + AP window (aortopulmonary window)	Indicate if the patient has the diagnosis of “Interrupted aortic arch + AP window (aortopulmonary window)”. In the event of interrupted aortic arch occurring in association with AP window, code “Interrupted aortic arch + AP window (aortopulmonary window)”, and then use additional (secondary) diagnostic codes to describe the interrupted aortic arch and the AP window separately to provide further documentation about the

		individual interrupted aortic arch and AP window types. {Interrupted aortic arch 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.} {An "AP window (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. Type 1 proximal defect: AP window located just above the sinus of Valsalva, a few millimeters above the semilunar valves, with a superior rim but little inferior rim separating the AP window from the semilunar valves. Type 2 distal defect: AP window located in the uppermost portion of the ascending aorta, with a well-formed inferior rim but little superior rim. Type 3 total defect: AP window involving the majority of the ascending aorta, with little superior and inferior rims. The intermediate type of AP window is similar to the total defect but with adequate superior and inferior rims. In the event of AP window occurring in association with interrupted aortic arch, code "Interrupted aortic arch + AP window (aortopulmonary window)", and then use additional (secondary) diagnostic codes to describe the interrupted aortic arch and AP window separately to provide further documentation about the individual interrupted arch and AP window types.)}
1080	Patent ductus arteriosus	Indicate if the patient has the diagnosis of "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 post-natally, it is referred to as patent ductus arteriosus (patent arterial duct). 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. (A patent ductus arteriosus 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, however.)
1090	Vascular ring	The term 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 anatomic ring (double aortic arch or right aortic arch with a left ligamentum) or from a compressive effect of an aberrant vessel (innominate artery compression syndrome).
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.

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 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.
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	
1170	Airway disease, Other	Included in this diagnostic category would be airway pathology not included under the definition of tracheal stenosis such as tracheomalacia, bronchotracheomalacia, tracheal right upper lobe, bronchomalacia, subglottic stenosis, bronchial 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.
1510	Mediastinal disease, Benign	Any benign disease of the mediastinum.
1520	Mediastinal disease, Malignant	Any malignant disease of the mediastinum.
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 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.
1180	Arrhythmia	Any cardiac rhythm other than normal sinus rhythm.
2440	Arrhythmia, Atrial, Atrial fibrillation	
2450	Arrhythmia, Atrial, Atrial flutter	
2460	Arrhythmia, Atrial, Other	
2050	Arrhythmia, Junctional	Indicate if the patient has the diagnosis of ''Arrhythmia, Junctional''. "Arrhythmias arising from the atrioventricular junction; may be bradycardia, tachycardia, premature beats, or escape rhythm [1]. [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.
2060	Arrhythmia, Ventricular	Indicate if the patient has the diagnosis of ''Arrhythmia, Ventricular''. "Arrhythmia, Ventricular'' ROOT Definition = Abnormal rhythm originating from the ventricles [1]. [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 393.
1185	Arrhythmia, Heart block	Atrioventricular block may be congenital or acquired, and may be of varying degree (first, second, or third degree).

1190	Arrhythmia, Heart block, Acquired	Atrioventricular block, when acquired, may be post-surgical, or secondary to myocarditis or other etiologies; the block may be first, second or third degree.
1200	Arrhythmia, Heart block, Congenital	Atrioventricular block, when congenital, may be first, second or third degree block.
1220	Arrhythmia, Pacemaker, Indication for replacement	Indications for pacemaker replacement may include end of generator life, malfunction, or infection.
2530	Short QT Syndrome	
2540	Long QT Syndrome (Ward Romano Syndrome)	
2550	Wolff-Parkinson-White syndrome (WPW syndrome)	
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.
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.
2090	Dextrocardia	Indicate if the patient has the diagnosis of ‘‘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]. [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	Indicate if the patient has the diagnosis of ‘‘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 [1]. [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.
2110	Mesocardia	Indicate if the patient has the diagnosis of ‘‘Mesocardia’’. “Mesocardia’’ is most usually considered synonymous with the ventricular mass occupying the midline [1]. [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.
2120	Situs inversus	Indicate if the patient has the diagnosis of "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 [1]. [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.
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.
1300	Hypoplastic LV	Small size of the left ventricle. This morphologicaabnormality 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.
2070	Postoperative bleeding	Indicate if the patient has the diagnosis of "Postoperative bleeding."
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.

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.
1330	Prosthetic valve failure	Indicate if the patient has the diagnosis of "Prosthetic valve failure." This diagnosis is the primary diagnosis to be entered for patients undergoing replacement of a previously placed valve (not conduit) prosthesis, whatever type (e.g., bioprosthetic, mechanical, etc.). Failure may be due to, among others, 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. As an example, a patient undergoing removal or replacement of a prosthetic pulmonary valve previously placed for pulmonary insufficiency after repair of tetralogy of Fallot would have as a primary diagnosis "Prosthetic valve failure", as a secondary diagnosis "Pulmonary insufficiency", and as a fundamental diagnosis "Tetralogy of Fallot."
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).
1350	Cardiac tumor	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, s 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)). N.B., in the nomenclature system developed, cardiac thrombus and cardiac vegetation are categorized as primary cardiac tumors.
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 obstructive disease	Pulmonary vascular obstructive disease (PVOD) other 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.
1390	Pulmonary vascular obstructive disease	"Eisenmenger syndrome" could briefly be described as"Acquired severe pulmonary vascular disease associated with congenital heart disease

	(Eisenmenger's)	(Eisenmenger)." Eisenmenger syndrome is an acquired condition. 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. Please note that the specific heart defect should be coded as a secondary diagnosis. October 2021: 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 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. 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) 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.
2270	Complication of cardiovascular catheterization procedure, Device embolization	Migration or movement of device introduced during a cardiac catheterization procedure to an unintended location.
2280	Complication of cardiovascular catheterization procedure, Device malfunction	Malfunction of a device introduced during a cardiac catheterization procedure.
2290	Complication of cardiovascular catheterization procedure, Perforation	Perforation or puncture caused by a device introduced during a cardiac catheterization procedure.
2300	Complication of interventional radiology procedure	Unspecified complication of interventional radiology procedure.
2310	Complication of interventional radiology procedure, Device embolization	Migration or movement of device introduced during an interventional radiology procedure to an unintended location.
2320	Complication of interventional radiology procedure, Device malfunction	Malfunction of a device introduced during an interventional radiology procedure.
2330	Complication of interventional radiology procedure, Perforation	Perforation or puncture caused by a device introduced during an interventional radiology procedure.
2340	Foreign body, Intracardiac foreign body	Presence of a foreign body within the heart.
2350	Foreign body, Intravascular foreign body	Presence of a foreign body within an artery or vein.
2360	Open sternum with closed skin	Sternotomy edges not re-approximated prior to closure of skin incision.
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.
2380	Retained sternal wire causing irritation	Surgically placed wire causing soft tissue irritation, pain or swelling (not infected).
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 to known structural heart disease	
2570	Myocarditis	
2580	Common AV valve insufficiency	
2590	Protein-losing enteropathy	
2600	Plastic bronchitis	
7000	Normal heart	Normal heart.
7777	Miscellaneous, Other	Any disease (congenital or acquired) not specifically delineated in other diagnostic codes.

Status Post

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
6110	Status post - ASD repair, Patch + PAPVC repair
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
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)
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
4210	Status post - AP window repair
4220	Status post - Pulmonary artery origin from ascending aorta (hemitruncus) repair
4230	Status post - Truncus arteriosus repair
4240	Status post - Valvuloplasty, Truncal valve
6290	Status post – Valvuloplasty converted to valve replacement in the same operation, Truncal valve
4250	Status post - Valve replacement, Truncal valve
6220	Status post - Truncus + Interrupted aortic arch repair (IAA) repair
4260	Status post - PAPVC repair
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)
4280	Status post - TAPVC repair
6200	Status post - TAPVC repair + Shunt - systemic-to pulmonary

4290	Status post - Cor triatriatum repair
4300	Status post - Pulmonary venous stenosis repair
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
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
4420	Status post - Pulmonary atresia - VSD (including TOF,PA) repair
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 unifocalizarion (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)
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
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 ½ ventricular repair
4530	Status post – PA, reconstruction (plasty), Main (trunk)
4540	Status post - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)
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)
4630	Status post - Valve excision, Pulmonary (without replacement)
4640	Status post - Valve

	closure, Semilunar
4650	Status post - Valve surgery, Other, Pulmonic
4610	Status post - Conduit placement, RV to PA
4620	Status post - Conduit placement, LV to PA
5774	Status post - Conduit placement, Ventricle to aorta
5772	Status post - Conduit placement, Other
4580	Status post - Conduit reoperation
4660	Status post - Valvuloplasty, Aortic
6240	Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic
6310	Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross procedure
6320	Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross-Konno procedure
4670	Status post - Valve replacement, Aortic (AVR)
4680	Status post - Valve replacement, Aortic (AVR), Mechanical
4690	Status post - Valve replacement, Aortic (AVR), Bioprosthetic
4700	Status post – Valve replacement, 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
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
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
6260	Status post - Valvuloplasty converted to valve replacement in the same operation, Mitral
4840	Status post - Mitral stenosis, Supravalvar mitral ring repair
4850	Status post - Valve replacement, Mitral (MVR)
4860	Status post - Valve surgery, Other, Mitral
4870	Status post - Norwood procedure
4880	Status post - HLHS biventricular repair
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
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
1610	Status post - Transplant, Heart and lung
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
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
6340	Status post - Fontan + Atrioventricular valvuloplasty
5035	Status post - Ventricular septation
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, Ventriculotomoy, 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
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 (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
5370	Status post - Pulmonary artery sling repair
5380	Status post - Aortic aneurysm repair
5390	Status post - Aortic dissection repair
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 the 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, Diagnositc, 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
5590	Status post - Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
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, Sysytemic to pulmonary, Potts - Smith type (descending aorta to pulmonary artery)
5610	Status post - Shunt, Systemic to pulmonary, Other
5630	Status post - Shunt, Ligation and takedown
6095	Status post - Shunt, Reoperation
5640	Status post - PA banding

	(PAB)
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)
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
5920	Status post - Right/left heart assist device procedure
6390	Status post - VAD explantation
6380	Status post - VAD implantation
7170	Status post - VAD change out
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
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
11777	Status post - Other procedure

May 2019: How should I enter the diagnosis of a Mustard or Senning baffle leak? This is for patients who had surgery years ago, not recently. **Code the appropriate status post procedure (s/p Mustard or Senning) as well as an ASD to cover the leak; there is no other appropriate code.**

June 2019: We have a patient with the following diagnoses: 1. HLHS, s/p Norwood procedure with a 4mm BT Shunt; 2. Bilateral pulmonary vein stenosis, s/p sutureless repair, s/p bilateral pulmonary vein stents; 3. Obstructed Damus-Kaye-Stansel. Procedures performed: 1. Revision of Damus-Kaye-Stansel; 2. Aortic Arch augmentation; 3. BT Shunt replacement and ECMO. My question is two part: 1. how should I code the obstructed DKS? 2. How do I code the DKS Revision? **Code: Diagnosis: Supravalvar aortic stenosis, D570, s/p DKS; Procedure: if the DKS was taken down and redone, code DKS, but if the DKS was revised with a patch aortoplasty, code "aortic stenosis, supravalvar, repair."**

November 2019: We had a patient born with a complete AV canal whose VSD spontaneously closed shortly before her surgery. She also had no atrial septum with a single cavernous atrium, bilateral SVC and an unroofed coronary sinus. I made her fundamental diagnosis complete AV canal, but do I also make that her primary diagnosis even though she no longer had a VSD? Her common AV valve was now naturally divided into right and left components but still abnormal, with significant clefts in both the (now) left and right AV valves. My surgeon said even though her VSD closed, her valves were still abnormal and needed to be repaired as if the VSD were still present. I coded her procedures as common atrium septation, atrial baffle procedure and complete AV canal repair. Is it still appropriate to code complete AV canal repair? **Diagnosis: (120) AVC (AVSD), Partial**

(incomplete) (PAVSD) (ASD, primum) patient only has ASD primum component and no VSD. Procedure: (190) AVC (AVSD) repair, Partial (Incomplete) (PAVSD)

February 2020: Patient is diagnosed with HLHS and has a Norwood. Several days later it is discovered that the patient has an ALCAPA off right pulmonary artery and patient goes back to surgery. Would you go back to the Norwood surgery and add the diagnosis of ALCAPA? Why or why not? **Yes, you can include the ALCAPA diagnosis to the HLHS diagnoses included with the Norwood procedure as the diagnosis did exist at the time of the Norwood but was unrealized. The complication of unplanned cardiac reoperation should also be included with the Norwood procedure.**

June 2020: The definition for TOF includes this description: "The presence of associated anomalies such as additional VSD, atrial septal defect, right aortic arch, left superior vena cava, and coronary artery anomalies must be subspecified as an additional or secondary diagnosis under the primary TOF diagnosis." How is a right aortic arch or left superior vena cava captured as additional or secondary diagnoses? What is the coding sequence used for each? **Systemic venous anomaly, code 270 can be used to capture the left superior vena cava. There is no code for a right aortic arch. The order does not matter following the coding of the primary diagnosis.**

August 2020: When a patient was cannulated peripherally for ECMO by anesthesia in the ITU (for intractable ventricular arrhythmias) prior to a cardiac operation, do we use the above code? If not, what code would be appropriate? "11777 = Status Post Other, Specify 1?" or "6030 = Status post - Peripheral vascular procedure, Other?" **You can include ECMO cannulation as a status post diagnosis.**

September 2020: What would the STS diagnosis be for my patient that has surgery in June 2020 for a superficial wound infection and has a wound vac applied s/p TGA repair 1/2020. My MD says the diagnosis says the diagnosis should be superficial wound infection diagnosis # 263, but I cannot find this in the list of options. The patient has an infectious disease consult with a dx of recurrent sternal wound infection on Keflex at home. Please advise on how I should code her current diagnosis, besides all her s/p procedures and dx. **There is no diagnosis code for superficial wound infection. Cardiac, Other is the best option.**

October 2020: The new data harvest platform is not allowing for the use of code 1590 (Status post – Transplant, Heart) as the primary diagnosis, this was allowed by the DCRI submission. Perhaps because these codes were part of core diagnoses lists that preceded the rules and implementation of the other s/p diagnoses codes with numbers >4000. For the anesthesia data collection of (OpType =Interventional Cardiology) standard post-transplant diagnostic cath cases, what should be entered as the primary procedure for these cases if s/p transplant is not allowed? Also, for surgical cases of ecmo or retransplant due to cardiac rejection, what should be entered as the primary procedures in these cases? **This will need to be looked at the time of future upgrade. For now, you can use Cardiac, Other (1560) for the interventional cardiology cases. For ECMO or retransplant, you can also use Cardiac, Other.**

October 2020: Please clarify the definition: 1330 Prosthetic valve failure: Indicate if the patient has the diagnosis of “Prosthetic valve failure.” This diagnosis is the primary diagnosis to be entered for patients undergoing replacement of a previously placed valve (not conduit) prosthesis, whatever type (e.g., bioprosthetic, mechanical, etc.).In the past our center has used the conduit failure code for conduits with or without prosthetic valves. I've pasted a recent question from one of our surgeons regarding coding these situations of conduits with valves. For the prosthetic valve failure issue, even if it’s a standalone prosthetic valve that was either sewn into a Dacron conduit, or if it was a valve alone w patch of pericardium, that doesn’t count as valve failure? **If the valve is in a conduit, use conduit failure. If the valve is in the native outflow tract, utilize prosthetic valve failure.**

November 2020: When is it most appropriate to use #2490 Pulm Venous Stenosis, Spontaneous as well as #2480, Acquired as opposed to just using #260(Pulm Venous stenosis)? There is no explanation in the training manual. **Code #260 can be used now, unless you know if the stenosis was acquired or spontaneously occurred. A formal definition is being established by the core group for the training manual. This will be addressed in the future upgrade.**

November 2020: Should I use the diagnosis code #1220 "arrhythmia, pacemaker, indication for replacement" for ICD's that need to be replaced, since there is no code for ICD indication for replacement, or just use the specific arrhythmia type as the diagnosis? **Yes, arrhythmia, pacemaker, indication for replacement for ICDs can be used. This will be reviewed during the upgrade.**

November 2020: Two questions regarding the CAVSD 1. If a patient has multiple ASD's or VSD's can we code these in addition to the included VSD and ASD in the procedure.For example a patient has CAVSD and has two seperate VSD's a type 1 and type 4 as well as the classic ASD, could I code for an additional VSD repair? 2. The CAVSD repair includes the mitral cleft repair (left AV Valve) but if the right side of the AV valve is repaired the we can also code Tricuspid valvuloplasy. Is this correct? **Yes, code the multiple ASDs and VSDs as well as specific types. You can code a tricuspid valvuloplasty if desired as the CAVSD will remain the primary procedure.**

November 2020: My hospital has an adult cardiac surgeon who was added to our congenital contract once he started being the primary surgeon on our adult congenital cases. I only enter the cases he does that are on congenital patients, but I'm having some difficulty determining if certain diagnoses should be considered congenital. I have 4 examples. 1) An aortic root replacement in a patient with endocarditis, s/p AVR as an adult for a bicuspid aortic valve with aortic stenosis and calcific deposits. **Not Congenital** 2) Aortic aneurysm repair and aortic root replacement on a patient with newly diagnosed severe AI and an aortic root aneurysm with no prior ops. **Not Congenital** 3) Aortic root replacement and/or aneurysm repair in a patient with Marfan syndrome and no prior ops. **Leave up to the program to determine which database as many congenital programs handle the Marfan's related operations** 4) AVR on a patient with a bicuspid aortic valve, AS and AI with no prior ops. **Not Congenital**

December 2020: Our CH surgeons performed an urgent valve replacement on a patient admitted in cardiogenic shock with sepsis and endocarditis per request by the Adult Cardiology Service. She has no history of congenital heart disease. She was evaluated and denied VAD/transplant care by 4 institutions. She later passed away. Should she be entered into the CH database**? If done by a congenital surgeon, please include the case in the congenital database regardless of whether the heart disease is congenital or acquired. If an institution has both the adult and congenital databases, the institution can come up with a consistent approach to determine which database (or both) is appropriate and make the determination prior to the operation.**

January 2021: Patient undergoes truncus arteriosus + interrupted arch repair, the truncal valve was not replaced at that time. Returns the following year with truncal valve insufficiency requiring replacement - is the correct primary procedure truncal valve replacement? Returns again months later with 'aortic valve' insufficiency again requiring replacmeent - is the correct primary procedure now aortic valve replacement? **Yes, the first replacement is a truncal valve replacement. The second replacement is also a truncal valve replacement.**

March 2021: What would be the appropriate diagnosis for Hypoplastic Systemic RV with Criss-cross AV valves (atrioventricular discordance) and d-TGA (VA discordance), VSD, PDA, hypoplastic Tricuspid valve, transverse aortic arch? I chose Single Ventricle, TA. Is this correct and how do you address the criss-cross valves? Patient had a coarc repair and PA band for initial palliation. **Single ventricle, Other.**

May 2021: I have a patient who was diagnosed with MRSA Endocarditis 11/2020. She was treated with 6 weeks of IV antibiotics. She had repair of multiple VSD and PFO 2/23/2021, in part due to the endocarditis.
Can I code Endocarditis 1230? The code does not refer to current or past endocarditis. Only in the Preoperative Factors does it give a time frame for coding endocarditis. **The endocarditis can be included as a diagnosis but not as a preoperative factor.**

May 2021: I have two patients with a diagnosis of Non-Compaction LV. There is no code for that diagnosis. I had to use a general code for cardiomyopathy when this is a more complex and specific type of cardiomyopathy. Is there another code I can use for this? If not, can this code be added to the next version? **At this point in time, there is no way to qualify the severity or type of cardiomyopathy. Before using the diagnosis of cardiomyopathy, make sure the patient has cardiomyopathy and not just non-compaction with normal LV function.**

July 2021: Can you please provide clarity for the definition of "normal sinus rhythm"? (1180 Arrhythmia = Any cardiac rhythm other than normal sinus rhythm). Is normal sinus rhythm determined by rate AND rhythm? Is sinus tachycardia considered an arrhythmia? Is sinus bradycardia or "slow sinus rhythm" considered an arrhythmia? **Response: The definition of normal sinus rhythm is each beat has a QRS complex; each QRS is preceeded by a pwave with normal morphology; and the PR interval is greater than 0.12 seconds (except in patients with situs inversus). If the surgeon or cardiologist diagnosis a patient <18 years of age with sinus tachycardia, sinus bradycardia, or slow sinus rhythm, you can code diagnosis 1180, Arrhythmia.**

July 2021: Can you explain why coding TOF/PS coding is preferable to TOF when documentation supports TOF/PS. Why both TOF/PS and TOF aren't included in the Standard Lesion Report. I am having difficult explaining this to my surgeon. **Response: TOF/PS allows for more granularity and differentiates between the other TOF types. The database allows one to enter TOF only when the specific type is unknown. This should not be the case for a TOF repair, but for conduit replacements and valve procedures later in life when perhaps the operating center is unaware of the TOF type at the time of initial repair. This may be considered for a database vendor software check with the upcoming version upgrade.**

July 2021: Pt had an ASO 8/25/2020, on 9/24 pt was started on Keflex for redness at distal end of MSI, no drainage, no culture sent. (Would this be a post-op infection?) Pt later developed drainage from MSI and was again treated w/Keflex. no culture sent. Pt again developed redness at distal 2cm of MSI and decision was made to explore the incision. "The chest was prepped and draped. The area of redness at the lower 2cm of the sternal wound was explored. the skin was incised w/ a scalpel. no purulent fluid was identified. The subcutaneous tissues were explored and a fragment of suture was removed. The wound was explored to the sternal cartilage and no evidence of an exposed sternal wired was identified....the wound was closed in 2layers of subcutaneous tissue and the skin was closed with a Monocryl suture." No culture was sent. What would the appropriate diagnosis, procedure and op type be for this operation? We use the short list. **Response: Yes, this would be a superficial infection. The diagnosis is Misc. Other, the Operation type is Thoracic, and the procedure is Sternotomy wound drainage. Update March 2022: If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic.**

September 2021: Would you code 2340 Foreign body, Intracardiac foreign body for an object within the pericardium? "...nail entering the left side of the sternum the lower aspect of it and embedded in the liver traversing the pericardium... the nail which is embedded in the liver through the diaphragm and about 1 cm protruding into the pericardial space and rubbing up against the PDA branch of the right coronary artery. Right coronary is completely intact and there is no injury visible to this vessel" **Code diagnosis (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.**

October 2021: Is it appropriate to use the following dx code (usually as a secondary) to capture pulmonary artery hypertension? Can you give examples of when it would be appropriate? Trying to discern whether this is a way to capture pre-op PHTN or is it meant to capture/describe the actual effects of PHTN on the pulmonary vasculature. Currently we are capturing PHTN as an "other" pre-op factor. 1385 Pulmonary vascular obstructive disease Pulmonary vascular obstructive disease (PVOD) other 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. Thank you! This was discussed at a recent data manager call and I think it will help many centers to see the answer. **If a patient has pulmonary hypertension, it is appropriate to include it as a diagnosis. You may need to work with your clinical team to determine which specific diagnosis best describes your patient. While you can always use the free text option in Preoperative factors, those are not included in the analysis. Inclusion as a diagnosis does allow for analysis of pulmonary hypertention. The following Diagnosis codes describe how a patient developed pulmonary vascular obstructive disease: (1385) Pulmonary vascular obstructive disease, (1390)**

Pulmonary vascular obstructive disease (Eisenmenger's), (1400) Primary pulmonary hypertension, (1410) Persistent fetal circulation.

December 2021: Would the description below match what the training manual describes in a sinus venosus asd? Not sure whether STS considers this "normally connected". "Intraoperatively, we found that the right upper lobe and middle lobe draining high in the SVC. The lower lobe was draining more normally in the right atrium. There was a large sinus venosus ASD." **This scenario does represent partial anomalous pulmonary venous connection as some of the veins are draining from the SVC to the RA.**

January 2022: Wondering if there will be changes made to dx code #2560, Cardio-respiratory failure not secondary to known structural heart disease in the next version. There is confusion as to whether this code should be used for patients with no structural heart disease or not (e.g. an arrest secondary to myocarditis). Also, is it appropriate to use this code for a patient who arrests post CT surgical repair and requires ECMO? **In this scenario, please use the Diagnosis (2570) Myocarditis as that is causing the need for surgical intervention (ECMO cannulation). It is recognized Diagnosis 2560 does not have a definition in the Training Manual and this will be sent to the Task Force to review.**

January 2022: Patient had redo sternotomy for an AVR and PVR. The aorta, Dacron graft (s/p Tyrone-David), and pulmonary homograft were densely adherent to posterior sternum. Tears developed upon separation from the sternum, which required patch repair to the aorta, graft, and pulmonary homograft. Is it correct to code the diagnosis as 1560 "aortic rupture, ascending aorta, acute" which is short-listed to "cardiac, other"? Would 1280 "aortic arch repair, patch aortoplasty" be the correct procedure code? How would I code the diagnosis of the tear to the pulmonary homograft? **The best way to code the tears to the pulmonary homograft and aorta is diagnosis (1560) Cardiac, Other. Do not code procedure (1280) Aortic arch repair as the repair to the aorta is not in the aortic arch. Code procedure (2010) Cardiac procedure, Other.**

February 2022: Should 2100 Levocardia be added to surgical diagnosis when listed on ECHO report? This is what I see in my ECHO: Visceral and Cardiac Situs, Segments: Levocardia. Atrial situs solitus. D Ventricular Loop. **Diagnosis (2100) Levocardia can be coded but is not necessary. It cannot be the primary diagnosis of any operation. It is suggested to only code this in the setting of complex congenital heart disease.**

February 2022: This patient is a single ventricle, s/p PDA stent. She came in with hypoxia and echo showed that her PDA stent was stenotic, so she was scheduled to proceed with her Glenn urgently/emergently. I am not sure how to code the diagnosis of PDA stent stenosis - should it be code 2130 - shunt failure? **Do not code diagnosis (2130) Shunt failure as this does not meet the definition. The Primary diagnosis for this scenario is the patient's fundamental diagnosis. Code (1080) Patent ductus arteriosus as a secondary diagnosis. Code (2280) Complication of cardiovascular catheterization procedure, Device malfunction as a secondary diagnosis. Include the PDA stenting procedure as a status post diagnosis.**

March 2022: A patient underwent PPM insertion via a median sternotomy. upon return to the PICU, the surgeon noted some movement/instability of the sternum so elected to return the patient to the operating room where the incision was re-opened. the sternum had been closed with vicryl so the sternal vicryls were removed and replaced with sternal wires. What diagnosis should I use for this return to surgery and also what procedure best fits a sternal re-wiring? I use the short list. **In this scenario, code the primary diagnosis as (1510) Mediastinal disease, benign and the procedure as (2010) Cardiac procedure, Other. The Operation type is No CPB Cardiovascular and this also represents complication (22) Unplanned cardiac reoperation on the index operation.**

March 2022: How should I best capture Fontan Associated Liver Disease? I cannot find an appropriate diagnosis and the labs aren't sufficiently abnormal to select Hepatic dysfunction in preoperative factors. This patient has a Fontan takedown with a 1.5 ventricular repair. He is acutely ill. **Currently there is no way to capture Fontan Associated Liver Disease in the database.**

March 2022: If there is a TEE pre op with the following data mild aortic regurgitation, moderate mitral regurgitation and mild TV regurgitation. Do I capture this under diagnoses (code 600,710 and 380)? For congenital is a disease valve considered anything mild or greater? **Yes, one can capture the findings noted on the echocardiogram, however, also focus on the findings noted in the surgeon dictated operation note. It is reasonable to capture anything greater than mild in the database.**

May 2022: How do I code the Pre-Op Ruptured Sinus of Valsalva Aneurysm. I am sending the Op Note as I am unable to copy it to this space. **Code diagnosis (630) Sinus of valsalva aneurysm as it includes ruptured and non-ruptured aneurysms.**

May 2022: 930 DORV, VSD type Double outlet right ventricle is a type of ventriculoarterial connection in which both great vessels arise entirely or predominantly from the right ventricle. In double outlet right ventricle, 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. Doublycommitted VSD's lie beneath the leaflets of the aortic and pulmonary valves (juxtaarterial). 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. The above is the definition of DORV from the training manual. All the DORV definitions say, normal connections and normal or near normal sized ventricles. I use these DORV terms on my single ventricle patients to provide some more details but according to the above I should not. Can the definition be updated or should be recommend the term not be used? **The current definition does not allow for DORV to be coded in the setting of a single ventricle. This may be reviewed in a future upgrade.**

June 2022: What diagnosis would I use for an aberrant right subclavian artery**?** **An aberrant right subclavian artery is best captured by diagnosis (1090) Vascular ring.**

October 2022: What diagnosis code should be used for a VAD circuit thrombus (or other VAD problem) requiring change of the circuit or connectors, but not a pump change? **The best way to code this scenario is to code diagnosis (1560) Cardiac, Other.**

October 2022: I want to confirm that I am coding the following case correctly. The operative note states: Diagnosis: Acute failure of Fontan circulation secondary to thrombosis and pulmonary artery thrombus. Procedure: Fontan takedown; extensive pulmonary arterioplasty from hilum to hilum. I coded the primary diagnosis as "conduit failure" (520), and a secondary diagnosis of "pulmonary arterial tree thrombus" (1560 - using the long list.) I coded the primary procedure as "PA reconstruction, branch, central" (540), and a secondary diagnosis of "Fontan takedown" (2010 - using the long list.) Does this sound appropriate? **Do not code diagnosis (520) Conduit failure as it is not used to describe Fontan failure or thrombosis in the Fontan circuit. The most appropriate diagnosis is (1560) Cardiac, Other. The most appropriate procedures are as you have suggested; (540) PA reconstruction, Branch, Central (within the hilar bifurcation) and (2010) Cardiac procedure, Other.**

April 2023: Regarding a "status post" diagnosis code. If patient with ccTGA, VSD-LVOTO had initial palliation with a ductal stent placement prior to a Glenn procedure, should I use #6620 status post cath procedure, stent insertion or would #6170 s/p Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) be more appropriate? **This should be coded as (6620) Status post - Cardiovascular catheterization procedure, Therapeutic, Stent insertion**

April 2023: How should I code the diagnosis for an obstruction of the pulmonary venous baffle s/p double switch (Senning + arterial switch?) Coding it as pulmonary venous stenosis doesn't seem right, nor does conduit failure. **We agree that it's not perfect, but coding this as (260) Pulmonary venous stenosis is most appropriate.**

May 2023: I have a patient diagnosed with a LPA to LUPV fistula. I'm not sure how to code this diagnosis. I read that it is rare. This patient has a fundamental diagnosis of TGA, VSD-LVOTO. Below is the procedure description. I do not know how to code this procedure or what op type it would be. I am guessing no CPB cardiovascular? Description of the repair/palliation: Once in the OR, we opened the chest in likely the 4th anterior interspace and gained nice exposure to a fairly adhesed and vascular chest wall lung interface. Adhesions were taken down. The incision was lengthened some to aid exposure. We slowly dissected out a very adhesed mediastinum and carefully preserved the phrenic, although we by anatomic construct were quite close to it. We slowly dissected out very adhesed LPA and RULPV down to the pericardium, but not quite into it freely. We found a large thin fistula of a bit over 1 cm and slowly encircled it. Once encircled, we did a test occlusion and noted rapid increase in saturations. In addition, it was so thin, we could see blood flowing from LPA to PV. It was doubly encircled and tied off with 5-0 prolene stick tie on both ends.
For this situation, please use:
Diagnosis: (1360) Pulmonary AV fistula
Procedure: (1780) Pulmonary AV fistula repair/occlusion
OpType: No CPB, Cardiovascular
May 2023: Patient that is status-post Heart Transplant 6 years ago. She started having syncopal events and dizziness at home. These episodes were found to be secondary to intermittent heart block. Therefore, she was then electively admitted for her annual cath/biopsy, coronary angiogram and pacemaker placement. Her cath showed new finding of CAV Grade 3 leading to diastolic dysfunction. During the cath procedure she went into cardiac arrest and was cannulated onto V-V ECMO. For this case, I currently have diagnosis codes "Card iac, other" for the diastolic dysfunction and "Arrhythmia, Heart Block" for the Complete Heart block prior to the cath procedure. The surgeon would like something more specific for her primary diagnosis that is related to the CAV aspect. What diagnosis code can I use for the Cardiac Allograft Vasculopathy and/or related diastolic dysfunction? **The surgeons recommend listing (1560) Coronary artery anomaly, Other and (1590) Status post - Transplant, Heart**

June 2023: patient with complex cardiac history is put on ecmo for acute on chronic respiratory failure related to viral illness with ventricular irritability requiring asynchronized cardioversions. What should the primary diagnosis be for acute on chronic respiratory failure? **For ECMO cases, using (1560) Cardiac, Other or the patient's fundamental diagnosis is appropriate.**

June 2023: This is an ECMO cannulation/decannulation case. Patient sustained cardiac arrest 3 hours after birth and echo showed severe left ventricular dysfunction, severe mitral/aortic regurgitation. Patient was cannulated for ECMO. Few days later patient was decannulated with diagnosis of cardiogenic shock with back to normal ventricular function. What would be the primary diagnosis be? **(2560) Cardio-respiratory failure not secondary to known structural heart disease may be the most appropriate, assuming the mitral/aortic regurgitation is not caused by structural disease. But another option would be (1560) Cardiac, Other.**

Long Name:	Primary Diagnosis Indicator	*SeqNo:*	900
Short Name:	**PrimDiag**	*Core:*	Yes
Section Name:	Diagnosis	*Harvest:*	Yes
DBTableName:	Diagnosis		
Definition:	Indicate the diagnosis of primary importance at the time of this surgical procedure. Example: fundamental diagnosis of		

Tetralogy of Fallot. The current Diagnoses are both pulmonary insufficiency and residual ventricular septal defect. In this case, pulmonary insufficiency will be flagged as the primary diagnosis.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Fundamental Diagnosis
Short Name: **FundDiagnosis**
Section Name: Diagnosis
DBTableName: Diagnosis
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.

SeqNo: 374
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

June 2019: Patient has diagnosis 2500, discrete subvalvar stenosis. There is not a notation stating this cannot be used as a Fund Diagnosis on the 3.41form, but the vendor states that it is not listed on the 3.41 Congenital Fund Diagnosis list. Why would this not be acceptable as a Fund Diagnosis? **Agree that D2500, D2510, and**

D2520 (discrete, IHSS, and Tunnel-like variants of subaortic stenosis would seem reasonable as fundamental diagnoses, but the fall back would be to use D0550 Aortic stenosis, Subvalvar, as the fundamental diagnosis. Discuss with your software vendor.

September 2019: I have an 18 year old female who is followed due to a history of tricuspid valve endocarditis. She initially presented in March 2016 with MSSA endocarditis with severe tricuspid valve regurgitation, septic pulmonary emboli and septic arthritis of her left knee. I do not believe this case gets entered into the STS Congenital Registry as she does not have a history of Congenital Heart Disease, but I will send an inquiry to STS to confirm. If you do want cases such as these to be captured I believe you have to get Certified with the Adult STS Cardiac Registry and she would be entered there. My Congenital MD's did this case and gave her a Fundamental Diagnosis of Tricuspid Regurgitation, Non-Ebstein's related. This patient did not have tricuspid regurg until after the MSSA bacteremia in 2016, so I do not see this as being a congenital case, nor do I see this a the Fundamental Dx as she was not born with it. Am I thinking correctly? **No, this is incorrect. The Congenital Heart Surgery Database includes patients with congenital heart disease or *acquired* heart disease. Any case completed by a congenital surgeon are to be included in the database. The fundamental diagnosis is the lifelong diagnosis, regardless of whether they were born with the heart disease or acquired it. The fundamental diagnosis in this scenario is Tricuspid regurgitation, Non-Ebstein's related.**

September 2019: Can you please clarify if these patients should be entered into the STS Congenital database. An 18 year old that had MSSA endocarditis subsequently developed severe tricuspid regurgitation and required a valve replacement. She has no history of CHD, so I interpreted this as an acquired heart disease and did not think she should be entered into the database. When I questioned our Physicians the response I received was; "This patient should be entered in our STS congenital database on the basis that her heart condition and heart surgery were performed as a pediatric patient. We often operate on children who did NOT have a congenital heart disease. For example, if we transplant a child with myocarditis, this would not be a congenital condition. Or if we do an aortic valve replacement in a child due to endocarditis, it would still be included in the congenital database.' Can you please help me clear the muddy water? **No, this is incorrect. The Congenital Heart Surgery Database includes patients with congenital heart disease or *acquired* heart disease. Any case completed by a congenital surgeon are to be included in the database. The fundamental diagnosis is the lifelong diagnosis, regardless of whether they were born with the heart disease or acquired it. The fundamental diagnosis in this scenario is Tricuspid regurgitation, Non-Ebstein's related.**

January 2020: For patients with coarctation of the aorta as well as a hypoplastic aortic arch (these are usually Neonates/infants when this comes up), which of the two diagnoses is the most appropriate to choose for the Fundamental? **Hypoplastic aortic arch.**

January 2020: Is the VSD the most appropriate fundamental diagnosis in the case below? The surgeon's choice was VSD Type 2 for fund Diag and the following for the encounter: #490 PS, Subvalvar (primary) and #73, #420, #430, and #10 as secondary diagnoses. POSTOPERATIVE DIAGNOSES: Multilevel right ventricular outflow tract obstruction, restrictive perimembranous ventricular septal defect, patent foramen ovale. PROCEDURE: Nontransannular right ventricular outflow tract patch with division of obstructing right ventricular muscle bundles, open pulmonary valvotomy, pericardial patch enlargement of the main pulmonary artery, suture closure of patent foramen ovale, Dacron patch closure of restrictive perimembranous ventricular septal defect. **The fundamental diagnosis would be DCRV (500) or pulmonary stenosis, subvalvar (490) depending on the level of obstruction.**

January 2020: I have a 76 year old patient that had a TAVR complicated by a post op VSD likely created by wire positioning.It was unable to be closed in the cath large due to the size and the Adult cardiac surgeon took the patient to the OR, he opened the chest, the Congenital surgeon did the closure of iatragenic VSD, repair of large LV-RA shunt, Tricuspid valve repair and the Adult cardiac surgeon then took the case back over and resumed position of primary surgeon.There is a lot of back and forth here as to whether this case should be entered in the Adult or Congenital database. The VSD was manmade and not congenital.
If I enter it in Congenital what would my Fundamental diagnosis be? The case can be entered into either or

both databases. If entered into the congenital the fundamental diagnosis is related to the aortic valve disease, aortic stenosis or aortic regurgitation.

February 2020: For the purposes of the STS data collection is it preferable to list the more specific dx of SV, Unbalanced AVSD or SV, Heterotaxy as fundamental dx (as well as the primary)in a case such as the one below? I seem to remember but can't find it in Training Manual that if possible we should not use SV, Heterotaxy for the fundamental. I may have imagined that. Note: If the answer to this question could include the rationale I think it could take care of variations of the same question in the future.PREOPERATIVE DIAGNOSIS:1. Heterotaxy syndrome.2. Left atrial isomerism.3. Severely unbalanced atrioventricular septal defect. 4. Looped ventricles.5. Dextrocardia.6. Transposition of great vessels. POSTOPERATIVE DIAGNOSIS:1. Heterotaxy syndrome.2. Left atrial isomerism. 3.Severely unbalanced atrioventricular septal defect. 4. L-looped ventricles.5. Dextrocardia.6. Transposition of great vessels. **You can use the Single ventricle, Heterotaxy diagnosis (840) for both the primary and fundamental diagnoses.**

March 2020: I can't find anything in our Training Manual but seem to remember being told that Single Ventricle, Other is less preferred over a more specific dx code for fundamental that would better describe the anatomy. Is this correct? If so, how should I boil down the example below: DORV, Severe subpulmonary obstruction, dextrocardia (situs inversus), straddling mitral valve, Rt Ao arch with mirror image branching, Type 2 VSD with inlet extension, bilat SVCand Lt sided IVC. s/p Bilat BDG, pulm valvectomy, MPA division, atrial septectomy, and removal of PDA stent/PDA ligation. **If the patient has heterotaxy, code single ventricle, heterotaxy. If the patient does not have heterotaxy, code single ventricle, other**

June 2020: What is the best choice for Fundamental diagnoisis for this patient with complex abnormalities of the heart who underwent Norwood? The surgeon describes "Heterotaxia with hypoplastic LV and L-loop heart; Aortic atresia; ASD; PDA; Hypoplastic aortic arch with CoA." However, the patient has atrial situs solitus and does not have visceral heterotaxy. By echo, the patient has 1. {S,L,S}. 2. Double outlet right ventricle, L-looped. 3. Supero-inferior ventricles with pseudo criss-cross atrioventricular valves. 4. Moderately hypoplastic left ventricular cavity. 5. There is a atretic aortic valve. 6. Large perimembranous with outlet extension-type ventricular septal defect. 7. Rightward cardiac apex. None of the options seem to be a good fit. **The best fundamental diagnosis is Single ventricle, heterotaxy (diagnosis 840).**

July 2020: What is the primary diagnosis and primary procedure for a 'pink' TOF? **The primary diagnosis is TOF, pulmonary stenosis. The primary procedure is dependent on the completed repair. If there is a ventriculotomy, infundibular patch, dilator in the valve, any procedure in the outflow tract, the primary procedure should be coded as the appropriate TOF repair. If there was only a VSD repair done transatrially, the procedure be coded as the appropriate VSD repair.**

December 2020: Is Single Ventricle, Other appropriate to utilize as the fundamental diagnosis in the following scenarios: - Patient with severely hypoplastic right ventricle, d-TGA with VSD and aortic arch hypoplasia, anomalous coronary. Underwent initial palliation with PA banding and arch reconstruction. Second admission to undergo DKS + BDCPA. **Single ventricle, Other**
Patient with DORV, TGA type with PS. Severely hypoplastic LV. Dysplastic mitral valve that straddles the ventricular septum with greater committment to the RV. Mild to moderate mitral regurgitation. Underwent atrial septectomy and RVOT stent placement in the cath lab. Returned for BDCPA. **Single ventricle, DIRV**

February 2021: What diagnosis and procedure codes should be used for a patient with complete Tracheal Agenesis (absence of trachea down to the carina and absence of laryngeal structure), undergoing Esophageal carinoplasty? We have done a few of these now. Can a code for Tracheal agenesis be added to the next version? Airway disease seems inadequate. This patient also has TAPVR and DORV. Would you use Tracheal agenesis as Fundamental diagnosis, even though it's not cardiac? **The fundamental diagnosis should be the most appropriate cardiac diagnosis. There is not a specific procedure code for tracheal agenesis – the best is likely Airway disease, other.**

February 2021: For a complex single ventricle patient with Heterotaxy, TAPVR, unbalanced AVSD, DORV, pulmonary stenosis, what is the best choice for Fundamental diagnosis? Would it be 851 Single ventricle + TAPVC, since Heterotaxy can be coded as a syndrome? I wish there was a single code that included all of the above.**Single ventricle, heterotaxy is the best diagnosis.**

April 2021: I have recently learned that other registries (PC4 for example) have decided as a group that patients placed on ECMO support with a diagnosis of MIS-C post Covid exposure should have a fundamental and primary diagnosis of myocarditis. I haven't seen any guidance from STS but this makes sense to our surgeons for the sake of consistency. Can you advise? The common examples we are seeing at our center: Pt admitted with MIS-C associated with Covid infection and placed on ECMO due to cardiorespiratory failure. **STS would recommend using Cardio-respiratory failure not secondary to known structural heart disease as the fundamental diagnosis, not myocarditis.**

June 2021: Patient with DORV, pulmonary atresia, VSD, and side by side normally aligned great vessels. The VSD is initially described as large, nonrestrictive, anterior malaligned and later as subaortic. Ventricles are normally sized and the aorta is without obstruction. Surgeon dictates large malaligned subaortic VSD with more than 50% of the aortic valve overriding the intraventricular septum and a muscular conus between the valve and the tricuspid annulus compatable with a DORV with a subaortic VSD. Patient is palliated with a BTS followed by a Rastelli. What is the best fundamental diagnosis for this constellation of diagnoses - DORV, TOF type? And is the repair Rastelli or DORV, Intraventricular tunnel repair? **DORV, VSD type is the correct diagnosis due to the pulmonary atresia. The primary procedure is the Rastelli procedure.**

July 2021: Question regarding DORV type - patient with DORV, subaortic VSD, mild pulmonary gradient, and side by side great vessels. Underwent DORV repair with VSD closure. Is this DORV, VSD type because of the subaortic VSD or DORV, TGA type because of the side by side great vessels? Is the type of DORV primarily based on the location of the VSD? **Response: DORV, VSD type**

August 2021: What is the best fundamental diagnosis for the following findings:
1) L-TGA/ventricular inversion with DORV (S, L, L) with ductal dependent blood flow
2) Pulmonary atresia
3) Right sided mitral valve straddles the VSD with moderate regurgitation (right sided mitral inflow is directed both into the smaller right sided morphologic LV as well as to the larger left sided morphologic RV)
4) Mildly hypoplastic, apex forming LV, normal bi-V function
5) Large outlet VSD with inlet extension

Fundamental diagnosis should be coded as (878) CCTGA, VSD, LVOTO

October 2021: What is the most accurate fundamental diagnosis for this patient: DORV with subpulmonic VSD. Additional apical muscular VSD. Aortic valve atresia positioned side by side with the pulmonary valve. The aorta is rightward to the pulmonary artery. Normally sized left and right ventricles with normal function. Severely hypoplastic ascending aorta with mildly hypoplastic left sided aortic arch. Patient underwent Norwood with Sano shunt. If i select aortic valve atresia, it maps to HLHS in the database, is this correct given a normal mitral valve? Or is it better to code DORV, TGA type? **The best fundamental diagnosis for this patient is (500) Aortic valve atresia. The mapping in the long list will be re-evaluated.**

January 2022:
1. What is the best fundamental diagnosis for a patient who has balanced complete AV canal defect (Rastelli type A) and Coarctation of the Aorta with complex intracardiac anomaly with arch hypoplasia? The first index procedure was Aortic arch repair and Coarctation repair. Patient went home and returned to the hospital 5 months later for AVC repair**. Diagnosis (100) AVC (AVSD), Complete (CAVSD)**

2. What is the best fundamental diagnosis for patients who have COA isolated or with VSD or complex intracardiac anomaly, and arch hypoplasia as their primary diagnosis and the index procedure of aortic arch repair (primary procedure) and COA repair, L thoracotomy, Resection with extended end-to-end anastomosis

(secondary procedure)**?** **Diagnosis (92) VSD + Aortic arch hypoplasia if the patient has Aortic arch hypoplasia as defined in the Training Manual or (94) VSD + Coarctation of aorta**

February 2022: What would be the most appropriate fundamental diagnosis for a patient with these echo and CT findings: 1) S,D,D levocardia anatomy; 2) DORV, large uncommitted VSD; 3) Plate-like pulmonary atresia; 4) Normal AV valves with no straddling; 5) Qualitatively normal ventricles of equal size. Patient was palliated with a PDA stent and later a bidirectional Glenn procedure. The patient does not have heterotaxy. **The most appropriate fundamental diagnosis is (960) DORV, Remote VSD. Include diagnosis (340) Pulmonary atresia, VSD as a secondary diagnosis.**

May 2022: Which fundamental and primary diagnosis should be used to capture an aberrant origin of the innominate artery compressing the trachea? **Code the fundamental and primary diagnoses as (1090) Vascular ring as the definition states vascular rings include complete anatomic rings or compressive effects of an aberrant vessel.**

July 2022: I have a patient that had an aberrant right subclavian artery. One of our surgeons divided the aberrant right subclavian artery. Reimplantation into the carotid artery was indicated and performed. Is this a case that should be included into the CHSD database? If so, what do I code for fundamental dx, primary proc? **The fundamental diagnosis is (1090) Vascular ring and the primary procedure is (1360) Vascular ring repair. Include if the procedure was completed by a congenital surgeon.**

July 2022: How do we code when a patient has a "Left atrial mass excision"? The tumor was a myxoma. **Code procedure (1760) Cardiac tumor resection.**

April 2023: What would be the most appropriate fundamental diagnosis for a patient who has isolated ventricular inversion (S,L,S), multiple VSDs, and hypoplastic aortic arch; now s/p Senning, extended end-to-underside CoA repair, and multiple VSD repair? Currently, it's coded as Discordant AV connections with situs inversus, Concordant VA connection ("Isolated ventricular inversion") (usually {IDL} or {IDS}), VSD. However, this diagnosis short list to Cardiac, Other. **Unfortunately, "Cardiac, Other" is the most appropriate for fundamental diagnosis. The current selection (Discordant AV connections with situs inversus, Concordant VA connection ("Isolated ventricular inversion") (usually {IDL} or {IDS}), VSD)) includes situs inversus, which is not appropriate for this patient. You can also include VSD + Aortic arch hypoplasia, if you have not already.**

June 2023: This patient went to the OR for AICD implantation due to Long QT syndrome, 2540. I am unable to enter Long QT syndrome for Fundamental diagnosis. What fundamental diagnosis should be used? **You can use (2060) Arrhythmia, ventricular as the fundamental diagnosis and list (2540) Long QT syndrome secondary.**

Long Name:	Procedures Table Unique Record Identifier	*SeqNo:*	910
Short Name:	**ProcUniqueID**	*Core:*	Yes
Section Name:	Diagnosis	*Harvest:*	Yes
DBTableName:	Procedures		
Definition:	Unique identifier for the record in the Procedures table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Procedures Link to Operations Table	*SeqNo:*	920
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Procedures	*Harvest:*	Yes
DBTableName:	Procedures		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Procedure record with the associated record in the Operations table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Procedures

Long Name:	Procedures	*SeqNo:*	930
Short Name:	**Procedure**	*Core:*	Yes
Section Name:	Procedures	*Harvest:*	Yes
DBTableName:	Procedures		
Definition:	Indicate ALL procedures that were performed during this surgical procedure.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		

Harvest Codes and Value Definitions:

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 ASD.
30	ASD repair, Patch	Patch closure (using any type of patch material) of secundum, coronary sinus, or sinus venosus ASD.
40	ASD repair, Device	Closure of any type ASD (including PFO) using a device.
2110	ASD repair, Patch + PAPVC repair	Patch closure (using any type of patch material) of secundum, coronary sinus, or sinus venosus ASD plus PAPVC repair, any type
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 or enlargement of an existing atrial septal defect using a variety of modalities including balloon septostomy, blade septostomy, or surgical septectomy. Creation may be accomplished with or without use of cardiopulmonary bypass.
70	ASD partial closure	Intentional partial closure of any type ASD (partial suture or fenestrated patch closure).

80	Atrial septal fenestration	Creation of a fenestration (window) in the septum between the atrial chambers. Usually performed using a hole punch, creating a specifically sized communication in patch material placed on the atrial septum.
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 VSD.
110	VSD repair, Patch	Patch closure (using any type of patch material) of any type VSD.
120	VSD repair, Device	Closure of any type VSD using a device.
130	VSD, Multiple, Repair	Closure of more than one VSD using any method or combination of methods. Further information regarding each type of VSD closed and method of closure can be provided by additionally listing specifics for each VSD closed. In the case of multiple VSDs in which only one is closed the procedure should be coded as closure of a single VSD. The fundamental diagnosis, in this case, would be "VSD, Multiple" and a secondary diagnosis can be the morphological type of VSD that was closed at the time of surgery.
140	VSD creation/enlargement	Creation of a ventricular septal defect or enlargement of an existing ventricular septal defect.
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.
170	AVC (AVSD) repair, Complete (CAVSD)	Repair of complete AV canal (AVSD) using one- or two-patch or other technique, with or without mitral valve cleft repair.
180	AVC (AVSD) repair, Intermediate (Transitional)	Repair of intermediate AV canal (AVSD) using ASD and VSD patch, or ASD patch and VSD suture, or other technique, with or without mitral valve cleft repair.
190	AVC (AVSD) repair, Partial (Incomplete) (PAVSD)	Repair of partial AV canal defect (primum ASD), any technique, with or without repair of cleft mitral valve.
2300	Valvuloplasty, Common atrioventricular valve	Common AV valve repair, any type
2250	Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve	Common AV valve repair attempted, converted to valve replacement with prosthetic valve during the same operation
2230	Valve replacement, Common atrioventricular valve	Replacement of the common AV valve with a prosthetic valve
210	AP window repair	Repair of AP window using one- or two-patch technique with cardiopulmonary bypass; or, without cardiopulmonary bypass, using transcatheter device or surgical closure.
220	Pulmonary artery origin from ascending aorta (hemitruncus) repair	Repair of pulmonary artery origin from the ascending 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. Truncal valve repair or replacement should be coded separately (Valvuloplasty, Truncal valve; Valve replacement, Truncal valve), as would be the case as well with associated arch anomalies requiring repair (e.g., Interrupted aortic arch repair).
240	Valvuloplasty, Truncal valve	Truncal valve repair, any type.
2290	Valvuloplasty converted to valve replacement in the	Truncal valve repair attempted, converted to valve replacement with prosthetic valve during the same operation

	same operation, Truncal valve	
250	Valve replacement, Truncal valve	Replacement of the truncal valve with a prosthetic valve.
2220	Truncus + Interrupted aortic arch repair (IAA) repair	Truncus arteriosus repair usually 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) plus repair of interrupted aortic arch
260	PAPVC repair	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. If there is an associated ASD and it is closed, that procedure should also be listed.
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. If there is an associated ASD and it is closed, that procedure should also be listed. Occasionally an ASD is created; this procedure also must be listed separately. Concomitant thoracic procedures (e.g., lobectomy, pneumonectomy) should also be included in the procedures listing.
2120	PAPVC repair, Baffle redirection to left atrium with systemic vein translocation(Warden) (SVC sewn to right atrial appendage)	An intracardiac baffle is created to redirect pulmonary venous return to the left atrium and SVC sewn to right atrial appendage)
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 ASD is closed or left open or enlarged (ASD closure and enlargement may be listed separately), and whether, particularly in mixed type TAPVC repair, an additional anomalous pulmonary vein is repaired surgically.
2200	TAPVC repair + Shunt - systemic-to-pulmonary	Repair of TAPVC, any type plus a systemic to pulmonary shunt creation
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 ASD is closed, and how any associated anomalous pulmonary vein connection is addressed. Both ASD closure and anomalous pulmonary venous connection may be listed as separate procedures.
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.
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 venous connection repair	With the exception of atrial baffle procedures (harvest code 310), anomalous systemic venous connection repair includes a range of surgical approaches, including, among others: ligation of anomalous vessels, reimplantation of anomalous vessels (with or without use of a conduit). December 2020: ~~or redirection of anomalous systemic venous flow through directly to the pulmonary circulation (bidirectional Glenn to redirect LSVC or RSVC to left or right pulmonary artery, respectively).~~
340	Systemic venous stenosis repair	Stenosis or obstruction of a systemic vein (most commonly SVC or IVC) may be relieved with patch or conduit placement, excision of the stenotic area with primary reanastomosis or direct reimplantation.
350	TOF repair, No ventriculotomy	Tetralogy of Fallot 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. If the main pulmonary artery incision is extended proximally through the pulmonary annulus, this must be considered "transannular" and thus a ventricular incision, though the length of the incision onto the ventricle itself may be minimal.
360	TOF repair, Ventriculotomy, Nontransanular patch	Tetralogy of Fallot 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 trans- pulmonary annulus patch. If the main pulmonary artery incision is extended proximally through the pulmonary annulus, this must be considered "transannular" and thus a ventricular incision, though the length of the incision onto the ventricle itself may be minimal.
370	TOF repair, Ventriculotomy, Transanular patch	Tetralogy of Fallot 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. If the main pulmonary artery incision is extended proximally through the pulmonary annulus, this must be considered "transannular" and thus a ventricular incision, though the length of the incision onto the ventricle itself may be minimal.
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	Tetralogy of Fallot repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with placement of a right ventricle-to-pulmonary artery conduit. In this procedure the major components of pulmonary stenosis are relieved with placement of the RV-PA conduit.
390	TOF - AVC (AVSD) repair	Tetralogy of Fallot repair (assumes VSD closure and relief of pulmonary stenosis at one or more levels), with repair of associated AV canal defect. Repair of associated atrial septal defect or atrioventricular valve repair(s) should be listed as additional or secondary procedures under the primary TOF-AVC procedure.
400	TOF - Absent pulmonary valve repair	Repair of tetralogy of Fallot with absent pulmonary valve complex. In most cases this repair will involve pulmonary valve replacement (pulmonary or aortic homograft, porcine, other) and reduction pulmonary artery arterioplasty.
420	Pulmonary atresia - VSD (including TOF, PA) repair	For patients with pulmonary atresia with ventricular septal defect without MAPCAs, including those with tetralogy of Fallot 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. To assure an accurate count of repairs of pulmonary atresia-VSD without MAPCAs, even if a tetralogy-type repair or Rastelli-type repair is used, the pulmonary atresia-VSD code should be the code used, not Rastelli procedure or tetralogy of Fallot repair with transannular patch.
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])	1-stage repair 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])	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])	Completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])Pulmonary atresia - VSD - MAPCA repair, Status post prior incomplete unifocalization
2730	Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated)	Complete unifocalization , all usable MAPCA[s] are incorporated
2740	Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated)	Incomplete unifocalization, not all usable MAPCA[s] are incorporated
2750	Unifocalization MAPCA(s), Unilateral pulmonary unifocalization	MAPCA(s), Unilateral pulmonary unifocalization (one side)
440	Unifocalization MAPCA(s)	Anastomosis of aortopulmonary collateral arteries 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.
450	Occlusion of MAPCA(s)	Occlusion, or closing off, of MAPCAs. This may be done with a transcatheter occluding device, usually a coil, or by surgical techniques.
460	Valvuloplasty, Tricuspid	Reconstruction of the tricuspid 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. Do not use this code if tricuspid valve malfunction is secondary to Ebstein's anomaly; instead use the Ebstein's repair procedure code.
2280	Valvuloplasty converted to valve replacement in the same operation, Tricuspid	Tricuspid valve repair attempted, converted to valve replacement with prosthetic valve during the same operation
465	Ebstein's repair	To assure an accurate count of repairs of Ebstein's anomaly of the tricuspid valve, this procedure code was included. 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. Often associated ASD's may be closed and arrhythmias addressed with surgical ablation procedures. These procedures should be entered as separate procedure codes. **Update July 2022: Do**

		not use this code for Starnes procedure, instead use procedure (480) Valve closure, Tricuspid (exclusion, univentricular approach).
470	Valve replacement, Tricuspid (TVR)	Replacement of the tricuspid valve with a prosthetic valve.
480	Valve closure, Tricuspid (exclusion, univentricular approach)	In a functional single ventricle heart, the tricuspid valve may be closed using a patch, thereby excluding the RV. Tricuspid 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. **Update July 2022: Code for Starnes procedure.**
490	Valve excision, Tricuspid (without replacement)	Excision of the tricuspid valve without placement of a prosthetic valve.
500	Valve surgery, Other, Tricuspid	Other tricuspid valve surgery not specified in procedure codes.
510	RVOT procedure	Included in this procedural code would be all RVOT procedures not elsewhere specified in the nomenclature system. These might be, among others: resection of subvalvar pulmonary stenosis (not DCRV type; may be localized fibrous diaphragm or high infundibular stenosis), right ventricular patch augmentation, or **Update Sept 2022:** ~~reduction pulmonary artery arterioplasty~~. **Include isolated reduction main pulmonary artery arterioplasty under procedure (530) PA, reconstruction (plasty), Main (trunk).**
520	1 1/2 ventricular repair	Partial biventricular repair; includes intracardiac repair with bidirectional cavopulmonary anastomosis to volume unload a small **(update Sept 2022) sub-pulmonary** ventricle or poorly functioning ventricle.
530	PA, reconstruction (plasty), Main (trunk)	Reconstruction of the main pulmonary artery trunk commonly using patch material. 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 code. If MPA reconstruction is performed with PA debanding, both codes should be listed. **Update September 2022: Includes reduction main pulmonary arterioplasty.**
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. If balloon angioplasty is performed or a stent is placed in the right or left (or both) pulmonary artery intraoperatively, this code may be used in addition to the balloon dilation or stent placement code. If, rarely, branch PA banding (single or bilateral) was performed in the past and reconstruction is performed associated with debanding, both codes should be listed.
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. 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.
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	Surgical repair of DCRV combines relief of the low infundibular stenosis (via muscle resection) and closure of a VSD when present. A ventriculotomy may be required and is repaired by patch enlargement of the infundibulum. VSD closure

		October 2021~~and patch enlargement of the infundibulum~~, if done, should be listed as a separate procedure code~~s~~.
3370	RV Rehabilitation, Endocardial Resection	
590	Valvuloplasty, Pulmonic	Valvuloplasty of the pulmonic 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, Pulmonic	Pulmonic valve repair attempted, converted to valve replacement with prosthetic valve during the same operation
600	Valve replacement, Pulmonic (PVR)	Replacement of the pulmonic valve with a prosthetic valve. Care must be taken to differentiate between homograft pulmonic valve replacement and placement of a homograft RV-PA conduit.
630	Valve excision, Pulmonary (without replacement)	Excision of the pulmonary valve without placement of a prosthetic valve.
640	Valve closure, Semilunar	Closure of a semilunar valve (pulmonic or aortic) by any technique.
650	Valve surgery, Other, Pulmonic	Other pulmonic valve surgery not specified in procedure codes.
610	Conduit placement, RV to PA	Placement of a conduit, any type, from RV to PA. Intent/Clarification: This is initial conduit placement only. Replacements should be included under conduit reoperations.
620	Conduit placement, LV to PA	Placement of a conduit, any type, from LV to PA. Intent/Clarification: This is initial conduit placement only. Replacements should be included under conduit reoperations.
1774	Conduit placement, Ventricle to aorta	Placement of a conduit from the right or left ventricle to the aorta. Intent/Clarification: This is initial conduit placement only. Replacements should be included under conduit reoperations.
1772	Conduit placement, Other	Placement of a conduit from any chamber or vessel to any vessel, valved or valveless, not listed elsewhere. Intent/Clarification: This is initial conduit placement only. Replacements should be included under conduit reoperations.
580	Conduit reoperation	Conduit reoperation is the code to be used in the event of conduit failure, in whatever position (LV to aorta, LV to PA, RA to RV, RV to aorta, RV to PA, etc.), and from whatever cause (somatic growth, stenosis, insufficiency, infection, etc.).
660	Valvuloplasty, Aortic	Valvuloplasty of the 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).
2240	Valvuloplasty converted to valve replacement in the same operation, Aortic	Aortic valve repair attempted, converted to valve replacement with prosthetic valve during the same operation
2310	Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross procedure	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 – with Ross Konno procedure	Aortic valve repair attempted, converted to Konno aortoventriculoplasty using a pulmonary autograft root for the aortic root replacement.
670	Valve replacement, Aortic (AVR)	Replacement of the aortic valve with a prosthetic valve (mechanical, bioprosthetic, or homograft). Use this code only if type of valve prosthesis is unknown or does

		not fit into the specific valve replacement codes available. Autograft valve replacement should be coded as a Ross procedure.
680	Valve replacement, Aortic (AVR), Mechanical	Replacement of the aortic valve with a mechanical prosthetic valve.
690	Valve replacement, Aortic (AVR), Bioprosthetic	Replacement of the aortic valve with a bioprosthetic prosthetic valve.
700	Valve replacement, Aortic (AVR), Homograft	Replacement of the 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 bioprosthesis (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 coronary arteries) with a mechanical 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 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. Intent/Clarification: 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 aortic valvar 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. Intent/Clarification: 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.
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 and Nicks aortic annular enlargement procedures.
780	Aortic stenosis, Subvalvar, Repair	Subvalvar aortic stenosis repair by a range of techniques including 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.
2100	Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS	Subvalvar aortic stenosis repair including excision and myectomy
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	Other aortic valve surgery not specified in other procedure codes.

3880	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	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.). Aortic root replacement procedures in association with sinus of Valsalva aneurysm repairs are usually for associated uncorrectable aortic insufficiency or multiple sinus involvement and the aortic root replacement procedure should also be listed. Additional procedures also performed at the time of sinus of Valsalva aneurysm repair include but are not limited to VSD closure, repair or replacement of aortic valve, and coronary reconstruction; these procedures should also be coded separately from the sinus of Valsalva aneurysm repair.
820	LV to aorta tunnel repair	LV to aorta tunnel repair can be accomplished by suture, patch, or both, and may require reimplantation of the right coronary artery. Associated coronary artery procedures should be coded separately from the LV to aorta tunnel repair.
830	Valvuloplasty, Mitral	Repair of mitral valve including, but not limited to: valvotomy (closed or open heart), cleft repair, annuloplasty with or without ring, chordal reconstruction, commissuorotomy, leaflet repair, or papillary muscle repair.
2260	Valvuloplasty converted to valve replacement in the same operation, Mitral	Mitral valve repair attempted, converted to valve replacement with prosthetic valve during the same operation
840	Mitral stenosis, Supravalvar mitral ring repair	Supravalvar mitral ring repair.
850	Valve replacement, Mitral (MVR)	Replacement of mitral valve with prosthetic valve, any kind, in suprannular or annular position.
860	Valve surgery, Other, Mitral	Other mitral valve surgery not specified in procedure codes.
870	Norwood procedure	The Norwood operation is synonymous with the term'Norwood (Stage 1)' and is defined as an aortopulmonary connection and neoaortic 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. When coding the procedure “Norwood procedure”, the primary procedure of the operation should be “Norwood procedure.” **Update September 2022:** ~~The second procedure that is coded as part of the Norwood (Stage 1) operation (Procedure 2 after the Norwood procedure)~~ ~~must then document~~ **The source of pulmonary blood flow must be included in the procedure list as a secondary procedure and be chosen from the following ~~eight~~ choices:** 1. Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS) 2. Shunt, Systemic to pulmonary, Central (from aorta or to main pulmonary artery) 3. Shunt, Systemic to pulmonary, Other 4. Conduit placement, RV to PA **5. Conduit placement, LV to PA** **6. Conduit placement, Ventricle to aorta** 7. Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)

		8. Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn) 9. Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn) 10. HemiFontan
880	HLHS biventricular repair	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. Primary biventricular repair has consisted 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). Concurrent operations (e.g., coarctation repair, aortic valve repair or replacement, etc.) can be coded separately within the database.
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	A “Hybrid Procedure” is defined as a procedure that combines surgical and transcatheter interventional approaches. The term “Hybrid approach” is used somewhat differently than the term“Hybrid Procedure.” A “Hybrid approach” is defined as any of a group of procedures that fit into the general silo of procedures developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as “Hybrid approach” are truly “Hybrid Procedures.” **Intent/Clarification: Updated March 2022: Procedure (2160) Hybrid approach Stage 1, Application of RPA and LPA bands is for the application of bilateral PA bands with concomitant use of PGE to maintain ductal patency or ductal stent to maintain ductal patency.**
2170	Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)	A “Hybrid Procedure” is defined as a procedure that combines surgical and transcatheter interventional approaches. The term“Hybrid approach” is used somewhat differently than the term“Hybrid Procedure.” A “Hybrid approach” is defined as any of a group of procedures that fit into the general silo of procedures developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as “Hybrid approach” are truly “Hybrid Procedures.”
2180	Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands	A “Hybrid Procedure” is defined as a procedure that combines surgical and transcatheter interventional approaches. The term“Hybrid approach” is used somewhat differently than the term“Hybrid Procedure.” A “Hybrid approach” is defined as any of a group of procedures that fit into the general silo of procedures developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as “Hybrid approach” are truly “Hybrid Procedures.”
2140	Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary	A “Hybrid Procedure” is defined as a procedure that combines surgical and transcatheter interventional approaches. The term“Hybrid approach” is used somewhat differently than the term“Hybrid Procedure.” A “Hybrid approach” is defined as any of a group of procedures that fit into the general silo of procedures

	anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)	developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as “Hybrid approach” are truly “Hybrid Procedures.” It should be acknowledged that a Hybrid approach "Stage 2"(Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding, with or without Aortic arch repair) gets its name not because it has any actual hybrid elements, but because it is part of a planned staged approach that is typically commenced with a hybrid procedure.
2150	Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair	A “Hybrid Procedure” is defined as a procedure that combines surgical and transcatheter interventional approaches. The term“Hybrid approach” is used somewhat differently than the term“Hybrid Procedure.” A “Hybrid approach” is defined as any of a group of procedures that fit into the general silo of procedures developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as “Hybrid approach” are truly “Hybrid Procedures.” It should be acknowledged that a Hybrid approach "Stage 2"(Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding, with or without Aortic arch repair) gets its name not because it has any actual hybrid elements, but because it is part of a planned staged approach that is typically commenced with a hybrid procedure.
2760	Hybrid Approach, Transcardiac balloon dilation	
2770	Hybrid Approach, Transcardiac transcatheter device placement	
890	Transplant, Heart	Heart transplantation, any technique, allograft or xenograft.
900	Transplant, Heart and lung	Heart and lung (single or double) transplantation.
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 (pericardiotomy).
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 nonvalved. "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 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. “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.

980	Fontan, TCPC, Lateral tunnel, Nonfenestrated	The lateral tunnel Fontan is a 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. “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 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. 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.
1010	Fontan, TCPC, External conduit, Nonfenestrated	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. 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.
2780	Fontan, TCPC, Intra/extracardiac conduit, Fenestrated	The 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. “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 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. “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.

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)	"Fontan revision or conversion (Re-do Fontan)" is defined as 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 "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. **Update Sept 2022:** ~~May include takedown of a Fontan procedure.~~ "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 Fontan takedown as procedure (2010) Cardiac procedure, Other.**
2340	Fontan + Atrioventricular valvuloplasty	"Fontan + Atrioventricular valvuloplasty" is defined as an operation to repair the systemic atrioventricular valve combined with a Fontan operation. Please also code the type of Fontan operation performed as the second procedure of this operation. "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.
1035	Ventricular septation	Creation of a prosthetic ventricular septum. Surgical procedure used to septate univentricular hearts with two atrioventricular valves. Additional procedures, such as resection of subpulmonic stenosis, should be listed separately.
1050	Congenitally corrected TGA repair, Atrial switch and ASO (double switch)	Repair of congenitally corrected TGA by concomitant atrial switch (Mustard or Senning) and arterial switch operation. VSD closure is usually performed as well; this should be coded separately.
1060	Congenitally corrected TGA repair, Atrial switch and Rastelli	Repair of congenitally corrected TGA by concomitant atrial switch (Mustard or Senning) and VSD closure to the aortic valve with placement of an RV-to-PA conduit.
1070	Congenitally corrected TGA repair, VSD closure	Repair of congenitally corrected TGA by VSD closure only.
1080	Congenitally corrected TGA repair, VSD closure and LV to PA conduit	Repair of congenitally corrected TGA by VSD closure and placement of an LV-to-PA conduit.
1090	Congenitally corrected TGA repair, Other	Any procedures for correction of CCTGA not otherwise specified in other listed procedure codes.
1110	Arterial switch operation (ASO)	Arterial switch operation 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.
1120	Arterial switch operation (ASO) and VSD repair	Arterial switch operation 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 VSD is closed, usually with a patch.

1123	Arterial switch procedure + Aortic arch repair	Concomitant arterial switch operation and repair of the aortic arch in patients with transposition of the great arteries with intact ventricular septum and associated coarctation of the aorta or interrupted aortic arch.
1125	Arterial switch procedure and VSD repair + Aortic arch repair	Concomitant arterial switch operation with VSD closure and repair of aortic arch in patients with transposition of the great arteries with VSD and associated coarctation of the aorta or interrupted aortic arch.
1130	Senning	Atrial baffle procedure for rerouting of venous flow in 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 TGA resulting 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).
1150	Rastelli	Most often used for patients with TGA-VSD and significant LVOTO, the Rastelli operation consists of an LV-to-aorta intraventricular baffle closure of the VSD and placement of an RV-to-PA conduit. **Intent/Clarification August 2022: Do not use this code for patients with a diagnosis of DORV. Code procedure (3440) DORV repair, RV-PA conduit for patients with DORV.**
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 VSD to the pulmonary artery 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 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 pulmonary artery 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 pulmonary artery. The posterior margin of the pulmonary artery 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 pulmonary artery. A monocusp pericardial valve is inserted extemporaneously.
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	Repair of DORV using a tunnel closure of the VSD to the aortic valve. This also includes the posterior straight tunnel repair of Kawashima
3410	DORV repair, No Ventriculotomy	
3420	DORV repair, Ventriculotomy, Nontransannular patch	
3430	DORV repair, Ventriculotomy, Transannular patch	
3440	DORV repair, RV-PA conduit	**Intent/Clarification August 2022: Repair of DORV using an RV-PA conduit.**
3450	DORV – AVC (AVSD) repair	
1200	DOLV repair	Because of the morphologic variability of DOLV, there are many approaches to repair, including: intraventricular tunnel repair directing the VSD to the pulmonary valve, the REV procedure, or the Rastelli procedure. In the case 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.
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	
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	
1260	Coarctation repair, Other	Any repair of coarctation 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 VSD repair, any type VSD, any type repair.
1280	Aortic arch repair	Aortic arch repair, any technique.
1285	Aortic arch repair + VSD repair	Aortic arch repair, any technique, and simultaneous VSD repair, any type VSD, any type repair. **Intent/Clarification March 2022: ~~This includes repair of IAA-with VSD.~~**
1290	Coronary artery fistula ligation	Coronary artery fistula repair using any technique. If additional technique information may be supplied by another procedure code, please list separately (e.g., bypass graft).
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). If additional technique information may be supplied by

		another procedure code, please list separately (for example, bypass graft).
1300	Coronary artery bypass	Coronary artery bypass graft procedure, any technique (with or without CPB, 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.).
1305	Anomalous aortic origin of coronary artery from aorta (AAOCA) repair	
1310	Coronary artery procedure, Other	Any coronary artery procedure not specifically listed.
1320	Interrupted aortic arch repair	Repair of interrupted aortic arch (any type) by any technique (direct anastomosis, prosthetic graft, etc.). **Intent/Clarification March 2022:** Does ~~not~~ include repair of IAA-VSD.
1330	PDA closure, Surgical	Closure of a PDA by any surgical technique (ligation, division, clip) using any approach (i.e., thoracotomy, thoracoscopic, etc.).
1340	PDA closure, Device	Closure of a 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 **Intent/Clarification Nov 2022: and its intrathoracic branches** to another structure (usually the posterior aspect of the sternum) to relieve compression on another vessel or structure (e.g., trachea).
1370	Pulmonary artery sling repair	Pulmonary artery sling repair by any technique.
1380	Aortic aneurysm repair	Aortic aneurysm repair by any technique. **Update Oct. 2022 To include pseudoaneurysm repairs.**
1390	Aortic dissection repair	Aortic dissection repair by any technique.
1400	Lung biopsy	Lung biopsy, any technique.
1410	Transplant, lung(s)	Lung or lobe transplantation of any type.
1420	Lung procedure, Other	Included in this procedure code would be any lung procedure other than transplant, such as, 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). Tracheal stent placement or balloon dilation 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, previous sternotomy
2830	Rib excision, Complete	Complete excision of rib(s)
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 the sternum	Involves 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.
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 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 would usually be 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 it would be a desmoid tumor or a sarcoma malignant fibrous histiocytoma, 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 andthus 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, levator scapulae.
2950	Procedure on neck	Unlisted procedure of the neck
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 would usually be 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 neckare removed for the treatment of cervical 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

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
3080	Rib excision, Excision of first rib	Removal of the first rib
3090	Rib excision, Excision of first rib, With sympathectomy	Removal of the first rib and sympathectomy
3100	Procedure on thorax	Unlisted procedure on thorax
1450	Pacemaker implantation, Permanent	Implantation of a permanent pacemaker of any type (e.g., single-chamber, dual-chamber, atrial antitachycardia), with any lead configuration or type (atrial, ventricular, atrial and ventricular, transvenous, epicardial, transmural), by any technique (sternotomy, thoracotomy etc.). Code this for first time implants or when generators were replaced and leads were added (not removed).
1460	Pacemaker procedure	Any revision to a previously placed pacemaker system including revisions to leads, generators, pacemaker pockets. This may include explantation of pacemakers or leads as well. Clarification – this includes placement of temporary pacing wires. Code this if either the generator and/or leads were revised or removed. In the event of removal, only the generator or leads removed, not both.
2350	Explantation of pacing system	Removal of pacemaker generator and wires. If a generator and a wire were both removed, code this as the primary procedure.
1470	ICD (AICD) implantation	Implantation of an (automatic) implantable cardioverter defibrillator system.
1480	ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure	Any revision to a previously placed AICD including revisions to leads, pads, generators, pockets. This may include explantation procedures as well.
1490	Arrhythmia surgery - atrial, Surgical Ablation	Surgical ablation (any type) of any atrial arrhythmia.
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
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	
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	

2410	Cardiovascular catheterization procedure, Therapeutic	Invasive therapeutic procedure involving the heart and great vessels
2670	Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy	
1540	Cardiovascular catheterization procedure, Therapeutic, Balloon dilation	Invasive therapeutic procedure involving balloon dilatation of a cardiovascular structure
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 intervessel communication)	Invasive therapeutic procedure establishing interchamber and/or 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
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	
2660	Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve	Invasive therapeutic procedure involving deployment/ implantation of a valve
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).
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)	
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 coded. Includes classic Blalock-Taussig systemic-to-pulmonary artery shunt.
1630	Shunt, Ligation and takedown	Takedown of any shunt.
2095	Shunt, Reoperation	Revision or replacement of a previously created shunt
1640	PA banding (PAB)	Placement of a pulmonary artery band, any type.
1650	PA debanding	Debanding of pulmonary artery. Please list separately any pulmonary artery reconstruction required.
3200	PA band adjustment	
1660	Damus-Kaye-Stansel procedure(DKS) (creation of AP anastomosis without arch reconstruction)	In the Damus-Kaye-Stansel procedure the proximal transected main pulmonary artery is connected by varying techniques to the aorta.
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 to ipsilateral pulmonary artery anastomosis (i.e., LSVC to LPA, RSVC to RPA).
1690	Bilateral bidirectional cavopulmonary anastomosis(BBDCPA) (bilateral bidirectional Glenn)	Bilateral superior vena cava-to-pulmonary artery anastomoses (requires bilateral SVCs).
1700	HemiFontan	A HemiFontan is an operation that includes a bidirectional superior vena cava (SVC)-to-pulmonary artery 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 of these 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	
2130	Superior Cavopulmonary anastomosis(es) + PA reconstruction	**Update Oct. 2022: includes Kawashima done concomitantly with 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	Any other palliative procedure not specifically listed.
2360	ECMO cannulation	Insertion of cannulas for extracorporeal membrane oxygenation
2370	ECMO decannulation	Removal of cannulas for extracorporeal membrane oxygenation
1910	ECMO procedure	Any ECMO procedure (cannulation, decannulation, etc.).
1900	Intraaortic balloon pump (IABP) insertion	Insertion of intraaortic balloon pump by any technique.
1920	Right/left heart assist device procedure	Any right, left, or biventricular assist device procedure (placement, removal etc.).
2390	VAD explantation	Removal of ventricular assist device
2380	VAD implantation	Insertion of a ventricular assist device
3170	VAD change out	Removal of previously inserted ventricular assist device and insertion of a new device
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	Anesthesia provided by cardiac anesthesiologist for patient with congenital heart disease undergoing a non- cardiovascular, non-thoracic procedure

	cardiac patient with cardiac anesthesia	
2440	Radiology procedure on cardiac patient, Cardiac Computerized Axial Tomography (CT Scan)	A patient with congenital heart disease undergoing cardiac 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.
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.
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,	Any diaphragm procedure not specifically listed.

	Other	
1930	VATS (video-assisted thoracoscopic surgery)	Video-assisted thoracoscopic surgery utilized; this code should be used in addition to the specific procedure code (e.g., if PDA ligated using VATS technique, PDA ligation should be primary procedure, VATS should be secondary procedure).
1940	Minimally invasive procedure	Any procedure using minimally invasive technique; this code should be used in addition to the specific procedure code (e.g., if ASD closed using minimally invasive technique, ASD repair should be primary procedure, minimally invasive procedure should be listed additionally).
1950	Bypass for noncardiac lesion	Use of cardiopulmonary bypass for noncardiac lesion; this code may be used in addition to the specific procedure code if one is available (e.g., tracheal procedures may be done using CPB - the tracheal procedure should be the primary procedure and use of cardiopulmonary bypass for noncardiac lesion should be listed additionally).
1960	Delayed sternal closure	Sternal closure effected after patient has left operating room with sternum open, either because of swelling or electively after complex heart procedures. This procedure should be operative type No CPB Cardiovascular.
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.
3180	Intravascular stent removal	Removal of a previously placed intravascular stent
3220	Removal of transcatheter-delivered device from heart	
3210	Removal of transcatheter-delivered device from blood vessel	**Update November 2022: Includes removal of non-stent devices, for example coils.**
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.
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
7810	Operation aborted after skin Incision	Surgical procedure canceled after skin incision made

February 2019: There is a PA Band adjustment procedure choice when a PA band is restricted at chest closure, but there does not seem to be a correlating procedure for a Sano shunt restriction with a clip.
Recently, many of our Sano shunts undergo clip placement to restrict shunt flow at the time of delayed sternal closure. How should this be coded? I have found 2 procedures that may fit the shunt restriction, however I would like clarification: should I use RV to PA Conduit re-operation or cardiac other or is there a 3rd option that is better suited... mediastinal, delayed sternal closure would be the 2nd procedure listed. **Code RV to PA conduit re-operation or Shunt re-operation to capture this procedure.**

February 2019: What is the best way to code this procedure? Subxiphoid incision to place a temporary pacing wires; Surgery Type and Procedure Name? **Pacemaker, procedure, Operation type No CPB Cardiovascular**

February 2019: We have an adult patient with infective endocarditis and severe mitral valve dysfunction secondary to perivalvular abscess, prosthetic mitral valve dehiscence and basilar posterolateral fistula between his LV and LA with severe regurgitation. His surgery included debridement of abscessed tissue on his mitral valve annulus followed by repair of his mechanical valve dehiscence. Does this just get coded as a mitral valvuloplasty, or is there a way to code the debridment of the abscessed tissue? **Mitral valve, Other**

March 2019: What is the difference between a Coarctation repair, end to end extended and Aortic Arch repair? The definition for Aortic Arch Repair is extremely vague. **In the aortic arch repair the incision extends beyond the origin of the left internal carotid assuming a left aortic arch**

March 2019: Patient with Hypoplastic left heart syndrome with mitral atresia, heterotaxy syndrome with left atrial isomerism, interrupted inferior vena cava with azygos continuation to the right superior vena cava, status post first-stage Norwood procedure and status post Kawashima procedure, status post pacemaker for sick sinus syndrome with non-function of pacemaker and low heart rates, mild right pulmonary artery narrowing. Procedures: Fontan with 16mm Goretex h-graft from hepatic veins to azygos continuation to the RSVC, patch enlargement of the RPA, placement of new PPM. Do I have to call this Fontan, Other (#1030) which has no STAT score and does this mean that I make the PA Reconstruction the primary with a STAT score of 3? **Use 3310 or 3320**

April 2019: Dx: TAPVR (cardiac), PDA. Procedure: "excised all of the atrial septum. We then were able to see where the coronary sinus was traveling through the posterior aspect of the left atrium, and this was completely unroofed. Then closed the entire area of atrial septal defect using a piece of CorMatrix. Using long list, what's correct way to code this? **TAPVC repair, type 2,cardiac, coronary sinus type,**

May 2019: How would you code decompression of thoracic duct via innominate vein turn down to atrial appendage, or via LSVC to atrial appendage? We have done this for some of our single ventricle patients. **There is no procedure code for this currently in the database, thus code as Cardiac, Other.**

May 2019: Best way to code: Left AV Valve replacement with 25 mm St. Jude valve, with left AV valve annular reconstruction. Right AV valve commisuroplasty. **MV replacement, Tricuspid valvuloplasty.**

June 2019: How best to code following procedure: excision of the ventricular septal defect patch, enlargement of ventriculoseptal defect and baffle closure of the ventricular septal defect to the aorta. **It would be useful to understand the fundamental diagnosis. If that diagnosis is DORV or DTGA/VSD/PS and the prior operation were a Rastelli or a DORV intraventricular repair, then I think that one could use the code for VSD enlargement P0140 or the code for the original DORV operation P1180. This procedure might also be: 3380= Extended Ventricular Septoplasty (modified Konno, VSD creation and patch enlargement of LVOT, sparing aortic valve) for tunnel type sub aortic stenosis.**

June 2019: Arch reconstruction with homograft patch, hilum to hilum PA patch plasty. Bi-directional Glenn shunt. Would this be coded as Norwood Hybrid Stage 2? **Should be coded as Superior Cavopulmonary anastomosis +PA reconstruction and separate code for aortic arch reconstruction P1280. There is no PA to Ao anastomosis and therefore Hybrid Stage 2 does not seem to be correct. Can put the aortic arch reconstruction as the primary, bi-directional Glenn as secondary. You can determine which one is most pertinent. This information is included in the Report Overview of the Data Analysis Report.**
June 2019: I have a follow-up to the March 2019 FAQ on differentiating between an end-to-end extended coarctation repair and aortic arch repair which says "in the aortic arch repair the incision extends beyond the origin of the left internal carotid assuming a left aortic arch." When our surgeons repair neonates with a coarctation and distal arch hypoplasia from the side, they clamp the arch just distal to the brachiocephalic/innominate artery and incise the underside of the arch up to the clamp. The incision doesn't extend beyond the left carotid because they can't clamp past it and maintain brain perfusion. The STS definition

of aortic arch hypoplasia includes a definition of distal arch hypoplasia when the diameter of the distal transverse arch (arch between the left carotid and left subclavian arteries) is less than 50% of the diameter of the ascending aorta. Since our neonates undergoing this operation meet this criteria for distal arch hypoplasia, my surgeons believe these patients should be coded with an aortic arch repair. **The procedure code describes the procedure, not the diagnosis. Therefore, this sounds like an extended end to end coarctation repair.**

June 2019: What is the best way to code a procedure for single ventricle (HLHS) with systemic atrioventricular valve regurgitation that: 1. Underwent valvuloplasty on the systemic AV valve (in this case a tricuspid valve)? 2. Subsequently in another OR setting, underwent a valve replacement on the same systemic AV valve (in this case a triscuspid valve). The options from the long list are to use: 1. Atrioventricular valve repair/replacement in single ventricle (but it traces back to "cardiac, other"). 2. Tricuspid valve repair/replacement (seems to understate the surgery). 3. Common AV Valve" repair/ replacement (may be appropriate since is the systemic valve?) **Current options only involve Tricuspid valve repair P0460 or tricuspid valve replacement P0470.**

June 2019: We recently operated on a patient with an infection of a Melody valve placed several years ago inside a pre-existing RV-PA conduit. The Melody valve and conduit were replaced with a valved homograft. I coded the procedure as: 580 conduit replacement, RV to PA Homograft. Should I also code: 3220 Removal of transcatheter delivered device from heart? **Conduit reoperation P580 with endocarditis as a risk factor. You can also code: "3220= Removal of transcatheter delivered device from heart"**

June 2019: I would like some clarification regarding conduit reoperations. In the Nov 2018 training manual, there is an example of a conduit reoperation for upsizing that states the Conduit RV to PA operation should be the primary and then Conduit reoperation should be the secondary operation. The data specs in both 3.3 and 3.41 state to choose conduit reoperation for ANY conduit failure including growth and to include Conduit RV to PA only for the initial operation. So if a patient comes in for conduit failure for any reason and gets a new conduit, we should only be coding conduit reoperation. Is this correct? Otherwise, the stat score changes if you then add the type of conduit. **You can code this type of case as a conduit reoperation. However, coding the conduit type details as a secondary procedure would trump conduit reop for primary procedure so you cannot code together. You can code the type of valved conduit, if applicable, in the valve section.**

July 2019: How would I code this procedure? I have the Mod BT Shunt and the PDA Closure. However, I'm not sure what the procedure code for the transannular patch, ventriculotomy would be. It doesn't appear to fit in any of the procedure codes for this diagnosis or the diagnoses that have this procedure. **RVOT procedure; 510.**

July 2019: Please advise the most appropriate procedure codes for the following: Placement of right atrial venous access for hemodialysis, partial sternal closure, and WoundVAC placement to sternal wound. **Operation type No CPB Cardiovascular, and the procedures are all coded as Other, Cardiac and Other, Mediastinal.**

August 2019: What is the proper way to code a delayed sternal closure with wound vac application? I have been using sternal wound drainage procedure but am not sure that is the correct code for a wound vac since the definition is very vague. I use the short list so not sure if there are any modifiers but it would be nice to just have wound vac as an option since it is done so frequently and is something we would like to track as sternal infections seems to be one of our issues affecting our ranking. **The presence of a wound vac doesn't change anything; code as cardiac other.**

Update January 2020: Delayed sternal closures should be coded as No CPB Cardiovascular. If a wound vac is applied without a delayed sternal closure, the operation type is Other or Thoracic.

August 2019: Regarding DORV repairs: Codes 3410 3420 3430 and 3440. There are no STAT scores assigned. What is the impact of using one of these codes for the primary procedure? Will this procedure (which is the index in this case) not be included in analysis for our center? Our surgeons were discussing using #1180 DORV, Intraventricular tunnel repair instead. **Code 1180 and then code the new DORV repair. STAT scores for new procedures have not been determined yet.**

August 2019: Do chest tube placements done after index cardiac surgery in a patient count as a procedure? i.e. are chest tube insertions counted in the denominator of the cases from a center that is used during analysis. **If a chest tube is placed by a cardiac surgeon, the case can be entered into the database as a procedure. The operation type is Thoracic. Only CPB Cardiovascular and No CPB Cardiovascular operations are used in the analysis. Center volume only include index operations. The chest tube should be included as a complication of the index operation.**

September 2019: If a Cone Procedure is performed on a patient who does not have Ebstein's Anomaly, can we still use the procedure code of Ebstein's anomaly repair, Cone procedure? **No, if the patient does not have Ebstein's do not use this procedure code. Use Valvuloplasty, Tricuspid valve**

October 2019: Pt has a diagnosis of TAPVC-mixed type w/ left sided venous obstruction. She underwent direct anastomosis of left sided pulmonary veins to left atrium & right sided veins were repaired with a Warden procedure. Can I use 280 TAPVC repair as a primary procedure and 2120 as a secondary procedure to capture the Warden procedure? **Yes, code 280 TAPVC as the primary procedure and the Warden procedure as a secondary procedure.**

Patient developed thrombus in her central veins and returned to surgery for a thrombectomy of the innominate vein & balloon embolectomy of IJ veins. The patient also required cannulation to VA ECMO. What procedure code from the short list would best describe the thrombectomy/embolectomy? Would the op type be ECMO? **If the embolectomy and thrombectomy were done off pump, this would be op type No CPB Cardiovascular. Include ECMO cannulation as a secondary procedure and also a complication. You can code the procedure as Mediastinal, Other as the great vessels are located in the mediastinum.**

The patient then developed post-operative mediastinal bleeding requiring return to OR for a mediastinal exploration / washout. The procedure was done while the patient was still on ECMO support. Would this op type also be ECMO? **The exploration for mediastinal bleeding is op type ECMO and code the complication of bleeding requiring reoperation on a previous operation.**

November 2019: (540) PA, Reconstruction, Branch includes placing a stent in one or both branch PAs intraoperatively. Does this code also include dilating an existing stent? If not, which procedure code would you use for LPA stent dilation done by the surgeon intraoperatively? Should be able to use both codes **(540) - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)** for PA plasty and **(2630) - Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation.**

November 2019: In a patient with congenitally corrected TGA, if the systemic AV valve is replaced, should it be coded as Mitral valve replacement or Tricuspid valve replacement? **Use (470) Valve replacement, Tricuspid (TVR), the systemic AV valve is the morphologically the Tricuspid valve.**

November 2019: Patient with PA-VSD-MAPCAs, s/p left MBT shunt, s/p coil embolization of right and left aortopulmonary collaterals. Procedures:Unifocalization of the left MAPCA, RPA reconstruction, complete TOF-PA repair consiting of closure of the VSD and creation of an RV to PA conduit. How would this best be coded? Use code **(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])**

December 2019: I know this question has been asked before, but I don't see an formal answer in the FAQs. Our congenital heart surgeons plan to start performing some of the adult congenital heart surgery cases at the adult institution across town later this month. What is the best way to handle these cases so we don't miss out on our case volume? Should the cases be entered by both the Adult Database and the Congenital Database? If so, do we count them in our present database or do we need to set up something different for the cases performed at the adult hospital? **If case done by Congenital Surgeon in Adult hospital can be entered into Congenital database. If Congenital Surgeon goes over to assist Adult Surgeon, then enter into Adult database.**

December 2019: Which procedure would be most appropriate for placement of temporary pacing wires in a newborn with heart block? We used cardiac, other because we didn't place a pacemaker or revise a previously

placed system. Should we not take the "previously placed" part of the spec literally? Thank you for the guidance.1460 Pacemaker procedure Any revision to a previously placed pacemaker system including revisions to leads, generators, pacemaker pockets. This may include explantation of pacemakers or leads as well. **Use code 1460 Pacemaker Procedure**

January 2020: Question for clarification: If a shunt is performed and the surgeon note reads "central shunt from the carotid artery to PA", is this considered a MBTS (1590) or a Shunt, systemic to pulmonary, other (1610)? **The procedure should be coded as MBTS (1590).**

January 2020: Patient with diagnosis of TOF with left discontinuous pulmonary arteries. Underwent unifocalization with reattachment of the LPA to the main PA. What is the best primary procedure code to capture this repair? **Unifocalization procedures are coded with MAPCAs. Code (540) PA Reconstruction Branch Central.**

February 2020: I have a patient who had a PFO primary closure, an ASD patch repair and Warden procedure for PAPVC. There is a combination procedure of ASD repair, patch + PAPVC repair (the definition states any type of repair), but in the PAPVC repair definition, it states to code if the patient also had an ASD repair. So which is it? Wouldn't it be more important to know what type of PAPVC repair the patient had or do you want us to code the type of PAPVC repair after coding the combination procedure (which has a lower stat score than the Warden)? This seems to happen frequently when the combination code has a lower stat score than one component of the repair which does not make sense to me. **The primary procedure in this scenario is the Warden procedure for PAPVC. One would code the combination repair of ASD repair, patch + PAPVC repair for any repair type with the new exception of the Warden procedure. Those would now be coded as the Warden procedure.**

February 2020: The data manager call for January brought up the change in definition for field 1460 "Pacemaker procedure". The inclusion of temporary wires in this definition now creates a conundrum as to what is done for prior patients who may have had this as their only procedure, ans was coded as "Cardiac Other" in prior harvests. 1. What guidelines should be followed for updating prior surgeries when there is a significant change in definitions? **All pacemaker procedures are to be coded as No CPB Cardiovascular, temporary or permanent. This is not a significant change in definition**. 2. Since all procedures and diagnoses that apply for a given operation should be included, do we now need to add pacemaker procedure for every patient that receives temporary wire placement? **No need to include on every operation as temporary wires are just a part of the operation.**

February 2020: The patient went to the OR for a BCPS and PA plasty, however in the OR they were unable to tolerate the pressures and the BCPS was taken down and shunt put in . Do I code the BCPS , BCPS takedown as well as the shunt and if so then what is the primary operation? **In this scenario, code the shunt as the primary procedure and code the BCPS take down. Currently you cannot code the BCPS.**

February 2020: If a patient undergoes RPA & LPA banding, placed surgically, but ultimately goes down a 2 ventricle path, should the procedure be coded as 1640 PA Banding, or 2160 Hybrid Approach Stage 1, Application of RPA & LPA Bands"? Does it matter whether or not the initial thought was that the patient would have a subsequent Norwood? ~~**The initial procedure should be coded as 2160 Hybrid Approach Stage 1 regardless of the eventual 2 ventricle repair path.**~~ **Updated March 2022: Procedure (2160) Hybrid approach Stage 1, Application of RPA and LPA bands is for the application of bilateral PA bands with concomitant use of PGE to maintain ductal patency or ductal stent to maintain ductal patency. Procedure (1640) PA banding (PAB) can be used for bilateral PA bands without the concomitant use of PGE or ductal stent to maintain ductal patency, unilateral PA bands, or main PA banding.**

February 2020: I am looking for assistance in coding a procedure. The diagnosis is DORV, TOF Type. Operative findings are significant right ventricular outflow tract obstruction, hypoplastic main pulmonary artery, extremely stenotic left pulmonary artery, large subarterial VSD, aortic valve and pulmonary valve in continuity. The repair consisted of a longitudinal incision in the distal RVOT extending across the hypoplastic pulmonary valve annulus

into the main PA and LPA. This was then patch augmented with Gore Tex. The VSD was also patch closed. This seems different than the typical TOF repairs that are performed at our institution. Would it be more of a DORV Repair, Fallot Type (1180)? **The correct procedure code is DORV, Intraventricular tunnel repair. List the DORV Repair, Fallot type as a secondary procedure.**

February 2020: The patient had a Kawashima Operation which can also be called a BiDirectional Glenn. Does this qualify for the Procedure Specific Factors and therefore as the Primary Procedure over the also coded Shunt Lig and Take Down and Pulmonary Arterioplasty? **Kawashima is a specific type of Glenn completed for patients with an interrupted IVC. ~~Kawashima also has procedure specific factors and will then be the primary procedure. List the shunt ligation and take down and PA plasty as secondary procedures.~~ Update January 2023: Code a Kawashima done concomitantly with a pulmonary arterioplasty (PA reconstruction) as combination procedure (2130) Superior cavopulmonary anastomosis(es) + PA reconstruction.**

February 2020: I have a coding question. My surgeon performed an Aortic stenosis, subvalvar repair and myomectomy of LV outflow tract-not related to IHSS. How do I code the myomectomy? I can't seem to find one that fits. **There is not a procedure that currently fits the myectomy. Only code the aortic stenosis, subvalvar repair**

March 2020**:** My patient had a heart transplant in November 2019 performed by the Congenital and Adult surgeon. I have entered the patient in the Congenital data base, but the adult surgeon followed the patient throughout the hospital stay and the patient returned to the OR 6 days after the primary procedure for bleeding from a right hemothorax performed only by the adult cardiac surgeon.I have entered this as a complication, but my question is: Do I enter the second operation as another case as my Congenital surgeon was not in the OR or just list it as a complication. **If the adult surgeon is not listed on the congenital STS database contract, include the bleeding requiring reoperation as a complication only. If the adult surgeon is on the congenital STS database contract, the case should also be entered into the database.**

March 2020: How do I code a Patient with IAA and VSD? If I use the combo procedure of aortic arch repair + VSD repair, it has a lower STAT score than just an IAA repair which does not make sense to me. Also, I sent a question similar to this regarding a PAPVC question back in January and have not received a response. If an IAA repair is completed with VSD repair. ~~**If a patient underwent IAA + VSD repair, code the repair as aortic arch repair + VSD (1285) per the current specs.**~~

Intent/Clarification March 2022: Code procedure (1320) Interrupted aortic arch repair as the primary procedure and include the VSD repair as a secondary procedure.

March 2020: The Training Manual for v3.3 states that procedure 2100 “Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS” does not have to be for IHSS only. The Training Manual for v3.41 doesn’t make any mention of this. Should we still be coding 2100 for non-IHSS cases? Please clarify in the current training manual. **The code 2100 is to include the repair for IHSS only. Use 780 for patients without IHSS. The current training manual is correct.**

March 2020: Patient w/previous DORV repair. The fundamental diagnosis is DORV, VSD type. The principal diagnosis for this procedure was AI/AS. Secondary diagnoses included pulmonary stenosis subvalvar (RVOTO) & aortic stenosis subvalvar (LVOTO). Procedures included a takedown of the previous DORV repair, redo of intracardiac baffle, as well as sequences 510, 590, 660, & 790. We use the short list and I am not sure how I capture the takedown of the previous DORV repair and redoing the baffle. what would be most accurate in reflecting what procedure was done? **There is no current way to capture the takedown DORV repair. This repair represents a DORV repair as the primary procedure.**

May 2020: When a PPM generator and leads are removed in cath lab by a cardiologist, should we code as cardiovascular procedure rather than one of the pacemaker procedures that come with a STAT score? Should

any case not performed by heart surgeon have a STAT score? **Only surgeon procedures are included in the database. If a cardiologist performs the procedure, it should not be captured in the STS database.**

June 2020: The patient has a diagnosis of AV discordance,superior-inferior ventricle, double outlet RV and normal related great vessels, straddling MV, s/p BCPS and PA band.We called this CC TGA (there is no VSD) as we felt it fell into the "spectrum" as mentioned in the Manual. I'm having trouble coding the operation which is 1-1/2 ventricle repair with double switch procedure (Intraventricular baffle + Hemi-Mustard). The double switch is the hemi mustard/BCPS combo. They already have the BCPS. Do I count this baffle as a mustard or atrial baffle nonmustard/senning or perhaps there is a better code to use. **The primary procedure is a Double switch (code 1050).**

June 2020: Under procedures there are two similar codes and I would like clarification on the distinction between them. Code 3210 - Removal of transcatheter-delivered device from blood vessel, and Code 3220 - Removal of transcatheter-delivered device from heart. Often times the surgeon, while doing a Glenn, will remove a stent to the pulmonary artery or the Sano shunt that was previously inserted in the cath lab. Is this removal of a transcatheter-delivered device from a vessel, or from the heart? Does it depend if the stent was in the pulmonary artery or in the shunt, or for a transcatheter-delivered device to the heart, is this only for things like valves? **When removing a septal occulder type device, utilize the transcatheter delivered device from the heart.**

July 2020: What is the primary diagnosis and primary procedure for a 'pink' TOF? **The primary diagnosis is TOF, pulmonary stenosis. The primary procedure is dependent on the completed repair. If there is a ventriculotomy, infundibular patch, dilator in the valve, any procedure in the outflow tract, the primary procedure should be coded as the appropriate TOF repair. If there was only a VSD repair done transatrially, the procedure be coded as the appropriate VSD repair.**

August 2020: This 2.1 Kg patient had an intraoperative epicardial echo after being weaned from bypass for a Arterial switch procedure. We are using the short term list, should the procedure be coded under 7777 Other procedure? or is there another field we should use. **There is no place to capture this procedure and can be coded as other procedure.**

August 2020: A patient had primary procedure 1305-Unroofing of anomalous right coronary artery from the left sinus. Post-cardiopulmonary bypass transesophageal echocardiogram was performed. Do we code the TEE to 2420=Echocardiography procedure, Sedated transesophageal echocardiogram or 7777 = Other Procedure? Also, do we even need to code this procedure since it is not the prmary procedure and is normal to do a TEE in most cases and would be covered in the Patient Process Measures? **TEEs can best be captured in the patient process measures.**

September 2020: Does STS want all organ procurement captured and reported to STS database? If the organ procurement occurred after the patient's reported time of death, how do we report this without receiving the error time of death cannot be less than date/time of surgery? **It is up to the local program to capture the organ procurements. The record will still be accepted into IQVIA. For now, ignore the warning that is received.**

September 2020: What is the best way to code a Glenn takedown? This is all I could find that might fit: 330 Anomalous systemic venous connection repair With the exception of atrial baffle procedures (harvest code 310), anomalous systemic venous connection repair includes a range of surgical approaches,including, among others: ligation of anomalous vessels, reimplantation of anomalous vessels (with or without use of a conduit), or redirection of anomalous systemic venous flow through directly to the pulmonary circulation (bidirectional Glenn to redirect LSVC or RSVC to left or right pulmonary artery,respectively). ~~**There is no specific code for a Glenn takedown and there is likely another primary procedure done concomitantly. One can code the anomalous systemic venous connection repair or systemic venous stenosis repair.**~~ **October 2020 Clarification - There is in fact a code for this, it's 3300-Takedown of superior cavopulmonary anastomosis. This was an addition to the procedure list in the v3.41 upgrade, and is how these cases should be coded.**

September 2020: I use the short list. A patient had an aortic valve replacement with a mechanical valve and a patch enlargement of the aortic root with a hemashield woven graft. I can use seq830 to capture the AVR, but I am not sure how to capture the aortic root enlargement. What is the best option? **You can use procedure code 770, Other annular enlargement procedure.**

October 2020: If the primary diagnosis is "ASD, Sinus venosus, SVC type, Partial anomalous pulmonary venous return (PAPVR)" and the procedures performed include: "1) PAPVC repair, Baffle redirection to left atrium, ASD patch 2) ASD repair, sinus venosus, ASD patch and SVC patch 3) Echocardiography, TEE, congenital" which is the primary procedure? I read in the interpretation guide that this might be an exception when determining Primary Procedure-- that it would become a combined procedure, but I am just unsure. Could someone please help/verify? **Use the combination code 2110 ASD repair + PAPVC repair as the primary procedure.**

October 2020: How do I code these procedures? (Diagnosis is Right descending aorta, Kommerell's diverticulum)1. Resection of Kommerell's diverticulum. 2. Division of left subclavian artery (resulting in retrograde flow via vertebral artery). 3. Division of ligamentum arteriosum. **These would all represent vascular ring repairs.**

October 2020: How should RV-PA conduit placement be coded in a patient with TOF who is s/p complete repair? In general, can 380 TOF repair RV-PA conduit be used if the patient is already s/p TOF repair? or should it be just coded as 610 Conduit placement RV to PA? In this particular case, the patient has RVOTO, bilateral PA stenosis and residual VSD, and in addition to the conduit placement, bilateral central PA plasty and resection of RVOT infundibular muscle bundle, and VSD repair was done. Can 380 TOF repair RV-PA conduit be used for this situation? **No, this is not a redo TOF repair. Utilize conduit reoperation or conduit placement depending if the patient received a replacement of an existing conduit and code each of the other procedures separately.**

October 2020: Patient has a diagnosis of AAOCO and Pectus Excavatum. Surgeon # 1 repaired the AAOCO and then Surgeon #2 repaired the pectus within the same OR time. Do I just code the pectus repair under procedures after the AAOCO repair and the second surgeon just won't get credit for the surgery realizing it doesn't get analyzed anyway or do I enter a second event to capture the pectus repair since the other CTS surgeon did that portion? **This is one operation and the primary procedure is the AAOCO repair. That surgeon that completes the primary procedure will be the surgeon of record.**

November 2020: The patient is status post repair of partial av septal defect, left ventricle to right atrium shunt. The patient is now having a primary procedure 2300 Valvuloplasty, Common atrioventricular valve. The operative note also includes suture closure of left ventricle to right atrial shunt. I am unclear how to code this secondary procedure. Could you give me some indication how to properly capture? **The valvuloplasty repair is not a common AV valve following the AVC repair, this should be coded as a valvuloplasty, mitral. The closure of the LV to RA shunt can be coded as an ASD closure.**

November 2020: If a patient has an existing pacemaker, and both the leads and generator are replaced, should this be coded as 1460 Pacemaker Procedure, or should I code primary procedure as 1450 Pacemaker implantation and secondary procedure 2350 Explantation of pacing system? **Code as a Pacemaker implantation with the secondary explantation of pacing system.**

November 2020: Patient with hypoplastic aortic arch, coarctation of the aorta, VSD and ASD. Surgeon repaired the aortic arch and coarc, patch repair of VSD, primary closure of ASD. I coded the combo code of ASD + VSD repair. Do I need to code they type of VSD repair as secondary codes or the type of Coarc repair? It seems some procedures want these types of modifiers and some don't and does it matter one way or the other so long as the primary procedure is correct? Another example is when a Stage 2 hybrid is done. Is it necessary to code the PDA ligation and stent removal or is that an assumed part of the procedure (though the definition does not include this)? **The primary procedure is aortic arch reconstruction + VSD repair. You do not need to include the specific repair types, but can for local use.**

December 2020: A patient underwent an RV to pulmonary artery shunt. What selection would I use from the short list to best describe this procedure? Sano shunts or RV to PA shunts are currently included as Conduit placement (610).

December 2020: Two separate questions regarding PAPVC repair.
1) Is 260 to be used only when pulmonary veins are translocated and connected to the left atrium directly? **Yes, 260 PAPVC repair** For example, in a patient with PAPVC, with R veins to R atrium, a baffle was used but systemic vein translocation was not done, should 2120 be used or 260? **Do not code 2120 (Warden) but code 260 PAPVC repair can be used if you baffle or translocate the vein.**
2) Is 2110 to be used only if the ASD is closed with a separate patch? Or should it be used if, for example, a secundum ASD is extended and baffle is secured to the margin of the ASD? **Code 2110 is used with ASD repairs and PAPVC repair, regardless of the ASD type. This may be reviewed in the spec upgrade.**

December 2020: What code would be most appropriate for a Fontan takedown? **If there is a fontan revision, there is no need to code a separate fontan takedown. There is no specific code for the takedown of a fontan so use Cardiac, Other.**

January 2021: What is the difference between #3210 "removal of transcatheter-delivered device from blood vessel" and #3180 "intravascular stent removal", since they can overlap? Which code should I use for: **To be most specific, use the following codes**: 1. An RPA stent explantation **use Intravascular stent removal**; 2. A CoA stent explantation **use Intravascular stent removal**; 3. Explantation of a stented Melody valve apparatus **use Removal of transcatheter delivered device from heart.**

January 2021: What should be used as the diagnosis and primary operation be for this "dcsa VSD of almost DORV type with the aortic valve overriding and the pulmonary annulus is small with a bicuspid valve creating mild stenosis": Can I use DORV VSD type? and "The VSD was then closed working through the pulmonary valve using interrupted pledgetted 5/0 prolene and a bovine pericardial patch.A monocsup valve was then created from a 0.1mm gortex sheet and fixed to the valve leaflets and into the infundibulotomy. A transannula r patch of bovine pericardium was then used to complete the repair of the RVOT" What operation should I use, DORV repair with ventriculotomy , transannular patch? There is no STAT score for this option. **Use 3430 DORV, ventriculomy with TAP, there is a STAT score for this now – See Appendix C https://www.sts.org/sites/default/files/CHSD%20Appendix%20C_Updated7232020.pdf**

January 2021: I am cleaning up some historical data and am looking for clarification as to when to use the following codes:
Code 3180 - Intravascular stent removal - Removal of a previously placed intravascular stent
Code 3210 - Removal of transcatheter-delivered device from blood vessel - No definition provided in training manual
Code 3220 - Removal of transcatheter-delivered device from heart - No definition provided in training manual
Example 1 - Patient with h/o PA-IVS s/p complete repair. Due to stenosis within the PA's, patient later has pulmonary artery stent placed in cath lab. Pt subsequently undergoes surgical intervention to remove pulmonary artery stent and place an RV to PA conduit. Which of the above listed codes should be selected for the PA stent removal?
Example 2 - Patient with h/o HLHS s/p Norwood with Sano shunt. Patient then has stent placed in the Sano shunt/proximal RPA in cath lab. Patient then has the stent removed during Glenn palliation. Which of the above listed codes should be selected for the Sano shunt/proximal RPA stent removal?
Example 3 - Patient with CoA undergoes stent placement at 3 months of age in cath lab (no prior surgical interventions). Later presents for surgical repair at which time the stent is removed. Which of the above listed codes should be selected for the resection of the stent? **For all of the scenarios above, to be most specific, if a stent is removed, use 3180 Intravascular stent removal code.**

January 2021: I am looking for clarification on how to code partial and transitional AVC repairs. Typically when a patient undergoes repair of a partial or transitional AV canal defect, the surgeon also repairs the mitral valve

cleft. Should this procedure be listed out as well? If so, is it correct that the mitral valve repair would then be the primary procedure as 830 (Valvuloplasty, Mitral) has a STAT score of 0.4 / STAT level 2 and 190 (AVC repair, partial) has a STAT score of 0.1 / STAT level 1? This seems in-line with what is listed in the Training Manual (refer to July 2019) but wanted to be certain we are coding these procedures correctly. **The mitral valvuloplasty should not be coded separately with partial or transitional canal repairs, if you do a complete repair, you can, if you prefer this level of granularity. However, it SHOULD NOT be coded with the partial or transitional.**

February 2021: We recently had to remove the entire pacemaker generator system and place new d/t infection/erosion from old pacer. I planned to use #2350-explantation of pacing system but didn't know which is appropriate in addition: #1450 pacemaker implantation, permanent or pacemaker procedure? **Yes, explantation and implant are the correct procedure codes.**
Also, is it correct to use ##1460, Pacemaker procedure for ordinary pacemaker generator changes? **Yes, pacemaker procedure for generator changes.**

March 2021: The long list procedure (available to CardioAccess users only) "Cardiac vegetation resection, excision, intracardiac vegetation, with CPB" converts to (1760) cardiac tumor resection. Should we use this for the primary procedures on patients with endocarditis vegetations? Even if the vegetations are only in the conduit or on a valve? Should the primary diagnosis be Cardiac Tumor? **The primary diagnosis should be the principle reason the patient went to the OR – in this case the patient went to the OR for endocarditis and may be a better diagnosis to use. If the procedure includes removing a vegetation from within the heart, cardiac tumor resection is the best procedure to use. If a conduit or valve was repaired, utilize the conduit reoperation or valvuloplasty/valve replacement procedures.**

March 2021: A heart/liver transplant was performed by our congenital cardiac surgeon and general surgeon within the same operation. Obviously, this procedure carries a much greater risk and complexity than a single heart transplant. How should this be coded since combined heart/liver transplant is not an option on the procedure list? **There is no current way to capture heart/liver transplants done concomitantly. This will be reviewed with the current upgrade.**

March 2021: What is the differentiation between a PA reimplantation and a unifocalization? The patient's diagnosis was anomalous RPA from PDA emanating from the innominate artery. There was not a diagnosis of MAPCAs. The procedure describes the interposition graft sewn to the dissected RPA, MPA arteriotomy made, tube graft secured to the MPA in a end-to-end fashion. Is that a unifocalization or RPA reimplantation? The RPA reimplantation matched in the long list to "Cardiac, Other" so we are wanting to be careful. **Corrected April 2021 - Currently, the best way to code this is (540~~530~~) PA, reconstruction (plasty), ~~Main (trunk)~~ Branch, Central (within the hilar bifurcation). This will be reviewed in the next upgrade.**

May 2021: I have a patient with HLHS who went to the hybrid cath lab for diagnostic cath followed by PA Banding by the CT surgeon, and then a balloon septostomy by the cardiologist all within one operative time frame. I coded Hybrid Approach Stage 1 application of PA bands. Should I also include the atrial septostomy under the procedures since it occurred at the same time (much like a stage 1 hybrid with PDA stenting would???) or not since it was not done by the CT Surgeon? **You can list all of the procedures done but include the cath based procedures done by the cardiologist as cardiac cath procedures, not surgical procedures.**

June 2021: I have a patient who underwent a Mustard/Senning Revision (1145) as well as a bidirectional Glenn (1670), a maze procedure (1490), inspection of the tricuspid valve (500), replacement of pacemaker leads (1450). Will the Mustard/senning revision (1145) be designated as the primary procedure? **The bidirectional Glenn will be the primary procedure based on the determination of primary procedure exception rules.**

June 2021: Should ALL bilateral PA band placements be coded with a Hybrid Stage 1 code, rather than 1640 PA Band Placement, regardless of anatomy? ~~**Yes, all bilateral PA band placements should be coded as a Hybrid Stage 1.**~~ **Updated March 2022: Procedure (2160) Hybrid approach Stage 1, Application of RPA and LPA bands is for the application of bilateral PA bands with concomitant use of PGE to maintain ductal patency or ductal stent to maintain ductal patency. Procedure (1640) PA banding (PAB) can be used for bilateral PA bands**

without the concomitant use of PGE or ductal stent to maintain ductal patency, unilateral PA bands, or main PA banding.

June 2021: The STS report interpretation guide states that "Patients weighing less than or equal to 2,500 g undergoing PDA ligation as their primary procedure" are excluded from mortality analysis. The DataSpecs document has procedure code "1330 - PDA closure, surgical - Closure of a PDA by any surgical technique (ligation, division, clip) using any approach (i.e., thoracotomy, thoracoscopic, etc.)." Could you confirm whether "PDA ligation" from the interpretation guide refers to all surgical closures, regardless of technique (i.e. all isolated 1330 cases), or if it refers to only ligation cases, and not division or clip. In cardioaccess, we are able to identify surgical closures by different technique, but in the harvest file it is not possible to identify by technique. **All PDA ligations are entered into the database regardless of surgical technique – they all map to the procedure code PDA closure, surgical. Those patients where PDA ligation, surgical is the primary procedure who weigh less than 2500g will not be included in the mortality analysis. The inclusion/exclusion from the analysis is not related to the surgical technique utilized to close the PDA.**

June 2021: Surgeon performed patch plasty of innominate artery, carotid artery, left subclavian artery, and entire transverse arch. I already coded the arch reconstruction, how can I include the reconstructions of the innominate artery, carotid artery, and left subclavian artery? **Other, Peripheral vascular procedure is the best procedure code**

June 2021: How should I code a DKS revision/plasty done on bypass? **This can best be coded as a DKS procedure**

June 2021: I'm not sure how to code an aortic root replacement or an ascending aorta replacement. My surgeon did an Adult Congenital case on a 46 year old and the description is as follows: Aortic root replacement with valved conduit (Bentall), Konno incision in LVOT with myomectomy.
I've had another case where the ascending aorta was replaced and I'm not sure how to code for that either. **There are codes available for Aortic root replacement (715, 720, 730, 735) procedures. The Bentall procedure can be captured with the appropriate aortic root replacement codes. Outside of aortic aneurysm repairs, there is no current way to code ascending aorta replacements other than Other, Cardiac. This will be addressed in a future upgrade.**

July 2020: A patient had a ASD device prior to the index surgery, but the device was removed during the index surgery and the ASD closed surgically. How do you document the device removal? Should procedures "60 ASD creation/Enlargement" and "20 ASD repair, primary closure" be used? **Response: Do not code ASD Creation/enlargement. Code procedure 3220, Removal of a transcatheter delivered device from the heart. Also code procedure 20, ASD repair, Primary closure.**

July 2020: When an ASD is created and then closed during the procedure, should this be documented as "60 ASD creation/enlargement" and "20 ASD repair, Primary closure"?
Here is the wording from the OR note "Temporary atrial septostomy and septal closure with direct suture". **Response: No, do not code this as a separate procedure when this is a part of the surgical approach.**

July 2021: I am coding the following Op Note and cannot find a code for PA plication. What code do you recommend I use**? Response: The primary procedure for this operation is the TOF, absent pulmonary valve repair. There is no need to code the PA plication separately as it is included in the primary procedure.**

July 2021: Toddler admission with WPW/refractory SVT. Temporary epicardial pacing wires placed in OR on day 6; removed day 21 Day 34 withdrawal of cares. Do we need to consider this an operative mortality since the 1st op type would be no cpb cardiovascular for the temporary pacing wires? **Response: Yes, the procedure is No CPB cardiovascular for the pacer wire placement and this would represent an operative mortality as long as the patient is greater than 30 days of age.**

August 2021: I have a patient that was taken back to the OR because they had to redo her Glenn and they did a PA plasty (during this second surgery). I'm not sure if I should code the second surgery as 2130 Superior Cavopulmonary anastomosis (es) + PA reconstruction, or if it should be coded as 2095 Shunt Reoperation, and

then code the PA plasty. **Code the second surgery as (2130) Superior Cavopulmonary anastomosis (es) + PA reconstruction. Management of the azygoous is part of the Glenn procedure and does not need to be coded as a separate procedure. This second procedure does represent a complication of Unplanned cardiac reoperation for the index operation.**

August 2021: Recently we have had a couple patients undergo what I guess would be a staged delayed sternal closure. So, they had a the standard mediastinal washout and sternal wiring, but the skin was left open and a wound vac was placed. A day or two later the surgeon closed the skin in an additional surgical case. What would be the Procedure and OpType selection for this "closure of superficial portion of median sternotomy incision" operation? **Code as Operation type Other and (7777) Other procedure.**

August 2021: When additional procedures are performed at the same time as the CT surgery, but by a different panel (for example; bronchoscopy, PD cath insertion…etc.) should we code those with the operation even if our surgeon wasn't the performing physician for the additional procedures? **You can code the other completed procedures if desired. If the procedure is not listed, code (7777) Other procedure.**

August 2021: My CV surgeon assisted a general surgeon on a patient with preop diagnosis of esophageal atresia. I am not sure which procedure choice(s) would be appropriate for a takedown of the LIMA and LIMV for jejunal interposition grafting? From the CV surgeon operative note:
"Procedure Title: Median sternotomy, thymectomy, harvesting left internal mammary artery and vein for jejunal surpercharging. **Code procedure (2030) Peripheral vascular procedure, Other**

September 2021: This question is about hybrid approach "Stage 1" procedures (codes 2160/2170/2180.) If the surgeon places PA bands, but the cath physician places the PDA stent (not the surgeon), how should this be coded? PA bands only (2160) is a STAT 4, but PA bands + PDA stent (2180) is a STAT 5. **Code the interventions the patient received during the procedure/operative setting, not just what the cardiac surgeon performed. Following this logic, code procedure (2180) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands.**

September 2021: How do I enter a Bentall procedure using the short list? The patient had a mechanical aortic root replacement and ascending aorta replacement. What is the appropriate diagnosis for "aortic dilatation" or "ascending aorta dilatation"? **The Bentall procedure can be captured with the appropriate aortic root replacement codes: Code procedure (720) Aortic root replacement, Mechanical. Code diagnosis (1110) Aortic aneurysm to capture aortic dilatation. If one graft was used in this repair, do not code the aortic aneurysm repair as a separate procedure. If 2 separate grafts were used in this repair, code both (720) aortic root replacement, Mechanical along with procedure (1380) aortic aneurysm repair.**

September 2021: My surgeon took a patient emergently back to the OR the day following surgery for ECMO cannulation, wound exploration, and insertion of temporary ventricular pacing wires. According to the training manual, I should enter this last procedure as a pacemaker procedure, even though the wires were temporary. So I did. However, now that I've entered a pacemaker procedure, does this case stay op type ECMO, or does it now become no CPB Cardiovascular? **Code the Operation type as (3) ECMO as the pacing wires were in support of the ECMO circuit.**

September 2021: During surgery, a patient had removal of a pulmonary artery stent (main PA & left PA) in addition to other procedures. How would I capture the removal of the PA stent? **Use procedure code (3180) Intravascular stent removal which is defined as Removal of a previously placed intravascular stent in the Training Manual.**

September 2021: A patient went to the OR for a scheduled Fontan. After induction, the pre-op TEE looked unfavorable for surgery, so the procedure was cancelled, and the patient was transferred to ICU. Should this case be included in STS? There is an OR start time, but no skin incision. Just anesthesia induction and TEE. **This case should be entered into the Congenital Heart Surgery Database as the database wants to track these types of scenarios. Code procedure (7800) Operation canceled before skin incision and Operation type (777) Other.**

September 2021: My surgeon performed an emergent mediastinal exploration for postop bleeding, Repair of IVC, and central ECMO cannulation on our patient at the CVICU bedside (one operation). I've entered procedure codes 1970 Mediastinal exploration and 2360 ECMO cannulation. Which would be an appropriate procedure code for the repair of IVC? And which OpType for this operation? **The repair of the IVC can be coded as Diagnosis (1560) Cardiac, Other and Procedure (2010) Cardiac procedure, Other. The Operation type is CPB cardiovascular as the ECMO circuit was used as bypass for this repair. Also, code complication (240) Bleeding, requiring reoperation on the index operation.**

September 2021: How should I code the procedure for this case: The patient was taken to cath lab where the surgeon placed an axillary arterial chimney graft for placement of an Impella LVAD. The transcatheter insertion of the Impella itself was done by a cath physician, not the surgeon. Also, am I correct to complete the VAD section questions even though the device was placed by the cath physician? **Code procedure (1580) Peripheral vascular, Other for the arterial chimney graft procedures. Yes, the Impella VAD implantation is to be included as a procedure as the database is capturing what interventions the patient received during the operative setting, not just what the cardiac surgeon performed. Code Operation type VAD (with or without CPB depending on the scenario). Do also complete the VAD section questions.**

September 2021: If only a portion of stent is removed during a surgical procedure should we still be capturing with the appropriate codes (3180, 3220, 3210, etc.) even if the entire stent was not removed? **Code the partial stent removal as procedure (3180) Intravascular stent removal**

October 2021: How much information needs to be submitted when an operation is cancelled prior to skin incision? How much information needs to be submitted when an operation is cancelled prior to skin incision? While the case is not analyzed, there are some data points that require completion. **Please complete the following fields: (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.**

October 2021: Hello how can I code a patient with bilateral maze and left atrial appendage clip procedure? Please provide procedure number? Can we add these for future version changes? **The Maze procedure can be entered using procedure code (1490) Arrhythmia surgery - Atrial, Surgical ablation. The only way to code the atrial appendage procedure is (2010) Cardiac procedure, Other.**

October 2021: Pt with diagnoses of perimembranous ventricular septal defect, pulmonary stenosis, formation of double chamber right ventricle, mild tricuspid regurgitation, and small patent foramen ovale (PFO). What fundamental diagnosis would be most appropriate? Index procedures include: Patch closure of perimembranous ventricular septal defect using autologous pericardium, infundibular muscle resection for DCRV, direct suture closure of patent foramen ovale (PFO), tricuspid valve commissuroplasty, and ligation of small ductus arteriosus. What would be the primary procedure? **The fundamental diagnosis in this scenario is the VSD as the patient likely developed the DCRV related to the pulmonary stenosis. The fundamental diagnosis is the most complex cardiac anomoly or condition of the patient at the time of birth (i.e. HLHS) or acquired later in a normal heart (i.e. cardiomyopathy). In this scenario the VSD is the best fundamental diagnosis. The DCRV repair includes the RVOT enlargement so no need to code this procedure separately. The training manual definition will be updated to the following: (570) DCRV repair: Surgical repair of DCRV combines relief of the low infundibular stenosis (via muscle resection) and closure of a VSD when present. A ventriculotomy may be required and is repaired by patch enlargement of the infundibulum. VSD closure ~~and patch enlargement of the infundibulum~~, if done, should be listed as a separate procedure code~~s~~.**

November 2021: Neonate transferred to our hospital because CT surgeon was not available where she was born. She was in complete heart block with temp pacing wires placed. She went to the OR, had a pericardial drainage procedure, pleural drainage procedure and placement of a permanent pacemaker on 9/1. On 9/12, the surgeon noticed that the skin was extremely thinned out in places and the fascia was palpably dehisced over the pacer. They returned to the OR on 9/13 to re-explore the incision and close the fascia. The lower incision was reopened

and explored. They slightly enlarged the pacer pocket, washed out the area and closed the incision, subq layers and skin. I'm not sure what the diagnosis should be for this pocket revision. Would the procedure be a pacer procedure? I'm thinking not, because they didn't do anything with the pacer. The surgery was mainly to close the wound. Also, in the section where access is coded, I have answered no to sternotomy, partial st ernotomy, etc., because they didn't go back into the chest. Is this correct? Also, would this procedure be thoracic or no CPB cardiovascular? **The procedure on 09/13 is (1460) Pacemaker procedure, defined as *Any revision to a previously placed pacemaker system including revisions to leads, generators, pacemaker pockets.* The Primary diagnosis is the reason the patient needed to go to the OR that day. In this scenario, the best diagnosis is (1560) Cardiac, Other. The Incision type should be answered as no to all available choices. Other is being discussed as choice in a future upgrade. The operation type is No CPB Cardiovascular. Per the definitions, Pacemaker procedures are usually operation type No CPB Cardiovascular; unless cardiopulmonary bypass was utilized, then the operation type is CPB Cardiovascular.**

November 2021: When a patient has a procedure done and taken down within the same OR entry date/time, are both components coded or only the final result?
Our HLHS s/p HFP patient had severe tricuspid valve regurgitation. We performed a lateral tunnel Fontan and AV valvuloplasty. An intraoperative TEE showed persistent regurgitation, so the decision was made to take down the Fontan and convert to a valve replacement. Are the correct procedures:
Fontan + AV valvuloplasty (combo code)
Fontan, Other (for the take down)
Fontan, TCPC, Lateral Tunnel, Fenestrated (specific Fontan type for local use)
Valvuloplasty converted to valve replacement in the same operation, Tricuspid (valve repair converted to replacement). **Code the procedures that were completed in the OR regardless of whether the procedure was taken down/reversed before leaving the OR.**

November 2021: My surgeon operated on an infant with extopic cordis. I've not seen a case like this before so I need some guidance with coding the procedures. First of all, a standard sternotomy was not performed due to the obvious anatomical challenges. Would I answer no to all of the questions pertaining to access to the heart (i.e., sternotomy, partial sternotomy, etc.)? When I search for procedures that include unifocalization, the only choices pertain to MAPCAs. This child did not have MAPCAs per se, so I'm not sure what to do. **You are correct, Unifocalization procedures are coded with MAPCAs. Code (540) PA, reconstruction (plasty), Branch, Central. Code (1330) PDA closure, Surgical as a secondary procedure. Do include this as Incision Type - Sternotomy (1073) yes as the patient's midline was still entered.**

November 2021: I have a couple of cases where the surgeon performed an aortic root enlargement doing a Bo Yang procedure. What is the appropriate procedure code to use for this? **Code procedure (770) Other annular enlargement procedure**

November 2021: Patient is a single ventricle with bilateral SVC's, s/p bilateral Glenn. For his Fontan, the op note reads: Fontan procedure (extracardiac 16 mm PTFE tube from right and middle hepatic veins to RPA; 18 mm PTFE tube from L IVC/L hepatic vein to LPA) -both conduits fenestrated ~ 5mm). How should this be coded given that there were two conduits placed instead of one? **Code the primary procedure as (1000) Fontan, TCPC, External conduit, Fenestrated and code procedure (3310) Fontan, TCPC, External conduit, hepatic veins to pulmonary artery, fenestrated as a secondary procedure.**

November 2021: A patient with the diagnosis unbalanced right dominant AV canal had single ventricle palliations followed by LV recruitment and now presents for a biventricular conversion. The LV size is adequate for systemic circulation but still not "normal" size or volume. Can we use the diagnosis code 1300 Hypoplastic LV as part of the diagnosis coding (not the primary or fundamental but in addition to)? The definition does not provide measurements or significant detail: 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. **Yes, you can include diagnosis (1300) Hypoplastic LV as a secondary diagnosis.**

November 2021: Patient with an original dx of Pulmonary Atresia, VSD- MAPCAs. He is status post TOF repair with RV to PA conduit, VSD closure with fenestration and unifocalization of PA branches to the conduit (code 2700). He had a cath procedure where a stent was successfully placed in the pulmonary homograft and he had a pulmonary homograft angioplasty on the right with the inability to coil a large aorta to pulmonary collateral. He was taken to the OR for ligation of the aortopulmonary collateral vessel via left thoracotomy. I'm not sure how to code this ligation of the aortopulmonary collateral vessel. **Code procedure (450) Occlusion of MAPCA(s).**

November 2021: The patient went to OR for ASO, had decreased funtion and left OR on ECMO straight to the cath lab (not ICU), diagnostic cath showed obstruction in the LCA and the patient went back to the OR for Coronary artery repair then to CCCU. Is this one procedure with both the ASO ECMO and coronary artery repair ... or should I make it 2 procedures , the ASO /ECMO as one and the Coronary artery repair as the second **Code this as 2 separate operative encounters and code complication (22) Unplanned cardiac reoperation during the postooperative or postprocedural time period, exclusive of reoperation for bleeding.**

November 2021: Patient had the following cardiac operative procedures, based on the primary procedure rules the Fontan, STAT 2 is considered the primary index case . This patient had a DKS, as well as a neoaortic root reconstruction? How would STS code the following procedures.
1. Extra cardiac fenestrated Fontan 20 mm , fenestration 4mm
2. Damus Kaye Stansel
3. Aortic arch reconstruction
4. Neo Aortic root reduction
5. Neo aortic valve replacement. On-X 19mm

Based on the primary procedure determination rules, the primary procedure in this scenario is the Fontan procedure. There are no exception rules for Fontan procedures completed with DKS procedures or arch reconstructions.

December 2021: Backround: 6-yr-old with DORV, dTGA, severe pulmonary stenosis, large VSD s/p DORV repair with intracardiac baffle and subpulmonic resection 2016. Due to worsening subaortic stenosis (severe left ventricular outflow tract obstruction) from baffle, patient had revision of the baffle with bovine patch repair and enlargement of VSD. From OP note, Baffle revision: A piece of bovine pericardium was brought onto surgical field. It was trimmed to replace the defect in the pathway from the left ventricle/VSD to the aortic valve. The baffle was sewn in place with a continuous suture of 5-0 Prolene. However, I had to use interrupted 5-0 Prolene stitches along the superior and anterior aspect of the pathway. Question: Would the procedure be another DORV repair with intracardiac baffle or would I list the VSD enlargement separately? Not sure how to capture the baffle revision. **The repair does not represent another DORV repair. Code procedure (140) VSD creation/enlargement and (780) Aortic stenosis, Subvalvar, Repair**

December 2021: Patient is a 7-mo old with HLHS s/p transcatheter Hybrid Stage 1 variation with PDA stent and two modified microvascular plugs in each PA for flow restriction and balloon atrial septostomy performed at 4mo old. Patient is now s/p Norwood Sano and Bidirectional Glenn with extraction of stents and pulmonary vascular occlusive devices (2 stents from the ductus, 6 stents from PA's) and aortic arch repair. Is it correct to code (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), in this case PA stent removal = PA debanding? **Yes, code as procedure (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).**

December 2021: What is the best way to code a LeCompte procedure performed not in relation to an Arterial Switch? Currently I have used cardiac, other. What is the best way to code an aortic uncrossing procedure?

Currently I have used cardiac, other but I am wondering if Aortic arch reconstruction is appropriate? **A new procedure code will be considered in the upcoming data version upgrade for LeCompte procedures done outside of an Arterial Switch Operation. Aortic uncrossing procedures can be coded using procedure codes (1280) Aortic arch repair and (1360) Vascular ring repair.**

December 2021: Patient has diagnosis of PA, VSD-MAPCAS. Status post- multiple shunts and coiled/device MAPCAS. To OR for unifocalization and RV to PA conduit with flow study. VSD not closed based on flow study. Do I use the 2720 PA, VSD-MAPCAS repair status post incomplete unifocalization procedure code since VSD was not closed or list the procedures separately as 610 RV to PA Conduit and 2750 unifocalization of MAPCAS? **The procedure codes for PA-VSD repair include VSD closure/septation. Do not use these codes if the VSD was not closed. Code procedures (2750/2740) Unifocalization MAPCA(s) Bilateral or Unilateral (whichever is appropriate) and (610) Conduit placement, RV to PA.**

January 2022: My question is about an ECMO patient who developed sinus node dysfunction, so when she was decannulated from ECMO, her existing single chamber pacemaker was exchanged for a dual chamber pacemaker and atrial leads were added. Based on previous FAQs, I think I am supposed to code this as op type no-CPB, and "1450-Pacemaker implantation" as the primary procedure, with ECMO decannulation as a secondary procedure. This would then become her index procedure. Is this the correct thing to do? **Code the Operation type as No CPB Cardiovascular and the Primary procedure as (1450) Pacemaker implantation. You are correct this will be the index operation.**

January 2022: I am unsure of how fenestrated closure of atrial septal defect procedure should be coded from the Ops Notes, (70) ASD partial closure or (80) Atrial septal fenestration: A right atriotomy was created and the right atrium was suspended with stay sutures. The atrial septum was inspected. It was difficult to identify the atrial septal patch. An incision was made in the atrial septum and the pulmonary veins were identified...A generous bovine pericardial patch was tailored and then sewn into the atrial septum to recreate the pulmonary venous baffle. This baffle appeared widely patent. A 3 mm fenestration was created in the center of the patch. A separate defect that had been created in the posterior wall of the atrium was oversewn with a Prolene suture. The right atriotomy was closed with a 2 layer running Prolene suture. **In this scenario, code procedure (70) ASD partial closure. This is defined as the intentional partial closure of any type ASD (partial suture or fenestrated patch). Procedure (80) Atrial septal fenestration is describing a procedure used to create an ASD when the atrial septum is intact. A patch can be used to create the ASD.**

January 2022: What is the appropriate way to code the augmentation of a) Central shunt w/external clip b) Sano shunt w/external clip? In the past I have coded the Sano adjustment as a "Conduit reoperation". This is the first time I have needed to code an adjustment on a central shunt. **The most appropriate way to code revisions to shunts is procedure (2095) Shunt, Reoperation.**

January 2022: Should we be capturing ECMO cannulation as a procedure code in the following scenario? Index procedure: ASO+VSD repair, ECMO cannulation. Next day, VSD patch re-do on CPB (with ECMO cannulas) and ret'd to ECMO before leaving OR. No new cannulas placed but want to make sure that the procedures listed reflect that the patient was on ECMO again at end of this second case. **You can code procedure (1920) ECMO procedure as a secondary procedure on the 2nd operation as the patient again left the OR on ECMO support. The Operation type for this second procedure is CPB Cardiovascular. Include complications (22) Unplanned cardiac reoperation and (40) Postoperative/postprocedural mechanical circulatory support for the index operation.**

January 2022: I'm a little confused from the notes in the training manual. Not sure when to code the complication code (240) Bleeding, Requiring reoperation and with which surgery.
Example: Patient had Fontan, TCPC extracardiac conduit, Fenestrated on 9/1, ECMO on 9/2 and mediastinal exploration on 9/3.
• The mediastinal exploration surgery, I coded ECMO as Op type, is this correct?

• Is (240) Bleeding, requiring reoperation, coded with 9/3 or on 9/2 with ECMO?
• Is complication code (240) bleeding requiring reoperation, always coded on a previous operation?

If the mediastinal exploration on 09/03 was completed while the patient was on ECMO, code the Operation type as ECMO. Upon analysis, all complications are assigned back to the index operation of the Episode of care regardless of which operation they are coded with. Data managers are to assign the complications to the index operation or to the surgery the complication is most closely related to. Many data managers code all of the complications on the index operation as it makes it easier locally to pull out all of your complications following an index operation.

January 2022: A patient had a Bilateral bidirectional Glen, main pulmonary artery band and atrial septectomy. What would the surgical procedure be for atrial septectomy? Would it be (60) ASD creation/enlargement? Or is nothing coded based on what's in the Op notes? The Op notes state the following: "A right atriotomy was created and the atrial septum was inspected. There was a moderate primum defect and no secundum defect was appreciated. The atrial septum was quite muscular. A portion of this was carefully resected while maintaining visualization of the AV valve and pulmonary veins. The right atriotomy was closed with a 2 layer running Prolene suture. The right superior vena cava was transected just superior to its junction with the right atrium. The right atrial end was oversewn with a 2 layer running Prolene suture." **The atrial septectomy procedure can be captured using procedure code (60) ASD creation/enlargement.**

April 2022: Patient is on ECMO. If the existing ECMO cannulas are used when converting to Centrimag LVAD, what procedure should be coded? 2380 VAD implantation? or 1920 Right/left heart assist device procedure? Also, how should VADExImp be answered? "Yes, Implanted" doesn't seem correct because nothing new was implanted. But it is a parent field, and if I answer no, I can't capture VADInd, VImpTy, VProdTy, etc. **Code procedure (2380) VAD implantation and code field VADExImp as yes and complete the VAD related questions.**

April 2022: When an ECMO machine is used without an oxygenator, purely as a ventricular assist device, what procedure should we code? 2360 ECMO cannulation? 2380 VAD implantaion? 1920 Right/left heart assist device procedure? Also, should the VAD section be answered? **Code procedure (2380) VAD implantation and code field VADExImp as yes and complete the VAD related questions.**

April 2022: What is the most appropriate procedure for "Repair of a tricuspid valve in a single ventricular heart defect?" The patient is diagnosed with Single Ventricle + TAPVC,-->Common AV Valve Regurgitation, Unbalanced AVC, DORV with severe PS, Heterotaxy syndrome with R atrial isomerism/asplenia, common atrium, L SVC, R aortic arch, dextrocardia. **Code the repair as procedure (2300) Valvuloplasty, Common atrioventricular valve.**

May 2022: If a patient undergoes a pulmonary valve replacement using an RV-PA valved conduit, should this be coded as Valve Replacement, Pulmonic (600) or Conduit Placement, RV-PA (630)? Or both? **When the pulmonary valve replacement is being done via a valved conduit, please use procedure (610) Conduit placement, RV to PA when it is the initial conduit placement and procedure (580) Conduit reoperation when the conduit and valve are being replaced. Do not use code (600) Valve replacement, Pulmonic (PVR) for valve replacements with a conduit.**

June 2022: How do you code an ascending aorta replacement? This patient had an interposition graft placed on his ascending aorta because it was small, short and adhered. He also had a mechanical aortic valve replacement which I coded with #680. **There is no current specific way to capture non-aneurysmal ascending aorta repairs. This is best captured by using procedure (790) Aortic stenosis, Supravalvar, Repair.**

June 2022: I see a procedure code for 3390-"LV Endocardial Fibroelastosis Resection." I have a patient with RIGHT ventricular EFE (not LV). Can I use the same code for his right ventricular EFE resection, or do I need to code it as "other"? Also, what is the most correct diagnosis code to use for Endocardial Fibroelastosis? **There is not a specific diagnosis code for endocardial fibroelastosis, and it may be explained by other concomitant cardiac diagnoses the patient has. It is appropriate to use diagnosis (1560) Cardiac, Other: Any cardiac**

diagnosis not specifically delineated in other diagnostic codes. Code procedure (3370) RV Rehabilitation, Endocardial Resection.

June 2022: What would the appropriate procedure code be for re-implantation of an aberrant right subclavian artery into the innominate artery? ~~**Code procedure (2030) Peripheral vascular procedure, Other**~~. **Update July 2022 Code procedure (1360) Vascular ring repair.**

June 2022: When coding pacemaker procedures for generator and/or lead changes (specifically when the surgeon does not explanting the entire system) - should both codes be included: the removal of pacemaker (2350) and pacemaker, pulse generator change only (1460- pacemaker procedure)? Or should only the procedure code be the generator change (1460)? **Only code procedure (2350) Explantation of pacing system if the entire system was removed, meaning at least 1 lead and the generator. If only the generator is removed and replaced code procedure (1460) Pacemaker procedure.**

July 2022: How to code a Starnes procedure? **Code Starnes procedure utilizing procedure (480) Valve closure, Tricuspid (exclusion, univerntricular approach). Code other concommitant procedures separately including shunts, atrial reduction procedures, and/or atrial septectomies if completed. Code procedure (465) Ebstein's repair for other tricuspid valve repairs for Ebstein anomaly. The long list will be updated accordingly.**

July 2022: Regarding the new combo code #5035, which includes #610 RV-PA conduit placement and #720 Aortic root replacement. The current guidance for replacing a failed conduit is to use #580, Conduit Reop and not #610. Following this logic, if you do an aortic root replacement and place a new RV-PA conduit in the same procedure you would not be able to use the combo code. Will the guidance change? **The combination code includes the initial placement of an RV-to-PA conduit only, procedure (610). It does not include conduit reoperations, procedure (580). In the recent STAT upgrade paper, all combinations were reviewed, and new combination procedures were created for those where the single procedure with the highest STAT score did not adequately capture the mortality of the combined procedure. This was true of the combined procedures 610 + 720 only. This does not include procedure 580 and the guidance for coding conduit reoperations will not change.**

July 2022: This patient is a single ventricle L-TGA tricuspid atresia, s/p DKS, Glenn, Fontan. He is now admitted with neo-aortic insufficiency and undergoing replacement of the valve. Should this be coded (diagnosis and procedure) as aortic insufficiency/aortic valve replacement, or pulmonary insufficiency/pulmonary valve replacement? **Code aortic insufficiency and aortic valve replacement. This will be clearer in the upcoming version upgrade.**

August 2022: Patient with DORV and PA had central shunt initially and then had RV to PA conduit, VSD closure and shunt take down. Should we be using Rastelli or DORV, RV to PA conduit (3440) (there are no descriptions with the new DORV procedure codes)? A Rastelli is a stat score 3 and the DORV repair is a 4 so definitely need some more clarification now that stat scores are available. **The definitions for when to use the DORV vs. the Rastelli procedure codes will be clarified. Use (3440) DORV repair, RV-PA conduit if the patient has a diagnosis of DORV. Use code (1150) Rastelli when the patient has a diagnosis of TGA-VSD (non DORV). In this scenario, code procedure (3440) DORV repair, RV-PA conduit given the patient has a diagnosis of DORV.**

August 2022: How do I code the following pacemaker procedure: a permanent pacemaker was at the end of its life and it was decided to upgrade it to a CRT pacemaker and the procedure included changing the generator and placing an additional lead? **Because an entire pacing system was replaced (generator + lead), code procedure (1450) Pacemaker implantation, Permanent. If a lead was also removed during this procedure, also code procedure (2350) Explantation of pacing system as this is used when both a generator and lead are removed.**

August 2022: How do I code the following pacemaker procedure: if the generator was replaced and the leads completely replaced. **Because an entire pacing system was replaced (generator + lead), code procedure (1450) Pacemaker implantation, Permanent. If a lead was also removed during this procedure, also code procedure (2350) Explantation of pacing system as this is used when both a generator and lead are removed.**

September 2022: The webinar from August 18 discussed Norwood procedure at primary diagnosis with source of blood flow listed 2nd. Our vender (Heartbase) lists diagnosis in numeric number order. Will the cases still be analyzed? Yes, the case will be analyzed as long as the source of pulmonary blood flow is included in the procedure list (regardless of the order it is listed).
September 2022: On IQVIA, I am receiving an error that says "Norwood procedure is indicated but source of pulmonary blood blow is missing". I am using Apollo Advance (still new to this system). We only have a choice that says "870-Norwood procedure" as the Procedure to select. It does not break it down to further choices. Then under Procedure Specific Factors we can select Source of Pulmonary Blood Flow, which is selected as "Source of Pulmonary Blood Flow: shunt - ventricle to pulmonary artery". Do you know why this is still triggering as an error in IQVIA? Confused as to what my next step should be. **In the current data version, there are 2 places to enter the source of pulmonary blood flow: (1) the procedure specific factors and (2) the procedure list. You receive the error within the IQVIA platform when the source of pulmonary blood flow is not listed in the procedure list. Add the source of pulmonary blood flow from the acceptable list to the procedures and the error will resolve.**

- **Shunt, Systemic to pulmonary, Modified BlalockTaussig Shunt (MBTS)**
- **Shunt, Systemic to pulmonary, Central (from aorta or to main pulmonary artery)**
- **Shunt, Systemic to pulmonary, Other**
- **Conduit placement, RV to PA**
- **Conduit placement, LV to PA**
- **Conduit placement, Ventricle to aorta**
- **Bidirectional, avopulmonary anastomosis (BDCPA) (bidirectional Glenn)**
- **Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)**
- **Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)**
- **Hemifontan**

September 2022: The manual states that RVOT procedure (510) includes reduction PA arterioplasty. Does this include reduction arterioplasty of the branch PAs or only the main PA? If it does not the branch PAs, how should reduction arterioplasty of those be coded? **Code reduction arterioplasties in the branch pulmonary arteries as a PA reconstruction (plasty), Branch utilizing the most accurate PA reconstruction code available, i.e., (540) PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation, (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), or (3360) PA, reconstruction (plasty), Branch, Peripheral (at or beyond the first lobar branch, beyond the first segmental branch).**

Procedure (510) RVOT procedure should really include procedures related to the right ventricle and outflow tract. Thus, main PA reduction arterioplasties without any other intervention on the outflow tract/ventricle should be coded as procedure (530) PA, reconstruction (plasty), Main (trunk). The definitions will be clarified in the Training Manual.

September 2022: The data specification for procedure code 520, 1 1/2 ventricular repair reads: Partial biventricular repair; includes intracardiac repair with bidirectional cavopulmonary anastomosis to volume unload a small ventricle or poorly functioning ventricle. This specification only describes a small poorly functioning ventricle but does not indicate if the ventricle is subpulmonary. Can you please add clarification to avoid confusion since our interpretation of the intent for this procedure is to describe unloading a small or poorly functioning subpulmonary ventricle? **Yes, sub-pulmonary will be added to the definition in the training manual.**

October 2022: Please advise regarding which procedure codes to use for the following scenario. In particular, we are wondering if aortic aneurysm repair, aortic arch repair or both should be used for that portion of the

procedure. Planning on including conduit reoperation. Fund Dx: Aortic stenosis, valvar. Pre-Op Dx: s/p Ross Konno and ascending aortic replacement with homograft RV-PA conduit; Severe RV to PA conduit insufficiency; Asc Aortic pseudoaneurysm. Procedures: Explant of prior Asc Aortic graft material; Explant of prior RV-PA conduit; ReDo RV-PA conduit; ReDo Ascending aortic and hemiarch replacement with Gelweave graft and side-arm. **Code both procedure (1380) Aortic aneurysm repair and (1280) Aortic arch repair along with (580) Conduit reoperation.**

October 2022: Patient Glenn (Kawashima) and a Fontan in the same operation. Pre op Diagnoses: PA + VSD and s/p 5 mm goretex shunt with PA plasty. Prior PA's that were brought together during ductal ligation and division and s/p LPA patch plasty. VSD not felt to be septatable. Interrupted IVC. **Fontan is primary procedure. Secondary procedure codes include (2130) Superior Cavopulmonary anastomosis(es) + PA reconstruction and Kawashima.**

October 2022: The case I am abstracting is an adult congenital patient s/p PFO closure done robotically. The surgeon documented the surgery was done percutaneously. There is no option for Port access under incision type like in the Adult version. Where should I capture this approach? **The best way to capture the incision type is to code VATS.**

October 2022: What procedure code should be used for the following procedures: 1) VAD pump change, 2) VAD circuit change (without a pump change), 3) VAD connector change (without a pump or circuit change)? **For this data version, you can code procedure (1920) Right/left heart assist device procedure or procedure (3170) VAD change out, whichever is most consistent for how you have coded these procedures previously. This will be updated with new procedure codes in the upcoming data version update.**

November 2022: Which is the most appropriate procedure code to use when a pulmonary valvectomy is done in conjunction with Bidirectional Glenn and MPA ligation? 630 Valve excision, Pulmonary (without replacement) Excision of the pulmonary valve without placement of a prosthetic valve. Or 640 Valve closure, Semilunar Closure of a semilunar valve (pulmonic or aortic) by any technique? **Code procedure (630) Valve excision for true valve excision without replacement. Code procedure (640) when the valve is closed without excising it.**

November 2022: The patient had a mitral valvuloplasty using an upper mini-sternotomy incision. Is it appropriate, in addition to coding mitral valvuloplasty, to also code procedure 1940 (minimally invasive procedure)? **Mini-sternotomy incisions are not minimally invasive procedures. Minimally invasive procedure generally includes the use of scopes or robotic surgeries.**

November 2022: What would be the procedure code for Left carotid artery cutdown access for implantation of patent ductus arteriosus stent. The surgeon did not implant the patent ductus arteriosus stent. would it be 7777 other procedure? **Code all procedures completed during the case whether done by the cardiac surgeon or interventionalist. In this scenario, code procedures (1550) Cardiovascular catheterization procedure, Therapeutic, Stent insertion and (2030) Peripheral vascular procedure, Other.**

January 2023: The manual states to code Starnes procedures as (480) Tricuspid valve closure, and to then code other concomitant procedures separately. How should I code a reduction atrioplasty as a concomitant procedure - should I use (465) Ebstein's repair as a secondary procedure? **Do not code Ebstein repair for a reduction atrioplasty completed with procedure (480) Tricuspid valve closure. The reduction atrioplasty is considered part of the Starnes procedure, however, can be coded/included as (2010) Cardiac procedure, Other.**

January 2023: In the case of a DCRV resection and VSD closure, is there any guidance on which should be the primary procedure? They have the same STAT score. I used VSD for the fundamental diagnosis and DCRV for the primary case diagnosis. **Either the VSD or the DCRV repair may be the appropriate primary procedure. The repair of a DCRV may include a VSD repair, however if the surgeon feels the VSD was hemodynamically significant or the more important procedure, code the VSD repair as the primary procedure.**

January 2023: Procedure 3370 RV Rehabilitation, endocardial resection. Current there is not a definition of this procedure in the data definitions. It is a procedure that carries a high STAT score. Could this procedure be coded for an RVOT resection? Are there specific diagnoses/instances when this procedure should be coded? **Procedure (3370) RV Rehabilitation should not be used for RVOT resection. Example procedures include carving out trabecular parts of the RV body, RV endocardial fibroelastosis resection. The Core Group and Congenital Task Force will further refine the definition.**

February 2023: Planned truncal valve replacement via hybrid surgical/cath procedure. Surgeon performed a thoracotomy for LV direct access and placed a transapical sheath. Cardiology then advanced an angled glide catheter to the descending aorta, exchanged the catheter for Amplatzer Superstiff wire, and placed the valve. Surgeon then removed the transapical sheath and closed the thoracotomy. Do I code this as procedure 250 Valve replacement, Truncal or 2770= Hybrid Approach, Transcardiac transcatheter device placement. There is no definition for this hybrid procedure. **Code procedure as (2770) Hybrid Approach, Transcardiac transcatheter device placement. You may also select "Thoracotomy" for Incision type and list any appropriate implant details in the valve section.**

March 2023: Patient with TGA-VSD had an arterial switch and an attempted VSD closure. The surgeons had trouble identifying exactly where the VSD was, and after identifying the area that seemed to be the VSD, they closed the area with sutures. Postoperatively it was discovered that there was a residual VSD. Do I still code this procedure as an ASO + VSD repair? **Yes, you can still code the ASO + VSD repair in this case.**

March 2023: How would we code the repair of RV-PA conduit pseudoaneurysm? **This should be coded as procedure (580) Conduit reoperation**

March 2023: Do I need to capture LeCompte Maneuver code 1160 REV in an Arterial Switch Operation? **No, do not include (1160) REV in addition.**

March 2023: Patient has a diagnosis of HLHS. The initial plan was a hybrid procedure with bilateral PA bands (done Dec. 2022) followed by a Norwood procedure. Due to renal insufficiency and the inability to go on bypass, it was decided to forgo the Norwood procedure and take the patient to the cath lab for PDA and retrograde arch stenting instead. The CT surgeon was involved to provide direct access for the procedure. The op note reads: "a pursestring was placed in the anterior MPA at the ST junction and a 7 fr sheath inserted after passing a guidewire. The cath team then placed stents to provide complete ductal coverage and a stent in the retrograde/arch - isthmus. The sheath was then removed from the PA and the pursestring site rendered hemostatic."
1) What procedure codes should be used for this case? **(2170) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)**
2) What is the correct operation type? **No CPB, Cardiovascular.**
3) Does this count as an unplanned cardiac re-operation, or just an unplanned cath re-intervention? **This is a planned reoperation. A planned cardiac reoperation is a cardiac procedure that follows an initial palliative procedure with the a priori intent for subsequent palliative or corrective intervention.**

March 2023: What is the most appropriate procedure code for "atrial septation and repair of double outlet right atrium?" Along the same lines, what is the most appropriate diagnosis code for "double outlet right atrium?" **You can use (1560) Cardiac, Other for diagnosis and (50) ASD, Common atrium (single atrium), Septation.**

March 2023: Patient with a diagnosis of a "left ventricular diverticulum (origin beneath anterior commissure of aortic valve)." Procedure performed was a
"repair of left ventricular diverticulum (patch of diverticular orifice with bovine pericardium)." Op note reads, "Immediately beneath the anterior commissure of the valve, there was a defect in the subcommissural trigone which led out of the LVOT anteriorly to a very thin walled diverticulum. The diverticulum was incised anteriorly ..." "A patch of bovine pericardium was prepared and used to close the orifice of the diverticulum, securing it to the muscular rim with a running 5 0 prolene. Then a series of horizontal mattress sutures were brought up through the upper rim of the patch, through the hinge point of the cusps, and then through strips of bovine

pericardium placed at the hinge points. The interrupted sutures were tied down and tied to the original running suture. A final suture was placed from outside the aortic wall, through the patch, through the commissure of the two cups and back outside the aortic wall, where it was tied down over a pledget."
I cannot find information in the manual that specifies how to code a diagnosis for a LV diverticulum.
1) Is the closest diagnosis code for the LV diverticulum code 1260- Aneurysm, ventricular, left (including pseudoaneurysm)?
2) and therefore, the procedure code 1730- Aneurysm, ventricular, left, repair?

We haven't seen this in previous FAQs and agree that none of the current diagnoses or procedures fit for LV diverticulum. For now, please use (1560) Cardiac, Other and (2010) Cardiac procedure, Other for diagnosis and procedure, respectively.

March 2023: What would be the most appropriate procedure code for a revision of bidirectional cavopulmonary shunt - patch plasty due to Glenn anastomosis becoming stenotic? Would primary diagnosis for the revision be the same as what it was for the initial Glenn? **The procedure code is (2010) Cardiac procedure, Other. You can use the same diagnosis as the initial Glenn.**

March 2023: How should I capture the left and right coronary reimplantation buttons during a root procedure? Would this fall under Seq 1310 Coronary artery procedure, other? **There is no need to code something additional for the coronary reimplantation; it is a part of the root reconstruction.**

March 2023: I'm unsure of which Aortic stenosis code should be used for the Surgical Diagnosis or if the Procedure code is correct.
Pre/Post-operative Diagnosis: DEVELOPMENT OF SUBAORTIC STENOSIS
Status Post ARCH REPAIR
Operation: Resection of subaortic stenosis, septal myectomy
(550) Aortic stenosis, Subvalvar OR (2510) Aortic stenosis, Subvalvar, IHSS
(2100) Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS
The procedure (2100) can be used when a myectomy is performed, even on patients without IHSS. However, the diagnosis including IHSS should not be used; (550) Aortic stenosis, Subvalvar is correct.

March 2023: I've been logging my valve sparing TOF as TOF repair not requiring ventriculotomy. But that procedure is pretty involved and includes MPA Plasty, TOF repair, PFO closure and PDA ligation. Is that the correct way to log it? The only reason I ask is a non ventriculotomy TOF repair has a 0.3 next to it while a ventriculotomy TOF repair has a 0.5, and the valve sparing is significantly more complex than the ventriculotomy TOF. **You are doing it right. If the surgery is done via right atrium or aorta or PA without a ventricular incision, then it should be coded as TOF no ventriculotomy.**

March 2023: Do I need to include if the thymus was removed during the index procedure? **You do not need to include thymus removal.**

March 2023:
For patients with Congenitally corrected TGA (LTGA), use the applicable repair code from the list below, plus any additional procedure codes:
(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

April 2023: Do we count diagnoses and procedures for a DONOR HEART when defect is noted and repair takes place? "The donor heart simultaneously came at this time, and I moved to the back table to examine the new organ. This new organ looked of appropriate match for our patient, without any epicardial injuries or hematomas. Inspecting the atrial septum, it was revealed that the patient had a patent foramen ovale and this was closed with an interrupted 6-0 Prolene suture." **You can collect procedures on the donor heart because there are rules in place for the transplant itself to be the primary procedure. However, diagnoses should only be captured on the recipient.**

April 2023: What procedure code should be used when a patient is already peripherally cannulated on ECMO, and they are converted to central ECMO cannulation? Should this be coded with ECMO decannulation and ECMO cannulation (2370 + 2360), or just ECMO procedure (1910)? **We recommend using (1910) ECMO procedure since the patient was already on and remained on ECMO support.**

April 2023: The patient is s/p Hybrid procedure - PA bands (2160) and s/p atrial septostomy in the cath lab at a later date. They have now gone back to surgery for a procedure to place a PDA stent and retrograde arch stent "to complete the Hybrid stage I." The only part that the surgeon did was place a sheath in the MPA to facilitate access; the cath team did the rest. Do I still code this as a Hybrid procedure - PDA stent (2170)? I am also coding Hybrid approach, transcardiac transcathether device placement (2770) for the a rch stent, is that correct? **Yes, include the code (2170) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA).**

April 2023: pt with open sternum (opened during post op arrest) and unable to close due to body edema w renal failure. Now having multiple wound vac changes for secondary closure, sometimes in OR and sometimes in PICU.
from op note: Due to persistent fluid retention and generalized edema we have been unable to re-approximate the sternum. For the past 6 weeks he has been receiving weekly VAC dressing changes. The mediastinum has been granulating well with gradual reduction in the size of the wound.
from another op note: The previously placed wound VAC was carefully removed. There was healthy granulating bleeding tissue at all wound surfaces. The wound did not require debridement. A new downsized wound VAC was put in place. **The weekly wound VAC dressing changes, *if done by a surgeon,* should be entered as OpType: "Other" and Procedure: (1570) Thoracic and/or mediastinal procedure, Other. If more than a dressing change is required, then use Procedure: (1980) Sternotomy wound drainage and OpType: No CPB, Cardiovascular or Thoracic depending on the depth. If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic.**

April 2023: We have had a few cases with Kawashima and PA reconstruction. The current training manual instructs us to code 2130 'Superior Cavopulmonary anastomosis(es) + PA reconstruction' in this situation. I also code 3160 Kawashima in order to retain that important detail.
Question: Rule 13 of the current Rules to Determine Primary Diagnosis and Primary Procedure says "Kawashima: If a Kawashima is coded in combination with either the Glenn or Hemifontan procedures, the Kawashima should be designated as the primary procedure." It doesn't give a list of codes, so I'm not sure if rule 13 applies to the combo code. Is the primary 2130, or 3160? **This is currently analyzed with (2130) Superior Cavopulmonary anastomosis(es) + PA reconstruction as the primary procedure. This is being discussed as a future change; for now, please continue to use the separate Kawashima code as well for local use.**

April 2023: Should I code this AV repair under SEQ 800 valve surgery, other aortic?
From OP note: We waited for some time for rewarming and we checked the aortic valve, which appeared to have more leakage, probably in the mild-to-moderate range. So, I clamped the graft and arrested the heart again and opened up the graft-to-graft anastomosis. I analyzed the aortic valve and noted some prolapse of the joint leaflet this time, so I placed a plication suture at the free margin of the conjoint leaflet and released the raphe. There was still some redundancy between the 2 leaflets, so I performed subcommissural annuloplasty of the 2 commissures and tested the valve again and it appeared perfectly competent. We continued to rewarm the patient. We then completed the graft-to-graft anastomosis, de-aired the heart and took the clamp off. After additional time for rewarming and reperfusion, we separate from cardiopulmonary bypass easily. **This should be coded as (660) Valvuloplasty, Aortic.**

April 2023: The patient had a modified Nikaidoh procedure per op note as "35m-old female (17 kg) with above diagnosis. Intraop inspection revealed again a small TV with a small RA volume, in setting of left atrial juxtaposed appendages. The BDG was therefore left as is. The Hemi-Modified Nikaido (as opposed to a full 360degress Nikaido) was done because 1. the distance to be gained posteriorly was small to moderate, maybe 3-4mm, with a pulm valve that was moderate in diameter, 2. The conus was quite hypoplastic, and therefore there was no gain from splitting in a s it happens in a full Nikaido with a well developed conus, and 3. Less bleeding complications without a posterior suture line" We currently have this coded at 2190 as there is not a modified Nikaidoh available in the procedure list and because the operation "seems" essentially the same. Any suggestions on better procedure coding? Would you want additional operative note description or is this sufficient? Thank you! **(2190) Aortic root translocation over the left ventricle (including Nikaidoh procedure) is the most appropriate fit and is what others have used. We will also update the Training Manual to include a definition in v6.23.**

May 2023: A patient with a HLHS variant (Shone's, borderline LV, AS, CoA) is undetermined as to whether they will be a one or two ventricle pathway. Bilateral PA bands (No CPB Cardiovascular) were placed in the OR. A week later, the patient had a cathlab balloon aortic valvuloplasty to relieve AS. The patient then returned to the cathlab three days later for a PDA stent placement. My surgeon informed me that this patient's bilateral PA banding and PDA stenting are really a hybrid stage 1 approach, even though they were performed in a staged manner. If the bilateral PA banding is coded as 2160, should the PDA stent (2170) be a No CPB Cardiovascular or an Interventional Cardiology operation type? **If there was a surgeon involved in the case, then it is appropriate to code as OpType: No CPB, Cardiovascular. If no surgeon was involved, it can be entered, if desired, as Interventional Cardiology.**

May 2023: How should a fenestrated VSD closure be coded? I know there is a code for a partial ASD closure, but I dont see one for a partial VSD closure. This patient had a patch closure of their existing VSD, with a punch used to create a fenestration in the patch. **This can be coded as: (150) Ventricular septal fenestration**

May 2023: 1. Am I correct to code under incision type to code the sternotomy and the Right VATS incisions or should I just capture the sternotomy?
From TM on October 2022: The case I am abstracting is an adult congenital patient s/p PFO closure done robotically. The surgeon documented the surgery was done percutaneously. There is no option for Port access under incision type like in the Adult version. Where should I capture this approach? The best way to capture the incision type is to code VATS
2. I search the procedure section I do not see any option to code the conversion from robotic to sternotomy. Is there a way to capture a conversion procedure from robotic to sternotomy? **Code both approaches (sternotomy and right VATS) but there is no way to code the conversion.**

May 2023: Patient diagnosis is Bicuspid aortic valve 620, Severe aortic valve regurgitation 600, Moderate aortic valve stenosis560 (combo code also entered 610) and s/p balloon aortic valve plasty 6590. Procedures completed includes aortic root supported Ross procedure (27mm PA homograft for RV-PA conduit, 30 mm Hemashield graft at aortic root) code 740 and Ascending aorta graft replacement (24mm Hemashield). How do I code the ascending aorta graft replacement due to dilation? Would it be cardiac other?
Please use:
Diagnosis: (1110) Aortic aneurysm
Procedure: (1380) Aortic aneurysm repair

May 2023: My surgeon did this operation and the highest stat score is for the BT Shunt placement. However, after closing the chest the patient required reopening of the chest and it was replaced with a central shunt. Can you tell me what the primary procedure is and how to input the secondary procedures?
Please code:
(1590) Shunt, Systemic to pulmonary, Modified Blalock- Taussig Shunt (MBTS)
(1630) Shunt, Ligation and takedown
(1600) Shunt, Systemic to pulmonary, Central (shunt from aorta) - Or, other appropriate central shunt procedure code.
These, along with any other applicable procedures, will cover the series of procedures which occurred during the operative event.

May 2023: Patient went to the OR for RV-PA conduit replacement, replacement of atrial pacemaker lead. Intraop it was noted that patient had purulent fluid in the pocket around the pacemaker generator. The surgeon did a debridement of the pacemaker pocket. Should this be coded as cardiac other? **Please use (1460) Pacemaker procedure to cover the debridement of the pacemaker pocket.**

May 2023: In the past, we have recommended that if you have PA-VSD and have a repair you use the PA-VSD repair codes. The specific code of concern is the PA-VSD RV to PA conduit placement. This previously had a STAT score that was higher than the STAT score for TOF repair, RV to PA conduit. Now the TOF code is great than the PA-VSD code. Since PA-VSD is a form of tetralogy, I was asked why we can't then use the TOF repair code since the STAT score is higher? Do we need to clarify this in the training manual? Thanks!!
If the patient has PA-VSD, then the PA-VSD diagnosis and procedure codes should be used as they are the most specific and accurate available. It is important to distinguish between PA-VSD and other types of TOF.

May 2023: The patient with ToF, PA. We intended to perform complete repair but intraoperatively identified anatomic factors which forced us to change the plan. We ended up performing palliative/restrictive transannular patch to provide pulmonary blood flow with the VSD left open. Can you please advise the best procedure to code for this patient? Thanks! **This should be coded as procedure code: (510) RVOT Procedure**

June 2023: 1. Should I code the repair of the femoral artery from the cannulation site under number 2030 for procedure performed?
2030 Peripheral vascular procedure, Other
Any peripheral vascular procedure; may include procedures such as femoral artery repair, iliac artery repair, etc.
2. Do I need to capture the repair to the femoral vein with sutures?

From the OP NOTE:
After reperfusion and rewarming, we came off cardiopulmonary bypass successfully without incident. On echo, the heart function looked normal. The buttons had excellent flow and then the patient's EEG was symmetrical and normal. Given this good sign, after coming off bypass, I clamped the common femoral artery and did a patch repair of the common femoral artery in the right groin. I took the venous drainage cannula out and repaired the right common femoral vein with interrupted Prolene sutures
You can code this if your site prefers to for completeness, but it is not necessary to code either one of these additional procedures.

June 2023: We had a patient with a complete AVC and severe pulmonary stenosis, but not TOF, who had a 2 patch repair with transanular patch, which the surgeon said was exactly the same repair he would do for a patient with TOF/AVC. Can I code procedure #390 TOF - AVC (AVSD) repair if the patient doesn't have TOF, since the repair is the same? **If there was no anterior conal septal malalignment, this is AV canal repair and PS repair. Do not use this combination code if the documentation does not support it; however, you can code RVOT procedure in addition to the complete AVC repair.**

June 2023: 1320: Interrupted Aortic arch repair - in the FAQ document it says Intent/Clarification March 2022: Does not include repair of IAA-VSD. (the NOT is lined through, which i take as to mean, Does include?) However further down there is an FAQ that says: Intent/Clarification March 2022: Code procedure (1320) Interrupted aortic arch repair as the primary procedure and include the VSD repair as a secondary procedure.
I just want to clarify that we DO need to add the VSD as the secondary procedure for IVS-VSD?

Your interpretation is correct. Code the IAA repair and the VSD repair separately. This update was to clarify NOT to code this combination in the combo code (1285) Aortic Arch Repair + VSD repair, but it remains a little confusing.

June 2023: We have a patient with Right dominant unbalanced AVSD, HLHS, small aortic arch, moderate to severe AVVR on PGE who had the following procedure in the cath lab without any involvement from CT Surgery: R/LHC, angiography, and placement of bilateral branch PA pulmonary vascular plugs (modified MVP 7Q device with fenestration). I am not familiar with this device. Is this similar to PA Banding? Four weeks later this patient had a PDA stent placed, again on PGE without CT Surgery involvement. These procedures were a planned staged manage ment approach prior to a heart transplant. Should these procedures be captured as Hybrid cases in the status post diagnosis section? **Neither of these procedures should be coded as status post Hybrid cases and neither should be captured as events in the CHSD database. For subsequent cardiac surgery procedures, both of these can be coded using the appropriate "status post - cardiovascular catheterization procedure..." codes.**

June 2023: What procedure code should I apply for: Repair of Left coronary artery Atresia with creation of a neo ostium within the Left coronary sinus? I see in the data specs/training manual that procedure code: 1310: Coronary artery procedure, Other : does not have a STAT score associated with it. I also cannot locate this procedure code on the appendix C. Since this procedure doesn't have a STAT score associated with it, I wanted to verify what code is suggested to use. **The most appropriate code is: (1310) Coronary artery procedure, Other. You are correct that it is not included in Appendix C as it does not have a score associated.**

June 2023: I have a patient with a Type 2 VSD and DCRV. The surgeon did a VSD patch closure and a RV muscle bundle resection. The OP note reads, "the right atrium was opened. A small ASD was created and a

drop sucker was placed across the atrial septum to serve as a vent. Stay sutures were placed and the anatomy was inspected. There was a pronounced flow plaque creating DCRV in the expected location beneath the pulmonary valve. The plaques and hypertrophied tissue were resected. After resection the RVOT and PV easily accepted a 10 mm dilator (Z + 0). Next the VSD was inspected. The borders were well appreciated and the VSD was closed with a patch of bovine pericardium. One TV valve cord was detached and re-suspended to the patch. After closure the TV was passively inspected and appeared competent. The ASD was closed. The RA was closed and the patient was re-warmed."
For the procedure codes I used VSD patch repair (110) and DCRV repair (570). Do I also need to add separate procedure codes for both the ASD creation and ASD closure in this procedure or is this considered to be part of the DCRV repair? In the manual it does not indicate that ASD creation and closure is a typical part of a DCRV repair.
Do not code the ASD creation or ASD closure in this case.
From a previous FAQ regarding VSD and DCRV procedures: *Either the VSD or the DCRV repair may be the appropriate primary procedure. The repair of a DCRV may include a VSD repair, however if the surgeon feels the VSD was hemodynamically significant or the more important procedure, code the VSD repair as the primary procedure.*

Long Name:	Primary Procedure Indicator	*SeqNo:*	940
Short Name:	**PrimProc**	*Core:*	Yes
Section Name:	Procedures	*Harvest:*	Yes
DBTableName:	Procedures		
Definition:	Indicate whether this procedure 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.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

January 2019: Hi, on the last Core group call I asked about a procedure where an ASD is repaired and the surgeon also does a pericardial window. It was stated that I should code the pericardial window as the surgeon dictated that it was done, and if audited my procedures coded would not match what the surgeon dictated. Can this decision be added to the FAQ document? **Every ASD repair (or intracardiac repair) requires the pericardium to be opened and should not be included as a pericardial window. Only code the pericardial window when performing a pericardial drainage procedure.**

February 2019: Complex cardiac patient comes to ED in cardiac arrest (septic and RSV positive). CPR led to ROSC and admitted to PICU for several days. Patient's subsequent extubation led to respiratory and cardiac failure. CT Surgeon prepped neck for ECMO while undergoing CPR (got as far as dissecting out the neck vessels when patient had ROSC again) so operation to place on ECMO aborted. How do I code this? Is operative type "Other"? Procedure "miscellaneous or "other procedure" or "procedure on neck" or "operation aborted after skin incision"? Patient died 2 days later. Do I check the operative mortality box as it wasn't a CPB or no CPB surgery? **Operation type, Other. Yes, check the operative mortality box as the definition does not specify operation type. The operation type will be handled during the analysis.**

July 2019: This is about index procedure determination specifically in reference to a child who has a PA Banding, then goes on for Norwood. Why would the first operation (with lower stat score) be the index procedure, when a Norwood carries a stat 5 score? **The PA Banding is the index procedure because it is the first cardiovascular case the patient had. Currently, this is the way rules work. A group of surgeons are looking at updating the rules so this type of thing doesn't happen.**

July 2019: We have two procedure codes: 190 (AVC repair, partial) and 830 (mitral valvuloplasty). Following the guidelines in the Interpretation Guide, it seems that I should make #830 the primary procedure for the higher STAT score. I cannot find any exceptions in the Interpretation Guide and ask that you verify. **Currently, the mitral valvuloplasty will be the primary procedure. This may be updated with a specific rule in the future.**

July 2019: I can't find the "Exceptions" for VSD Repairs, when it comes to coding multiple procedures that also includes a VSD Procedure. Can you direct me to the area on the website? This was from a few years ago. Not the "Rule" in the Harvest Report. It was a page with a list of exceptions. **The list is in the Overview section of the Data Harvest Report.**

July 2019: I have a question about coding TOF, PS (or any TOF that requires PA reconstruction). If the patient has a TOF, PS repair (any type), but also has PA reconstruction, do you have to code the PA reconstruction (might have a higher stat score than the TOF repairs, but don't most forms of TOF have some form of RVOT/PS?) The data specs say Tetralogy of Fallot repair assumes VSD closure and relief of pulmonary stenosis at one or more levels. It also says to code RVOT obstruction separately, but if you then list the RVOT obstruction repair, it will be higher than the TOF repair, which is the main reason the patient is having the operation. It would be great to have some simple coding examples of these cases in the training manual. This actual patient had a patch closure of VSD, patch enlargement of Left PA, patch enlargement of main PA, and tricuspid valvuloplasty. Surgeon selected TOF, ventriculotomy, transannular patch and PA reconstruction, central, within hilar branch. **Repairs done to the main PA or branch PAs prior to the hilar bifurcation are considered to be a part of the TOF repair. Procedures to the branch PAs beyond the hilar bifurcation should be included as a PA reconstruction procedure. However, the TOF repair is an operation with procedure specific factors and thus will remain the primary procedure of the operation.**

August 2019: Patient admitted 6/21-6/25 for permanent pacemaker for acquired heart block related to Single ventricle anatomy (s/p Fontan). Discharged home. Readmitted 7/2-7/5 for pericardial effusion treated with Lasix and steroids. Readmitted 7/10 for recurrent pericardial effusion (second readmission related to pacemaker). Pericardiocentesis done 7/10 by CTS surgeon at bedside emergently to relieve tamponade and then taken to OR on 7/12 for pericardial window and placement of antibiotic pocket around pacemaker site. I coded the readmit, pericardial effusion requiring drainage as complications of the index procedure for the first admit. Would this be correct? I assume the pericardiocentesis will then be the index procedure for the 7/10 admit. Do I then need to

code the remaining complications to this 7/10 admission or back to the original admit? I understand that it is now a new episode of care but the reason for the admission is based on the initial index procedure of the first admit. **Everything happened within 30 days. So all complications should go back to the original operation (pacemaker). Anything over 30 days can go to the second procedure.**

August 2019: Not sure which to choose as primary procedure for a patient recently listed for heart transplant. A CentriMag left ventricular assist device with Berlin Heart cannulas was placed on CPB, followed by removal of old biventricular pacemaker system with placement of new epicardial dual-chambered Azure XT dual-chambered pacemaker system with bipolar epicardial pacemaker leads. **Primary procedure: VAD; Op Type: VAD**

August 2019: Our intention was to code the procedure described below as a VAD with CPB and the VAD implantation being the primary procedure but wanted to make sure this is the most appropriate choice. This patient came to our hospital already on ECMO support from outstanding hospital in end stage cardiomyopathy. PREOPERATIVE DIAGNOSIS: End-stage cardiomyopathy, status post cannulation for veno-arterial extracorporeal membrane oxygenation through the neck, patent ductus arteriosus, status post creation of atrial septal defect. POSTOPERATIVE DIAGNOSIS: End-stage cardiomyopathy, status post cannulation for veno-arterial extracorporeal membrane oxygenation through the neck, patent ductus arteriosus, status post creation of atrial septal defect.
PROCEDURE: Placement of PediMag left ventricular assist device with 6 mm Berlin Heart apical and aortic cannulas, ligation of patent ductus arteriosus, suture closure of atrial septal defect, placement of double-lumen 7-French Hickman right atrial catheter, decannulation of extracorporeal membrane oxygenation with repair of right carotid artery and right jugular vein. **The primary procedure is VAD Insertion with/without CPB depending on whether it was used or not.**

January 2020: Regarding the newer procedure codes for PA,VSD, MAPCA repairs that don't have a STAT score, can you please advise the most appropriate codes for the following scenario:PREOPERATIVE DIAGNOSIS:1. Pulmonary atresia, ventricular septal defect, major aortopulmonary collaterals. 2. Status post unifocalization and left modified Blalock-Taussig shunt. POSTOPERATIVE DIAGNOSIS: 1. Pulmonary atresia, ventricular septal defect, major aortopulmonary collaterals. 2. Status post unifocalization and left modified Blalock-Taussig shunt. PROCEDURE:1. Redo sternotomy and takedown of mediastinal adhesions. 2. Takedown of Blalock-Taussig shunt.3. Unifocalization of left lower lobe major aortopulmonary collateral artery. 4. Ventricular septal defect closure with right ventricle-to-pulmonary artery conduit (Rastelli) using a 14 mm pulmonary homograft conduit. 5. Atrial septal defect closure (primary).
6. Patent foramen ovale creation. Also, these newer procedures are on the PSF list so even if we are not making them the primary because they don't have a STAT score should we go ahead and fill in the PSFs as if it were the primary, for the sake of data collection? **Code PA/VSD/MAPCA repair s/p prior incomplete unifocalization (2720). The timing for when the new STAT scores will be ready is not yet determined.**

October 2020: If a procedure is a benchmark procedure with procedure specific factors, will it be the primary procedure even if it has a lower STAT score than other procedures done at the same time? **This is true with the exception of VSD repairs.**

January 2021: What is the best way to capture the following repair in a patient with DORV, TGA type - LV to aorta intraventricular tunnel repair, VSD closure, and an RV to PA conduit - Rastelli vs. DORV, Intraventricular tunnel repair? ~~**Rastelli is the best choice for this procedure.**~~ **Update September 2022: In the setting of DORV, code procedure (3440) DORV repair, RV-PA conduit.**

August 2021: We have a patient with the Fundamental Diagnosis of TOF/PA and MAPCA's who is s/p MAPCA unifocalization and placement of a 6mm RV-PA conduit (VSD left open) as his first and only operation. He now comes to the OR for VSD closure, upsizing of the RV-PA conduit and PFO closure. Should I code this procedure as #420 PA-VSD Repair, VSD closure + RV-PA conduit? **The Primary procedure is (2710) Pulmonary atresia –VSD – MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit]).**

August 2021: Pt has a history of Double-inlet Left Ventricle, hypoplastic right ventricle, PFO, s/p PDA ligation, and PA banding. During this encounter, pt underwent ventricular septation, PFO closure, PA debanding with PA reconstruction. What should be the primary procedure as ventricular septation has no stat score? **The PA reconstruction is the primary procedure in this scenario as it is the procedure with the highest STAT score.**

August 2021: Patient had Main PA Plication performed by CT surgeon to create landing zone for a transcatheter PVR. My surgeon performed & dictated the plication, and the interventional cardiologist deployed and dictated the PVR. What is the procedure I should code for a PA Plication seeing as it is not a plasty? And, do I code the transcath PVR even if my surgeon didn't deploy it? **Code the Primary procedure as (1640) PA banding as this is what was functionally completed. Secondarily, code procedure (2660) Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve.**

August 2021: My surgeon did a Fontan revision and common AV valuloplasty. For the primary procedure, do I use the combination procedure code with the Fontan revision? The combination code has a lower stat score then coding the two individually. ~~**Code the primary procedure as (1025) Fontan revision or conversion (Re-do Fontan) and code the AV valvuloplasty as a secondary procedure.**~~ **Update January 2023: Procedure (1025) Fontan revision or conversion (Re-do Fontan) when done concomitantly with procedure (2300) Valvuloplasty, Common atrioventricular valve should be coded as the combination procedure (2340) Fontan + AV valvuloplasty.**

September 2021: Patient had PA banding performed by my surgeon, and the PDA stent was deployed by interventional cardiology. – Do I code for just what my surgeon did? Or, do I code for the bilateral PA banding +PDA stenting? **Code the interventions the patient received during the procedure, not just what the cardiac surgeon performed. Following this logic, code procedure (2180) Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands.**

September 2021: My surgeon changed out only the ventricular lead and based off the definitions; it's not clear to me what should be the primary procedure. Which procedure should be used for a permanent lead placement without generator placement? **Code procedure (1460) Pacemaker procedure as as only the lead was placed and not a new system (lead + generator).**

September 2021: Two questions on coding primary procedures:
1) Pt was s/p AVC repair and was on ECLS postoperatively. On POD #2, pt was taken emergently to the cath lab for angiogram. A huge thrombus was found above the superior mesenteric artery, which occluded the abdominal aorta. CT surgeon performed a femoral artery cut down and removed the thrombus by a Fogarty catheter. What is the best or correct code for this procedure?

2. Pt was scheduled for a pulmonary valve replacement. During redo sternotomy, the patch on the main pulmonary artery dehisced. CT surgeon replaced the pulmonary valve and augment the main pulmonary artery with a pericardial patch. Which procedure would be coded as primary?

1) Code procedure (2030) Peripheral vascular procedure, Other for the thrombus removal by Fogarty catheter procedure.

2) In this scenario, the procedure with the highest STAT score will be the primary procedure, which is the PA, reconstruction (plasty), Main (Trunk).

For future reference: For PA reconstruction procedures in the setting of pulmonary valve replacements: If the PA reconstruction is being done to facilitate the placement of the pulmonary valve, do not code the PA reconstruction as a separate procedure. If the PA reconstruction is being completed because of pulmonary artery pathology (i.e. stenosis, dehisence), do code the PA reconstruction as a separate procedure.

September 2021: We have a patient who had surgical procedures including a bidirectional Glenn and RV Rehabilitation. Can the RV Rehabilitation be considered the Primary Procedure since it has a higher stat score? Or, does the bidirectional Glenn have to be entered as the Primary Procedure? Where can we get an update for

the following list: Determination of the Primary Procedure of an Operation and Classification of Multiple-Procedure Operations? **Based on the current procedure determination rules, the bidirectional Glenn procedure will be the primary procedure in this scenario. This is explained in Rule #1 - The Procedure Specific Factor Rule. The current primary procedure determination rules can be accessed using the following link: https://www.sts.org/sites/default/files/Determination_Primary_Diagnosis_and_Primary_Procedure_12.1.2020.pdf**

September 2021: Patient with diagnosis Pulmonary atresia, VSD-MAPCA confirmed on cardiac cath. Surgical repair consisted of PA-VSD repair and the surgeon ligated the MAPCAs. Is the Primary procedure PA-VSD repair? From the Op Note: Pre-Operative Dx: TOF MAPCA's S/P RVOT stent; Post-Operative Diagnoses: Same; Procedure Performed: Removal of RVOT stent, VSD closure, Transannular patch, Ligation of MAPCAs. **Code procedure (420) PA-VSD repair as primary and procedure (450) Occlusion of MAPCA(s) as secondary.**

October 2021**:** A patient has Ebsteins anomaly. Had cone procedure 2009. Now with severe regurgitation due to perivalvar leak from large hole and residual PFO from ASD patch. Surgeon patched hole and closed PFO primarily. Also performed maze. Which diagnosis is best since it's an ebsteins? And which procedures? Not sure since this is a second surgery. **As the patient underwent previous Ebstein's repair, the Fundamental diagnosis remains Ebstein's anomaly. Any subsequent valve repairs are thought to be non-Ebstein's related. The primary diagnosis for this scenario is then (380) Tricuspid regurgitation, non-Ebsteon's related. The primary procedure is (460) Valvuloplasty, Tricuspid.**

January 2022: Will procedures 3330 TOF repair, Ventriculotomy, Transannular patch, plus native valve reconstruction and 3340 TOF repair, Ventriculotomy, Transannular patch, with monocusp or other surgically fashioned RVOT valve have procedure specific factors assigned in the future? If so, I assume they will then be additions to the procedure specific factor rule list. Please advise if this change can be considered by the task force in the future. **Yes, procedures (3330) and (3340) will be assigned Procedure Specific Factors in data version 6.22. The Task Force will review the procedure determination rules for assigning primary procedure as well.**

February 2022: A patient is at end-stage cardiomyopathy who has a centrifugal pump LVAD. She has had repeated fibrin deposition that has required tubing connector manipulation. She now has a concerning clot at the outflow connector and schedule for a LVAD connector replacement. What would I code as the surgical procedure? **Code procedure (1920) Right/left heart assist device procedure.**

February 2022: Patient had mediastinal exploration and repair of right ventricular laceration. I coded the procedures as (1970) Mediastinal exploration and (940) Pericardial procedure, Other based on the Op Report below. Is this correct? **Do not code as procedure (940) as the procedure is not pericardial. The best way to code this procedure is (2010) Cardiac procedure, Other.**

February 2022: If a patient got bilateral PA bands as a palliation prior to his truncus arteriosus repair, do I still code that as #2160 "hybrid approach stage 1, application of RPA & LPA bands" even though the patient is not going down the single ventricle pathway, or do I code him with #1640 "PA banding"? **Please code procedure (1640) PA banding (PAB).**

February 2022: If a patient had their RV to PA conduit taken down and replaced, and there was an indwelling stent and device, do I code #3220 removal of transcatheter delivered device from heart along with the conduit reoperation, or would I not code it because it was removed en bloc with the conduit? **Code all procedures completed during the operation. In this scenario, code procedure (3180) Intravascular stent removal along with the conduit reoperation.**

March 2022: My surgeons did a Norwood and a TAVPC repair on 1/14/2022. I coded the Norwood and then coded 610 conduit placement, RV-PA for the Sano shunt. I was going to code the TAVPC repair when I noticed that there is a combination code for TAVPC repair + shunt systemic to pulmonary. Should I code that instead of just TAVPC repair and then take the 610 code out? If that is the case, then both the procedures carry a STAT 5. I

believe the Norwood would still be the primary procedure since it is a benchmark procedure. **The primary procedure for this operation is the (870) Norwood procedure. The second procedure is the source of pulmonary blood flow, (610) Conduit placement, RV to PA. Following those procedures, include procedure (280) TAPVC repair.**

March 2022: These two answers seem to contradict each other:
June 2021: Should ALL bilateral PA band placements be coded with a Hybrid Stage 1 code, rather than 1640 PA Band Placement, regardless of anatomy? Yes, all bilateral PA band placements should be coded as a Hybrid Stage 1. February 2022: If a patient got bilateral PA bands as a palliation prior to his truncus arteriosus repair, do I still code that as #2160 "hybrid approach stage 1, application of RPA & LPA bands" even though the patient is not going down the single ventricle pathway, or do I code him with #1640 "PA banding"? Please code procedure (1640) PA banding (PAB). Can you clarify the circumstances where we are to use 1640 for bilateral PA banding? **The PA banding procedure definitions will be clarified in the Training Manual. Please refer to the STS Congenital Database Webinar on 02-18-22 for more details on this clarification.**

> **Procedure (2160) Hybrid Approach "Stage 1", Application of RPA and LPA bands is for the application of bilateral pulmonary artery bands with either: a ductal stent to maintain ductal patency or concomitant use of PGE (prostaglandin) to maintain ductal dependency.**

March 2022: We just had a repair of mixed TAPVC and I want to be sure it is coded accurately, as we don't typically see this type of TAPVC. The dictation of operation reads, "Unroofing of the coronary sinus and enlargement of the ASD and ASD closure with baffling of the pulmonary veins to the left atrium." Do I code 280 TAPVC repair, mixed or code 60 ASD enlargement, unroofing of coronary sinus, as a component of a TAPVC repair? **Code the repair as procedure (280) TAPVC repair as this scenario represents a TAPVC repair.**

March 2022: How should I code the Ozaki Procedure? I'm thinking 660 Aortic Vavluloplasty but wanted to be sure. **Currently the Ozaki procedure is captured by procedure (660) Valvuloplasty, Aortic. This procedure will be included in version 6.22.**

April 2022: Patient with dilated cardiomyopathy, severe heart failure and aortic coarctation. As planned preop, underwent emergent placement on bypass, then hybrid thoracic coarc stent placement (surgeon placed sheath into aorta), then as planned preop converted CPB to LVAD to help support severely dysfunctional left ventricle. I coded this as op type CPB, is that correct? I coded the primary procedure (1550) cardiovascular catheterization procedure, therapeutic, Stent insertion. Is that correct? **Code procedure (2770) Hybrid Approach, Transcardiac transcatheter device placement as the primary procedure. Do not code procedure 1550. The operation type is CPB Cardiovascular.**

April 2022: Regarding patients with PA-IVS, our surgeons are dictating one-and-one half repair with a bidirectional glenn; do I include both procedure codes -> 1670- Palliation, Cavopulmonary anastomosis (SVC to PA), Bidirectional (BDCPA) (Modified Glenn) - 0.5 and 520- One-and-one half ventricular repair, RV outflow tract reconstruction + Superior cavopulmonary anastomosis (Glenn anastomosis), Bidirectional cavopulmonary anastomosis - 0.4? **If an attempt was made to remove the patient from single ventricle circulation, code procedure (510) RVOT procedure as primary and include procedure (520) 1 1/2 ventricle repair as a secondary procedure.**

Procedure Specific Factors

Long Name:	Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure	*SeqNo:*	948
Short Name:	**PSFPrimProc**	*Core:*	Yes

Section Name: Procedure-Specific Factors *Harvest:* Yes
DBTableName: Operations
Definition: Indicate which, if any, of the following "benchmark operations" was the primary procedure for this operation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
10	None of the listed procedures
100	VSD repair, Primary closure
110	VSD repair, Patch
120	VSD repair, Device
130	VSD, Multiple, Repair
390	TOF – AVC (AVSD) repair
350	TOF repair, No ventriculotomy
360	TOF repair, Ventriculotomy, Nontransanular patch
370	TOF repair, Ventriculotomy, Transanular patch
380	TOF repair, RV-PA conduit
400	TOF – Absent pulmonary valve repair
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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
420	Pulmonary atresia – VSD (including TOF, PA) repair
170	AVC (AVSD) repair, Complete (CAVSD)
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 (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)
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
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
2160	Hybrid Approach "Stage 1", Application of RPA & LPA bands
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

Long Name: Procedure-Specific Factors – Apical VSD — *SeqNo:* 949
Short Name: **PSFApicalVSD** — *Core:* Yes
Section Name: Procedure-Specific Factors — *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Apical VSD was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 100|110|120|130|1120|1125
ParentValues: = "VSD repair, Primary closure", "VSD repair, Patch", "VSD repair, Device", "VSD, Multiple, Repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors – Straddling AV valve — *SeqNo:* 950
Short Name: **PSFStradAVVal** — *Core:* Yes
Section Name: Procedure-Specific Factors — *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Straddling AV valve was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 100|110|120|130|1120|1125
ParentValues: = "VSD repair, Primary closure", "VSD repair, Patch", "VSD repair, Device", "VSD, Multiple, Repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors – Major coronary crossing RVOT – Coronary anomaly restricting RVOT enlargement, (LAD from RCA etc.)
SeqNo: 951

Short Name: **PSFMajCorRVOT**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations
Definition: Indicate whether Major coronary crossing RVOT – Coronary anomaly restricting RVOT enlargement, (LAD from RCA etc.) was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|350|360|370|380|400|2700|2710|2720|420
ParentValues: = "TOF – AVC (AVSD) repair", "TOF repair, No ventriculotomy", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, RV-PA conduit", "TOF – Absent pulmonary valve repair", "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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia – VSD (including TOF, PA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors – VSD, Multiple, Repair
SeqNo: 952
Short Name: **PSFVSDMultRep**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether VSD, Multiple, Repair was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|350|360|370|380|400|2700|2710|2720|420
ParentValues: = "TOF – AVC (AVSD) repair", "TOF repair, No ventriculotomy", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, RV-PA conduit", "TOF – Absent pulmonary valve repair", "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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia – VSD (including TOF, PA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors – Restrictive VSD	*SeqNo:*	953
Short Name:	**PSFRestrictVSD**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Restrictive VSD was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|350|360|370|380|400|2700|2710|2720|420
ParentValues: = "TOF – AVC (AVSD) repair", "TOF repair, No ventriculotomy", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, RV-PA conduit", "TOF – Absent pulmonary valve repair", "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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])" or "Pulmonary atresia – VSD (including TOF, PA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors – Hypoplastic branch pulmonary arteries (diminished pulmonary vascular bed)	*SeqNo:*	954
Short Name:	**PSFHypoBrPulmArt**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Hypoplastic branch pulmonary arteries (diminished pulmonary vascular bed) was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|350|360|370|380|400|2700|2710|2720|420 |1670|1680|1690|1700|2330|2130|3160|950 |960|970|980|1000|1010|2780|2790|3310|3320|1030|2340|1025
ParentValues: = "TOF – AVC (AVSD) repair", "TOF repair, No ventriculotomy", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, RV-PA conduit", "TOF – Absent pulmonary valve repair", "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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])", "Pulmonary atresia – VSD (including TOF, PA) repair", "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) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "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, 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, Other", "Fontan + Atrioventricular valvuloplasty" or "Fontan revision or conversion (Re-do Fontan)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

November 2019: Should the procedure specific of hypoplastic branch PAs only be coded if the hypoplasia is congenital, or should I code it when they're hypoplastic due to (now debanded) bilateral PA banding? Our patient had a PA plasty along with her Glenn to enlarge her PAs that were narrowed as a result of her bilateral

PA banding? **Code PA hypoplasia as a procedure specific factor for both congenital and acquired PA hypoplasia.**

November 2021: Recently our software vendor informed us that if a procedure is done that has multiple procedures containing procedure-specific factors, we should be entering the PSFs on all the procedures, not just the primary procedure done during the case. Does the STS utilize this information in data analysis? **While the current defintion states to code the procedure specific factors for only the primary procedure, sites can (but are not required to) answer the associated factors for procedures that are not the primary procedure. This will be addressed in the upcoming 6.22 version upgrade.**

Long Name:	Procedure-Specific Factors – AV Valve regurgitation grade 3 and 4 (Severe AV Valve regurgitation)	*SeqNo:*	955
Short Name:	**PSFAVRegurg34**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether AV Valve regurgitation grade 3 and 4 (Severe AV Valve regurgitation) was present.		
Intent / Clarification:	This should be coded if any of the following grades of regurgitation are present: grade3, grade 4, moderate, or severe.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Procedure-Specific Factors – Procedure-Specific Factors – Primary Procedure		
ParentShortName:	**PSFPrimProc**		
ParentHarvestCodes:	390|350|360|370|380|400|2700|2710|2720|420 |1670|1680|1690|1700|2330|2130|3160|950 |960|970|980|1000|1010|2780|2790|3310|3320|1030|2340|1025		
ParentValues:	= "TOF – AVC (AVSD) repair", "TOF repair, No ventriculotomy", "TOF repair, Ventriculotomy, Nontransanular patch", "TOF repair, Ventriculotomy, Transanular patch", "TOF repair, RV-PA conduit", "TOF – Absent pulmonary valve repair", "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 unifocalizarion (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])", "Pulmonary atresia – VSD (including TOF, PA) repair", "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) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior		

Cavopulmonary anastomosis(es) + PA reconstruction", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "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, 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, Other", "Fontan + Atrioventricular valvuloplasty" or "Fontan revision or conversion (Re-do Fontan)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Double orifice left atrioventricular valve

SeqNo: 956

Short Name: **PSFDoubOrif**

Core: Yes

Section Name: Procedure-Specific Factors

Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Double orifice left atrioventricular valve was present.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure

ParentShortName: **PSFPrimProc**

ParentHarvestCodes: 390|170

ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Single papillary muscle in the left ventricle and/or parachute left atrioventricular valve	*SeqNo:*	957
Short Name:	**PSFSingPap**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Single papillary muscle in the left ventricle and/or parachute left atrioventricular valve was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Hypoplastic posterior mural leaflet	*SeqNo:*	958
Short Name:	**PSFHypoPostMLeaf**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Hypoplastic posterior mural leaflet was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes

2 No

Long Name: Procedure-Specific Factors - Atrioventricular septal defect with ventricular imbalance: dominant left ventricle, hypoplastic right ventricle
SeqNo: 959

Short Name: **PSFASDDomLeft**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Atrioventricular septal defect with ventricular imbalance: dominant left ventricle and hypoplastic right ventricle was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Atrioventricular septal defect with ventricular imbalance: dominant right ventricle, hypoplastic left ventricle
SeqNo: 960

Short Name: **PSFASDDomRight**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Atrioventricular septal defect with ventricular imbalance: dominant right ventricle and hypoplastic left ventricle was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Common atrioventricular valve with unbalanced commitment of valve to left ventricle
SeqNo: 961

Short Name: **PSFCAVLeft**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations
Definition: Indicate whether Common atrioventricular valve with unbalanced commitment of valve to left ventricle was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Common atrioventricular valve with unbalanced commitment of valve to right ventricle
SeqNo: 962

Short Name: **PSFCAVRight**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations
Definition: Indicate whether Common atrioventricular valve with unbalanced commitment of valve to right ventricle was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 390|170
ParentValues: = "TOF - AVC (AVSD) repair" or "AVC (AVSD) repair, Complete (CAVSD)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Moderate to severe systemic ventricular dysfunction
SeqNo: 963

Short Name: **PSFModSevSVD**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations
Definition: Indicate whether Moderate to severe systemic ventricular dysfunction was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1670|1680|1690|1700|2330|2130|3160|950|960|970|980|1000|1010|2780|2790| 3310|3320|1030|2340|1025
ParentValues: = "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) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "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, 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, Other", "Fontan + Atrioventricular valvuloplasty" or "Fontan revision or conversion (Re-do Fontan)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Systemic ventricular outflow tract obstruction (subaortic obstruction)	*SeqNo:*	964
Short Name:	**PSFSysVentObs**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Systemic ventricular outflow tract obstruction (subaortic obstruction) was present.		
Intent / Clarification:	Indicate whether obstruction between the dominant ventricle and the systemic circulation was present (e.g., Restrictive bulboventricular foramen/VSD in a patient with tricuspid atresia and transposition of the great arteries).		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure		
ParentShortName:	**PSFPrimProc**		
ParentHarvestCodes:	1670|1680|1690|1700|2330|2130|3160|950|960|970|980|1000|1010|2780|2790| 3310|3320|1030|2340|1025		
ParentValues:	= "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) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "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, 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, Other", "Fontan + Atrioventricular valvuloplasty" or "Fontan revision or conversion (Re-do Fontan)"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Ventricular dominance	*SeqNo:*	965
Short Name:	**PSFVentDom**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate ventricular dominance.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1670|1680|1690|1700|2330|2130|3160|950|960|970|980|1000|1010|2780|2790| 3310|3320|1030|2340|1025
ParentValues: = "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) (Glenn or HemiFontan) + Atrioventricular valvuloplasty", "Superior Cavopulmonary anastomosis(es) + PA reconstruction", "Kawashima operation (superior cavopulmonary connection in setting of interrupted IVC with azygous continuation)", "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, 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, Other", "Fontan + Atrioventricular valvuloplasty" or "Fontan revision or conversion (Re-do Fontan)"

Harvest Codes:

Code:	Value:
1	Left ventricular dominance
2	Right ventricular dominance
3	Balanced
4	Indeterminate ventricular dominance

Long Name:	Procedure-Specific Factors - Posterior coronary loop: circumflex coming off the RCA	*SeqNo:*	970
Short Name:	**PSFPostLoopCirc**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Posterior coronary loop: circumflex coming off the RCA was present.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	1110|1123|1120|1125
ParentValues:	= "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Posterior Coronary Loop: left trunk coming off the RCA	*SeqNo:*	971
Short Name:	**PSFPostLoopLeftTrunc**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether Posterior Coronary Loop: left trunk coming off the RCA was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Double Coronary Loops
Short Name: **PSFDoubleLoops**
Section Name: Procedure-Specific Factors
DBTableName: Operations
Definition: Indicate whether Double Coronary Loops (inverted origin of right and left coronary arteries) was present.

SeqNo: 972
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes

2	No

Long Name:	Procedure-Specific Factors - Single Coronary Ostium	*SeqNo:*	973
Short Name:	**PSFSingOst**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Single coronary ostium was present.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	1110|1123|1120|1125
ParentValues:	= "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Intramural coronary	*SeqNo:*	974
Short Name:	**PSFIntramuralCor**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Intramural coronary was present.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	1110|1123|1120|1125

ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Large infundibular coronary artery from LAD
SeqNo: 975

Short Name: **PSFLgInfundArt**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Large infundibular coronary artery from LAD was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Malaligned commissures
SeqNo: 976

Short Name: **PSFMalComm**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Malaligned commissures was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Take down of a commissure
SeqNo: 977
Short Name: **PSFTakeDownComm**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Take down of a commissure was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Aorto-pulmonary diameter mismatch
SeqNo: 978

Short Name:	**PSFAortoPulMis**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Aorto-pulmonary diameter mismatch was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Side by side vessels	*SeqNo:*	979
Short Name:	**PSFSideBySide**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Side by side vessels was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Posterior native aorta
SeqNo: 980
Short Name: **PSFPostNatAorta**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Posterior native aorta was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Subaortic obstruction/ conal septum malalignment
SeqNo: 981
Short Name: **PSFSubAObs**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Subaortic obstruction / conal septum malalignment was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Bicuspid native aortic valve (Bicuspid neopulmonary valve)
SeqNo: 982
Short Name: **PSFBicusNatAortic**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Bicuspid native aortic valve (Bicuspid neopulmonary valve) was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Bicuspid native pulmonary valve (Bicuspid neoaortic valve)
SeqNo: 983
Short Name: **PSFBicusNatPulm**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations

Definition: Indicate whether Bicuspid native pulmonary valve (Bicuspid neoaortic valve) was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 1110|1123|1120|1125
ParentValues: = "Arterial switch operation (ASO)", "Arterial switch procedure + Aortic arch repair", "Arterial switch operation (ASO) and VSD repair" or "Arterial switch procedure and VSD repair + Aortic arch repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Truncus type 3 (PA Branches from PDA or descending aorta)
SeqNo: 984

Short Name: **PSFTruncType3**
Core: Yes

Section Name: Procedure-Specific Factors
Harvest: Yes

DBTableName: Operations
Definition: Indicate whether Truncus type 3 (PA Branches from PDA or descending aorta) was present.

Intent / Clarification: This refers to the Van Praagh classification scheme which may also be referred to as Type A3.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 230|2220
ParentValues: = "Truncus arteriosus repair" or "Truncus + Interrupted aortic arch repair (IAA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Abnormal coronary	*SeqNo:*	985
Short Name:	**PSFAbnormalCor**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Abnormal coronary was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 230|2220
ParentValues: = "Truncus arteriosus repair" or "Truncus + Interrupted aortic arch repair (IAA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Truncal valve regurgitation (moderate to severe)	*SeqNo:*	986
Short Name:	**PSFTruncValRegurg**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Truncal valve regurgitation (moderate to severe) was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 230|2220
ParentValues: = "Truncus arteriosus repair" or "Truncus + Interrupted aortic arch repair (IAA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Truncal Valve stenosis (moderate to severe)	*SeqNo:*	987
Short Name:	**PSFTruncValSten**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Truncal valve stenosis (moderate to severe) was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 230|2220
ParentValues: = "Truncus arteriosus repair" or "Truncus + Interrupted aortic arch repair (IAA) repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Source of pulmonary blood flow: Shunt - systemic artery-to-pulmonary artery	*SeqNo:*	988
Short Name:	**PSFSrcPulFloShuntSys**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Source of pulmonary blood flow: Shunt - systemic artery-to- pulmonary artery was present.		
Intent / Clarification:	This should not be selected if a REVERSE Blalock-Taussig shunt is placed to augment perfusion.		

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	870|2160|2170|2180
ParentValues:	= "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Source of pulmonary blood flow: Shunt - ventricle-to- pulmonary artery	*SeqNo:*	989
Short Name:	**PSFSrcPulFloShuntVent**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Source of pulmonary blood flow: Shunt - ventricle-to-pulmonary artery was present.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	870|2160|2170|2180
ParentValues:	= "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Source of pulmonary blood flow: Superior caval vein-to- pulmonary artery	*SeqNo:*	990
Short Name:	**PSFSrcPulFloSuper**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Source of pulmonary blood flow: Superior caval vein-to-pulmonary artery was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Source of pulmonary blood flow: Banded Central PAs	*SeqNo:*	991
Short Name:	**PSFSrcPulFloBandPA**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate if the source of pulmonary blood flow is from the main pulmonary artery to the distal pulmonary arteries via branch pulmonary arteries that have been surgically narrowed (banded).		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180

ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Procedure-Specific Factors - Ascending aorta < 2 mm
SeqNo: 992
Short Name: **PSFAscAortaLT2**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Ascending aorta < 2 mm was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Aortic atresia
SeqNo: 993
Short Name: **PSFAortAtresia**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Aortic atresia was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Aortic stenosis
SeqNo: 994
Short Name: **PSFAortSten**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Aortic stenosis was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Mitral atresia	*SeqNo:*	995
Short Name:	**PSFMitralAtresia**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Mitral atresia was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Mitral stenosis	*SeqNo:*	996
Short Name:	**PSFMitralSten**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Mitral stenosis was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Sinusoids	*SeqNo:*	997
Short Name:	**PSFSinusoids**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the presence of sinusoids was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Intact atrial septum	*SeqNo:*	998
Short Name:	**PSFIntactAtrSep**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Intact atrial septum was present.		

Intent / Clarification: **Jan 2023: Does not include restrictive atrial septum.**

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	870|2160|2170|2180
ParentValues:	= "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

January 2023: Regarding the psf of intact atrial septum for Norwood procedure, should centers be capturing "intact atrial septum" for a restrictive atrial septum that required septostomy prior to the Norwood procedure? **A restrictive atrial septum is not the same as an intact atrial septum. Do not include a restrictive atrial septum in the PSF for Norwoods for intact atrial septum.**

Long Name:	Procedure-Specific Factors - Obstructed pulmonary venous return with severely restrictive ASD	*SeqNo:*	999
Short Name:	**PSFObsPulVenRet**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Obstructed pulmonary venous return with severely restrictive ASD was present.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName:	**PSFPrimProc**
ParentHarvestCodes:	870|2160|2170|2180
ParentValues:	= "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Aberrant right subclavian artery	*SeqNo:*	1000
Short Name:	**PSFAberrantRtSubclav**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Aberrant right subclavian artery was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 870|2160|2170|2180
ParentValues: = "Norwood procedure", "Hybrid Approach "Stage 1", Application of RPA & LPA bands", "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)" or "Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - TV Repair	*SeqNo:*	1001
Short Name:	**PSFTVRep**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TV Repair was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - TV Repair - Monocusp
SeqNo: 1002
Short Name: **PSFTVRepMono**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether TV Repair - Monocusp was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - TV Repair
ParentShortName: **PSFTVRep**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - TV Repair - Bileaflet Repair
SeqNo: 1004
Short Name: **PSFTVRepBileaf**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether TV Repair - Bileaflet Repair was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - TV Repair
ParentShortName: **PSFTVRep**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - TV Repair - Cone Repair - 360 Degrees Leaflet Approximation	*SeqNo:*	1006
Short Name:	**PSFTVRepCone**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TV Repair - Cone Repair - 360 Degrees Leaflet Approximation was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - TV Repair
ParentShortName: **PSFTVRep**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Sebening Stitch (Anterior RV Papillary Muscle To Ventricular Septum)	*SeqNo:*	1008
Short Name:	**PSFSebening**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Sebening Stitch (Anterior RV Papillary Muscle To Ventricular Septum) was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**

ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Annular Reduction
SeqNo: 1009
Short Name: **PSFAnnRed**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Annular Reduction was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Annular Reduction - Plication
SeqNo: 1010
Short Name: **PSFAnnRedPlic**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Annular Reduction - Plication was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Annular Reduction
ParentShortName: **PSFAnnRed**

ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Annular Reduction - Partial Ring (C-Shaped Anterior And Inferior Annulus)
SeqNo: 1012
Short Name: **PSFAnnRedPartial**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Annular Reduction - Partial Ring (C-Shaped Anterior And Inferior Annulus) was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Annular Reduction
ParentShortName: **PSFAnnRed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

June 2021: Could you please define a partial ring and an eccentric ring? It would actually be quite helpful if each PSF with their associated surgeries had related definitions to lessen individual interpretation and standardize data collection nationally. Can these definitions be added to the upgraded training manual/data specs? **Eccentric rings are those on the inferior annulus or the partial ring on the C-shaped anterior annulus or inferior annulus. Working with your surgeon will help clarify which ring was used.**
August 2021: My question is related to the procedure specific factor; Subaortic obstruction/ conal septum malalignment for the arterial switch operation. When asking if a subaortic obstruction is present, are you referring to the native pulmonary artery (neoaortic) or native aorta (neopulmonary)? My surgeons were looking for clarification related to this factor. **Although it is not clearly stated regarding whether this refers to the "native" aortic valve and subvalvar area or the "neo-aortic" valve and subvalvar area, I suggest that we extrapolated from the procedure specific factors regarding "bicuspid native aortic valve (Bicuspid neopulmonary valve)." If we follow that analogy, then subaortic obstruction/conal septum malalignment should refer to the "native" aortic valve and sub-valvar area. We can clarify this in the Data Specifications and the Training Manual by adding a parenthetical explanation in the same way as we do for the Bicuspid native aortic valve (SeqNo 982).**

Long Name:	Procedure-Specific Factors - Annular Reduction - Eccentric Ring (Inferior Annulus)	*SeqNo:*	1014
Short Name:	**PSFAnnRedEccent**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Annular Reduction - Eccentric Ring (Inferior Annulus) was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Annular Reduction
ParentShortName: **PSFAnnRed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Atrialized RV Plication	*SeqNo:*	1016
Short Name:	**PSFAtrialRVPlic**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Atrialized RV Plication was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Atrialized RV Resection	*SeqNo:*	1018
Short Name:	**PSFAtrialRVRes**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Atrialized RV Resection was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - ASD/PFO Closure	*SeqNo:*	1020
Short Name:	**PSFASDPFO**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether ASD/PFO Closure was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Subtotal

Long Name:	Procedure-Specific Factors - Reduction Atrioplasty	*SeqNo:*	1022
Short Name:	**PSFRedAtrio**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Reduction Atrioplasty was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Arrhythmia Surgery	*SeqNo:*	1023
Short Name:	**PSFArrSurg**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Arrhythmia Surgery was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Arrhythmia Surgery - Cavotricuspid Isthmus Ablation	*SeqNo:*	1024
Short Name:	**PSFArrSurgCavo**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Arrhythmia Surgery - Cavotricuspid Isthmus Ablation was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery
ParentShortName: **PSFArrSurg**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Procedure-Specific Factors - Arrhythmia Surgery - Modified Right Atrial Maze	*SeqNo:*	1026
Short Name:	**PSFArrSurgModMaze**	*Core:*	Yes
Section Name:	Procedure-Specific Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Arrhythmia Surgery - Modified Right Atrial Maze was present.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery
ParentShortName: **PSFArrSurg**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Left Atrial Cox Maze

SeqNo: 1028

Short Name: **PSFArrSurgCoxMaze**

Core: Yes

Section Name: Procedure-Specific Factors

Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Arrhythmia Surgery - Left Atrial Cox Maze was present.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery

ParentShortName: **PSFArrSurg**

ParentHarvestCodes: 1

ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Arrhythmia Surgery - Pulmonary Vein Isolation

SeqNo: 1030

Short Name: **PSFArrSurgPulmIso**

Core: Yes

Section Name: Procedure-Specific Factors

Harvest: Yes

DBTableName: Operations

Definition: Indicate whether Arrhythmia Surgery - Pulmonary Vein Isolation was present.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Arrhythmia Surgery

ParentShortName: **PSFArrSurg**

ParentHarvestCodes: 1

ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Procedure-Specific Factors - Bidirectional Cavopulmonary Anastomosis
SeqNo: 1032
Short Name: **PSFBiCavoAnast**
Core: Yes
Section Name: Procedure-Specific Factors
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Bidirectional Cavopulmonary Anastomosis was present.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procedure-Specific Factors - Procedure-Specific Factors - Primary Procedure
ParentShortName: **PSFPrimProc**
ParentHarvestCodes: 465
ParentValues: = "Ebstein's repair"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Operative

Long Name: Procedure Location
SeqNo: 1054
Short Name: **ProcLoc**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the location where the operation/procedure was performed.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition
9	Cardiac OR	Indicate if the operation/procedure was performed in the following location: Cardiac OR (Cardiac Operating Room).
10	General OR	Indicate if the operation/procedure was performed in the following location: General OR (General Operating Room).
3	Hybrid Suite	Indicate if the operation/procedure was performed in the following location: Hybrid Suite. A "Hybrid Suite" is defined as a room that is designed for both surgical procedures and transcatheter interventional procedures. A "Hybrid Procedure" is defined as a procedure that combines surgical and transcatheter interventional approaches. The term "Hybrid approach" is used somewhat differently than the term "Hybrid Procedure." A "Hybrid approach" is defined as any of a group of procedures that fit into the general silo of procedures developed from the combined use of surgical and transcatheter interventional techniques. Therefore, not all procedures classified as "Hybrid approach" are truly "Hybrid Procedures."
2	Cath lab	Indicate if the operation/procedure was performed in the following location: Cath lab (Cardiac catheterization laboratory).
11	ICU	Indicate if the operation/procedure was performed in the following location: ICU (Intensive Care Unit).
4	CVICU	Indicate if the operation/procedure was performed in the following location: CVICU (CardioVascular Intensive Care Unit).
5	NICU	Indicate if the operation/procedure was performed in the following location: NICU (Neonatal Intensive Care Unit).
6	PICU	Indicate if the operation/procedure was performed in the following location: PICU (Pediatric Intensive Care Unit).
7	SICU	Indicate if the operation/procedure was performed in the following location: SICU (Surgical Intensive Care Unit).
12	Radiology Suite	Indicate if the operation/procedure was performed in the following location: Radiology Suite.
13	Procedure Room	Indicate if the operation/procedure was performed in the following location: Procedure Room.
8	Other	Indicate if the operation/procedure was performed in the following location: Other (Any location not contained in this list).

Long Name: Status
Short Name: **Status**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the clinical status of the patient prior to entering the operating room.

SeqNo: 1055
Core: Yes
Harvest: Yes

Intent / Clarification:

For transplant patients:

- If the patient is in-house and on ECMO code the case as Emergent.
- If the patient is in-house but not on ECMO, code the case as Urgent.
- If the patient comes from home, and is on a VAD or drips, code as Urgent
- Any other patient from home should be coded as Elective.

For VAD/ECMO decanulation:

- Should not be salvage dispite on-going ECMO support. The exception to salvage is when decanulation is the sole

intervention. In other words, if someone on ECMO goes in for say addition of a BT shunt and gets decannulated in the OR, salvage is reasonable. However, if someone on ECMO was decanulated because they have improved, salvage should not be used. It should be urgent.

Data Source: User
Format: Integer

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	Elective	The patient's cardiovascular status has been stable in the days or weeks prior to the operation. The procedure could be deferred without increased risk of compromised outcome.
2	Urgent	Procedure required during same hospitalization in order to minimize chance of further clinical deterioration.
3	Emergent	Patients requiring emergency operations will have ongoing severe cardiovascular compromise, 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.
4	Salvage	The patient is undergoing CPR en route to the OR or prior to anesthesia induction or has ongoing ECMO support to maintain life.

June 2022: What is the proper case status for the procedure of delayed sternal closure? And mediastinal exploration with delayed sternal closure? Elective or Urgent? **The case status for a patient undergoing mediastinal exploration with delayed sternal closure or delayed sternal closure is Urgent as the procedure must be completed before the patient can discharge from the hospital.**

Long Name: Operation Type
Short Name: **OpType**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the type of primary surgical procedure performed.

SeqNo: 1056
Core: Yes
Harvest: Yes

Intent / Clarification: The operation type for a procedure that was aborted after skin incision or after induction is to be coded as operation type Other. Major structural repairs done on the heart, great vessels, or branches of the great vessels while the patient is receiving mechanical circulatory support should be coded as CPB Cardiovascular. Minor repairs (for example sternal closures, mediastinal explorations, cannula repositioning etc.) completed while the patient is receiving mechanical circulatory support should be coded as operation type ECMO, VAD Operation Done with CPB, or VAD Operation Done Without CPB as appropriate.

Intent Clarification as of surgery dates February 1, 2022 forward: When isolated pericardial drainage procedures are undertaken as part of or as a direct result of a direct intervention to address congenital or acquired heart disease (which includes heart failure), the operation type for these isolated pericardial drainage procedures should be categorized as CPB or No CPB (as the case may be)

Cardiovascular procedures. In all other instances, isolated pericardial drainage procedures should be categorized as Thoracic procedures (Optype = Thoracic).

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	CPB Cardiovascular	If the procedure is cardiovascular (includes the heart, great vessels, or any branches of the great vessels), and cardiopulmonary bypass is used, this should be chosen as the case category. Do not choose this case category for operations that are not cardiovascular, even if cardiopulmonary bypass is used (see OpType 9, below). Most lung transplants involve anastomosis to the left atrium (as well as anastomosis to distal main PA or central branch PA). This would be considered a cardiovascular procedure. Transplant, Lung(s) is a STAT Categroy 3 procedure.
2	No CPB Cardiovascular	If the procedure is cardiovascular, but cardiopulmonary bypass is not used, this must be chosen as the case category. This includes any procedure that includes the heart, great vessels, or any of the branches from the great vessels, where CPB is not used. Examples include but are not limited to: coarctation of the aorta repair, creation of a systemic-to-pulmonary artery shunt, patent ductus arteriosus ligation. A delayed sternal closure is included in this category.
9	CPB Non-Cardiovascular	Procedures that are done with bypass support that do not involve a concomitant cardiovascular procedure. For example, tracheal surgery, neurosurgical procedures, resuscitation and rewarming of drowning victims. These cases are not included in the numerator or denominator of mortality calculations or reports. Tracheal reconstructions done on CPB, withoug a concomitant cardiovascular procedure are OpType 9 - CPB Non-cardiovascular. This would pertain, for example to a slide tracheoplasty or tracheal patch- plasty done on CPB. But, if the operation also includes a cardiovascular procedure (as in operation for PA sling with both tracheal repair and division/reimplantation of pulmonary artery), then it would be CPB Cardiovascular.
3	ECMO	If ECMO cannulation or decannulation is the primary procedure performed, this category must be chosen. However, if ECMO is initiated for support at the end of another type procedure (i.e., CPB, No CPB Cardiovascular), that procedure takes precedence and the category code would not be ECMO.
4	Thoracic	If a procedure is performed on a structure within the chest cavity but does not involve the cardiac chambers or vessels, it would be a Thoracic category case (for example, lobectomy, pectus excavatum/carinatum repair, and anterior spine exposure). There will be thoracic cases that require cardiopulmonary bypass (e.g., some types of tracheal reconstructions). In those cases, the use of cardiopulmonary bypass takes precedence and the case wouldnot be Thoracic, but CPB Non-Cardiovascular.
5	Interventional Cardiology	If an interventional device (e.g., occluder, stent) is placed in the operating room as the primary procedure performed, this category must be chosen. However, if in the course of another type procedure (i.e., CPB, No CPB Cardiovascular), an interventional device is placed in addition to the other procedure, the other category takes precedence and the case would not be

		Interventional Cardiology.
6	VAD Operation Done With CPB	Ventricular Assist Device procedure done with CPB. This includes operations to insert the VAD, or to remove the VAD.
7	VAD Operation Done Without CPB	Ventricular Assist Device procedure done without CPB.This includes operations to insert the VAD, to remove the VAD, or any procedure performed while on the VAD.
8	Non-cardiac, Non-thoracic procedure on cardiac patient with cardiac anesthesia	Any non-cardiac or non-thoracic procedure such as a general surgical procedure with anesthesia provided by cardiac anesthesiology because of the patient's underlying cardiac physiology.
777	Other	All other procedures that do not fall within the above definitions should be coded as category Other. This would include but not be limited to supportive minor procedures (e.g., line placements)

ECMO or CPB Examples

Procedures performed while a patient is on ECMO can be coded as Op Type "ECMO" ***if they are done exclusively for the purpose of facilitating ECMO support.***

A patient is admitted to the hospital and requires emergent ECMO cannulation. The next day the patient is taken to the OR for BT Shunt placement done on ECMO. Op Type? **If the BT Shunt is done on ECMO, this should be coded as Op Type CPB because the ECMO circuit is functioning as a CPB circuit in this situation.**

A patient who winds up on ECMO and has a shunt revision while on ECMO support is a ***different type of scenario***, and under those circumstances it is most likely that the procedure "shunt revision" ***should be considered to be of Op Type CPB, with the understanding that ECMO circuit is being used to provide CPB support.***

If the patient was transitioned from ECMO to bypass in the OR and then transitioned back to ECMO at the end of the case you would code the **op type as CPB with the pre-op risk factor of ECMO and the post-op complication of ECMO.**

If the patient was de-cannulated from ECMO prior to the placement of the shunt and the shunt was done with no support you would code the Op Type as **No CPB Cardiovascular**.

Patient arrives in CVICU and needs cannulation on ECMO. The consent and discussion with the family is for ECMO. Patient is cannulated for ECMO in the OR and during the procedure it is noted that the patient has excessive pulmonary blood flow and needs a PAB to help control pulmonary blood flow and the patient is better supported on ECMO. **This situation would be coded as ECMO.**

Patient has bleeding requiring mediastinal exploration while on ECMO. **This situation would be coded as ECMO.**

Patient returns to the OR for an unbalanced AVC repair while on ECMO. The consent and the operative report note that the case was for the repair. Case completed and the patient returns to the CVICU on ECMO. **This situation is coded as a CPB Cardiovascular case since the case is a cardiovascular procedure even if the patient returns to the CVICU on ECMO. This would also be the index procedure for the patient.**

Patient arrives in the CVICU. The patient needs a PAB. The consent and the operative report identify that the patient is going to have a PAB. During the procedure the patient is identified to need ECMO as well. **This is coded as a CV case with or without CPB depending on the operative report, if the PAB was done while on ECMO (cannulation occurred before the PAB) the op type is CPB.**

Patient arrives in CVICU and needs cannulation for ECMO. The consent and discussion with the family is for ECMO. The patient is cannulated for ECMO. **This is coded as ECMO.**

Patient is decannulated from ECMO. Chest is closed. T**his is coded as ECMO.**

FAQs

February 2019: need clarification on operation types, since there are exceptions to the definitions that aren't specifically stated in the specs. The definitions say: No CPB - "If the procedure is cardiovascular, but cardiopulmonary bypass is not used, this must be chosen as the case category. This includes any procedure that includes the heart, great vessels, or any of the branches from the great vessels, where CPB is not used." Thoracic - "If a procedure is performed on a structure within the chest cavity but does not involve the cardiac chambers or vessels, it would be a Thoracic category case." Since delayed sternal closures, epigastric pacemaker generator revisions and sternal re-wiring are No CPB, then what about the following procedures: sternotomy wound drainage (does it matter how deep the infection is or if it's during the the same admission as index operation?), sternal resections, pleural drainage and sternal wire removal? **Delayed sternal closures are No CPB Cardiovascular, PM procedures are also No CPB Cardiovascular, and sternal wire removal is Thoracic. Pleural drainage is Thoracic. Wound infection / concern / debridement following a cardiac surgery is No CPB Cardiovascular.**

March 2019: What op type should be used for a Diaphragm Plication? **Thoracic**

March 2019: We had a patient who had a pacemaker box and leads removal at an outside hospital, then came to us POD 18 and had a wound drainage and debridement POD 19. Is that considered No CPB since it was after a cardiac op even though it was a separate admission and institution, or is it considered Thoracic? **This is a thoracic case. The first hospital should code this as complication of the 1st operation.**

March 2019: When a surgeon does carotid cut down in interventional cardiology, how is this coded? IS it other, no CPB Cardiovascular or thoracic? **Code as 'Other'.**

April 2019: Patient went to OR for PA reconstruction of RPA with patch arterioplasty. Not able to establish sufficient flow and consulted with cardiologist who agreed to try stent insertion in the RPA. Patient was closed in OR and immediately moved to Cath Lab. Stent insertion resulted in vessel rupture and bleeding. Surgeon called to cath lab to open chest to determine location of bleed. Patient left OR at 15:09; and surgeon scrubbed back in 19:30. Is this entered as 2 separate operations? **Count as 2 separate cases and include the following complications on the first case: unplanned interventional cardiac catheterization and bleeding requiring reoperation. For those sites who also participate in the anesthesia database, the data manager can separate the anesthesia times based on when the surgeon enters the cath lab for the second case.**

June 2019: We currently have a patient with heterotaxy with associated abnormal abdominal situs that had a BT shunt and pacemaker placed a few months back. The patient now needs a g-tube, but the current pacemaker device is where the g-tube needs to be placed. We repositioned the pacemaker generator to the other side. Since the pacemaker was moved to allow for the g-tube placement, could this be coded as 'other' or does it still need to be coded as 'no CPB cardiovascular'? **Suggest that this revision of the pacemaker site be coded as a No CPB Cardiovascular procedure and the complication recorded as a non-cardiac reoperation.**

June 2019: I have several questions about a very complex patient who went to cath lab for a diagnostic cath. She arrested at the end of the cath and the surgeon prepped her for ECMO, but she had ROSC and did not go on. After extubation, she arrested again and was then placed on ECMO. She was in a junctional rhythm and so the surgeon put in a temporary pacing wire through a subxiphoid incision while on ECMO. Would this be considered a NO CPB op type or CPB op type since it was done on ECMO but is a pacemaker procedure? The patient then had a cardiac cath with another complication requiring urgent surgery to repair a hole. Is the Op type cpb with pre-op factors and post-op complications of ECMO? Then ended up on an L-VAD with ECMO and listed for

transplant. She had multiple other explorations/bronchs while on the VAD. Eventually had multi-system organ failure and hemorrhages and expired. Am I correct in that the pacing wire insertion will be the index, an operative mortality, and the only case that will be analyzed? **Suggest that the original procedure is op type ECMO. I personally think that it is misleading to have the placement of a temporary pacing wire to manage junctional rhythm or ligation of a PDA to facilitate ECMO management as non-CPB Cardiovascular procedures. I think all of this patient's procedures should be op type ECMO or VAD.**

July 2019: Why would a mediastinal operation that did not involve the heart, great vessels or any branches from the great vessels be coded as a No CPB Cardiovascular case? Why wouldn't this be coded as Thoracic or Other Op Type? **It would depend on what is being done.** ~~**Pericardial windows are considered 'Op Type – Thoracic'; Pacer procedures are 'Op Type – No CPB Cardiovascular'.**~~ **If the procedure is cardiovascular, but cardiopulmonary bypass is not used, this must be chosen as the case category. This includes any procedure that includes the heart, great vessels, or any of the branches from the great vessels, where CPB is not used. Examples include but are not limited to: coarctation of the aorta repair, creation of a systemic-to-pulmonary artery shunt, patent ductus arteriosus ligation. A delayed sternal closure is included in this category.**

- ***pericardial drainage/pericardial window procedure for cancer = Thoracic Procedure***
- ***pericardial drainage/pericardial window procedure for cardiac disease = No CPB Cardiovascular***

Intent Clarification as of surgery dates February 1, 2022 forward: When isolated pericardial drainage procedures are undertaken as part of or as a direct result of a direct intervention to address congenital or acquired heart disease (which includes heart failure), the operation type for these isolated pericardial drainage procedures should be categorized as CPB or No CPB (as the case may be) Cardiovascular procedures. In all other instances, isolated pericardial drainage procedures should be categorized as Thoracic procedures (Optype = Thoracic).

August 2019: Please advise most appropriate OpType for the procedure below:
Procedure: slight tracheoplasty and CPB. "General endotracheal anesthesia was ensured. After a direct laryngoscopy was performed and the endotracheal tube was placed, hemodynamic monitoring lines and transesophageal echocardiogram probes were placed. The patient's chest and abdomen were prepped and draped in standard sterile fashion. Surgical pause was performed. Midline sternotomy was performed and the sternum was transected using electrical saw. Once the sternum was opened, a subtotal thymectomy was performed. The pericardium was opened. We performed a lot of dissection of the trachea off bypass and the patient seemed to tolerate it. Once sufficient dissection was done, the patient was systemically heparinized and, after appropriate circulating time, distal ascending aorta was cannulated and a 10-French arterial cannula. The right atrium was cannulated using 20-French straight venous cannula. Cardiopulmonary bypass was initiated and mild hypothermia was ensured. Then, at this point, under direct bronchoscopy, we visualized the proximal extent of the tracheal ring and marked our suture lines. The trachea was transected just above the bronchus suis. An anterior tracheal incision was made and the edges were transected on the superior aspect of the trachea. On the inferior aspect of the trachea, there was posterior incision made. Similarly, the edges were trimmed and a running anastomosis was performed between the two suture lines using an everting technique using a 6-0 PDS stitch in a running fashion and was secured down. Then we inspected this under bronchoscopy. After we were happy, the patient was rewarmed. The mediastinum was irrigated using copious amounts of antibiotic irrigation. The suture lines were reinforced with Tisseel. Thorough hemostasis was noted. Then, we weaned the patient off of cardiopulmonary bypass without much difficulty. Protamine was administered and the aortic and venous cannulas were d ecannulated and pursestrings tied down. Thorough hemostasis was achieved. Mediastinal chest tube was placed and secured to the skin. Then, we proceeded to close the sternum using interrupted stainless steel wires. Sternal fascia, deep dermis, and skin were approximated in the usual fashion."
Non – cardiac CBP case

August 2019: Patient is on VAD, comes in for transplant. Is the OpType CPB Cardiovascular or VAD operation done with CPB? If coded VAD Op w/CPB will it be an analyzed operation? **The transplant will have to be completed on CPB so the case is operation type CPB Cardiovascular.**

August 2019: Scenario: Patient has epicardial pacemaker generator change for generator end of life. All goes well patient is discharged later that same afternoon. Later that evening he/she has a fall and after that is having dizzy spells and odd sensations. Hshe presents to the ER with progressive failure to capture and lead failure. The next morning the surgeon that placed the epicardial pacemaker removes it from the abdominal cavity and caps the wires while the EP cardiologist implants a new intravenous one in the chest.
I coded unplanned cardiac reop and readmission for complications on the initial generator change. I added a new admission but since the surgeon only did the explant would I code as op type other or no cbp cardiac? **No CPB Cardiovascular**

October 2019: 4 day old with Ebstein's Anomaly with PA went to cath lab for ductal stent placement. Patient went into complete heart block in the cath lab and surgical team was called to place temporary pacing wires via midline subxiphoid incision. 2 epicardial ventricular pacing wires were placed. Patient transferred back to CICU and plan for intracardiac repair. Is this Op Type No-CPB? **Yes.** Does this become the patients Index procedure even though will go to OR for full surgical repair? **Yes.** Done in the cath lab - does this matter? **No.**

November 2019: Patient had a 'Pulmonary Venous Stenosis Repair' (CPB Cardiovascular) on 8.20.19. Patient is readmitted on 9.17.19 for a 'Sternotomy Wound Drainage' (Code = 1980). Code 1980 is NOT listed in Appendix F: Operation Type Cleanup Process of the STS Report Overview. Should the 'Sternotomy Wound Drainage' be coded as 'No CPB Cardiovascular' since it occurred after the 'Pulmonary Venous Stenosis Repair'? If the 'Sternotomy Wound Drainage' is coded as 'No CPB Cardiovascular' then this would indeed be the index case of the 9.17.19 admission, correct? ~~**Yes, code as No CPB Cardiovascular and it would be the index operation for 9-17-19 admission.**~~ **Update March 2022: If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic. If the determined optype is No CPB Cardiovascular, it would be the index operation of the readmission.**

November 2019: Removal of teratoma: "Mass was dissected free from the innominate vein and the dissection carried medially and it was separated from the pericardium. It was not densely attached to the pericardium. The mass seemed to be adherent to the right parietal pleura and that was taken along with the mass en bloc. It was encapsulated and did not have dense adhesions or connections to any of the mediastinal structures with the possible exception of the thymus". This patient has no past medical/surgical history. Should this be coded as a 'thoracic/and or mediastinal procedure, other' and the operation type coded as 'thoracic'? The fact that the mass was dissected free from the 'innominate vein' and separated from the 'pericardium' makes us question if this should be coded as a 'Mediastinal Procedure' and the operation type 'No CPB Cardiovascular'. **Op type: Thoracic**

January 2020: An August 2016 FAQ says that when a patient is admitted for wound drainage/debridement and the sternum is left open, to code the delayed sternal closure as op type Thoracic since "the procedure was not related to the heart". Should the wound drainage/debridement also be coded as Thoracic then, since it's also "not related to the heart"? **If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic. In this scenario, the operation type of the wound drainage/debridment is No CPB Cardiovascular.**

February 2020: What is the OpType for a pericardiectomy since it does not include cardiac chambers or vessels? **If completed on bypass, use CPB Cardiovascular and if completed without bypass, code as No CPB Cardiovascular.**

February 2020: What procedure name and operation type should 'Cardiac repositioning of Thoracic Ectopic Cordis' be coded as? **Operation type is CPB Cardiovascular or No CPB Cardiovascular depending on whether CPB was used. The procedure is Cardiac, Other**

October 2020: I have a patient who came in with new onset complete heart block. She got a transvenous pacer wire placed on 4/3. Then she got a permanent pacer placed on 4/10 and was diagnosed with desminopathy. She ended up on ECMO on 4/18 and then got an L-vad on 4/24 and was listed for transplant. She remained in the hospital and was transplanted on 5/23. In this instance, she had a no cpb procedure prior to her transplant so does that become the index and we miss out on the transplant score? If so, do all the complications apply toward the permanent pacer operation or does the transplant trump the pacer and become the index? This is a different scenario then needing the pacer to support the patient through an ECMO run as she got the pacer prior to needing ECMO and is more related to her underlying desminopathy. **Per the current data specs, the transvenous pacer wire is the index operation of this episode of care. The complications will then be attributed to the pacemaker procedure. This is being looked at by the task force and may be reconsidered in the future.**

November 2020: I have a patient who went to the hybrid cath lab with history of AA repair and PA Banding. The CTS surgeon did a sternotomy and removed the PA bands. The cardiologist then ballooned the pulmonary artery and did a device closure of the VSD (or do I choose the hybrid approach options of 2760 and 2770). Should the op type be no cpb cardiovascular? Is the primary procedure PA debanding and do I even code the other procedures since they were not done by the surgeon or do I code the VSD repair, device as the primary because it is a benc hmark even though the surgeon did not do it? Please clarify on hybrid approaches when both services are involved. **The operation type is No CPB cardiovascular and the primary procedure is the PA debanding. Some programs include the cath components of the procedure and if you code with the long list you can include the cath based VSD closure as Cardiovascular catheterization procedure, Therapeutic, Device implantation, Ventricular septal defect (VSD). You can use a hybrid approach modifier code (from the long list) Cardiovascular catheterization procedure-modifier for approach, Hybrid approach (combined surgical & transluminal). You cannot use procedure codes 2760 or 2770 as the surgeon did not complete those parts of the repair.**

November 2020: What op type is a stand alone IABP insertion? We have an adult patient who had a CPB op, and the following day he had an IABP placed in the CVICU by our cardiac surgeon. This may have been done in conjunction with an exploratory surgery done by gen surg, but our surgeon performed the IABP insertion. From the op note: "Common femoral artery access in right CFA was pre-established and was re accessed through working 0.035" short J wire. This was exchanged for a 7.5fr sheath using Seldinger technique. An IABP device was placed under measured guidance. The device was infl ated and initiated at 1:1 for the duration of use." **The operation type is Other for IABP insertion.**

April 2021: I believe there was a case similar to this in the training manual in 2018, but I need to confirm the following scenario for our center. Trauma patient with tracheal dissection requiring emergent tracheal repair on bypass with ENT service. Placed on ECMO and now decannulated. Develops a pericardial effusion requiring drainage. Our surgeon drains the pericardial effusion. Should the pericardial effusion procedure be coded as No CPB cardiovascular, and will this be her index case? **In this scenario, given the patient is a trauma, code the drainage of the pericardial effusion as Operation Type Other.**

April 2021: Would a vascular ring procedure go under No CPB Cardiovascular or Thoracic for operation type? The optype would be **No CPB Cardiovascular.**

June 2021: If a sternotomy, partial sternotomy or subxiphoid approach is used to provide direct heart access for an interventional cardiology procedure, is this coded as NO CPB cardiovascular? **The operation type is based on what procedure/interventions the cardiac surgeon performs. In this scenario, the surgeon provided the surgical field for the interventionalists, so this is a No CPB Cardiovascular case. The additional interventional procedures can be captured utilizing the catheter-based procedure codes if applicable.**

June 2021: A patient underwent BT shunt placement, and four weeks later was centrally cannulated onto ECMO due to a cardiac arrest. The following day, an echocardiogram was concerning for no flow through the BT shunt. The surgeon re-explored the chest and externally stripped the shunt to remove the clot. Is it correct to code this

case as op type ECMO, or should it be No-CPB cardiovascular? **The correct operation type for this specific scenario where the shunt was stripped (and not revised) is ECMO.**

August 2021: Patient presented with cardiomyopathy, severe LV dysfunction and atrial arrhythmias and urgently underwent LVAD placement along with placement of temporary pacing wires. Should this have been coded as op type: VAD operation done with CPB? Patient then underwent VAD removal and placement of permanent pacemaker. Should this be coded as op type: No CPB and therefore become the index OR of the stay? Should arrhythmia necessitating permanent pacemaker be captured for the first OR? **The first case should be coded as Operation type VAD with CPB if CPB was used. The second case should be Operation type No CPB Cardiovascular with the Pacemaker inplantation is the primary (and index) operation. The VAD explantation should be coded as a secondary procedure. The complication of Arrhythmia necessitating permanent pacemaker placement should not be coded on the VAD procedure prior to the index as coding complications that occur prior to the index operation will still get applied to the index operation upon analysis.**

September 2021: Which OpType would this be? Patient had a left sided thoracic incision made (surgeon was also draining a large pleural effusion), then a pericardial biopsy though the thoracic incision. The patient was having repeated pericardial effusions, however no effusion was drained during the biopsy. The patient had no underlying congenital cardiac condition. OpType Thoracic or OpType No CPB? **Given the patient does not have underlying cardiac disease/condition, code the Operation type as (4) Thoracic.**

September 2021: Our facility had a patient transferred in from an OSH in heart failure for transplant evaluation. An LVAD was implanted. It was then discovered that the patient had an ALCAPA. The patient underwent ALCAPA repair and a delayed sternal closure 2 days later. The LVAD was left in place and explanted 10 days later. The patient has since been discharged to home. I coded the Op Type of the ALCAPA repair and delayed sternal closure as "VAD operation done with CPB and "VAD operation done without CPB respectively" since the LVAD was still in place at the time of those operations. It is an unusual situation and just want to be sure. **When a patient is on mechanical circulatory support during a procedure where a major structural repair is completed, the Operation type is CPB Cardiovascular. The operation for the ALCAPA repair (major structural repair) is Operation type CPB Cardiovascular as the VAD circuit provided the circulatory support for the repair. The perfusion fields can be completed as much as possible with the procedure times being the CPB time. This would also be an index operation for this patient. The delayed sternal closure is Operation type VAD operation done without CPB.**

September 2021: Please specify the Op Type that should be selected. A patient has a congenital mediastinal bronchogenic cyst removed which was adherent to left and right mainstem bronchs and right pulmonary vein. The aorta, aortic arch, and pulmonary artery were dissected out during the surgery other than the pericardium per the following quote. "I then made a flap of mediastinal tissue consisting of some pericardium and the fat and placed it over the tracheal dissection site such that it separated the aorta from the trachea."A similar question has been asked before but the location was more distant to the heart. Please confirm this Op Type should be Thoracic. **Code as Operation type (4) Thoracic**

October 2021: Which op type should be selected for this procedure? Patient's chest opened, PDA ligation performed first (typically No CPB). During the same procedure for which the patient was primarily taken to the OR for, the patient then had a no CPB slide tracheoplasty (typically op type Thoracic). How does one select the OpType when two optype procedures are done during a single operation? **In this scenario, the patient went to the OR for the slide tracheoplasty. Code as Operation type Thoracic. The question of multiple operation types being utilized depends on the specific patient scenario. For example, if a cardiac repair is done on bypass, the operation type CPB Cardiovasular is correct even if a procedure was completed before cannula insertion for bypass, i.e. a PDA ligation before cannulation for a VDP repair.**

December 2021: We have had a few patients on VADs who then require oxygenators to be temporarily placed in the VAD circuit (in once instance, the op note was worded "Conversion to VA ECMO using existing cannulae.") Should the oxygenator placement/oxygenator removal cases be considered as op type "ECMO" or "VAD without CPB"? What about any procedures done while the oxygenator is in place (excluding those that would be instead

coded as CPB?) **VAD circuits with oxygenators are by definition ECMO. When converting from VAD to ECMO, use Operation type ECMO. Procedures done while on ECMO (including VADs with oxygenators in place) are Operation type ECMO.**

January 2022: We received a patient from an OSH who had experienced multiple cardiac arrests and ECMO cannulation. The patient was significantly coagulopathic requiring massive transfusion protocol, experiencing simultaneous bleeding and clotting. It was discovered that she had a pulmonary embolism. The patient was transferred to our institution for further management and emergently went to the OR a pulmonary embolectomy with CPB. The next day, the family redirected care and the patient passed away. The diagnosis was decompensated heart failure secondary to pulmonary emboli and cardiac arrest. Please tell me the correct operation type for this surgery. Is it CPB Cardiovascular or CPB Non- Cardiovascular? **The correct operation type for this scenario is CPB Cardiovascular.**

January 2022: I have several cases where the main purpose of the surgery was to implant a VAD, but an additional procedure was done to facilitate the VAD and would not have been done otherwise. Usually, it is a PFO closure or something similar. Should the primary be the PFO closure, since it has a STAT score? If so, should the op type still be VAD (w/ or w/o CPB, depending?) **When procedures are completed to facilitate the VAD, the operation type remains VAD (with or without CPB depending on the scenario). Cases with an Operation type of VAD are not analyzed as part of the mortality analysis and thus, it is recommended to code the VAD implant procedure as primary in this scenario and code the procedures done to support the VAD circuit as secondary as the intent of the procedure in your given scenario was the VAD implant. This may currently cause a mismatch in IQVIA Primary Procedure Mismatch Report which is fine given the rules of the report were designed for Operation types CPB Cardiovascular and No CPB Cardiovascular only.**

March 2022: I would like some clarification on conflicting answers to similar questions in the data specs. A question about a sternotomy wound drainage s/p ASO in July 2021 says to code the op type as Thoracic, a question about the op type for wound infection concern/debridement following cardiac surgery in February 2019 said to code the op type as No CPB, a question in November 2019 about a readmission for a sternotomy wound drainage says to code as op type No CPB, and in January 2020 the answer to how to code a wound drainage/debridement is "if the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic." So the answer from January 2020 is the correct one to use? The op type for sternotomy wound drainage is determined by the depth/location of what is explored/debrided? **Correct, the Operation type for sternotomy wound drainage is determined by the depth and location. If the wound drainage involved the mediastinum, the Operation type is No CPB Cardiovascular. If it is superficial to the sternum, the Operation type is Thoracic.**

March 2022: A patient with a BT shunt had a temporary clip placed on it to improve mean arterial pressures. 3 days later, while the patient was on ECMO with an open chest, the clip was removed. What would the op type for this operation be? **The clip was placed to support the ECMO flows, thus removing it is also related to the ECMO circuit. Code as Operation type ECMO.**

April 2022: Patient (with no structural defect) is cannulated for ECMO, and then 12 hours later found to have a pericardial effusion/tamponade possibly due to trauma from cannula insertion. Should the operation type be ECMO or CPB Cardiovascular? **Code the operation type as ECMO.**

April 2022: How should I code this Op Type, Other or No CPB? The surgeon called it a hybrid case. It was performed concurrently in a hybrid suite with the interventional cardiologist. However, the surgeon only did the cutdown of the carotid since the family opt for a PDA stent instead of BTS procedure. **Code the Operation type as Other. Code procedures (2030) Peripheral vascular procedure, Other and (1550) Cardiovascular catheterization procedure, Therapeutic, Stent insertion.**

May 2022: A patient had their index operation, and then two weeks later developed a pericardial effusion requiring drainage. Our surgeon took him to the OR and placed a pericardial drainage catheter under ultrasound guidance (rather than an open drainage procedure.) I have coded the procedure as 920-Pericardial drainage, and

operation type No-CPB Cardiovascular. Is that the correct op type? Also, if it is a different op type, does that mean I should not code the complication of Unplanned cardiac re-operation? **The operation type for (920) Pericardial drainage procedures as part of or as a direct result of an intervention to address congenital/acquired heart disease is either CPB Cardiovascular or No CPB Cardiovascular depending on whether bypass was used during the procedure. These are cardiac operation types. In your scenario, without the use of bypass, the operation type is No CPB Cardiovascular and you would then code complication (22) Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding.**

June 2022: Patient was taken to the OR on ECMO support for possible ECMO decannulation. At the beginning of the procedure, the patient had 2:1 AV block so temporary pacing wires were placed; then a slow ECMO wean followed with subsequent decannulation and placement of left atrial line. Is this op type ECMO or No CPB Cardiovascular? **The pacemaker procedure completed at the time of ECMO decannulation is not supporting the ECMO circuit. Thus, Operation type for this procedure is No CPB Cardiovascular.**

June 2022: A patient had index surgery on 06/14/21 and remained in the hospital until 03/08/22. On 09/08/21, patient went to OR for redo sternotomy, removal of chest adhesion, fenestration of left and right pericardium, removal of Gore-Tex membrane. Findings include extensive mediastianal adhesions, right atrial free all densely adherent to the right-sided pericardium. A full reoperative median sternotomy was performed. The right atrial free wall was adherent to the right-sided pericardium, at the prior suture site line. The pericardium was fenestrated at the left and right side. Two drains were placed in left and right pleural space and the mediastinum. Small Gore-Tex membrane was attached to pericardium. A small segment of hypertrophy cartilage of the sternum is resected. Sternum was closed. Should this case be classified as Thoracic or No CPB? Should Unplanned Cardiac Re-op be added as a complication? **Code Operation type No CPB Cardiovascular and code complication (22) Unplanned cardiac reoperation on the index operation.**

July 2022: A 23-year-old with Ewing Sarcoma developed a tumor that invaded the right atrium. Patient does not have congenital heart disease and has no cardiac history. Our surgeon removed the tumor on bypass. Is the operation type CPB Cardiovascular or CPB Non-Cardiovascular? **Code the operation type as CPB Cardiovascular.**

July 2022**:** My patient went to the OR for an ASD device closure and right after the median sternotomy but just prior to the transitional incision a blood culture drawn 2 days prior on the surgical floor was reported as gram positive cocci. The procedure was aborted, and the chest was closed. How would I code this Operation Type? **Code the operation type as Other.**

November 2022: Patient with near total occlusion of the innominate vein. Our surgeon provided access for the cath team through a small neck incision. Unfortunately, per Cath note "covered stent attempted but embolized prior to deployment requiring extension of the venous cut down for retrieval." Our surgeon was called back, extended the venotomy and removed the stent. What is the OpType? I'm also questioning procedure. I was going to code 3180 Intravascular stent removal but the definition is "Removal of a previously placed intravascular stent". The stent came off before it was placed. Should I code 3210 Removal of transcatheter-delivered device from blood vessel instead? **Code OpType (777) Other. Code procedure (3180) Intravascular stent removal. Procedure code (3120) is intended to capture the removal of non-stent devices including coils.**

January 2023: I cannot find this in the manual so just want to confirm: If a patient has their sternum opened for ECMO cannulation, is decannulated (sternum left open), and then sternum closed at a later time - the delayed sternal closure should be coded as ECMO, not no-CPB Cardiovascular. Is that correct? Does that change if there was a prior index operation where the sternum was closed, but later re-opened for the ECMO cannulation? **In the very specific scenarion that the patient's sternum was opened and closed for ECMO only, code the delayed sternal closure as OpType ECMO even if it occurred following decannulation. If there was a prior index operation, the delayed sternal closure occurring post-decannulation should be coded as OpType No CPB Cardiovascular.**

March 2023: Would the following note regarding a 'sternal cleft repair' be considered a NO CPB CARDIOVASCULAR case or a THORACIC? A delayed sternal closure is considered NO CPB but a pectus excavatum/carinatum is considered thoracic.
"A midline sternotomy incision was made with a scalpel overlying the defect and down to area of normal sternal bone presence, and this was carried down to the level of the fascia with electrocautery. Through here, I could visualize that mostly what was protruding through the sternal cleft was the thymus gland. The thymus gland was separated from the posterior table of the sternum. The strap muscles were identified and then were also dissected out to ensure visualization of the margins for primary closure. When this exposure was satisfied, it seemed like it was reasonable to attempt primary closure. The defect at this stage measured 3.5 cm in length and 3 cm in greatest width at the level of the clavicular heads. Then, full-thickness sequential interrupted 0 Vicryl sutures around the ribs and chest wall were placed and the edges were reapproximated successfully."

This is OpType: Thoracic.

April 2023: Would this be op type "other", or no CPB, cardiovascular?
The patient had been in the cath lab and had a coil embolization done, however the catheter sheared where it had kinked. This left the catheter exposed near the left subclavian vein and about 1.5 cm from the innominate/IJ confluence. They decided to take the child emergently to the OR due to the deepness of the subclavian vein. Here is part of the op note from that surgery:
"We started in the OR after about 45 minutes of critical care time discussing the relative risks and benefits of each approach to remove this catheter and discussing these with anesthesia and our team in advance of the OR. Once we reopened the temporarily closed right subclavicular incision, we exposed the vein, but did not have adequate exposure to remove the catheter. This incision was abandoned and attention turned to opening the upper mediastinal incision to get access to the innominate vein. We could safely expose only the upper vein and removed the two upper wires and using an oscillating saw opened the sternum more completely to expose the innominate vein. Proximal and distal control was obtained. The patient was already heparinized. We removed the catheter through a small transverse incision and closed it with running 6-0 prolene nicely. Dr. confirmed our catheter removal was complete. Hemostasis looked good. A single wire was replaced in the manubrium and the incision s were closed in layers nicely. No drains were placed. **This is OpType: No CPB, Cardiovascular.**

April 2023: Hello, the surgeon did right femoral artery and vein cutdown (done by surgeon) for cardiac catheterization that included stenting of aortic coarctation (not done by surgeon) and repair of femoral artery (done by surgeon). After reading training manual, I have a clarifying question. Is the operation type other or is it interventional cardiology? What should be coded as the primary procedure? The cath with stent by not done by surgeon or the cutdown done by surgeon? I will include diagnosis codes as 2030 for right femoral artery and vein cutdown/repair of femoral artery and 1550 cath with stent. **This should be OpType: Other with the procedure codes you have listed - (2030) Peripheral vascular procedure, Other and (1550) Cardiovascular catheterization procedure, Therapeutic, Stent insertion**

April 2023: Could we get some clarification on which optype (ECMO or No CPB) would be selected in the following scenarios? We've gone through the ECMO or CPB Examples document which has been very helpful, but just thought we needed some extra clarification on these specific cases. Let me know if I need to provide additional information. Thanks for you help.
1. Planned ECMO decannulation performed with mediastinal exploration
2. Planned mediastinal exploration, Clots evacuated, due to Hematoma and bleeding decided on an ECMO decannulation
3. Emergent ECMO cannulation performed with mediastinal exploration

4. Planned central ECMO decan and peripheral ECMO can with mediastinal exploration
5. Planned re-positioning of cannula and mediastinal exploration

These should all be included as OpType: ECMO

April 2023: pt with open sternum (opened during post op arrest) and unable to close due to body edema w renal failure. Now having multiple wound vac changes for secondary closure, sometimes in OR and sometimes in PICU.
from op note: Due to persistent fluid retention and generalized edema we have been unable to re-approximate the sternum. For the past 6 weeks he has been receiving weekly VAC dressing changes. The mediastinum has been granulating well with gradual reduction in the size of the wound.
from another op note: The previously placed wound VAC was carefully removed. There was healthy granulating bleeding tissue at all wound surfaces. The wound did not require debridement. A new downsized wound VAC was put in place. **The weekly wound VAC dressing changes, *if done by a surgeon,* should be entered as OpType: "Other" and Procedure: (1570) Thoracic and/or mediastinal procedure, Other. If more than a dressing change is required, then use Procedure: (1980) Sternotomy wound drainage and OpType: No CPB, Cardiovascular or Thoracic depending on the depth. If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic.**

May 2023: A patient with a HLHS variant (Shone's, borderline LV, AS, CoA) is undetermined as to whether they will be a one or two ventricle pathway. Bilateral PA bands (No CPB Cardiovascular) were placed in the OR. A week later, the patient had a cathlab balloon aortic valvuloplasty to relieve AS. The patient then returned to the cathlab three days later for a PDA stent placement. My surgeon informed me that this patient's bilateral PA banding and PDA stenting are really a hybrid stage 1 approach, even though they were performed in a staged manner. If the bilateral PA banding is coded as 2160, should the PDA stent (2170) be a No CPB Cardiovascular or an Interventional Cardiology operation type? Please advise. Thank you! **If there was a surgeon involved in the case, then it is appropriate to code as OpType: No CPB, Cardiovascular. If no surgeon was involved, it can be entered, if desired, as Interventional Cardiology.**

Long Name:	Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used	*SeqNo:*	1057
Short Name:	**NIRSCerUsed**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether cerebral oximetry was monitored.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used - Preoperatively	*SeqNo:*	1058
Short Name:	**NIRSCerPre**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether cerebral oximetry was monitored during the preoperative period.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used
ParentShortName: **NIRSCerUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used - Intraoperatively	*SeqNo:*	1059
Short Name:	**NIRSCerIntra**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether cerebral oximetry was monitored during the intraoperative period.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used
ParentShortName: **NIRSCerUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used - Postoperatively	*SeqNo:*	1060
Short Name:	**NIRSCerPost**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether cerebral oximetry was monitored during the postoperative period.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Cerebral Metrics Used
ParentShortName: **NIRSCerUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Near Infrared Spectroscopy (NIRS) Somatic Metrics Used	*SeqNo:*	1061
Short Name:	**NIRSSomUsed**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether somatic oximetry was monitored.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Near Infrared Spectroscopy (NIRS) Somatic Metrics Used - Preoperatively	*SeqNo:*	1062
Short Name:	**NIRSSomPre**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether somatic oximetry was monitored during the preoperative period.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Somatic Metrics Used
ParentShortName: **NIRSSomUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Near Infrared Spectroscopy (NIRS) Somatic Metrics Used - Intraoperatively
SeqNo: 1063
Short Name: **NIRSSomIntra**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether somatic oximetry was monitored during the intraoperative period.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Somatic Metrics Used
ParentShortName: **NIRSSomUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Near Infrared Spectroscopy (NIRS) Somatic Metrics Used - Postoperatively
SeqNo: 1064
Short Name: **NIRSSomPost**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations

Definition: Indicate whether somatic oximetry was monitored during the postoperative period.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Near Infrared Spectroscopy (NIRS) Somatic Metrics Used
ParentShortName: **NIRSSomUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Time Patient Entered the OR
Short Name: **OREntryT**
Section Name: Operative
DBTableName: Operations
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.

SeqNo: 1065
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Time - hh:mm (24-hour clock)

Long Name: Skin Incision Start Time
Short Name: **SIStartT**
Section Name: Operative
DBTableName: Operations
Definition: Indicate to the nearest minute (using 24-hour clock) the time the skin incision was made.

SeqNo: 1066
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Time - hh:mm (24-hour clock)

Long Name:	Endotracheal Intubation was Performed	*SeqNo:*	1067
Short Name:	**Intubate**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether an endotracheal intubation was performed.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

June 2019: This is in regards to anesthesia data. When anesthesia data is pulled our understanding is that it is just CPB and No CPB Cardiovascular operations. The question is how are reoperations handled with regards to the anesthesia field? For example, Patient A has Operation 1- and is extubated in the OR. Patient requires reoperation and is/is not extubated. Are these separate anesthesia records, meaning they add to the denominator? **Yes, these are separate anesthesia cases and the same index cardiac operation. It does hit the dominator.**

August 2020: The patient had an intubation and extubation on same-day surgery. He had to return to surgery a day later for bleeding, and was subsequently re-intubated for that surgery. In the post-op section, for ventilator information, when entering data for the second surgery, is the intubation date and time to be entered as the date and time of the second surgery, or the date and time of the initial/index surgery from the day before? **The date and time the patient was intubated closest to the OR entry date and time should be used. This will be the intubation date and time of the second procedure in this scenario.**

Long Name:	Intubation Date and Time	*SeqNo:*	1068
Short Name:	**IntubateDT**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		

Definition:	Indicate the date (mm/dd/yyyy) and time (hh:mm) (24 hour clock) ventilatory support started. Capture the intubation closest to the surgical start time. If the patient was intubated upon admission and remained intubated until the surgical start time, capture this intubations date and time. If the patient was admitted intubated (intubated at another institution) and remained continually intubated until the surgical start time, capture the patient's admission date and time. If the patient was admitted with a tracheostomy in place without ventilatory support, capture the date and time closest to the surgical start time that ventilatory support was initiated. If the patient was admitted with a tracheostomy in place receiving chronic ventilatory support, capture the admission date and time. If the intubation date and time is otherwise unknown, enter the date and time the patient entered the operating room. Do not alter the previously established date and time that ventilatory support was initiated for scenarios including, but not limited to, interruptions in ventilatory support due to accidental extubation/de-cannulation, elective tube change etc.
Intent / Clarification:	
Data Source:	User
Format:	Date/Time - mm/dd/yyyy hh:mm
ParentLongName:	Endotracheal Intubation was Performed
ParentShortName:	**Intubate**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

July 2019: If the patient was intubated prior to surgery do we still enter intubation extubation under post op tab (Ventilator Information)? **Yes, you should capture the intubation that occurs closest to the date and time of the procedure – whether this occurs in the operating room or any time prior to the operation. While this is grouped on the post op tab, the information is still to be included.**

October 2020: Patient has tracheostomy present with night time ventilatory support. On day of surgery, trach is removed/oversewn and patient is orally intubated. Patient is extubated on POD#2 but still receiving ventilatory support. Patient resumes home vent settings on POD#5. Do we capture intubation time at time of oral intubation, or upon admission since patient receives ventilatory support (intermittent) at home. Do we capture extubation time at actual extubation time, or when home vent settings are achieved. **The intubation and extubation times should be the date and time of hospital admission and discharge given the patient's inability to ever separate off mechanical ventilation.**

March 2022**:** I have a patient that went into the OR intubated but was extubated for the rigid bronch portion of the procedure and reintubated after. Do I use the initial intubation time prior to the OR or the re-intubation time as the intubation date and time? **Please use the intubation date and time of the initial intubation time prior to the OR and not the reintubation time in the OR as the patient arrived to the OR for the procedure intubated.**

Long Name:	Initial Extubation Date and Time	*SeqNo:*	1069
Short Name:	**ExtubateDT**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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.If the patient has a tracheostomy and is separated from the mechanical ventilator postoperatively within the hospital admission, capture the date and time of separation from the mechanical ventilator closest to the surgical stop time. If the patient expires while intubated or /cannulated and on the ventilator, capture the date and time of expiration. If patient discharged on chronic ventilatory support, capture the date and time of discharge.		
Intent / Clarification:			
Data Source:	User		
Format:	Date/Time - mm/dd/yyyy hh:mm		
ParentLongName:	Endotracheal Intubation was Performed		
ParentShortName:	**Intubate**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

August 2019: We had a patient who was extubated in preparation for his bronchoscopy. He was extubated 2 hours prior to the procedure and was reintubated immediately after it was over, about 2 hours later. Should I consider this extubation time his initial extubation, or no, since he was extubated specifically for this procedure and not because he no longer needed respiratory support? **Yes, Include as initial extubation time. Report final extubation date and time when patient is later extubated. Don't report re-intubation as resp failure.**

Long Name:	Extubated In The Operating Room Or By Anesthesia Team	*SeqNo:*	1070
Short Name:	**ExtubInOR**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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.		
Intent / Clarification:	If the patient was extubated in the OR and subsequently reintubated in the OR due to respiratory failure, code this field as yes, extubated in the OR. Also answer Yes, Re-intubated After Initial Postoperative Extubation (Sequence Number 1071) and include complication Postoperative/Postprocedural respiratory insufficiency requiring reintubation (Complication code 160). Code this field as No, not extubated in the OR if the extubation		

occurred anywhere outside of the OR including if the extubation occurred immediately following arrival to the ICU.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Endotracheal Intubation was Performed
ParentShortName: **Intubate**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Re-Intubated After Initial Postoperative Extubation
SeqNo: 1071
Short Name: **ReIntubate**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether the patient was re-intubated after the initial postoperative extubation.

Intent / Clarification: Code as yes if the patient was reintubated for any reason, elective or otherwise, including reintuation for elective procedures and non-cardiac procedures.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Endotracheal Intubation was Performed
ParentShortName: **Intubate**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Final Extubation Date and Time
SeqNo: 1072
Short Name: **FinExtubDT**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the date (mm/dd/yyyy) and time (hh:mm) (24 hour clock) ventilatory support last ceased prior to discharge after

surgery. Capture the extubation time closest to discharge. If the patient has a tracheostomy and is separated from the mechanical ventilator more than once postoperatively within the hospital admission, capture the date and time of separation from the mechanical ventilator closest to the hospital discharge. If the patient expires while intubated or cannulated and on the ventilator, capture the date and time of expiration. If the patient was discharged on chronic ventilatory support, capture the date and time of discharge.

Intent / Clarification:

Data Source: User
Format: Date/Time - mm/dd/yyyy hh:mm

ParentLongName: Re-Intubated After Initial Postoperative Extubation
ParentShortName: **ReIntubate**
ParentHarvestCodes: 1
ParentValues: = "Yes"

August 2021: What do you do when your pt is reintubated on a readmisison for respiratory failure within 30 days of the index surgery?
1. Code the reintubation as per the definition below as a complication
2. What do I do about the Final extubation time as the rule requires it to be prior to hospital discharge? You can't enter the real extubation date as it is outside the hospital admission for the index case?
3. It looks inconsistent if you put in the complication but No in the box for reintubated Post-op - Seq 1071
Issue - pt d/cd on1/4/21(Index 12/22/20) - Patient was successfully extubated to HFNC post-procedure on POD 0 (cath lab procedure for effusions). On POD 1 (1/12/21), d/t worsening respiratory distress, imaging was obtained and patient was noted to have large L pleural effusion on CXR for which chest tube was placed & patient was re-intubated. He improved and was extubated a second time on 1/13/21. **Code any applicable complications that occur within 30 days of the index operation regardless of whether the patient is already discharged or readmitted to the hospital. The Final extubation date and times only reflects the time of that hospitalization.**

Long Name: Incision Type - Sternotomy
SeqNo: 1073
Short Name: **IncisTyStern**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a full sternotomy approach was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

February 2019: Definition states to "Indicate whether a full sternotomy approach was used during this procedure." I am unsure how to complete for a Delayed Sternal Closure when sternum was left open. Mark as "No"? **There is no incision made for this procedure, the answer is No.**

July 2022**:** My question is what incision type do I enter if it is not a sternotomy, thoracotomy, or VATS? It appears it was done all through the femoral artery. **In the current data version, answer 'no' to the available incision locations. In version 6.23, an incision type of Other is being included and will solve this issue for future cases.**

June 2023: My patient had a pacemaker generator change and her incision was a laparotomy. Do I leave the incision site blank as there is no option to code laparotomy? **Yes, you can leave this blank.**

Long Name:	Incision Type - Partial Sternotomy	*SeqNo:*	1074
Short Name:	**IncisTyPartStern**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a partial sternotomy approach was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Partial Sternotomy Location	*SeqNo:*	1075
Short Name:	**PartSternLocat**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the partial sternotomy location.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Incision Type - Partial Sternotomy
ParentShortName: **IncisTyPartStern**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Upper
2	Lower

Long Name: Incision Type - Clamshell Thoracotomy
SeqNo: 1076
Short Name: **IncisTyClam**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a clamshell thoracotomy approach was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Incision Type - Thoracotomy
SeqNo: 1077
Short Name: **IncisTyThor**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a thoracotomy approach was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Thoracotomy Location
SeqNo: 1078
Short Name: **ThoraLocat**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the location of the thoracotomy.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Incision Type - Thoracotomy
ParentShortName: **IncisTyThor**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Left
2	Right

September 2020: how do we code bilateral thoracotomy or VATS in the location field? **This will be handled in the next upgrade. For now, have your surgeon select one side.**

Long Name: Incision Type – Video-Assisted Thoracoscopy (VATS) *SeqNo:* 1079
Short Name: **IncisTyVATS** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether a VATS (Video-Assisted Thoracoscopy) approach was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: VATS Location *SeqNo:* 1080
Short Name: **VATSLocat** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the location of the VATS approach.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Incision Type - Video-Assisted Thoracoscopy (VATS)
ParentShortName: **IncisTyVATS**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Left
2	Right

Long Name: Time of Skin Closure
Short Name: **SIStopT**
Section Name: Operative
DBTableName: Operations
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.

SeqNo: 1081
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Time - hh:mm (24-hour clock)

Long Name: Time Patient Exited the OR
Short Name: **ORExitT**
Section Name: Operative
DBTableName: Operations
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.

SeqNo: 1082
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Time - hh:mm (24-hour clock)

Long Name: Procedure Extended Through Midnight
Short Name: **MultiDay**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the procedure continued through midnight from one day to the next.

SeqNo: 1083
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)
Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Surgeon
Short Name: **Surgeon**
Section Name: Operative
DBTableName: Operations
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.

SeqNo: 1084
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9|3|4|6|7|777
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"

April 2021: A guest surgeon performed an operation at our facility and our other two surgeons were assisting, for the registry can we code our first assistant surgeon as the primary surgeon so it can be counted in the registry? **Yes, as the guest surgeon will not be added to your STS contract.**

May 2021: Thrombus evacuation & lung biopsy as well as pericardial window done by general surgeon as primary and CV surgeon as assistant. Would this procedure be entered as a CV surgery? If so who would be listed as the surgeon? The general surgeon which does not have contract with STS and was the primary for the case. All documentation is completed by general surgeon. **If the cardiac surgeon is a co-surgeon and dictated their own operative note, the procedures done by the cardiac surgeon can be entered. If the cardiac surgeon serves as an assistant, the case cannot be entered into the database.**

June 2022: We had a procedure done in the OR----a device closure of VSD via sternotomy. The sternotomy was done by one of our surgeons, but an interventional cardiologist did the device procedure. 1) should this surgery be entered into the database 2) if yes, our surgeon is listed as doing the procedure....but not the interventionalist. How do I manage this? **Yes, this case should be entered into the database as the surgeon completed a procedure. The Operation type is No CPB Cardiovascular. All procedures the patient underwent are to be included in the procedure section. The interventionalist is not captured in the surgical database and the surgeon is listed as the Primary surgeon.**

June 2022: Occasionally, adults with CHD are operated on my adult CT surgeons who are not congenital surgeons. An example is a 60-year-old patient born with transitional common AV canal who had a percutaneous TAVR procedure for aortic valve stenosis with insufficiency. The procedure was performed by a team that specializes in this procedure in the hybrid suite: non-congenital CT surgeon and interventional cardiologist listed as "co-surgeons". The entire procedure was done percutaneously via femoral artery, essentially by the interventionalist with the surgeon present as stand-by in case of emergency. Neither practitioner is listed as a provider in STS CHSD. Other times, the congenital surgeon might be involved a procedure on an adult, and a subsequent complication might be handled by an adult/non-congenital surgeon who is not listed in the STS CHSD. How do I code the surgeon when our CHSD-listed was not involved? Will this record cause rejection of the entire submission due to missing required data? **Procedures completed without a cardiac surgeon, i.e., those done by interventional cardiology only with CT surgery on standby, do not get entered into the CHSD. If a congenital surgeon does a procedure during a case, the operation is entered into the CHSD. The complications would be assigned to that case.**

Long Name:	Surgeon National Provider Identifier	*SeqNo:*	1085
Short Name:	**SurgNPI**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the individual-level National Provider Identifier (NPI) of the surgeon performing the procedure.		
Intent / Clarification:			
Data Source:	Lookup		
Format:	Text		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|2|9|3|4|6|7|777		
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"		

Long Name:	Taxpayer Identification Number	*SeqNo:*	1086
Short Name:	**TIN**	*Core:*	Yes
Section Name:	Preoperative Factors	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the group-level Taxpayer Identification Number for the Taxpayer holder of record for the Surgeon's National Provider Identifier that performed the procedure.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		
ParentLongName:	Operation Type		

ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9|3|4|6|7|777
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"

Long Name: Reoperation Within This Admission
Short Name: **ReOpInAdm**
Section Name: Preoperative Factors
DBTableName: Operations
Definition: Indicate whether this is a second, or third (or more) operation within the same ~~hospital admission~~ episode of care (updated May 2023).

SeqNo: 1087
Core: Yes
Harvest: Yes

Intent / Clarification: Mediastinal explorations or washouts are to be included as Unplanned reoperations regardless of whether the sternum was open or not.
If a Glenn is performed after a Norwood, it is always a **planned** operation, regardless of whether or not the patient went home between the Norwood and Glenn.
Tracheostomies and gastrostomies are **unplanned** noncardiac operations because they are not planned at the time of the original operation. A rare exception is a planned tracheostomy after a trachel reconstruction.
BT shunt for a tet followed by full tet repair is planned reoperation.

Update: May 2023: Indicate whether this is a second, third (or more) operation within the same episode of care

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9|3|4|6|7|777
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	Yes - Planned reoperation	Indicate whether this operation is a second, or third (or more) operation within the same hospital admission that was planned. The following operations will always be coded as "Planned Reoperation": (1) Delayed Sternal Closure, (2) ECMO Decannulation, (3) VAD Decannulation, (4) Removal of Broviac catheter. The following operations will always be coded as "Unplanned Reoperation": (1) Reoperation for bleeding (2) Reoperation for infection (3) Reoperation for hemodynamic instability (4) Reoperation for initiation of ECMO or VAD (5) Reoperation for residual or recurrent lesion.
3	Yes - Unplanned reoperation	Indicate whether this operation is a second, or third (or more) operation within the same hospital admission that was not planned. The following operations will always be coded as "Planned Reoperation": (1) Delayed Sternal Closure, (2) ECMO Decannulation,

		(3) VAD Decannulation, (4) Removal of Broviac catheter. The following operations will always be coded as "Unplanned Reoperation": (1) Reoperation for bleeding (2) Reoperation for infection (3) Reoperation for hemodynamic instability (4) Reoperation for initiation of ECMO or VAD (5) Reoperation for residual or recurrent lesion.
2	No	Indicate whether this operation is NOT a second, or third (or more) operation within the same hospital admission.

January 2019: A patient was born at our hospital with multiple cardiac anomalies including Coarctation of Aorta and VSD. Patient had Coarc. repair done first and then at a later date within the same admission the patient had the VSD closed. Is the VSD closure considered a planned re-op or unplanned? **It would depend on the initial surgical plan prior to the coarctation of the aorta repair. Some centers initially plan a staged repair.**

July 2019: Reoperation Within This Admission (SeqNo: 1087): Is this reoperation operations including other than heart operation? For example, if the patient had lung surgery, then underwent heart surgery, does it count as yes to reoperation? **If the prior operation was not cardiac (CPB or No CPB Cardiovascular), do not count it as a reoperation. A prior thoracic operation would not be a reoperation during this hospitalization.**

November 2019: If a patient gets a VAD as a bridge to transplant, and then has a transplant, is the transplant considered an unplanned reoperation during this admission or a planned reop? This is a **planned reoperation.**

February 2020: We are wondering if the following scenario should be considered a planned reoperation as the Glenn after Norwood or a full TOF repair after BT shunt (per training manual):DIAGNOSIS: Pulmonary atresia with ventricular septal defect and major aortopulmonary collaterals. 1st (index)PROCEDURE: Central aorta-to-pulmonary artery side-to-end anastomosis (aortopulmonary window/Mee shunt. ReOp PROCEDURE: (pt did not leave hospital)1. Redo sternotomy and takedown of mediastinal adhesions. 2. Unifocalization of MAPCA.3. Rastelli-type repair for pulmonary atresia and ventricular septal defect using a 13 mm RV to PA aortic homograft as a conduit. 4. Extensive pulmonary arterioplasty including the right upper, right lower lobe, left main pulmonary artery and the right main pulmonary artery. 5. Takedown Mee shunt.6. Patent foramen ovale primary closure. **This does follow the same logic as the Glenn following Norwood and TOF repair following shunt. Code this as a planned reoperation.**

June 2020: PA Band was placed in a patient with Tricuspid Atresia and VSD. Later in the same admission the patient developed R Pulmonary Vein Stenosis and RVOT Stenosis, which she had not had to start with. How should ReOpInAdm be coded for the subsequent repair of pulmonary vein stenosis and RVOTO? What is the intent of the field ReOpInAdm? Would an operation have to be planned at the time of the index case to be coded as Yes, Planned? **Reop in Admission should be answered as Yes, Unplanned. The field is used to determine if a surgery is planned or unplanned during the patient's episode of care. The complication Unplanned cardiac reoperation should also be coded for the PA band operation**.

September 2020: It is noted that a delayed sternal closure is always a planned reoperation. Is this the same for a patient that ends up with a sternal wound infection, has a mediastinal washout (unplanned), and then a delayed sternal closure? **Yes, the delayed sternal closure is a planned reoperation.**

October 2020:

We are trying to figure out when to code a reop for the same admission in a couple of different scenarios: 1. A patient is put on ECMO by General Surgery and then is decannulated by CT surgery, so the decannulation gets entered into STS. The training manual states if the surgery is not cardiac (CPB Cardiovascular or No CPB Cardiovascular - in this case, it would be ECMO), do not count it as a reoperation and do not count in prior operation count. It also states that ECMO decannulation is always a planned reoperation. So, in this case, are we supposed to be No in ReOpInAdm, or Yes, Planned reoperation?? This information is contradicting itself. **Reoperation in Admission, yes planned**

Similar to above, a patient comes to the hospital, is put on ECMO by General Surgery and a couple days later, the cannulas have to be adjusted by CT Surgery. This procedure gets put into STS because it is done by the CT surgeon. The procedure ECMO Procedure has been used. Is this a reop within this admission? November 2020: If a patient rolls out of the OR and arrives to CICU room BUT handoff is not completed because the surgeon notices chest tube frank bleeding, and immediately returns to the OR with the same OR staff...is that considered a re-operation??? **Yes, this is a reoperation as the patient left the OR.**

May 2021: Our patient had an interrupted aortic arch repair with CPB and a VSD repair. 5 days later in the admission, she developed left lung atelectasis and had a bedside flexible bronchoscopy done by our CV surgeon. Is this to be coded as an unplanned reoperation for Seq. 1087, and is this a complication (Seq. 4200) for the index op as an unplanned noncardiac reoperation? I thought I read in another FAQ that flexible bronchoscopies for clearance of secretion should not count as unplanned noncardiac reoperations, and I would just appreciate some clarification. **Bronchoscopy is not an unplanned non-cardiac reoperation.**

September 2021: My question is related to planned vs. unplanned reoperations within the same episode of care but separate admissions. Our patient was initially admitted from March 20th to April 22nd, 2021having their Index procedure (CAVC Repair) on April 8th. They were discharged to another acute care hospital, never went home, then transferred back to our facility on June 16th requiring a reoperation on 6/17 for placement of a permanent pacemaker. They were again transferred back to the acute care hospital on June 20th and remains in their NICU. I understand these are two admissions within the same episode of care and as per the training manual (Pg. 248), I chose “no” for reoperation for the June 17th since this occurred in a new admission within the same episode of care. I captured the complication Arrhythmia necessitating pacemaker, permanent pacemaker for the Index procedure on April 8th. While discussing this with my surgeon, he asked me to submit a question asking if reoperations within the same episode of care but separate admissions should be considered reoperations? **Code No to ReOpInAdm as this field is to be completed for the hospital admission and not the episode of care. Code the following complications on the index operation (CAVC repair): Arrhythmia necessitating pacemaker, permanent pacemaker and Unplanned cardiac reoperation.**

October 2021: When an unplanned procedure was performed concomitantly with delayed sternal closure, how should the reoperation data field (sequence #1087) coded**? In this scenario, the operation to close the sternum was a planned reopeation. If something went awry during the sternal closure requiring an additional procedure, the reoperation is still planned. However, if it were known prior to the sternal closure that an additional procedure was needed, the reoperation is unplanned.**

March 2023: If a patient gets admitted and emergently cannulated for ECMO, decannulated, and then later has an index operation (Hybrid - PA bands in this case), is the index operation a planned reoperation or an unplanned reoperation? Another scenario would be a patient having a VAD implant as a bridge to recovery, but later ends up receiving a heart transplant instead as their index operation. Can an index operation EVER be "unplanned" in terms of this particular field (seq 1087), or is it planned by default because it was " planned" prior to the index op? **In terms of this field (1087) ReOpInAdm, the index operation should be coded as "No". The index operation was planned, and while unplanned events may have occurred prior, the plan was to complete the index operation. Be sure to include applicable preop factors in that section (i.e. if the patient was on a VAD, etc.).**

May 2023: If a patient has a surgery and is discharged to a chronic care facility (has a hospital discharge date but no database discharge date), then comes back for another surgery, what should we answer in the field Reoperation Within This Admission for the second surgery? Is it a reoperation during this admission? In the Training Manual, all of the definitions for each option in this field says "within the same hospital admission", but looking through the FAQs, there is one answer that says "The field is used to determine if a surgery is planned or unplanned during the patient’s episode of care". So is it within the same

hospitalization or episode of care? **It should be "episode of care". We will work to align definitions in the Training Manual/Intent and Clarifications section. Thank you for bringing this up.**

Long Name:	Number of Prior Cardiothoracic Operations		*SeqNo:*	1090
Short Name:	**PrvCtOpN**		*Core:*	Yes
Section Name:	Preoperative Factors		*Harvest:*	Yes
DBTableName:	Operations			
Definition:	Indicate, prior to this admission's surgical procedure, how many cardiothoracic (heart or great vessels) surgical procedures were performed with or without cardiopulmonary bypass (CPB). Also include lung procedures utilizing CPB or tracheal procedures utilizing CPB. See Operation Type for further clarification.			
Low Value:	0			
High Value:	200			
Intent / Clarification:				
Data Source:	User			
Format:	Integer			
ParentLongName:	Operation Type			
ParentShortName:	**OpType**			
ParentHarvestCodes:	1|2|9|3|4|6|7|777			
Parent Value:	= "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"			

February 2019: This question is about coding ECMO ops in the prior ops and complications fields. I know that ECMO cannulations/decannulations don't need to be counted as prior cardiothoracic ops, and they don't need to be coded as unplanned cardiac reops, but what about mediastinal explorations/procedures performed while a patient is on ECMO and other ops with op type ECMO? Are these not counted either, or are they considered unplanned cardiac reops and counted as prior ops since they were performed to support the patient and not just to initiate or discontinue ECMO support? I guess the distinction I'm looking for is do these rules only apply to cannulations and decannulations, or anything while on ECMO (aside from ops using ECMO for bypass)? **Correct, do not include ECMO procedures in the prior operation count. If a mediastinal exploration occurs while a patient is on ECMO post cardiac surgery, the operation type of the mediastinal exploration is ECMO but should still be counted as an unplanned cardiac reoperation in the complications.**

August 2019: I am requesting clarification of 'Prior Cardiothoracic Operations' specifically the statement 'prior to this admissions' surgical procedure'. Is this asking us to document only prior cardiothoracic operations prior to the current admission? **Yes** Or is it asking for all prior cardiothoracic operations prior to the most recent cardiothoracic surgery? **No. We will look at changing this during the next upgrade.**

December 2021: If a newborn with TGA has an emergent, bedside, septostomy shortly after birth, is this considered a CT operation? **The Operation type for a catheter-based atrial septostomy regardless of location (OR, Cath lab, or bedside) is Interventional Cardiology. Thus, this would not count as a Prior Cardiothoracic Operation.**

September 2022**: F**or prior cardiothoracic procedure count, do I include any procedure with any of the parent values: = "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"? Specifically, pleural drainage

procedure (thoracic), washout (no cpb cardio), delayed sternal closure (no cpb cardio).... **This field is asking for the number of prior cardiothoracic procedures done utilizing cardiopulmonary bypass, excluding ECMO and VAD operations. By definition, operation types Thoracic, No CPB Cardiovascular, and Other cannot utilize CPB or they would then become op type CPB. So, you are entering the number of cardiac operations prior to this case you are entering.**

The training manual lists the parent fields which are op types "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other" - meaning if you are entering a surgery that is one of these op types, you have to answer the field (enter the number of prior cardiothoracic procedures done utilizing CPB). This field will not be available to complete for any other op type. It is not stating to utilize those op types in your count of procedures.

April 2023: How is "Calculate Prior Ct's" performed? Do we only count procedures done at our facility, or any done over the lifetime? If we only do "our" procedures, does the CHSD have a way to aggregate all of the person's CT surgery from all facilities? **Please include all CardioThoracic operations (regardless of where they occurred).**

Long Name:	Number of Prior CPB Cardiothoracic Operations	*SeqNo:*	1100
Short Name:	**PrvCtOpN**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate how many cardiothoracic surgical procedures were performed on this patient, prior to this surgical procedure, utilizing CPB (do not include CPB support or ECMO support).		
Low Value:	0		
High Value:	50		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|2|9|3|4|6|7|777		
Parent Value:	= "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"		

June 2021: A patient has a CPB surgery, is put on ECMO post operatively and then had a mediastinal exploration done while they are still on ECMO. According to the definition, and previous FAQ response, this mediastinal exploration would not count towards the number of previous operations going forward because it was done on ECMO. Is this correct? If the chest was explored and they were not on ECMO, it would count for the number of previous operations so I just want to make sure I'm understanding the definition and FAQcorrectly.**Yes, the operations included in the prior operations are CPB Cardiovascular and No CPB Cardiovascular. Do not include other op types including ECMO.**

Long Name:	Cross Clamp Time - No CPB	*SeqNo:*	1130
Short Name:	**XClampTmNC**	*Core:*	Yes

Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the total number of minutes the aorta is completely cross-clamped during this surgical procedure. Enter zero if no cross-clamp was used.
Low Value: 0
High Value: 600

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 2
Parent Value: = "No CPB Cardiovascular"

Long Name: CPB Blood Prime *SeqNo:* 1140
Short Name: **CPBPrimed** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the CPB circuit was primed with blood other than the patient's own blood.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: PRBC *SeqNo:* 1141
Short Name: **PRBC** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the number of mls of PRBC used for CPB blood prime.
Low Value: 0
High Value: 5000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: CPB Blood Prime
ParentShortName: **CPBPrimed**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: FFP *SeqNo:* 1142
Short Name: **FFP** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the number of mls of FFP used for CPB blood prime.
Low Value: 0
High Value: 5000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: CPB Blood Prime
ParentShortName: **CPBPrimed**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Whole Blood *SeqNo:* 1143
Short Name: **WholeBlood** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the number of mls of whole blood used for CPB blood prime.
Low Value: 0
High Value: 5000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: CPB Blood Prime
ParentShortName: **CPBPrimed**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Cardiopulmonary Bypass Time *SeqNo:* 1150

Short Name:	**CPBTm**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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. This time period (Cardiopulmonary Bypass Time) excludes any circulatory arrest and modified ultrafiltration periods. If more than one period of CPB is required during the surgical procedure, the sum of all the CPB periods will equal the total number of CPB minutes. Enter zero if cardiopulmonary bypass technique was not used.		
Low Value:	0		
High Value:	999		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|9|6		
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"		

Long Name:	Cross Clamp Time - CPB	*SeqNo:*	1160
Short Name:	**XClampTm**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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 (Cross Clamp Time) includes all intervals of intermittent or continuous cardioplegia administration. If more than one cross clamp period is required during this surgical procedure, the sum of the cross clamp periods is equal to the total number of cross clamp minutes. Enter zero if the coronary circulation was never mechanically isolated from systemic circulation, either by an aortic cross clamp or systemic circulatory arrest. For the following two operations: (1) “Transplant, Heart”, and (2) “Transplant, Heart and lung”, the field “Cross Clamp Time” will be defined as the cross clamp time of the donor heart. Therefore, these two operations represent the only operations where the field “Cross Clamp Time” can be greater than the field “Cardiopulmonary Bypass Time”.		
Low Value:	0		
High Value:	600		
Intent / Clarification:			

Data Source:	User
Format:	Integer
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|9|6
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

March 2023: I am abstracting an Adult Robotic MV repair case in the congenital database. The surgeon used the endoaortic balloon occlusion method. Am I correct in coding the cross clamp time from the perfusion summary into seq 1160 to represent the endoaortic balloon occlusion time? **Yes, that is the correct approach.**

Long Name:	Circulatory Arrest Time	*SeqNo:*	1170
Short Name:	**DHCATm**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the total number of minutes of complete cessation of blood flow to the patient. This time period (Circulatory Arrest Time) excludes any periods of cerebral perfusion. If more than one period of circulatory arrest is required during this surgical procedure, the sum of these periods is equal to the total duration of circulatory arrest. Enter zero if circulatory arrest technique was not used.		
Low Value:	0		
High Value:	200		
Intent / Clarification:	**Update November 2022: Capture any period of circulatory arrest. Circulatory arrest is defined as the 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 and is not the same as coronary-pulmonary bypass time.**		
Data Source:	User		
Format:	Integer		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|9|6		
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"		

November 2022: We are looking for some context related to the perfusion section of STS.
The front end asks for circulatory arrest time, with the definition below: Coding Instructions: Indicate the total number of minutes of complete cessation of blood flow to the patient. This time period (Circulatory Arrest Time) excludes any periods of cerebral perfusion. If more than one period of circulatory arrest is required during this surgical procedure, the sum of these periods is equal to the total duration of circulatory arrest. Enter zero if circulatory arrest technique was not used. But we recently noticed that the backend field name is DHCATm, and therefore DHCA time is displayed on our IQVIA reports. Our perfusionists and surgeons report that while we do circulatory arrest here, we have not done deep hypothermic circulatory arrest (DHCA) in many years. Our team

reviewed the STS manual and FAQs and cannot determine whether this field is named DHCA in error or if they intend for us to capture DHCA time only, and exclude other circulatory arrest time. Do you have any insight into this? Is this really all circ. arrest time, regardless of temperature and not specifically deep hypothermic arrest which are at much lower temps? We have brief periods of circ arrest but surgeons and perfusionist don't consider them to be deep circ arrest. We want to make sure we are capturing the data correctly and clarify the terminology and what is being asked. **Capture any period of circulatory arrest. Circulatory arrest is defined as the 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 and is not the same as coronary-pulmonary bypass time.**

Long Name:	Induced Fibrillation	*SeqNo:*	1175
Short Name:	**InducedFib**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether ventricular fibrillation was intentionally induced during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|9|6
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Induced Fibrillation Time - Minutes	*SeqNo:*	1176
Short Name:	**InducedFibTmMin**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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, the total number of minutes and seconds is equal to the sum of the individual periods.		
Low Value:	1		
High Value:	360		

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Induced Fibrillation
ParentShortName: **InducedFib**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Induced Fibrillation Time - Seconds
Short Name: **InducedFibTmSec**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the number of additional seconds 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, the total number of minutes and seconds is equal to the sum of the individual periods.

SeqNo: 1177
Core: Yes
Harvest: Yes

Low Value: 0
High Value: 59

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Induced Fibrillation
ParentShortName: **InducedFib**
ParentHarvestCodes: 1
Parent Value: = "Yes"

August 2020: How many other centers record seconds with induced fibrillation? Our center has only ever recorded minutes and we are wondering how important it is to record seconds. If it is something that the majority of centers are doing, our perfusionists are willing to accommodate, but if it is something that is not really necessary or needed, they will continue with how they have been doing it all along. We are currently entering zero for seconds on all induced fibrillation cases. **It should be recorded in minutes and the data collection form will be cleaned up in the next version. Continue to enter zero for seconds.**

Long Name: Patient Temperature Monitoring Site - Bladder
Short Name: **TempSiteBla**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the bladder monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.

SeqNo: 1180
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Core Temperature - Bladder
Short Name: **LowCTmpBla**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the bladder monitoring site.

SeqNo: 1190
Core: Yes
Harvest: Yes

Low Value: 1.0
High Value: 37.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Bladder
ParentShortName: **TempSiteBla**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Patient Temperature Monitoring Site - Esophageal
Short Name: **TempSiteEso**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the esophageal monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.

SeqNo: 1200
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Core Temperature - Esophageal
Short Name: **LowCTmpEso**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the esophageal monitoring site.
Low Value: 1.0
High Value: 37.0

SeqNo: 1210
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Esophageal
ParentShortName: **TempSiteEso**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Patient Temperature Monitoring Site - Nasopharyngeal
Short Name: **TempSiteNas**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the nasopharyngeal monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.
Low Value: 1.0
High Value: 37.0

SeqNo: 1220
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Patient Temperature Monitoring Site - Nasopharyngeal
Short Name: **LowCTmpNas**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the nasopharyngeal monitoring site.
Low Value: 1.0
High Value: 37.0

SeqNo: 1230
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Nasopharyngeal
ParentShortName: **TempSiteNas**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Patient Temperature Monitoring Site - Rectal
Short Name: **TempSiteRec**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the rectal monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.

SeqNo: 1240
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Core Temperature - Rectal
Short Name: **LowCTmpRec**

SeqNo: 1250
Core: Yes

Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the rectal monitoring site.
Low Value: 1.0
High Value: 37.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Rectal
ParentShortName: **TempSiteRec**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Patient Temperature Monitoring Site - Tympanic
SeqNo: 1260
Short Name: **TempSiteTym**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether the tympanic monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Core Temperature - Tympanic
SeqNo: 1270
Short Name: **LowCTmpTym**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations

Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the tympanic monitoring site.

Low Value: 1.0
High Value: 37.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Tympanic
ParentShortName: **TempSiteTym**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Patient Temperature Monitoring Site - Other
Short Name: **TempSiteOth**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether any other monitoring site was utilized during this procedure to determine lowest and highest patient temperature during cardiopulmonary bypass.

SeqNo: 1280
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Core Temperature - Other
Short Name: **LowCTmpOth**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the lowest temperature (Celsius) achieved during cardiopulmonary bypass as recorded using the other monitoring site.

SeqNo: 1290
Core: Yes
Harvest: Yes

Low Value: 1.0
High Value: 37.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Patient Temperature Monitoring Site - Other
ParentShortName: **TempSiteOth**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Cooling Time Prior To Initiation of Hypothermic Circulatory Arrest Or Selective Cerebral Perfusion
SeqNo: 1301

Short Name: **CoolTimePrior**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the cooling time prior to initiation of hypothermic circulatory arrest or selective cerebral perfusion.

Low Value: 0
High Value: 180

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

February 2019: There is a new field in 3.41 that asks the below question: "Cooling Time Prior to Initiation of Hypothermic Circulatory Arrest or Selective Cerebral Perfusion: ____ Rewarm Time: _____Minutes Cool" Time Definition: Indicate the cooling time prior to initiation of hypothermic circulatory arrest or selective cerebral perfusion. (It does not grey out in my software as in a parent/child field). Rewarm Definition: Indicate the number of minutes from the initiation of rewarming until the target rewarming temperature is achieved. My question is, if the patient requires neither hypothermic circ arrest nor selective cerebral perfusion, should the space remain blank or should we put a zero in the field? And does the rewarm question now relate to hypothermic circ arrest or cerebral perfusion since it is now placed right under the cool time/circ arrest/cerebral perfusion field? Leave it blank or zero if neither used? ~~**Collect Cooling and rewarming time on all cases where CPB is used.**~~ **Cooling time should include the time of active cooling up to the point of initiation of hypothermic circulatory arrest or selective cerebral perfusion if these modalities were used or to the patient's lowest desired temperature. Ignore phrase in parentheses from the data collection form.** **See clarification April 2021.**

August 2019: During one of the surgeries, the cooling time was documented at 305 minutes. The database will not allow for a number greater than 200 and will not let me save the data that I have entered. Is there a reason that there is a limit to document the cooling minutes? **Put in 200. We will change the upper limit in next version.**

November 2019: How do we capture cooling and rewarming times when the patient is cooled and rewarmed more than once during an operation? Should I add them together and enter the total cooling and rewarming

times? **Yes, add together for total cooling and total warming times.**

April 2021: if the patient did not require hypothermic circulatory arrest nor selective cerebral perfusion, should the space remain blank or should we put a zero in the field. I know this question was asked before, but it seems to me that the answer is vague, would you please explain it in more details and how the cooling and rewarming time is calculated? (from what timestamp point to what timestamp point?). **The parent-child field is not correctly mapped within the database specs, this will be addressed in the next upgrade. For now, you can leave the field blank if circ arrest and/or cerebral perfusion were not used. Refer to FAQ from February 2019 regarding how cooling and warming times are calculated.**

Long Name:	Rewarming Time	*SeqNo:*	1310
Short Name:	**RewarmTime**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of minutes from the initiation of rewarming until the target rewarming temperature is achieved.		
Low Value:	0		
High Value:	500		

Intent / Clarification:

Data Source:	User
Format:	Integer
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|9|6
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Long Name:	Cerebral Perfusion Utilized	*SeqNo:*	1320
Short Name:	**CPerfUtil**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether cerebral perfusion was performed.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|9|6
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes

2 No

May 2022: We have a new surgeon using a technique new to our hospital. We would like to know if this should be recorded as cerebral perfusion. Per our perfusion team: There is flow to the upper body and the distal part of the body. There is no choice for Selective Cerebral Perfusion of upper body perfusion and lower body perfusion. That is why Perfusion did not mark Cerebral Perfusion. One cannula is placed in the innominate artery and a second in the descending aorta. **This is not selective cerebral perfusion, do not record as cerebral perfusion.**

September 2022: If we utilize "cerebral perfusion" during our circ arrest cases, it's in the form of whole-body perfusion through our ascending aortic cannulation site (majority of the time). Because of this, we will flow at a much higher index as opposed to utilizing isolated cerebral perfusion. Currently, the set up is to document isolated cerebral perfusion for which ascending aorta is not an option to choose. Because of this, when placing flow rates into our vendor, it will appear like we flooded the brain at full cardiac index. Is there any way to add alternative intermittent perfusion cannulation sites to better document our intraoperative strategies? If not, what in this scenario would be the most accurate, appropriate way to capture this? **The intent of this field is to capture selective or isolated cerebral perfusion, not regional or total body perfusion. This field is not being updated at this time.**

Long Name:	Cerebral Perfusion Time	*SeqNo:*	1330
Short Name:	**CPerfTime**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Cerebral Perfusion Utilized		
ParentShortName:	**CPerfUtil**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

September 2020: When performing total aortic arch replacement, our surgeon starts out with retrograde cerebral perfusion (via the snared SVC cannula), followed by direct antegrade perfusion into each head vessel through separate cannulas. When he completes the distal arch reconstruction, perfusion to the lower body is resumed, and he sequentially connects each of the head vessels to a limb of the arch graft. When should the cerebral perfusion time end? When blood flow to the lower body is restored? When the first head/neck branch is open (usually the left subclavian artery)? After all the head vessels have been connected to the graft and all the individual cannulas removed? **In this scenario, when blood flow is restored to the lower body, selective cerebral perfusion is no longer being used.**

Long Name:	Cerebral Perfusion Cannulation Site - Innominate Artery	*SeqNo:*	1340
Short Name:	**CPerfCanInn**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the innominate artery cannulation site was utilized for cerebral perfusion.		

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cerebral Perfusion Cannulation Site - Right Subclavian	*SeqNo:*	1350
Short Name:	**CPerfCanRSub**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the right subclavian cannulation site was utilized for cerebral perfusion.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cerebral Perfusion Cannulation Site - Right Axillary Artery	*SeqNo:*	1360

Short Name:	**CPerfCanRAx**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the right axillary artery cannulation site was utilized for cerebral perfusion.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cerebral Perfusion Cannulation Site - Right Carotid Artery	*SeqNo:*	1370
Short Name:	**CPerfCanRCar**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the right carotid artery cannulation site was utilized for cerebral perfusion.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Cerebral Perfusion Cannulation Site - Left Carotid Artery	*SeqNo:*	1380
Short Name:	**CPerfCanLCar**	*Core:*	Yes

Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the left carotid artery cannulation site was utilized for cerebral perfusion.

Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Cerebral Perfusion Cannulation Site - Superior Vena Cava
Short Name: **CPerfCanSVC**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the superior vena cava cannulation site was utilized for cerebral perfusion.

SeqNo: 1390
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Cerebral Perfusion Periods
Short Name: **CPerfPer**
Section Name: Operative
DBTableName: Operations

SeqNo: 1400
Core: Yes
Harvest: Yes

Definition: Indicate the number of periods of cerebral perfusion. For example, if the cerebral perfusion time is a total of 20 minutes and the patient received 4 separate 5 minute periods of cerebral perfusion, the cerebral perfusion periods would be 4.

Low Value: 1
High Value: 20

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Cerebral Perfusion Flow Rate
Short Name: **CPerfFlow**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the cerebral perfusion flow rate in milliliters per kilogram (mL/kg) per minute.

SeqNo: 1410
Core: Yes
Harvest: Yes

Low Value: 1
High Value: 999

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Cerebral Perfusion Temperature
Short Name: **CPerfTemp**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the perfusate temperature (Celsius) maintained during cerebral perfusion.

SeqNo: 1420
Core: Yes
Harvest: Yes

Low Value: 1
High Value: 37

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Cerebral Perfusion Utilized
ParentShortName: **CPerfUtil**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Arterial Blood Gas Management During Cooling
Short Name: **ABldGasMgt**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the arterial blood gas management strategy utilized during the cooling phase of cardiopulmonary bypass prior to initiation of circulatory arrest or cerebral perfusion.

SeqNo: 1430
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Alpha STAT
2	pH STAT
3	pH STAT cooling/Alpha STAT rewarming
4	Other combination

Long Name: Hematocrit Prior to Circulatory Arrest or Cerebral Perfusion
Short Name: **HCTPriCircA**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the last hematocrit value prior to initiation of circulatory arrest or cerebral perfusion.
Low Value: 5.0
High Value: 70.0

SeqNo: 1440
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6

Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

March 2020: Is it wrong to put in a HCT value for this field even when the patient does not have a true circulatory arrest or cerebral perfusion? **While not incorrect, it does not follow the data specs for the field. There are multiple other HCT fields (1640, 1650, 1660) to collect this value at other time points during the operative procedure. This field specifically asks for the HCT prior to circulatory arrest or cerebral perfusion.**

July 2020: For the HCT fields, is it appropriate to use HGB x 3 instead? Our new blood gas machines do not give HCT and would like to confirm this suggested fix. **Yes, this is a reasonable approach if you don't have the HCT.**

Long Name: Cardioplegia Type
SeqNo: 1460
Short Name: **CplegiaType**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the type of cardioplegia used.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cardioplegia Delivery
ParentShortName: **CplegiaDeliv**
ParentHarvestCodes: 2|3|4
ParentValues: = "Antegrade", "Retrograde" or "Both"
Harvest Codes:

Code:	Value:
1	Blood
2	Crystalloid
3	Both
4	Other

March 2019: Our perfusion team was wondering if del Nido mixed 1 part blood to 4 parts crystalloid is blood or both? At one point we were under the impression that if it had any blood then the answer was blood. **This should be coded as blood.**

May 2019: Under Cardioplegia Delivery (Cong_STS_32cardioplegia solution) when del Nido is used by perfusion in our institute it is always mixed with blood. Should the cardioplegia type not be" both" instead of "blood"? The question below is in the STS training manual for 3.41 version. Please qualify. March 2019: Our perfusion team was wondering if del Nido mixed 1 part blood to 4 parts crystalloid is blood or both? At one point we were under the impression that if it had any blood then the answer was blood. This should be coded blood. **If there is *any* blood, it is considered blood. If there is no blood, it is crystalloid. If one dose is blood and one dose is crystalloid, then both is chosen.**

Long Name: Cardioplegia Solution
SeqNo: 1470
Short Name: **CplegiaSolution**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the cardioplegia solution used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cardioplegia Delivery
ParentShortName: **CplegiaDeliv**
ParentHarvestCodes: 2|3|4
ParentValues: = "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

Long Name: Cardioplegia Number Of Doses
Short Name: **CplegiaDose**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the number of doses of cardioplegia administered.
Low Value: 1
High Value: 50

SeqNo: 1490
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Cardioplegia Delivery
ParentShortName: **CardioplegiaDeliv**
ParentHarvestCodes: 2|3|4
Parent Value: = "Antegrade", "Retrograde" or "Both"

Long Name: Hematocrit - First after initiating CPB
Short Name: **HCTFirst**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the first hematocrit measured after initiating CPB.
Low Value: 5.0
High Value: 70.0

SeqNo: 1640
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Long Name: Hematocrit - Last Measured During CPB
Short Name: **HCTLast**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the last hematocrit measured during CPB.
Low Value: 5.0
High Value: 70.0

SeqNo: 1650
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Long Name: Hematocrit - Post-CPB and Post-Protamine
Short Name: **HCTPost**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the hematocrit measured post-CPB following protamine administration.
Low Value: 5.0
High Value: 70.0

SeqNo: 1660
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Long Name: Ultrafiltration Performed
SeqNo: 1671
Short Name: **UltrafilPerform**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether ultra-filtration was performed.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Ultrafiltration Performed When
SeqNo: 1672
Short Name: **UltraFilPerfWhen**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate when ultra-filtration was performed.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Ultrafiltration Performed
ParentShortName: **UltrafilPerform**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	During CPB,
2	After CPB, MUF
3	During and after CPB

Long Name:	Pulmonary Vascular Resistance Measured Within 6 Months	*SeqNo:*	1770
Short Name:	**PVRMeas**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the Pulmonary Vascular Resistance (PVR) in Woods units was measured by cardiac catheterization within 6 months prior to this operation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|2|9|3|4|6|7|777
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

November 2019: Often times, the patients have cardiac caths within 6 months pre-op. The PVR is not calculated. Are we allowed to calculate the PVR based on all the other measurements provided? **Yes, may use cath measurements to calculate the PVR.**

August 2021: Our cardiologist measure PVR in Woods Units x m2 for all patients. We noticed in data entry that patients weighing over 40kg only ask for Woods Units and patients less than 40kg ask for Woods Units x m2. Are we required to calculate Woods Units only or can we use the Woods Units x m2 value? **The PVR in patients weighing > 40kg does need to be entered in Woods Units and may require calculation if that is not what is reported at your center.**

Long Name:	Pulmonary Vascular Resistance	*SeqNo:*	1780
Short Name:	**PVR**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	If the patient's weight is greater than or equal to 40 kilograms, indicate the pulmonary vascular resistance (in Wood units) as measured by cardiac catheterization.		
Low Value:	0.0		
High Value:	100.0		

Intent / Clarification:

Data Source:	User
Format:	Real
ParentLongName:	
ParentShortName:	**PVRMeas|WeightKg**
ParentHarvestCodes:	1|>=40

Parent Value: 1|>=40

March 2019: If the patient had a cath within 6 months of the surgical procedure, however PVR was not calculated in Woods units, would the parent question answer to "Did the patient have PVR measured?" be no? **Indicate that it wasn't measured.**

Long Name: Pulmonary Vascular Resistance Index PVRI
SeqNo: 1790
Short Name: **PVR**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: If the patient's weight is less than 40 kilograms, indicate the Pulmonary Vascular Resistance Index (in Wood units x m2) as measured by cardiac catheterization.
Low Value: 0.0
High Value: 100.0

Intent / Clarification: **Update November 2022: Enter the baseline measurement, not the PVRI measured following the administration of oxygen/nitric oxide or following any catheter based intervention.**

Data Source: User
Format: Real

ParentLongName:
ParentShortName: **PVRMeas|WeightKg**
ParentHarvestCodes: 1|>=40
Parent Value: 1|>=40

November 2022: The diagnostic cath report stated, "Pulmonary hypertension with suprasystemic RV pressure with PVRi on room air of 10.5 and with 100% oxygen reduction to 4.4 Woods units per m2", the patient's weight is less than 40 kilograms. Do I code 10.5 or 4.4 for the PVRI? **Enter the baseline measurement of PVR. In this scenario, enter 10.5.**

December 2022: How should I capture <2? (patient is 26.8kg)
Cath report: Under these conditions, the estimated Cardiac Index (CI) was 3.2L/min/m2 by Fick with a pulmonary vascular resistance index (PVRI) of < 2 Wood Units. **If the documentation does not give an exact value and instead states PVRI <2 or normal, work with your clinicians to have the PVRI calculated.**

Long Name: Anticoagulant Used
SeqNo: 1792
Short Name: **AnticoagUsed**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether an anticoagulant was used during the procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
Parent Value: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No
3	Unknown

May 2019: Anticoagulant used: If the Perfusionist is using heparin in the pump prime and I cannot see that any other heparin is utilized during the case, am I answering yes to the question, anticoagulant used during the procedure? **Any heparin given during the procedure would be coded as a 'yes' for anticoagulant**.

Long Name: Anticoagulant Used - Unfractionated Heparin *SeqNo:* 1793
Short Name: **AnticoagUnfHep** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether unfractionated heparin was used during the procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anticoagulant Used
ParentShortName: **AnticoagUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Anticoagulant Used - Argatroban *SeqNo:* 1794
Short Name: **AnticoagArg** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Argatroban was used during the procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anticoagulant Used
ParentShortName: **AnticoagUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Anticoagulant Used - Bivaluridin
SeqNo: 1795
Short Name: **AnticoagBival**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Bivaluridin was used during the procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anticoagulant Used
ParentShortName: **AnticoagUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Anticoagulant Used - Other
SeqNo: 1796
Short Name: **AnticoagOth**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether another anticoagulant was used during the procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anticoagulant Used

ParentShortName: **AnticoagUsed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Blood and Blood-Related Products

Long Name: Blood Type
SeqNo: 1850
Short Name: **BloodType**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the patient's blood type.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

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

Long Name: Rhesus Factor
SeqNo: 1860
Short Name: **Rh**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the patient's Rh factor.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	Value:
1	Positive
2	Negative
3	Unknown

Long Name: Autologous Transfusion *SeqNo:* 2461
Short Name: **AutologousTrans** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the patient was transfused with any autologous blood products that had been collected prior to surgery (e.g. self-donated).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|9|6
ParentValues: = "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

May 2019: I have a questions regarding phlebotomized blood. On our older patients that we are going to do bloodless surgery, we phlebotomize blood if the HCT is high enough once we go on bypass and give it back if needed after coming off bypass. Do we say "Yes" to Autologous blood? The training manual definition of Autologous blood is donated "prior to surgery". Is there a place to document how much was given back? I have looked at the training manual and can't find any reference to phlebotomized blood. **Yes, this is autologous blood and there is not a field for collecting the amount given back to the patient.**
September 2021: Question whether cell saver counts as Autologous Transfusion as the Perfusionist keeps documenting as "YES", but per the definition "indicate whether the patient was transfused with any autologous blood products that have been collected prior to surgery (e.g. self-donated). I keep unchecking the autologous transfusion box and wanted to know the correct answer. **You are correct, cell saver is different from autologous transfusion and should not be counted as Autologous transfusion. The definition for Autologous transfusion is being transfused with any self-donated (autologous) blood products that were collected prior to surgery, whereas cell saver is referring to blood conservation techniques used in the operating room and involved reinfusing the patient's own blood.**

Long Name:	Cell Saver/Cell Salvage in mL	*SeqNo:*	2463
Short Name:	**CellSavSalML**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the volume in mL of cell saver / cell salvage used for blood conservation during the procedure.		
Low Value:	0		
High Value:	10000		

Intent / Clarification:

Data Source:	User
Format:	Integer

ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|9|6
Parent Value:	= "CPB Cardiovascular", "CPB Non-Cardiovascular" or "VAD Operation Done With CPB"

March 2019: Version 3.41 is now requesting the volume of Cell Saver blood infused. Is this the volume infused only in the operating room, or does it also include the volume infused after admission to the ICU? **Include OR and ICU volumes.**

August 2019: Under this section regarding Cell Saver/Salvage Reinfused, is the salvage reinfused considered the blood that was removed from the patient during bypass and returned to them before the surgery ended? **Yes. This the volume of the patient's own blood that is reinfused prior to anesthesia end. Typically it has been processed in a Cell Saver but sometimes not.**

March 2023: Would STS consider using blood from the pump as equivalent? It is seldom that we actually use the cellsaver as such but we usually filter what's left in the pump and re-infuse that to the patient. **If the cpb blood is sent to the cellsaver, we would consider this cell saved blood when transfused to the patient. If it is still in the cpb circuit and transfused to the patient, we would not include this volume.**

Long Name:	Transfusion of Non-Autologous Blood Products During or After Procedure	*SeqNo:*	2825
Short Name:	**TransfusBldProdAny**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received non-autologous (self-donated) blood products during or after this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No
3	Patient / family refused

May 2019: Are we still collecting blood for multiple surgeries like we did in version 3.3, where all blood goes on the index op and the rest of the operations are marked as no? Forgive me if this has been mentioned, but I couldn't find it in the specs or FAQs. **Recommendation is that all blood units go to the index case but realize that some organizations are not doing it this way. Just be consistent.**
June 2019: Does the volume included in this section include what is given as part of the CPB blood prime? **Yes, this includes blood in the prime.**

Long Name:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR	*SeqNo:*	2830
Short Name:	**TransfusBldProdBefore**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received non-autologous (self-donated) blood products during or after this procedure.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Transfusion of Non-Autologous Blood Products During or After Procedure		
ParentShortName:	**TransfusBldProdAny**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

March 2022: I know that we are to include blood that was initiated while in the OR. What about blood that was started in the ICU and finished infusing in the OR? Would we capture that amount as well since it finished in the OR? **Only include the blood that was initiated in the OR, not the blood initiated in the unit prior to the start of the procedure.**

Long Name:	Blood Products Transfused - Packed Red Blood Cells (PRBC) in mL - Initiated Before Leaving OR	*SeqNo:*	2832
Short Name:	**BldProdPRBCMLBef**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		

ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	**TransfusBldProdBefore**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

August 2019: I recently submitted a question regarding the need to include the ml of blood products in the ECMO prime. Your response was "yes, include the prime volumes in the total ml". My ECMO specialists inform me that depending on the patient's weight, they prime with "X" units of PRBCs and "X" units of FFP. They do record the circuit volume but multiple mls of the prime volume are not exposed to the patient as they sit in a reservoir. So, the actual volume seen by the patient would be an estimated ratio of PRCs and FFP depending on the patient's weight and the circuit volume. But sometimes they may give some of this blood from the reservoir and document it as "prime blood" (how much of this was PRBCs and how much FFP?). Is there an equation you suggest we use to figure out these specifics? To add to the confusion, sometimes Platelets are included in the prime. **I would use the following: PRBC 1 unit = 325 cc; FFP 1 unit = 250 cc. These are just estimates and can vary by +/- 20%. I would not get too caught up in the exact amounts as this is beyond the scope of what we are typically looking at.**

January 2023: Seeking clarification of the August 2019 manual update regarding ECMO prime product totals: I was told to input the following volumes for all ECMO primes (PRBC 325ml, FFP 250ml, Plt 120ml), however, my ECMO specialist states these amounts do not touch the patient (unlike Perfusion priming totals that are subsequently given back to the patient) and are discarded when the machine is pulled away. If some volume is given back to the patient, the ECMO team documents this on the I/O flowsheet as "other blood". Would I count the aforementioned totals as stated OR only document the amount that is given/charted on the I/O flowsheet? If the latter, under which category should it be captured, if it is intermixed within the circuit? **Despite all products not necessarily being received by the patient, please do include the ECMO prime volumes from the documentation in total as accurately as possible.**

Long Name:		Blood Products Transfused - Fresh Frozen Plasma (FFP) in mL - Initialted Before Leaving OR	*SeqNo:*	2833
Short Name:		**BldProdFFPMLBef**	*Core:*	Yes
Section Name:		Operative	*Harvest:*	Yes
DBTableName:		Operations		
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			
Intent / Clarification:				
Data Source:		User		
Format:		Integer		
ParentLongName:		Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR		
ParentShortName:		**TransfusBldProdBefore**		
ParentHarvestCodes:		1		
Parent Value:		= "Yes"		

Long Name:	Blood Products Transfused - Fresh Plasma in mL - Initiated Before Leaving OR	*SeqNo:*	2834
Short Name:	**BldProdFreshPMLBef**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR		
ParentShortName:	**TransfusBldProdBefore**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Platelets in mL - Initiated Before Leaving OR	*SeqNo:*	2836
Short Name:	**BldProdPlatMLBef**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR		
ParentShortName:	**TransfusBldProdBefore**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Cryoprecipitate in mL - Initiated Before Leaving OR	*SeqNo:*	2837
Short Name:	**BldProdCryoMLBef**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes

DBTableName: Operations
Definition: Indicate the number of mL of Cryoprecipitate the patient received during the procedure (including CPB PRIME).
Low Value: 0
High Value: 10000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName: **TransfusBldProdBefore**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Fresh Whole Blood in mL - Initiated Before Leaving OR
SeqNo: 2838
Short Name: **BldProdFreshWBMLBef**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName: **TransfusBldProdBefore**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Whole Blood in mL - Initiated Before Leaving OR
SeqNo: 2839
Short Name: **BldProdWBMLBef**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName: **TransfusBldProdBefore**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Transfusion of Blood Products Within 24 Hours Post-Procedure
Short Name: **TransfusBldProdLT24**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether the patient received blood products within 24 hours post-procedure.

SeqNo: 2840
Core: Yes
Harvest: Yes

Intent / Clarification: This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName: **TransfusBldProdBefore**
ParentHarvestCodes: 1
Parent Value: = "Yes"
Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Blood Products Transfused - Packed Red Blood Cells (PRBC) in mL - Transfused Within 24 Hours Post-Procedure
Short Name: **BldProdPRBCMLLT24**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the number of mL of Packed Red Blood Cells (PRBC) the patient received within 24 hours post-procedure.

SeqNo: 2841
Core: Yes
Harvest: Yes

Low Value: 0
High Value: 10000

Intent / Clarification: This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.

Data Source: User
Format: Integer

ParentLongName: Transfusion of Blood Products Within 24 Hours Post-Procedure

ParentShortName: **TransfusBldProdLT24**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Fresh Frozen Plasma (FFP) in mL - Transfused Within 24 Hours Post-Procedure
SeqNo: 2842
Short Name: **BldProdFFPMLLT24**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
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

Intent / Clarification: This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.

Data Source: User
Format: Integer

ParentLongName: Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName: **TransfusBldProdLT24**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Fresh Plasma in mL - Transfused Within 24 Hours Post- Procedure
SeqNo: 2843
Short Name: **BldProdFreshPMLLT24**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
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

Intent / Clarification: This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.

Data Source: User
Format: Integer

ParentLongName: Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName: **TransfusBldProdLT24**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name:	Blood Products Transfused - Platelets in mL - Transfused Within 24 Hours Post- Procedure	*SeqNo:*	2845
Short Name:	**BldProdPlatMLLT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:	This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdLT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Cryoprecipitate in mL - Transfused Within 24 Hours Post-Procedure	*SeqNo:*	2846
Short Name:	**BldProdCryoMLLT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Cryoprecipitate the patient received within 24 hours post-procedure.		
Low Value:	0		
High Value:	10000		
Intent / Clarification:	This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdLT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Fresh Whole Blood in mL - Transfused Within 24 Hours Post-Procedure	*SeqNo:*	2847
Short Name:	**BldProdFreshWBMLLT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		

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
Intent / Clarification:	This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.
Data Source:	User
Format:	Integer
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure
ParentShortName:	**TransfusBldProdLT24**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

Long Name:	Blood Products Transfused - Whole Blood in mL - Transfused Within 24 Hours Post- Procedure	*SeqNo:*	2848
Short Name:	**BldProdWBMLLT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:	This would be blood transfused AFTER anesthesia end time for this procedure up to 24 hours after arrival in the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products Within 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdLT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Transfusion of Blood Products After 24 Hours Post-Procedure	*SeqNo:*	2849
Short Name:	**TransfusBldProdGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received blood products after 24 hours post-procedure.		
Intent / Clarification:	Intent is to capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		

ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR
ParentShortName:	**TransfusBldProdBefore**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Blood Products Transfused - Packed Red Blood Cells (PRBC) in mL - Transfused After 24 Hours Post-Procedure	*SeqNo:*	2850
Short Name:	**BldProdPRBCMLGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Packed Red Blood Cells (PRBC) the patient received after 24 hours post-procedure.		
Low Value:	0		
High Value:	10000		
Intent / Clarification:	Intent is to capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products After 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdGT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

April 2022: Is there a limitation to this time frame? I'm currently abstracting a patient whose LOS was 204d. He had CT surgery in July & then November. Perioperatively, he didn't receive a lot of blood. However, between the two surgeries he was transfused about 500cc of various blood product. Does all of that need to be documented in the post 24h transfusion section? **There is no time limit to the post 24-hour transfusion section and should be completed as best as possible.**

Long Name:	Blood Products Transfused - Fresh Frozen Plasma (FFP) in mL - Transfused After 24 Hours Post-Procedure	*SeqNo:*	2851
Short Name:	**BldProdFFPMLGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Fresh Frozen Plasma (FFP) the patient received after 24 hours post-procedure.		
Low Value:	0		
High Value:	10000		

Intent / Clarification: Intent is to capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.

Data Source: User
Format: Integer

ParentLongName: Transfusion of Blood Products After 24 Hours Post-Procedure
ParentShortName: **TransfusBldProdGT24**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Fresh Plasma in mL- Transfused After 24 Hours Post- Procedure
SeqNo: 2852

Short Name: **BldProdFreshPMLGT24**
Core: Yes

Section Name: Operative
Harvest: Yes

DBTableName: Operations
Definition: Indicate the number of mL of Fresh Plasma (<72 Hours Post-collection, never frozen) the patient received after 24 hours post-procedure.

Low Value: 0
High Value: 10000

Intent / Clarification: Intent is to capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.

Data Source: User
Format: Integer

ParentLongName: Transfusion of Blood Products After 24 Hours Post-Procedure
ParentShortName: **TransfusBldProdGT24**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Blood Products Transfused - Platelets in mL - Transfused After 24 Hours Post- Procedure
SeqNo: 2854

Short Name: **BldProdFreshPMLGT24**
Core: Yes

Section Name: Operative
Harvest: Yes

DBTableName: Operations
Definition: Indicate the number of mL of Individual Platelets, including concentrated, the patient received after 24 hours post-procedure.

Low Value: 0
High Value: 10000

Intent / Clarification: To capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.

Data Source: User
Format: Integer

ParentLongName:	Transfusion of Blood Products After 24 Hours Post-Procedure
ParentShortName:	**TransfusBldProdGT24**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

Long Name:	Blood Products Transfused - Cryoprecipitate in mL - Transfused After 24 Hours Post-Procedure	*SeqNo:*	2855
Short Name:	**BldProdCryoMLGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Cryoprecipitate the patient received after 24 hours post- procedure.		
Low Value:	0		
High Value:	10000		
Intent / Clarification:	To capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products After 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdGT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Fresh Whole Blood in mL - Transfused After 24 Hours Post-Procedure	*SeqNo:*	2856
Short Name:	**BldProdFreshWBMLGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Fresh Whole Blood (< 72 Hours post-collection) the patient received after 24 hours post-procedure.		
Low Value:	0		
High Value:	10000		
Intent / Clarification:	To capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products After 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdGT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Blood Products Transfused - Whole Blood in mL - Transfused After 24 Hours Post- Procedure	*SeqNo:*	2857
Short Name:	**BldProdWBMLGT24**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the number of mL of Whole Blood (> 72 hours post-collection) the patient received after 24 hours post-procedure.		
Low Value:	0		
High Value:	10000		
Intent / Clarification:	To capture blood transfusion for this procedure occurring more than 24 hours after arrival into the ICU.		
Data Source:	User		
Format:	Integer		
ParentLongName:	Transfusion of Blood Products After 24 Hours Post-Procedure		
ParentShortName:	**TransfusBldProdGT24**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Directed Donor Units	*SeqNo:*	2858
Short Name:	**DirDonorUnits**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received any directed donor transfusions during this procedure.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Transfusion of Non-Autologous Blood Products Initiated Before Leaving OR		
ParentShortName:	**TransfusBldProdBefore**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Antifibrinolytic Used Intraoperatively	*SeqNo:*	2859
Short Name:	**AntifibUsage**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether antifibrinolytics were used intraoperatively.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)
Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Used *SeqNo:* 2860
Short Name: **AntifibEpUse** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether EACA was used.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Antifibrinolytic Used Intraoperatively
ParentShortName: **AntifibUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Load mg *SeqNo:* 2861
Short Name: **AntifibEpLoadMG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Epsilon Amino-Caproic Acid (Amicar,EACA) Used
ParentShortName: **AntifibEpUse**
ParentHarvestCodes: 1

Parent Value: = "Yes"

July 2019: Please clarify what Amicar dosages should be included in the loading dose. Does this only include Amicar given by the anesthesiologist? Is it only the first dose? Should/Can it include the perfusion dose if the pump is NOT primed with Amicar but is given later? **Amicar load is any bolus dose given by anesthesia (and not to the pump).**

May 2022: If the anesthesiologist gave an additional dose of Amicar, but it wasn't infused over time, how do we account for this? The training manual says to enter zero if no infusion initiated. I've been entering zero here but I'm not sure I'm doing the right thing if an additional dose was given. For example, 5,000 mg of Amicar was given as a loading dose, 5,000 mg was given as part of the pump prime, and an extra 5,000 was given by anesthesia, but it wasn't infused over time; it was given all at once. Would I still enter a zero here? **The additional bolus is best captured by including it with the loading dose. The loading dose in the example provided is 5,000 + 5,000 = 10,000. Code the infusion as 0.**

Long Name:	Epsilon Amino-Caproic Acid (Amicar,EACA) Pump Prime mg	*SeqNo:*	2862
Short Name:	**AntifibEpPrimeMG**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Epsilon Amino-Caproic Acid (Amicar,EACA) Used		
ParentShortName:	**AntifibEpUse**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	EACA Dosed As mg per ml of Pump Prime	*SeqNo:*	2863
Short Name:	**AntifibEpPrimeDose**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the Epsilon Amino-Caproic Acid was dosed as mg per ml of Pump Prime.		
Intent / Clarification:			

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Epsilon Amino-Caproic Acid (Amicar,EACA) Pump Prime mg
ParentShortName: **AntifibEpPrimeMG**
ParentHarvestCodes: >0
ParentValues: >0

Harvest Codes:

Code:	Value:
1	Yes
2	No
9	Unknown

Long Name: Epsilon Amino-Caproic Acid (Amicar,EACA) Infusion Rate mg/kg/hr
SeqNo: 2864
Short Name: **AntifibEpInfRate**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Epsilon Amino-Caproic Acid (Amicar,EACA) Used
ParentShortName: **AntifibEpUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Tranexamic Acid Used
SeqNo: 2865
Short Name: **AntifibTranexUse**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether tranexamic acid was used during this procedure.
Low Value: 0
High Value: 200

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Antifibrinolytic Used Intraoperatively
ParentShortName: **AntifibUsage**

ParentHarvestCodes: 1
Parent Value: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Tranexamic Acid Load mg
Short Name: **AntifibTranexLoadMG**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the loading dose in mg of tranexamic acid given during this procedure. Enter zero if no loading dose given.
SeqNo: 2866
Core: Yes
Harvest: Yes
Low Value: 0
High Value: 15000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Tranexamic Acid Used
ParentShortName: **AntifibTranexUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Tranexamic Acid Pump Prime mg
Short Name: **AntifibTranexPrimeMG**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the pump priming dose in mg of tranexamic acid given during this procedure. Enter zero if no pump priming dose given.
SeqNo: 2867
Core: Yes
Harvest: Yes
Low Value: 0
High Value: 15000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Tranexamic Acid Used
ParentShortName: **AntifibTranexUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Tranexamic Dosed As mg per ml of Pump Prime
SeqNo: 2868

Short Name: **AntifibTranexPrimeDose** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the Tranexamic was dosed as mg per ml of Pump Prime.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Tranexamic Acid Pump Prime mg
ParentShortName: **AntifibTranexPrimeMG**
ParentHarvestCodes: >0
ParentValues: >0

Harvest Codes:

Code:	Value:
1	Yes
2	No
9	Unknown

Long Name: Tranexamic Acid Infusion Rate mg/kg/hr *SeqNo:* 2869
Short Name: **AntifibTranexInfRate** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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
High Value: 25.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Tranexamic Acid Used
ParentShortName: **AntifibTranexUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Trasylol (Aprotinin) Used *SeqNo:* 2870
Short Name: **AntifibTrasylUse** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether trasylol (aprotinin) was given to the patient during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Antifibrinolytic Used Intraoperatively
ParentShortName: **AntifibUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Trasylol (Aprotinin) Load cc
Short Name: **AntifibTrasylLoadCC**
Section Name: Operative
SeqNo: 2871
Core: Yes
Harvest: Yes

DBTableName: Operations
Definition: Indicate the loading dose of trasylol (aprotinin) in cc used during this procedure. Enter zero if no loading dose was used.
Low Value: 0
High Value: 400

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Trasylol (Aprotinin) Used
ParentShortName: **AntifibTrasylUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Trasylol (Aprotinin) Pump Prime cc
Short Name: **AntifibTrasylPrimeCC**
Section Name: Operative
SeqNo: 2872
Core: Yes
Harvest: Yes

DBTableName: Operations
Definition: Indicate the pump priming dose of trasylol (aprotinin) in cc used during this procedure. Enter zero if no pump priming dose was used.
Low Value: 0
High Value: 400

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Trasylol (Aprotinin) Used
ParentShortName: **AntifibTrasylUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Trasylol (Aprotinin) Infusion Rate cc/kg/hr
Short Name: **AntifibTrasylInfRate**
Section Name: Operative
DBTableName: Operations
Definition: Indicate the infusion rate of trasylol (aprotinin) in cc/kg/hour used during this procedure. Enter zero if no infusion initiated.

SeqNo: 2873
Core: Yes
Harvest: Yes

Low Value: 0.0
High Value: 10.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Trasylol (Aprotinin) Used
ParentShortName: **AntifibTrasylUse**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Procoagulent Used Intraoperatively
Short Name: **ProcoagUsage**
Section Name: Operative
DBTableName: Operations
Definition: Indicate whether procoagulents were used intraoperatively.

SeqNo: 2874
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Factor VIIa (Novoseven) Usage
Short Name: **ProcoagFactorVIIa**
Section Name: Operative
DBTableName: Operations

SeqNo: 2875
Core: Yes
Harvest: Yes

Definition: Indicate whether Factor VIIa (Novoseven) was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Factor VIIa (Novoseven) mcg - Dose 1 *SeqNo:* 2876
Short Name: **ProcoagFactorVIIa1MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the first dose in micrograms of Factor VIIa given during this procedure.
Low Value: 1
High Value: 20000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Factor VIIa (Novoseven) Usage
ParentShortName: **ProcoagFactorVIIa**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Factor VIIa (Novoseven) mcg - Dose 2 *SeqNo:* 2877
Short Name: **ProcoagFactorVIIa2MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Factor VIIa (Novoseven) Usage
ParentShortName: **ProcoagFactorVIIa**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Factor VIIa (Novoseven) mcg - Dose 3 *SeqNo:* 2878
Short Name: **ProcoagFactorVIIa3MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Factor VIIa (Novoseven) mcg - Dose 2
ParentShortName: **ProcoagFactorVIIa2MCG**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) Usage *SeqNo:* 2879
Short Name: **ProCmplxCon4** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:		Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 1	*SeqNo:*	2880
Short Name:		**ProCmplxCon4Ds1UN**	*Core:*	Yes
Section Name:		Operative	*Harvest:*	Yes
DBTableName:		Operations		
Definition:		Indicate the first dose in units of Prothrombin Complex Concentrate - 4 (PCC-4, KCentra).		
Low Value:	1			
High Value:	10000			
Intent / Clarification:				
Data Source:		User		
Format:		Integer		
ParentLongName:		Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) Usage		
ParentShortName:		**ProCmplxCon4**		
ParentHarvestCodes:		1		
Parent Value:		= "Yes"		

Long Name:		Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 2	*SeqNo:*	2881
Short Name:		**ProCmplxCon4Ds2UN**	*Core:*	Yes
Section Name:		Operative	*Harvest:*	Yes
DBTableName:		Operations		
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			
Intent / Clarification:				
Data Source:		User		
Format:		Integer		
ParentLongName:		Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) Usage		
ParentShortName:		**ProCmplxCon4**		
ParentHarvestCodes:		1		
Parent Value:		= "Yes"		

Long Name:		Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 3	*SeqNo:*	2882
Short Name:		**ProCmplxCon4Ds3UN**	*Core:*	Yes
Section Name:		Operative	*Harvest:*	Yes
DBTableName:		Operations		
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			
Intent / Clarification:				

Data Source: User
Format: Integer

ParentLongName: Prothrombin Complex Concentrate - 4 (PCC-4, KCentra) units - Dose 2
ParentShortName: **ProCmplxCon4Ds2UN**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) Usage
SeqNo: 2883
Short Name: **ProCmplxCon4W7a**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 1
SeqNo: 2884
Short Name: **ProCmplxCon4W7a1UN**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate the first dose in units of Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA).
Low Value: 1
High Value: 20000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) Usage

ParentShortName: **ProCmplxCon4W7a**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 2 *SeqNo:* 2885
Short Name: **ProCmplxCon4W7a2UN** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) Usage
ParentShortName: **ProCmplxCon4W7a**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 3 *SeqNo:* 2886
Short Name: **ProCmplxCon4W7a3UN** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Prothrombin Complex Concentrate - 4 With Factor VIIa (FEIBA) units - Dose 2
ParentShortName: **ProCmplxCon4W7a2UN**
ParentHarvestCodes: >0
Parent Value: >0

Long Name:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) Usage	*SeqNo:*	2887
Short Name:	**ProCmplxCon3**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) was administered intraoperatively.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 1	*SeqNo:*	2888
Short Name:	**ProCmplxCon3Ds1UN**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the first dose in units of Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD).		
Low Value:	1		
High Value:	2000		

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) Usage
ParentShortName: **ProCmplxCon3**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 2	*SeqNo:*	2889
Short Name:	**ProCmplxCon3Ds2UN**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) Usage		
ParentShortName:	**ProCmplxCon3**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 3	*SeqNo:*	2890
Short Name:	**ProCmplxCon3Ds3UN**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Prothrombin Complex Concentrate - 3 (PCC-3, ProfilNine-SD) units - Dose 2		
ParentShortName:	**ProCmplxCon3Ds2UN**		
ParentHarvestCodes:	>0		
Parent Value:	>0		

Long Name:	Octaplex Prothrombin Concentrate Usage	*SeqNo:*	2891
Short Name:	**Octaplex**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether Octaplex Prothrombin Concentrate was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Octaplex Prothrombin Concentrate Units - Dose 1 *SeqNo:* 2892
Short Name: **OctaplexDs1** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the first dose in international units (IU) of Octaplex Prothrombin Concentrate.
Low Value: 1
High Value: 6000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Octaplex Prothrombin Concentrate Usage
ParentShortName: **Octaplex**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Octaplex Prothrombin Concentrate Units - Dose 2 *SeqNo:* 2893
Short Name: **OctaplexDs2** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the second dose in international units (IU) of Octaplex Prothrombin Concentrate.
Low Value: 0
High Value: 6000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Octaplex Prothrombin Concentrate Usage
ParentShortName: **Octaplex**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Octaplex Prothrombin Concentrate Units - Dose 3 *SeqNo:* 2894
Short Name: **OctaplexDs3** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the third dose in international units (IU) of Octaplex Prothrombin Concentrate.

Low Value: 0
High Value: 6000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Octaplex Prothrombin Concentrate Units - Dose 2
ParentShortName: **OctaplexDs2**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Fibrinogen Concentrate Usage *SeqNo:* 2895
Short Name: **ProcoagFibrin** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Fibrinogen Concentrate was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
Parent Value: = "Yes"
Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Fibrinogen Concentrate mg - Dose 1	*SeqNo:*	2896
Short Name:	**ProcoagFibrin1MG**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the first dose in mg of fibrinogen concentrate given during this procedure.		
Low Value:	1		
High Value:	10000		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Fibrinogen Concentrate Usage		
ParentShortName:	**ProcoagFibrin**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Fibrinogen Concentrate mg - Dose 2	*SeqNo:*	2897
Short Name:	**ProcoagFibrin2MG**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		
Intent / Clarification:			
Data Source:	User		
Format:	Integer		
ParentLongName:	Fibrinogen Concentrate Usage		
ParentShortName:	**ProcoagFibrin**		
ParentHarvestCodes:	1		
Parent Value:	= "Yes"		

Long Name:	Fibrinogen Concentrate mg - Dose 3	*SeqNo:*	2898
Short Name:	**ProcoagFibrin3MG**	*Core:*	Yes
Section Name:	Operative	*Harvest:*	Yes
DBTableName:	Operations		
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		

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Fibrinogen Concentrate mg - Dose 2
ParentShortName: **ProcoagFibrin2MG**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Antithrombin 3 (AT3) Concentrate Usage *SeqNo:* 2899
Short Name: **ProcoagAntithrom** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Antithrombin 3 (AT3) Concentrate was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Antithrombin 3 Concentrate units - Dose 1 *SeqNo:* 2900
Short Name: **ProcoagAntithrom1** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the first dose in units of antithrombin 3 concentrate given during this procedure.
Low Value: 1
High Value: 5000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Antithrombin 3 (AT3) Concentrate Usage
ParentShortName: **ProcoagAntithrom**

ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Antithrombin 3 Concentrate units - Dose 2 *SeqNo:* 2901
Short Name: **ProcoagAntithrom2** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Antithrombin 3 (AT3) Concentrate Usage
ParentShortName: **ProcoagAntithrom**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Antithrombin 3 Concentrate units - Dose 3 *SeqNo:* 2902
Short Name: **ProcoagAntithrom3** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Antithrombin 3 Concentrate units - Dose 2
ParentShortName: **ProcoagAntithrom2**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Desmopressin (DDAVP) Usage *SeqNo:* 2903
Short Name: **ProcoagDesmo** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations

Definition: Indicate whether Desmopressin (DDAVP) was administered intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Desmopressin (DDAVP) mcg - Dose 1 *SeqNo:* 2904
Short Name: **ProcoagDesmo1MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the first dose in micrograms of desmopressin (DDAVP) given during this procedure.
Low Value: 1
High Value: 1000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Desmopressin (DDAVP) Usage
ParentShortName: **ProcoagDesmo**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Desmopressin (DDAVP) mcg - Dose 2 *SeqNo:* 2905
Short Name: **ProcoagDesmo2MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Desmopressin (DDAVP) Usage
ParentShortName: **ProcoagDesmo**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Desmopressin (DDAVP) mcg - Dose 3 *SeqNo:* 2906
Short Name: **ProcoagDesmo3MCG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Desmopressin (DDAVP) mcg - Dose 2
ParentShortName: **ProcoagDesmo2MCG**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Humate P Usage *SeqNo:* 2907
Short Name: **ProcoagHumateP** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether Humate P was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Procoagulent Used Intraoperatively
ParentShortName: **ProcoagUsage**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Humate P Units - Dose 1 *SeqNo:* 2908
Short Name: **ProcoagHumateP1UN** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the number of units in the first dosage of Humate P.
Low Value: 1
High Value: 10000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Humate P Usage
ParentShortName: **ProcoagHumateP**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Humate P Units - Dose 2 *SeqNo:* 2909
Short Name: **ProcoagHumateP2UN** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the number of units in the second dosage of Humate P. Enter zero if no second dose given.
Low Value: 0
High Value: 10000

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Humate P Usage
ParentShortName: **ProcoagHumateP**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Humate P Units - Dose 3 *SeqNo:* 2910
Short Name: **ProcoagHumateP3UN** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations

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

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Humate P Units - Dose 2
ParentShortName: **ProcoagHumateP2UN**
ParentHarvestCodes: >0
Parent Value: >0

Long Name: Point Of Care Coagulation Testing Utilized Intraoperatively *SeqNo:* 2911
Short Name: **POCCoagTstUtil** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing was utilized intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

June 2022: Should we only be entering results of Point of Care testing done in the OR, or can we also utilize results from the lab that were done during the operation? **Any intraoperative lab test is appropriate to use.**

Long Name: Point Of Care Coagulation Testing - Thromboelastography (TEG) *SeqNo:* 2912
Short Name: **POCCoagTstTEG** *Core:* Yes
Section Name: Operative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing included Thromboelastography (TEG).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Point Of Care Coagulation Testing - ROTEM
SeqNo: 2913
Short Name: **POCCoagTstROTEM**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing included ROTEM.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Point Of Care Coagulation Testing - Sonoclot
SeqNo: 2914
Short Name: **POCCoagTstSon**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing included Sonoclot.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Point Of Care Coagulation Testing - Heparin Concentration (Hepcon, HMS)
SeqNo: 2915
Short Name: **POCCoagTstHep**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing included Heparin Concentration (Hepcon, HMS).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Point Of Care Coagulation Testing - INR/PT/aPTT (iStat or equivalent)
SeqNo: 2916
Short Name: **POCCoagTstINR**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing included INR/PT/aPTT (iStat or equivalent).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Point Of Care Coagulation Testing - ACT
SeqNo: 2917
Short Name: **POCCoagTstACT**
Core: Yes
Section Name: Operative
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether point of care coagulation testing was used intraoperatively.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Point Of Care Coagulation Testing Utilized Intraoperatively
ParentShortName: **POCCoagTstUtil**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

CABG Procedures

Long Name: CAB
SeqNo: 2927
Short Name: **OpCAB**
Core: Yes
Section Name: CABG Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether coronary artery bypass grafting was done.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2
ParentValues: = "CPB Cardiovascular" or "No CPB Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Dist Anast - Art # *SeqNo:* 2928
Short Name: **DistArt** *Core:* Yes
Section Name: CABG Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the total number of distal anastomoses with arterial conduits, whether IMA, radial artery, etc.
Low Value: 0
High Value: 9

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: CAB
ParentShortName: **OpCAB 1**
ParentHarvestCodes:
Parent Value: = "Yes"

Long Name: Dist Anast - Vein # *SeqNo:* 2929
Short Name: **DistVein** *Core:* Yes
Section Name: CABG Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the total number of distal anastomoses with venous conduits.
Low Value: 0
High Value: 9

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: CAB
ParentShortName: **OpCAB 1**

ParentHarvestCodes:
Parent Value: = "Yes"

Long Name: IMA Artery Used
SeqNo: 2930
Short Name: **IMAArtUs**
Core: Yes
Section Name: CABG Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate which, if any, Internal Mammary Artery(ies) (IMA) were used for grafts.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: CAB
ParentShortName: **OpCAB 1**
ParentHarvestCodes:
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Left IMA
2	Right IMA
3	Both IMAs
4	No IMA

Valve Procedures

Long Name: Valve
SeqNo: 2940
Short Name: **OpValve**
Core: Yes
Section Name: Valve Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a surgical procedure was done on the Aortic, Mitral, Tricuspid, Pulmonic, common AV valve or truncal valve.

Intent / Clarification: Answer ‘yes’ if any type of intervention was done on a valve, regardless of whether it was a major part of the operation.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type

ParentShortName: **OpType**
ParentHarvestCodes: 1|2
ParentValues: = "CPB Cardiovascular" or "No CPB Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Valve Device Explanted And/Or Implanted
SeqNo: 3140
Short Name: **ValExImp**
Core: Yes
Section Name: Valve Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a valve device of any type was explanted and/or implanted during this procedure.

Intent / Clarification: Answer 'yes' for explantation for valve devices only, not native valves.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve
ParentShortName: **OpValve**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	No
2	Yes, Explanted
3	Yes, Implanted
4	Yes, Explanted and Implanted

Long Name: Valve Explant Type #1
SeqNo: 3150
Short Name: **ValExType1**
Core: Yes
Section Name: Valve Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate the type of the first valve or device explanted.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: **ValExImp**
ParentHarvestCodes: 2|4
ParentValues: = "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	Mitral clip
7	Surgeon fashioned
8	Transcatheter device
9	Other

December 2020: For patients undergoing a Ross procedure, should we count the patient's own pulmonary valve as an explant? I know it is not being explanted completely, but it is being explanted from the pulmonic position. **Not necessary as it is inherent in the repair to explant the native valve. The explants are really to collect the explantation of artificial valves.**

November 2022: For patients undergoing a Ross procedure, should we count the replacement of the aortic valve with a pulmonary autograft as a valve implantation? I see that autograft is a choice in the list for implant type. **Yes, include the pulmonary valve autograft as an implant. However, do not include the native aortic valve excision as an explant.**

June 2023: For patients with implanted valve devices undergoing heart transplant, how should SeqNo: 3140 'Valve Device Explanted And/Or Implanted' be answered given that the entire organ is also being explanted? **One could code this and collect explant details, although it is not required. Even if you choose to do so, DO NOT code the valve explant(s) as additional procedures.**

Long Name: Valve Explant Unique Device Identifier (UDI) - 1
Short Name: **ValExpUDI1**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the first explanted valve device if available, otherwise leave blank.

SeqNo: 3151
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Valve Explant Type #1
ParentShortName: **ValExType1**
ParentHarvestCodes: 1|2|5|6|8|9
ParentValues: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Long Name: Valve Explant Model #1
Short Name: **ValExMod1**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate the type of the first valve or device explanted.

SeqNo: 3152
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Explant Type #1
ParentShortName: **ValExType1**
ParentHarvestCodes: 1|2|5|6|8|9
ParentValues: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit
212	AV10 - CryoLife Aortic Valve without Conduit
214	PV00 - CryoLife Pulmonary Valve & Conduit
215	PV10 - CryoLife Pulmonary Valve without Conduit
216	R010 - CryoLife Aortoiliac Grafts
217	R020 - CryoLife Femoral Popliteal Artery
218	SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219	SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220	V010 - CryoLife Saphenous Vein
221	V060 - CryoLife 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

9000## - Cribier-Edwards Aortic Bioprosthesis
9000PHV## - Cribier-Edwards Aortic Bioprosthesis
9000TFX## - Edwards Sapien Transcatheter Heart Valve
9120## - Edwards-Duromedics Bileaflet Prostheses
9600## - Edwards Mira Mechanical Valve
AAL - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Large
AAM - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Medium
AAS - LifeNet CardioGraft Ascending Aorta (Non-Valved) - Small
DLHPA - LifeNet CardioGraft Decellularized Hemi-Pulmonary Artery with Matracell - Left
DRHPA - LifeNet CardioGraft Decellularized Hemi- Pulmonary Artery with Matracell - Right
HVAL - LifeNet CardioGraft Aortic Heart Valve - Large
HVAM - LifeNet CardioGraft Aortic Heart Valve - Medium
HVAS - LifeNet CardioGraft Aortic Heart Valve - Small
HVPL - LifeNet CardioGraft Pulmonary Heart Valve - Large
HVPM - LifeNet CardioGraft Pulmonary Heart Valve - Medium
HVPS - LifeNet CardioGraft Pulmonary Heart Valve - Small
LHPA - LifeNet CardioGraft Hemi-Pulmonary Artery - Left
PAL - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Large
PAM - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Medium
PAS - LifeNet CardioGraft Pulmonary Artery (Non-Valved) - Small
RHPA - LifeNet CardioGraft Hemi-Pulmonary Artery - Right
TAL - LifeNet CardioGraft Thoracic Aorta Non-valved - Large
TAM - LifeNet CardioGraft Thoracic Aorta Non-valved - Medium
174A - ## - Medtronic Hancock Apical Left Ventricle Connector
200## - Medtronic Contegra Unsupported Pulmonary Valve Conduit
200S## - Medtronic Contegra Supported Pulmonary Valve Conduit
305C2## - Medtronic Mosaic Standard Cinch - Aortic
305U2## - Medtronic Mosaic Ultra Cinch - Aortic
310## - Medtronic Mosaic Mitral
610B## - Medtronic Duran Band
610R## - Medtronic Duran Ring
620B## - Medtronic Duran AnCore Band
620BG## - Medtronic Duran AnCore Band With Chordal Guide
620R## - Medtronic Duran AnCore Ring
620RG## - Medtronic Duran Ancore Ring With Chordal Guide
638B## - Medtronic CG Future Band
638R## - Medtronic CG Future Composite Ring
670 - Medtronic Simplici-T Annuloplasty System
680R## - Medtronic Profile 3D Ring
995CS## - Medtronic Freestyle, Complete Subcoronary - CS
995MS## - Medtronic Freestyle, Modified Subcoronary - MS
FR995-## - Medtronic Freestyle, Full Root - FR
HC105-## - Medtronic Hancock Low-porosity Valved Conduit
HC150-## - Medtronic Hancock Modified Orifice Pulmonic Valved Conduit

T505C2## - Medtronic Hancock II Aortic Cinch
T505U2## - Medtronic Hancock II Ultra Cinch
T510C## - Medtronic Hancock II Mitral
ONXA## - On-X Aortic Valve with standard sewing ring
ONXAC## - On-X Aortic Valve with Conform-X Sewing Ring
ONXACE## - On-X Aortic Valve with Conform-X Sewing Ring, extended
ONXAE## - On-X Aortic Valve with standard sewing ring, extended
ONXM## - On-X Mitral Valve with standard sewing ring
ONXMC## - On-X Mitral Valve with Conform-X Sewing Ring
LXA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve
A5-0## - Sorin Group: Carbomedics Standard Aortic Valve
AF-8## - Sorin Group: Carbomedics AnnuloFlex Annuloplasty System
AP-0## - Sorin Group: Carbomedics Carbo-Seal Ascending Aortic Prosthesis
AR-7## - Sorin Group: Carbomedics AnnuloFlo Annuloplasty System
CP-0## - Sorin Group: Carbomedics Carbo-Seal Valsalva Ascending Aortic Prosthesis
F7-0## - Sorin Group: Carbomedics OptiForm Mitral Valve
M7-0## - Sorin Group: Carbomedics Standard Mitral Valve
R5-0## - Sorin Group: Carbomedics Reduced Series Aortic Valve
S5-0## - Sorin Group: Carbomedics Top Hat Supra- Annular Aortic Valve
##A-101 - St. Jude Medical Mechanical Aortic Heart Valve
##AEC-102 - St. Jude Medical Mechanical Heart Valve
##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AET-104 - St. Jude Medical Mechanical Heart Valve
##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
##M-101 - St. Jude Medical Mechanical Mitral Heart Valve

361 ##MEC-102 - St. Jude Medical Mechanical Heart Valve
362 ##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
363 ##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
364 ##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
365 ##MET-104 - St. Jude Medical Mechanical Heart Valve
366 ##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
367 ##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
368 ##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
369 ##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
370 ##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
371 ##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
372 ##MT-103 - St. Jude Medical Mechanical Heart Valve
373 ##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
374 ##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
375 AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
376 B10-##A - St. Jude Medical Biocor Aortic Valve
377 B10-##A-00 - St. Jude Medical Biocor Aortic Valve
378 B10-##M - St. Jude Medical Biocor Mitral Valve
379 B10-##M-00 - St. Jude Medical Biocor Mitral Valve
380 B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
381 B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
382 B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
383 B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
384 B30-##A - St. Jude Medical Biocor Valve
385 B30-##M - St. Jude Medical Biocor Valve
386 BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
387 E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
388 E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
389 EL-##A - St. Jude Medical Epic Aortic Valve
390 EL-##M - St. Jude Medical Epic Mitral Valve
391 ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
392 ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
393 ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
394 ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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

ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
ONXAAP## - On-X Ascending Aortic Prosthesis
ICV12## - Sorin Solo Smart Aortic Valve
ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
MVC0##- Sorin Group Mitroflow Valsalva Conduit
1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis
73##1088 - Vascutek Gelweave Plexus Graft
7300##ADP - Vascutek Terumo Gelweave Vascular 45Prosthesis
7320## - Vascutek Gelweave Trifucate Arch Graft
7350##ST - Vascutek Gelweave Pre-curved Graft
8300AB### - Edwards Intuity Elite Valve
8300KITB### - Edwards Intuity Elite Valve System
9600CM## - Edward Sapien
ART##SMT - Sorin Solo Smart
CNA19 - Sorin Crown PRT Tissue Valve
CNA21 - Sorin Crown PRT Tissue Valve
CNA23 - Sorin Crown PRT Tissue Valve
CNA25 - Sorin Crown PRT Tissue Valve
CNA27 - Sorin Crown PRT Tissue Valve
DPPGK - LifeNet CardioGRAFT Thick Pulmonary Patch (decellularized)
DPPGN – LifeNet CardioGRAFT Thin Pulmonary Patch (decellularized)
EVOLUTR-##-US - Medtronic CoreValve Evolut R
H749LTV##0 - Boston Scientific Lotus Transcatheter Valve
ICV1208 - Sorin Perceval Tissue Valves
ICV1209 - Sorin Perceval Tissue Valves
ICV1210 - Sorin Perceval Tissue Valves
ICV1211 - Sorin Perceval Tissue Valves
ICV1248 - Solo Smart Aortic Tissue Valves
ICV1264 - Solo Smart Aortic Tissue Valves
ICV1265 - Solo Smart Aortic Tissue Valves
ICV1331 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1332 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1333 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1334 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1335 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1336 - Sorin MEMO 3D RECHORD Annuloplasty Ring
ICV1337 - Sorin MEMO 3D RECHORD Annuloplasty Ring
IVC1247 - Solo Smart Aortic Tissue Valves
LMCP - LifeNet CardioGRAFT Left Mono Cusp Patch
MCP - LifeNet CardioGRAFT Mono Cusp Patch
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Explant Device Size #1 *SeqNo:* 3153
Short Name: **ValExDevSz1** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the first valve or device explanted.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Explant Type #1
ParentShortName: **ValExType1**
ParentHarvestCodes: 1|2|5|6|9
Parent Value: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Long Name: Second Valve Explanted or Device Removed *SeqNo:* 3160
Short Name: **ValEx2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether a second valve or device was explanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: **ValExImp**
ParentHarvestCodes: 2|4
ParentValues: = "Yes, Explanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Valve Explant Type #2 *SeqNo:* 3170
Short Name: **ValExType2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the type of the second valve or device explanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Second Valve Explanted or Device Removed
ParentShortName: **ValEx2**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Mitral clip
7	Surgeon fashioned
8	Transcatheter device
9	Other

Long Name: Valve Explant Unique Device Identifier (UDI) - 2 *SeqNo:* 3171
Short Name: **ValExpUDI2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the second explanted valve device if available, otherwise leave blank.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Explant Type #2
ParentShortName: **ValExType2**
ParentHarvestCodes: 1|2|5|6|8|9
ParentValues: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Long Name: Valve Explant Model #2 *SeqNo:* 3172
Short Name: **ValExMod2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the type of the second valve or device explanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Explant Type #2
ParentShortName: **ValExType2**
ParentHarvestCodes: 1|2|5|6|8|9
ParentValues: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209 A020 - CryoLife Descending Thoracic Aorta
210 A030 - CryoLife Pulmonary Artery
211 AV00 - CryoLife Aortic Valve and Conduit
212 AV10 - CryoLife Aortic Valve without Conduit
214 PV00 - CryoLife Pulmonary Valve & Conduit
215 PV10 - CryoLife Pulmonary Valve without Conduit
216 R010 - CryoLife Aortoiliac Grafts
217 R020 - CryoLife Femoral Popliteal Artery
218 SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219 SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220 V010 - CryoLife Saphenous Vein
221 V060 - CryoLife 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, Full Root - FR
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 - St. Jude Medical Mechanical Aortic Heart Valve
338 ##AEC-102 - St. Jude Medical Mechanical Heart Valve
339 ##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
340 ##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
341 ##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
342 ##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
343 ##AET-104 - St. Jude Medical Mechanical Heart Valve
344 ##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
345 ##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
346 ##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
347 ##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
348 ##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
349 ##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
350 ##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
351 ##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
352 ##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
353 ##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
354 ##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating

355 ##AT-103 - St. Jude Medical Mechanical Heart Valve
356 ##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
357 ##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
358 ##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
359 ##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
360 ##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
361 ##MEC-102 - St. Jude Medical Mechanical Heart Valve
362 ##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
363 ##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
364 ##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
365 ##MET-104 - St. Jude Medical Mechanical Heart Valve
366 ##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
367 ##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
368 ##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
369 ##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
370 ##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
371 ##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
372 ##MT-103 - St. Jude Medical Mechanical Heart Valve
373 ##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
374 ##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
375 AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
376 B10-##A - St. Jude Medical Biocor Aortic Valve
377 B10-##A-00 - St. Jude Medical Biocor Aortic Valve
378 B10-##M - St. Jude Medical Biocor Mitral Valve
379 B10-##M-00 - St. Jude Medical Biocor Mitral Valve
380 B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
381 B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
382 B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
383 B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
384 B30-##A - St. Jude Medical Biocor Valve
385 B30-##M - St. Jude Medical Biocor Valve
386 BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
387 E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
388 E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
389 EL-##A - St. Jude Medical Epic Aortic Valve
390 EL-##M - St. Jude Medical Epic Mitral Valve
391 ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
392 ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
393 ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
394 ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC

396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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)

8300AB## - Edwards Intuity Elite Valve System (outside US)
8300ACD## - Edwards Intuity Elite Valve System
9355NF## - Edwards Sapien XT Transcatheter Valve with NovaFlex System
9355ASP## - Edwards Sapien XT Transcatheter Valve with Ascendra System
S3TF1## - Edwards Sapien 3 Transcatheter Valve with Commander System
S3TA1## - Edwards Sapien 3 Transcatheter Valve with Certitude System
CRS-P3-640 – Medtronic CoreValve
CRS-P3-943 – Medtronic CoreValve
MCS-P3 – Medtronic CoreValve
MCS-P4 – Medtronic CoreValve Evolut
ONXAN## - On-X Aortic Heart Valve with Anatomic Sewing Ring
ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
ONXAAP## - On-X Ascending Aortic Prosthesis
ICV12## - Sorin Solo Smart Aortic Valve
ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
MVC0##- Sorin Group Mitroflow Valsalva Conduit
1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis
73##1088 - Vascutek Gelweave Plexus Graft
7300##ADP - Vascutek Terumo Gelweave Vascular 45Prosthesis
7320## - Vascutek Gelweave Trifucate Arch Graft
7350##ST - Vascutek Gelweave Pre-curved Graft
8300AB### - Edwards Intuity Elite Valve
8300KITB### - Edwards Intuity Elite Valve System
9600CM## - Edward Sapien
ART##SMT - Sorin Solo Smart
CNA19 - Sorin Crown PRT Tissue Valve
CNA21 - Sorin Crown PRT Tissue Valve
CNA23 - Sorin Crown PRT Tissue Valve
CNA25 - Sorin Crown PRT Tissue Valve
CNA27 - Sorin Crown PRT Tissue Valve
DPPGK - LifeNet CardioGRAFT Thick Pulmonary Patch (decellularized)
DPPGN – LifeNet CardioGRAFT Thin Pulmonary Patch (decellularized)
EVOLUTR-##-US - Medtronic CoreValve Evolut R
H749LTV##0 - Boston Scientific Lotus Transcatheter Valve
ICV1208 - Sorin Perceval Tissue Valves
ICV1209 - Sorin Perceval Tissue Valves
ICV1210 - Sorin Perceval Tissue Valves
ICV1211 - Sorin Perceval Tissue Valves
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Explant Device Size #2 *SeqNo:* 3173
Short Name: **ValExDevSz2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the second valve or device explanted.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Explant Type #2
ParentShortName: **ValExType2**
ParentHarvestCodes: 1|2|5|6|9
Parent Value: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Long Name: Third Valve Explanted or Device Removed *SeqNo:* 3180

Short Name:	**ValEx3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a third valve or device was explanted.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Second Valve Explanted or Device Removed
ParentShortName: **ValEx2**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Valve Explant Type #3	*SeqNo:*	3190
Short Name:	**ValExType3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the third valve or device explanted.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Third Valve Explanted or Device Removed
ParentShortName: **ValEx3**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Mitral clip
7	Surgeon fashioned
8	Transcatheter device
9	Other

Long Name:	Valve Explant Unique Device Identifier (UDI) - 3	*SeqNo:*	3191
Short Name:	**ValExpUDI3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the Unique Device Identifier (UDI) of the third explanted valve device if available, otherwise leave blank.		

Intent / Clarification:

Data Source:	User
Format:	Text
ParentLongName:	Valve Explant Type #3
ParentShortName:	**ValExType3**
ParentHarvestCodes:	1|2|5|6|8|9
Parent Value:	= "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Long Name:	Valve Explant Model #3	*SeqNo:*	3192
Short Name:	**ValExMod3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the third valve or device explanted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Explant Type #3
ParentShortName:	**ValExType3**
ParentHarvestCodes:	1|2|5|6|8|9
Parent Value:	= "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit

212 AV10 - CryoLife Aortic Valve without Conduit
214 PV00 - CryoLife Pulmonary Valve & Conduit
215 PV10 - CryoLife Pulmonary Valve without Conduit
216 R010 - CryoLife Aortoiliac Grafts
217 R020 - CryoLife Femoral Popliteal Artery
218 SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219 SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220 V010 - CryoLife Saphenous Vein
221 V060 - CryoLife 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, Full Root - FR
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 - St. Jude Medical Mechanical Aortic Heart Valve
338 ##AEC-102 - St. Jude Medical Mechanical Heart Valve
339 ##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
340 ##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
341 ##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
342 ##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
343 ##AET-104 - St. Jude Medical Mechanical Heart Valve
344 ##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
345 ##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
346 ##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
347 ##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
348 ##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
349 ##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
350 ##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series

##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
##MEC-102 - St. Jude Medical Mechanical Heart Valve
##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MET-104 - St. Jude Medical Mechanical Heart Valve
##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##MT-103 - St. Jude Medical Mechanical Heart Valve
##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
B10-##A - St. Jude Medical Biocor Aortic Valve
B10-##A-00 - St. Jude Medical Biocor Aortic Valve
B10-##M - St. Jude Medical Biocor Mitral Valve
B10-##M-00 - St. Jude Medical Biocor Mitral Valve
B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
B30-##A - St. Jude Medical Biocor Valve
B30-##M - St. Jude Medical Biocor Valve
BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
EL-##A - St. Jude Medical Epic Aortic Valve
EL-##M - St. Jude Medical Epic Mitral Valve
ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve

395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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)

8300ACD## - Edwards Intuity Elite Valve System
9355NF## - Edwards Sapien XT Transcatheter Valve with NovaFlex System
9355ASP## - Edwards Sapien XT Transcatheter Valve with Ascendra System
S3TF1## - Edwards Sapien 3 Transcatheter Valve with Commander System
S3TA1## - Edwards Sapien 3 Transcatheter Valve with Certitude System
CRS-P3-640 – Medtronic CoreValve
CRS-P3-943 – Medtronic CoreValve
MCS-P3 – Medtronic CoreValve
MCS-P4 – Medtronic CoreValve Evolut
ONXAN## - On-X Aortic Heart Valve with Anatomic Sewing Ring
ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
ONXAAP## - On-X Ascending Aortic Prosthesis
ICV12## - Sorin Solo Smart Aortic Valve
ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
MVC0##- Sorin Group Mitroflow Valsalva Conduit
1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis
73##1088 - Vascutek Gelweave Plexus Graft
7300##ADP - Vascutek Terumo Gelweave Vascular 45Prosthesis
7320## - Vascutek Gelweave Trifucate Arch Graft
7350##ST - Vascutek Gelweave Pre-curved Graft
8300AB### - Edwards Intuity Elite Valve
8300KITB### - Edwards Intuity Elite Valve System
9600CM## - Edward Sapien
ART##SMT - Sorin Solo Smart
CNA19 - Sorin Crown PRT Tissue Valve
CNA21 - Sorin Crown PRT Tissue Valve
CNA23 - Sorin Crown PRT Tissue Valve
CNA25 - Sorin Crown PRT Tissue Valve
CNA27 - Sorin Crown PRT Tissue Valve
DPPGK - LifeNet CardioGRAFT Thick Pulmonary Patch (decellularized)
DPPGN – LifeNet CardioGRAFT Thin Pulmonary Patch (decellularized)
EVOLUTR-##-US - Medtronic CoreValve Evolut R
H749LTV##0 - Boston Scientific Lotus Transcatheter Valve
ICV1208 - Sorin Perceval Tissue Valves
ICV1209 - Sorin Perceval Tissue Valves
ICV1210 - Sorin Perceval Tissue Valves
ICV1211 - Sorin Perceval Tissue Valves
ICV1248 - Solo Smart Aortic Tissue Valves
ICV1264 - Solo Smart Aortic Tissue Valves
ICV1265 - Solo Smart Aortic Tissue Valves
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Explant Device Size #3 — *SeqNo:* 3193
Short Name: **ValExDevSz3** — *Core:* Yes
Section Name: Valve Procedures — *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the third valve or device explanted.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Explant Type #3
ParentShortName: **ValExType3**
ParentHarvestCodes: 1|2|5|6|9
Parent Value: = "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Long Name: Fourth Valve Explanted or Device Removed — *SeqNo:* 3200
Short Name: **ValEx4** — *Core:* Yes
Section Name: Valve Procedures — *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether a fourth valve or device was explanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Third Valve Explanted or Device Removed
ParentShortName: **ValEx3**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Valve Explant Type #4 *SeqNo:* 3210
Short Name: **ValExType4** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the type of the fourth valve or device explanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Fourth Valve Explanted or Device Removed
ParentShortName: **ValEx4**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Mechanical
2	Bioprosthetic
3	Homograft/Allograft
4	Autograft
5	Annuloplasty band/ring
6	Mitral clip
7	Surgeon fashioned
8	Transcatheter device
9	Other

Long Name: Valve Explant Unique Device Identifier (UDI) - 4 *SeqNo:* 3211

Short Name:	**ValExpUDI4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the Unique Device Identifier (UDI) of the fourth explanted valve device if available, otherwise leave blank.		

Intent / Clarification:

Data Source:	User
Format:	Text
ParentLongName:	Valve Explant Type #4
ParentShortName:	**ValExType4**
ParentHarvestCodes:	1|2|5|6|8|9
ParentValues:	= "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Long Name:	Valve Explant Model #4	*SeqNo:*	3212
Short Name:	**ValexMod4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the fourth valve or device explanted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Explant Type #4
ParentShortName:	**ValExType4**
ParentHarvestCodes:	1|2|5|6|8|9
ParentValues:	= "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip", "Transcatheter device" or "Other"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit

212 AV10 - CryoLife Aortic Valve without Conduit
214 PV00 - CryoLife Pulmonary Valve & Conduit
215 PV10 - CryoLife Pulmonary Valve without Conduit
216 R010 - CryoLife Aortoiliac Grafts
217 R020 - CryoLife Femoral Popliteal Artery
218 SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219 SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220 V010 - CryoLife Saphenous Vein
221 V060 - CryoLife 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, Full Root - FR
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 - St. Jude Medical Mechanical Aortic Heart Valve
338 ##AEC-102 - St. Jude Medical Mechanical Heart Valve
339 ##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
340 ##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
341 ##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
342 ##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
343 ##AET-104 - St. Jude Medical Mechanical Heart Valve
344 ##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
345 ##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
346 ##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
347 ##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
348 ##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
349 ##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
350 ##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series

##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
##MEC-102 - St. Jude Medical Mechanical Heart Valve
##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MET-104 - St. Jude Medical Mechanical Heart Valve
##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##MT-103 - St. Jude Medical Mechanical Heart Valve
##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
B10-##A - St. Jude Medical Biocor Aortic Valve
B10-##A-00 - St. Jude Medical Biocor Aortic Valve
B10-##M - St. Jude Medical Biocor Mitral Valve
B10-##M-00 - St. Jude Medical Biocor Mitral Valve
B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
B30-##A - St. Jude Medical Biocor Valve
B30-##M - St. Jude Medical Biocor Valve
BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
EL-##A - St. Jude Medical Epic Aortic Valve
EL-##M - St. Jude Medical Epic Mitral Valve
ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve

395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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)

8300ACD## - Edwards Intuity Elite Valve System
9355NF## - Edwards Sapien XT Transcatheter Valve with NovaFlex System
9355ASP## - Edwards Sapien XT Transcatheter Valve with Ascendra System
S3TF1## - Edwards Sapien 3 Transcatheter Valve with Commander System
S3TA1## - Edwards Sapien 3 Transcatheter Valve with Certitude System
CRS-P3-640 – Medtronic CoreValve
CRS-P3-943 – Medtronic CoreValve
MCS-P3 – Medtronic CoreValve
MCS-P4 – Medtronic CoreValve Evolut
ONXAN## - On-X Aortic Heart Valve with Anatomic Sewing Ring
ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
ONXAAP## - On-X Ascending Aortic Prosthesis
ICV12## - Sorin Solo Smart Aortic Valve
ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
MVC0##- Sorin Group Mitroflow Valsalva Conduit
1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis
73##1088 - Vascutek Gelweave Plexus Graft
7300##ADP - Vascutek Terumo Gelweave Vascular 45Prosthesis
7320## - Vascutek Gelweave Trifucate Arch Graft
7350##ST - Vascutek Gelweave Pre-curved Graft
8300AB### - Edwards Intuity Elite Valve
8300KITB### - Edwards Intuity Elite Valve System
9600CM## - Edward Sapien
ART##SMT - Sorin Solo Smart
CNA19 - Sorin Crown PRT Tissue Valve
CNA21 - Sorin Crown PRT Tissue Valve
CNA23 - Sorin Crown PRT Tissue Valve
CNA25 - Sorin Crown PRT Tissue Valve
CNA27 - Sorin Crown PRT Tissue Valve
DPPGK - LifeNet CardioGRAFT Thick Pulmonary Patch (decellularized)
DPPGN – LifeNet CardioGRAFT Thin Pulmonary Patch (decellularized)
EVOLUTR-##-US - Medtronic CoreValve Evolut R
H749LTV##0 - Boston Scientific Lotus Transcatheter Valve
ICV1208 - Sorin Perceval Tissue Valves
ICV1209 - Sorin Perceval Tissue Valves
ICV1210 - Sorin Perceval Tissue Valves
ICV1211 - Sorin Perceval Tissue Valves
ICV1248 - Solo Smart Aortic Tissue Valves
ICV1264 - Solo Smart Aortic Tissue Valves
ICV1265 - Solo Smart Aortic Tissue Valves
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name:	Valve Explant Device Size #4	*SeqNo:*	3213
Short Name:	**ValExDevSz4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the size of the fourth valve or device explanted.		
Low Value: 15			
High Value: 33			

Intent / Clarification:

Data Source:	User
Format:	Integer
ParentLongName:	Valve Explant Type #4
ParentShortName:	**ValExType4**
ParentHarvestCodes:	1|2|5|6|9
Parent Value:	= "Mechanical", "Bioprosthetic", "Annuloplasty band/ring", "Mitral clip" or "Other"

Long Name:	Valve Implant Type #1	*SeqNo:*	3220
Short Name:	**ValImpLoc1**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate the type of the first valve or device implanted.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: **ValExImp**
ParentHarvestCodes: 3|4
ParentValues: = "Yes, Implanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Aortic
2	Mitral
3	Tricuspid
4	Pulmonic
5	Common AV
6	Truncal

Long Name: Valve Implant Type #1 *SeqNo:* 3230
Short Name: **ValImpType1** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the type of the first valve or device implanted.

Intent / Clarification: If a commercially supplied device is used at all, regardless of surgeon alterations, select commercially supplied device.

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Device Explanted And/Or Implanted
ParentShortName: **ValExImp**
ParentHarvestCodes: 3|4
ParentValues: = "Yes, Implanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Surgeon fashioned
2	Autograft
3	Commercially supplied device
4	Transcatheter device

April 2019: I have a patient who received a Gore-tex graft. I could not find this in the list of implants made available on STS. Seq 3230 states if a commercially supplied device is used at all, regardless of surgeon alterations, select commercially supplied device. I did find the Gore-tex under surgeon fashioned choice. Which

valve implant type is the correct choice? Surgeon fashioned or commercially supplied device? **Was the valve made by the surgeon or was there a commercial valve supplied that the surgeon made alterations to? If the surgeon used the Gore-tex graft to create a valve, select surgeon fashioned choice and select Gore-tex. If this was a commercially supplied device, select commercially supplied device and if the valve is not listed, select Other US FDA approved device or Other Non-US FDA approved device.**

September 2022**:** Pt had a truncal valve replaced with a homograft. How do I code this? It is not a mechanical valve, but not surgeon fashioned either.... **Homografts are to be coded as Commercially supplied implants.**

Long Name:	Valve Implant Surgeon Fashioned Material #1	*SeqNo:*	3240
Short Name:	**ValImpSFMat1**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the material used to fashion the first valve or device.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Implant Type #1
ParentShortName:	**ValImpType1**
ParentHarvestCodes:	1
ParentValues:	= "Surgeon fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Long Name:	Valve Implant Commercial Device Model Number #1	*SeqNo:*	3250
Short Name:	**ValImpComMod1**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
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.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Implant Type #1
ParentShortName:	**ValImpType1**

ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209 A020 - CryoLife Descending Thoracic Aorta
210 A030 - CryoLife Pulmonary Artery
211 AV00 - CryoLife Aortic Valve and Conduit
212 AV10 - CryoLife Aortic Valve without Conduit
214 PV00 - CryoLife Pulmonary Valve & Conduit
215 PV10 - CryoLife Pulmonary Valve without Conduit
216 R010 - CryoLife Aortoiliac Grafts
217 R020 - CryoLife Femoral Popliteal Artery
218 SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219 SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220 V010 - CryoLife Saphenous Vein
221 V060 - CryoLife 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, Full Root - FR
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 - St. Jude Medical Mechanical Aortic Heart Valve
338 ##AEC-102 - St. Jude Medical Mechanical Heart Valve
339 ##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
340 ##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
341 ##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
342 ##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
343 ##AET-104 - St. Jude Medical Mechanical Heart Valve
344 ##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
345 ##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
346 ##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
347 ##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
348 ##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
349 ##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
350 ##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
351 ##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
352 ##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
353 ##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
354 ##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
355 ##AT-103 - St. Jude Medical Mechanical Heart Valve
356 ##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
357 ##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
358 ##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
359 ##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
360 ##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
361 ##MEC-102 - St. Jude Medical Mechanical Heart Valve
362 ##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
363 ##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
364 ##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
365 ##MET-104 - St. Jude Medical Mechanical Heart Valve
366 ##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
367 ##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
368 ##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
369 ##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
370 ##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
371 ##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating

372 ##MT-103 - St. Jude Medical Mechanical Heart Valve
373 ##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
374 ##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
375 AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
376 B10-##A - St. Jude Medical Biocor Aortic Valve
377 B10-##A-00 - St. Jude Medical Biocor Aortic Valve
378 B10-##M - St. Jude Medical Biocor Mitral Valve
379 B10-##M-00 - St. Jude Medical Biocor Mitral Valve
380 B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
381 B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
382 B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
383 B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
384 B30-##A - St. Jude Medical Biocor Valve
385 B30-##M - St. Jude Medical Biocor Valve
386 BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
387 E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
388 E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
389 EL-##A - St. Jude Medical Epic Aortic Valve
390 EL-##M - St. Jude Medical Epic Mitral Valve
391 ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
392 ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
393 ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
394 ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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 45Prosthesis
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Implant Unique Device Identifier (UDI) - 1 *SeqNo:* 3261
Short Name: **ValImpUDI1** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the first implanted valve device if available, otherwise leave blank.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Valve Implant Type #1
ParentShortName: **ValImpType1**
ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

August 2019: My question is regarding the UDI number under the valve implant section of STS. Some items only have a serial or LOT number. Is the LOT or serial number considered the UDI number? **No** It does mention to leave blank but the definition does not clarify if the serial or LOT number is part of the UDI. **Use the serial number.**

Long Name: Valve Implant Commercial Device Size #1 *SeqNo:* 3262
Short Name: **ValImpComSz1** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the second implanted valve or device.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Implant Type #1
ParentShortName: **ValImpType1**
ParentHarvestCodes: 3
Parent Value: = "Commercially supplied device"

October 2019: In version 3.41, the lowest value allowed for valve size is 15mm. Our implant record shows that we have placed 12mm Contegra valves. How can we enter this data? **This will be updated in the next version upgrade. For now, leave this field blank.**

Long Name:	Second Valve Implant	*SeqNo:*	3270
Short Name:	**ValImp2**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a second valve or device was implanted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Device Explanted And/Or Implanted
ParentShortName:	**ValExImp**
ParentHarvestCodes:	3|4
ParentValues:	= "Yes, Implanted" or "Yes, Explanted and Implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Valve Implant Type #2	*SeqNo:*	3280
Short Name:	**ValImpLoc2**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the location of the second valve or device implanted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Second Valve Implant
ParentShortName:	**ValImp2**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	Value:
1	Aortic
2	Mitral
3	Tricuspid

4	Pulmonic
5	Common AV
6	Truncal

July 2019: My patient required a Dacron patch for their Ventricular Septal Defect. I am looking at the options under location and am not sure which option to select. **Patches are not included in the valve implant section.**

Long Name:	Valve Implant Type #2	*SeqNo:*	3290
Short Name:	**ValImpType2**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the second valve or device implanted.		
Intent / Clarification:	If a commercially supplied device is used at all, regardless of surgeon alterations, select commercially supplied device.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Second Valve Implant		
ParentShortName:	**ValImp2**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	Value:
1	Surgeon fashioned
2	Autograft
3	Commercially supplied device
4	Transcatheter device

Long Name:	Valve Implant Surgeon Fashioned Material #2	*SeqNo:*	3300
Short Name:	**ValImpSFMat2**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the material used to fashion the second valve or device.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Valve Implant Type #2		
ParentShortName:	**ValImpType2**		
ParentHarvestCodes:	1		

ParentValues: = "Surgeon fashioned"

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Long Name: Valve Implant Commercial Device Model Number #2
Short Name: **ValImpComMod2**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.

SeqNo: 3310
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Implant Type #2
ParentShortName: **ValImpType2**
ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit
212	AV10 - CryoLife Aortic Valve without Conduit
214	PV00 - CryoLife Pulmonary Valve & Conduit
215	PV10 - CryoLife Pulmonary Valve without Conduit
216	R010 - CryoLife Aortoiliac Grafts
217	R020 - CryoLife Femoral Popliteal Artery
218	SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219	SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220	V010 - CryoLife Saphenous Vein

221 V060 - CryoLife 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, Full Root - FR
307 HC105-## - Medtronic Hancock Low-porosity Valved Conduit

HC150-## - Medtronic Hancock Modified Orifice Pulmonic Valved Conduit
T505C2## - Medtronic Hancock II Aortic Cinch
T505U2## - Medtronic Hancock II Ultra Cinch
T510C## - Medtronic Hancock II Mitral
ONXA## - On-X Aortic Valve with standard sewing ring
ONXAC## - On-X Aortic Valve with Conform-X Sewing Ring
ONXACE## - On-X Aortic Valve with Conform-X Sewing Ring, extended
ONXAE## - On-X Aortic Valve with standard sewing ring, extended
ONXM## - On-X Mitral Valve with standard sewing ring
ONXMC## - On-X Mitral Valve with Conform-X Sewing Ring
LXA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve
A5-0## - Sorin Group: Carbomedics Standard Aortic Valve
AF-8## - Sorin Group: Carbomedics AnnuloFlex Annuloplasty System
AP-0## - Sorin Group: Carbomedics Carbo-Seal Ascending Aortic Prosthesis
AR-7## - Sorin Group: Carbomedics AnnuloFlo Annuloplasty System
CP-0## - Sorin Group: Carbomedics Carbo-Seal Valsalva Ascending Aortic Prosthesis
F7-0## - Sorin Group: Carbomedics OptiForm Mitral Valve
M7-0## - Sorin Group: Carbomedics Standard Mitral Valve
R5-0## - Sorin Group: Carbomedics Reduced Series Aortic Valve
S5-0## - Sorin Group: Carbomedics Top Hat Supra- Annular Aortic Valve
##A-101 - St. Jude Medical Mechanical Aortic Heart Valve
##AEC-102 - St. Jude Medical Mechanical Heart Valve
##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AET-104 - St. Jude Medical Mechanical Heart Valve
##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology

##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
##MEC-102 - St. Jude Medical Mechanical Heart Valve
##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MET-104 - St. Jude Medical Mechanical Heart Valve
##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##MT-103 - St. Jude Medical Mechanical Heart Valve
##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
B10-##A - St. Jude Medical Biocor Aortic Valve
B10-##A-00 - St. Jude Medical Biocor Aortic Valve
B10-##M - St. Jude Medical Biocor Mitral Valve
B10-##M-00 - St. Jude Medical Biocor Mitral Valve
B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
B30-##A - St. Jude Medical Biocor Valve
B30-##M - St. Jude Medical Biocor Valve
BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
EL-##A - St. Jude Medical Epic Aortic Valve
EL-##M - St. Jude Medical Epic Mitral Valve
ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
SPA-101-## - St. Jude Medical Toronto SPV Valve
SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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 45Prosthesis
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Implant Unique Device Identifier (UDI) - 2 *SeqNo:* 3321
Short Name: **ValImpUDI2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the second implanted valve device if available, otherwise leave blank.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Valve Implant #2
ParentShortName: **ValImpType2**
ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

Long Name: Valve Implant Commercial Device Size #2 *SeqNo:* 3322
Short Name: **ValImpComSz2** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the second implanted valve or device.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Implant Type #2
ParentShortName: **ValImpType2**
ParentHarvestCodes: 3

Parent Value: = "Commercially supplied device"

Long Name: Third Valve Implant
Short Name: **ValImp3**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate whether a third valve or device was implanted.

SeqNo: 3330
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Second Valve Implant
ParentShortName: **ValImp2**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Valve Implant Location #3
Short Name: **ValImpLoc3**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate the location of the third valve or device implanted.

SeqNo: 3340
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Third Valve Implant
ParentShortName: **ValImp3**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Aortic
2	Mitral
3	Tricuspid
4	Pulmonic
5	Common AV
6	Truncal

Long Name:	Valve Implant Type #3	*SeqNo:*	3350
Short Name:	**ValImpType3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the third valve or device implanted.		
Intent / Clarification:	If a commercially supplied device is used at all, regardless of surgeon alterations, select commercially supplied device.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Third Valve Implant		
ParentShortName:	**ValImp3**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	Value:
1	Surgeon fashioned
2	Autograft
3	Commercially supplied device
4	Transcatheter device

Long Name:	Valve Implant Surgeon Fashioned Material #3	*SeqNo:*	3360
Short Name:	**ValImpSFMat3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the material used to fashion the third valve or device.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Valve Implant Type #3		
ParentShortName:	**ValImpType3**		
ParentHarvestCodes:	1		
ParentValues:	= "Surgeon fashioned"		

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium

9	Other

Long Name:	Valve Implant Commercial Device Model Number #3	*SeqNo:*	3370
Short Name:	**ValImpComMod3**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Valve Implant Type #3
ParentShortName:	**ValImp3**
ParentHarvestCodes:	3|4
ParentValues:	= "Commercially supplied device" or "Transcatheter device"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit
212	AV10 - CryoLife Aortic Valve without Conduit
214	PV00 - CryoLife Pulmonary Valve & Conduit
215	PV10 - CryoLife Pulmonary Valve without Conduit
216	R010 - CryoLife Aortoiliac Grafts
217	R020 - CryoLife Femoral Popliteal Artery
218	SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219	SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220	V010 - CryoLife Saphenous Vein
221	V060 - CryoLife 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, Full Root - FR
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

T510C## - Medtronic Hancock II Mitral
ONXA## - On-X Aortic Valve with standard sewing ring
ONXAC## - On-X Aortic Valve with Conform-X Sewing Ring
ONXACE## - On-X Aortic Valve with Conform-X Sewing Ring, extended
ONXAE## - On-X Aortic Valve with standard sewing ring, extended
ONXM## - On-X Mitral Valve with standard sewing ring
ONXMC## - On-X Mitral Valve with Conform-X Sewing Ring
LXA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve
A5-0## - Sorin Group: Carbomedics Standard Aortic Valve
AF-8## - Sorin Group: Carbomedics AnnuloFlex Annuloplasty System
AP-0## - Sorin Group: Carbomedics Carbo-Seal Ascending Aortic Prosthesis
AR-7## - Sorin Group: Carbomedics AnnuloFlo Annuloplasty System
CP-0## - Sorin Group: Carbomedics Carbo-Seal Valsalva Ascending Aortic Prosthesis
F7-0## - Sorin Group: Carbomedics OptiForm Mitral Valve
M7-0## - Sorin Group: Carbomedics Standard Mitral Valve
R5-0## - Sorin Group: Carbomedics Reduced Series Aortic Valve
S5-0## - Sorin Group: Carbomedics Top Hat Supra- Annular Aortic Valve
##A-101 - St. Jude Medical Mechanical Aortic Heart Valve
##AEC-102 - St. Jude Medical Mechanical Heart Valve
##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AET-104 - St. Jude Medical Mechanical Heart Valve
##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
##MEC-102 - St. Jude Medical Mechanical Heart Valve
##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff

363 ##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
364 ##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
365 ##MET-104 - St. Jude Medical Mechanical Heart Valve
366 ##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
367 ##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
368 ##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
369 ##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
370 ##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
371 ##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
372 ##MT-103 - St. Jude Medical Mechanical Heart Valve
373 ##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
374 ##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
375 AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
376 B10-##A - St. Jude Medical Biocor Aortic Valve
377 B10-##A-00 - St. Jude Medical Biocor Aortic Valve
378 B10-##M - St. Jude Medical Biocor Mitral Valve
379 B10-##M-00 - St. Jude Medical Biocor Mitral Valve
380 B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
381 B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
382 B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
383 B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
384 B30-##A - St. Jude Medical Biocor Valve
385 B30-##M - St. Jude Medical Biocor Valve
386 BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
387 E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
388 E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
389 EL-##A - St. Jude Medical Epic Aortic Valve
390 EL-##M - St. Jude Medical Epic Mitral Valve
391 ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
392 ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
393 ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
394 ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
395 ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
396 RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
397 SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
398 SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
399 SPA-101-## - St. Jude Medical Toronto SPV Valve
400 SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
401 TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
402 TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
403 TARP-## - St. Jude 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 - St. Jude Medical Trifecta Aortic Stented Tissue Valve
416 505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
417 800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
418 6000-## - Medtronic 3f Enable Aortic Bioprosthesis
419 PH00 - Cryolife Pulmonary Hemi-Artery
420 SGPH00 - Cryolife 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 Universal Mitral Valve
434 PF ## - Sorin Group PF ## - Sorin Group 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 45Prosthesis
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502	Z65LOTUSKIT## - Lotus Valve Kit
503	11500AXX - Edwards Inspiris Resilia Aortic Valve
777	Other US FDA-Approved Device
778	Other Non-US FDA- Approved Device

Long Name: Valve Implant Unique Device Identifier (UDI) - 3 *SeqNo:* 3381
Short Name: **ValImpUDI3** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the third implanted valve device if available, otherwise leave blank.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: Valve Implant Type #3
ParentShortName: **ValImpType3**
ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

Long Name: Valve Implant Commercial Device Size #3 *SeqNo:* 3382
Short Name: **ValImpComSz3** *Core:* Yes
Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the size of the third implanted valve or device.
Low Value: 15
High Value: 33

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Valve Implant Type #3
ParentShortName: **ValImpType3**
ParentHarvestCodes: 3
Parent Value: = "Commercially supplied device"

Long Name: Fourth Valve Implant
Short Name: **ValImp4**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate whether a fourth valve or device was implanted.

SeqNo: 3390
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Third Valve Implant
ParentShortName: **ValImp3**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Valve Implant Location #4
Short Name: **ValImpLoc4**
Section Name: Valve Procedures
DBTableName: Operations
Definition: Indicate the location of the fourth valve or device implanted.

SeqNo: 3400
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Fourth Valve Implant
ParentShortName: **ValImp4**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Aortic
2	Mitral
3	Tricuspid
4	Pulmonic
5	Common AV
6	Truncal

Long Name:	Valve Implant Type #4	*SeqNo:*	3410
Short Name:	**ValImpType4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the type of the fourth valve or device implanted.		
Intent / Clarification:	If a commercially supplied device is used at all, regardless of surgeon alterations, select commercially supplied device.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Fourth Valve Implant		
ParentShortName:	**ValImp4**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	Value:
1	Surgeon fashioned
2	Autograft
3	Commercially supplied device
4	Transcatheter device

Long Name:	Valve Implant Surgeon Fashioned Material #4	*SeqNo:*	3420
Short Name:	**ValImpSFMat4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the material used to fashion the fourth valve or device.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Valve Implant Type #4		
ParentShortName:	**ValImpType4**		
ParentHarvestCodes:	1		
ParentValues:	= "Surgeon fashioned"		

Harvest Codes:

Code:	Value:
1	PTFE (Gore-Tex)
2	Pericardium
9	Other

Long Name:	Valve Implant Commercial Device Model Number #4	*SeqNo:*	3430
Short Name:	**ValImpComMod4**	*Core:*	Yes

Section Name: Valve Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the name of the prosthesis implanted. The names provided include the manufacturer's model number with "xx" substituting for the device size.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Valve Implant Type #4
ParentShortName: **ValImpType4**
ParentHarvestCodes: 3|4
ParentValues: = "Commercially supplied device" or "Transcatheter device"

Harvest Codes:

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 - CryoLife Ascending Thoracic Aorta
209	A020 - CryoLife Descending Thoracic Aorta
210	A030 - CryoLife Pulmonary Artery
211	AV00 - CryoLife Aortic Valve and Conduit
212	AV10 - CryoLife Aortic Valve without Conduit
214	PV00 - CryoLife Pulmonary Valve & Conduit
215	PV10 - CryoLife Pulmonary Valve without Conduit
216	R010 - CryoLife Aortoiliac Grafts
217	R020 - CryoLife Femoral Popliteal Artery
218	SGPV00 - CryoLife SG Pulmonary Valve & Conduit
219	SGPV10 - CryoLife SG Pulmonary Valve without Conduit
220	V010 - CryoLife Saphenous Vein
221	V060 - CryoLife 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, Full Root - FR
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

AF-8## - Sorin Group: Carbomedics AnnuloFlex Annuloplasty System
AP-0## - Sorin Group: Carbomedics Carbo-Seal Ascending Aortic Prosthesis
AR-7## - Sorin Group: Carbomedics AnnuloFlo Annuloplasty System
CP-0## - Sorin Group: Carbomedics Carbo-Seal Valsalva Ascending Aortic Prosthesis
F7-0## - Sorin Group: Carbomedics OptiForm Mitral Valve
M7-0## - Sorin Group: Carbomedics Standard Mitral Valve
R5-0## - Sorin Group: Carbomedics Reduced Series Aortic Valve
S5-0## - Sorin Group: Carbomedics Top Hat Supra- Annular Aortic Valve
##A-101 - St. Jude Medical Mechanical Aortic Heart Valve
##AEC-102 - St. Jude Medical Mechanical Heart Valve
##AECJ-502 - St. Jude Medical Masters Series Aortic Mechanical Valve, Expanded Cuff
##AECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AEHPJ-505 - St. Jude Medical Masters HP Mechanical Valve, Expanded Cuff
##AEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AET-104 - St. Jude Medical Mechanical Heart Valve
##AETJ-504 - St. Jude Medical Masters Series Mechanical Heart Valve
##AFHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Valve, Flex Cuff
##AG-701 - St. Jude Medical Regent Valve with Silzone Coating
##AGF-706 - St. Jude Medical Regent Valve with Silzone Coating
##AGFN-756 - St. Jude Medical Regent Aortic Mechanical Valve, Flex Cuff
##AGN-751 - St. Jude Medical Regent Aortic Mechanical Valve, Standard Cuff
##AHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##AHPJ-505 - St. Jude Medical Masters HP Aortic Mechanical Heart Valve, Standard Cuff
##AHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##AJ-501 - St. Jude Medical Masters Series Aortic Mechanical Valve, Standard Cuff
##AS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating
##AT-103 - St. Jude Medical Mechanical Heart Valve
##ATJ-503 - St. Jude Medical Masters Series Aortic Mechanical Valve, PTFE Cuff
##CAVG-404 - St. Jude Medical Coated Aortic Valved Graft Prosthesis
##CAVGJ-514 - St. Jude Medical Masters Series Aortic Valved Graft
##CAVGJ-514-00 - St. Jude Medical Masters Aortic Valved Graft, Hemashield Technology
##M-101 - St. Jude Medical Mechanical Mitral Heart Valve
##MEC-102 - St. Jude Medical Mechanical Heart Valve
##MECJ-502 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded Cuff
##MECS-602 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MEHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MET-104 - St. Jude Medical Mechanical Heart Valve
##METJ-504 - St. Jude Medical Masters Series Mitral Mechanical Valve, Expanded PTFE Cuff
##MHP-105 - St. Jude Medical Mechanical Heart Valve Hemodynamic Plus (HP) Series
##MHPJ-505 - St. Jude Medical Masters HP Mitral Mechanical Heart Valve, Standard Cuff
##MHPS-605 - St. Jude Medical Masters Series Mechanical Heart Valve with Silzone Coating
##MJ-501 - St. Jude Medical Masters Series Mitral Mechanical Valve, Standard Cuff
##MS-601 - St. Jude Medical Masters Mechanical Heart Valve with Silzone Coating

##MT-103 - St. Jude Medical Mechanical Heart Valve
##MTJ-503 - St. Jude Medical Masters Series Mitral Mechanical Valve, PTFE Cuff
##VAVGJ-515 - St. Jude Medical Masters HP Aortic Valved Graft
AFR-## - St. Jude Medical Attune Flexible Adjustable Annuloplasty Ring
B10-##A - St. Jude Medical Biocor Aortic Valve
B10-##A-00 - St. Jude Medical Biocor Aortic Valve
B10-##M - St. Jude Medical Biocor Mitral Valve
B10-##M-00 - St. Jude Medical Biocor Mitral Valve
B100-##A-00 - St. Jude Medical Biocor Stented Aortic Tissue Valve
B100-##M-00 - St. Jude Medical Biocor Stented Mitral Tissue Valve
B10SP-## - St. Jude Medical Biocor Supra Stented Porcine Heart Valve
B20-0##A - St. Jude Medical Biocor Porcine Stentless Bioprosthetic Heart Valve
B30-##A - St. Jude Medical Biocor Valve
B30-##M - St. Jude Medical Biocor Valve
BSP100-## - St. Jude Medical Biocor Supra Aortic Stented Tissue Valve
E100-##A-00 - St. Jude Medical Epic Aortic Stented Tissue Valve
E100-##M-00 - St. Jude Medical Epic Mitral Stented Tissue Valve
EL-##A - St. Jude Medical Epic Aortic Valve
EL-##M - St. Jude Medical Epic Mitral Valve
ELS-##A - St. Jude Medical Epic Tissue Aortic Valve with Silzone Coating
ELS-##M - St. Jude Medical Epic Tissue Mitral Valve with Silzone Coating
ESP100-##-00 - St. Jude Medical Epic Supra Aortic Stented Tissue Valve
ESP100-##A-00 - St. Jude Medical Epic Stented Aortic Tissue Valve
ROOT-## - St. Jude Medical Toronto Root with BiLinx AC
RSAR-## - St. Jude Medical SJM Rigid Saddle Ring
SARP-## - St. Jude Medical SJM STguin Semi-Rigid Annuloplasty Ring
SARS-M## - St. Jude Medical STguin Annuloplasty Ring with Silzone Coating
SPA-101-## - St. Jude Medical Toronto SPV Valve
SPA-201-## - St. Jude Medical Toronto SPV II Bioprosthetic Heart Valve
TAB-## - St. Jude Medical Tailor Flexible Annuloplasty Band
TAR-## - St. Jude Medical Tailor Annuloplasty Ring with Silzone Coating
TARP-## - St. Jude Medical Tailor Flexible Annuloplasty Ring
PB10-## - Medtronic Melody Transcatheter Pulmonary Valve
700FF## - Medtronic Simulus FLX-O Ring
700FC## - Medtronic Simulus FLX-C Band
735AF## - Medtronic Simulus Adjustable Ring
800SR## - Medtronic Simulus Semi-rigid Ring
900SFC## - Medtronic TriAd Tricuspid Annuloplasty Ring
1000-## - Medtronic 3f Aortic Bioprosthesis
6200## - Carpentier-Edwards Physio Tricuspid Annuloplasty Ring
9300TFX## - Edwards Sapien Transcatheter Heart Valve
305## - Medtronic Mosaic Ultra Porcine Heart Valve
TF-##A - St. Jude Medical Trifecta Aortic Stented Tissue Valve

505DM## - Medtronic Open Pivot AP360 Series Mitral Heart Valve
800SC## - Medtronic Simulus Semi-rigid Mitral Annuloplasty Ring
6000-## - Medtronic 3f Enable Aortic Bioprosthesis
PH00 - Cryolife Pulmonary Hemi-Artery
SGPH00 - Cryolife SG Pulmonary Hemi-Artery
690R## - Medtronic Contour 3D Annuloplasty ring
735AC## - Medtronic Simulus Adjustable Band
9600TFX## - Edwards Sapien Transcatheter Heart Valve
H607 - Medtronic post Annuloplasty band (Split, Mayo)
ICV08## - Sorin Group Sovering Annuloplasty
ICV09## - Sorin Group MEMO 3D Semi-rigid Annuloplasty Ring
A1-0## - Sorin Group: Carbomedics Orbis Universal Aortic Valve
M2-0## - Sorin Group: Carbomedics Orbis Universal Mitral Valve
PF ## - Sorin Group PF ## - Sorin Group Stentless
PS ## - Sorin Group Pericarbon More Mitral
ART ## SOP - Sorin Group Soprano Armonia
ART ## SG - Sorin Group Freedom Solo
ART ## LFA- Sorin Group Bicarbon Fitline Aortic
MTR ## LFM- Sorin Group Bicarbon Fitline Mitral
ART ## LOV- Sorin Group Bicarbon Overline Aortic
ART ## LSA- Sorin Group Bicarbon Slimline Aortic
8300A## - Edwards Intuity Valve System (outside US)
8300AB## - Edwards Intuity Elite Valve System (outside US)
8300ACD## - Edwards Intuity Elite Valve System
9355NF## - Edwards Sapien XT Transcatheter Valve with NovaFlex System
9355ASP## - Edwards Sapien XT Transcatheter Valve with Ascendra System
S3TF1## - Edwards Sapien 3 Transcatheter Valve with Commander System
S3TA1## - Edwards Sapien 3 Transcatheter Valve with Certitude System
CRS-P3-640 – Medtronic CoreValve
CRS-P3-943 – Medtronic CoreValve
MCS-P3 – Medtronic CoreValve
MCS-P4 – Medtronic CoreValve Evolut
ONXAN## - On-X Aortic Heart Valve with Anatomic Sewing Ring
ONXANE## - On-X Valve with Anatomic Sewing ring and Extended Holder
ONXAAP## - On-X Ascending Aortic Prosthesis
ICV12## - Sorin Solo Smart Aortic Valve
ICV13## - Sorin Group MEMO 3D Rechord Annuloplasty Ring
DLA## - Sorin Group Mitroflow Aortic Pericardial Heart Valve with PRT
MVC0##- Sorin Group Mitroflow Valsalva Conduit
1260 ### - Starr-Edwards Silastic Ball Aortic Heart Valve Prosthesis
6120 ### - Starr Edwards Silastic Ball Mitral Heart Valve Prosthesis
73##1088 - Vascutek Gelweave Plexus Graft
7300##ADP - Vascutek Terumo Gelweave Vascular 45Prosthesis
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 - St. Jude Medical Trifecta with Glide Technology (GT) Aortic Stented Tissue Valve
502 Z65LOTUSKIT## - Lotus Valve Kit
503 11500AXX - Edwards Inspiris Resilia Aortic Valve
777 Other US FDA-Approved Device
778 Other Non-US FDA- Approved Device

Long Name:	Valve Implant Unique Device Identifier (UDI) - 4	*SeqNo:*	3441
Short Name:	**ValImpUDI4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the Unique Device Identifier (UDI) of the fourth implanted valve device if available, otherwise leave blank.		

Intent / Clarification:

Data Source:	User
Format:	Text
ParentLongName:	Valve Implant Type #4
ParentShortName:	**ValImpType4**
ParentHarvestCodes:	3|4
Parent Value:	= "Commercially supplied device" or "Transcatheter device"

Long Name:	Valve Implant Commercial Device Size #4	*SeqNo:*	3442
Short Name:	**ValImpComSz4**	*Core:*	Yes
Section Name:	Valve Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the size of the fourth implanted valve or device.		
Low Value:	15		
High Value:	33		

Intent / Clarification:

Data Source:	User
Format:	Integer
ParentLongName:	Valve Implant Type #4
ParentShortName:	**ValImpType4**
ParentHarvestCodes:	3
Parent Value:	= "Commercially supplied device"

VAD Procedures

Long Name:	VAD Explanted And/Or Implanted	*SeqNo:*	3460
Short Name:	**VADExImp**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a ventricular assist device (VAD) was explanted and/or implanted during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|2|9|3|4|6|7|777
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular", "CPB Non-Cardiovascular", "ECMO", "Thoracic", "VAD Operation Done With CPB", "VAD Operation Done Without CPB." or "Other"

Harvest Codes:

Code:	Value:
1	No
2	Yes, explanted
3	Yes, implanted
4	Yes, explanted and implanted

June 2021: Should pump change-outs be coded as explants/implants? Or should only the original implant be recorded? For example, if a Pedimag VAD is replaced by another Pedimag VAD because a thrombus formed in the circuit (sequence #3460.) **Do not code the pump change outs as implants or explants.**

April 2022: Patient is on ECMO. If the existing ECMO cannulas are used when converting to Centrimag LVAD, what procedure should be coded? 2380 VAD implantation? or 1920 Right/left heart assist device procedure? Also, how should VADExImp be answered? "Yes, Implanted" doesn't seem correct because nothing new was implanted. But it is a parent field, and if I answer no, I can't capture VADInd, VImpTy, VProdTy, etc. **Code procedure (2380) VAD implantation and code field VADExImp as yes and complete the VAD related questions.**

Long Name:	VAD-Indication for VAD	*SeqNo:*	3500
Short Name:	**VADInd**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the reason the patient is receiving the ventricular assist device (VAD).		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	VAD Explanted And/Or Implanted
ParentShortName:	**VADExImp**
ParentHarvestCodes:	3|4
ParentValues:	= "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes: and Value Definitions:

Code:	Value:	Definition:
1	Bridge to Transplantation	Includes those patients who are supported with a VAD until a heart transplant is possible.

2	Bridge to Recovery	Includes those patients who are expected to have ventricular recovery. (i.e. Myocarditis patients, postcardiotomy syndromes, viral cardiomyopathies, AMI w/ revascularization, and post-transplant reperfusion injury)
3	Destination	Includes those patients where a heart transplant is not an option. The VAD is placed for permanent life sustaining support.
4	Postcardiotomy Ventricular failure (separation from CPB)	Includes those postcardiotomy patients who receive a VAD because of failure to separate from the heart- lung machine. Postcardiotomy refers to those patients with the inability to wean from cardiopulmonary bypass secondary to left, right, or biventricular failure.
5	Device Malfunction	Includes those patients who are currently VAD supported and are experiencing device failure.
6	End of Life	Mechanical device pump has reached functional life expectancy and requires replacement.

June 2021: Should pump change-outs be coded as explants/implants? Or should only the original implant be recorded? For example, if a Pedimag VAD is replaced by another Pedimag VAD because a thrombus formed in the circuit (sequence #3460.) **Do not code the pump change outs as implants or explants.** Is the circuit thrombus formation considered a device malfunction (sequence #3500/3610?) **Yes, thrombus formations are considered device malfunctions.**

Long Name:	VAD-First Implant Type	*SeqNo:*	3550
Short Name:	**VImpTy**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the initial type of VAD implanted.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	VAD Explanted And/Or Implanted
ParentShortName:	**VADExImp**
ParentHarvestCodes:	3|4
ParentValues:	= "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes and Value Definitions:

Code:	Value:
1	RVAD - Right Ventricular Assist Device
2	LVAD - Left Ventricular Assist Device
4	TAH - Total Artificial Heart

December 2020: Bilateral Berlin Hearts were placed in a TAH configuration. Should this be coded as VImpTy = TAH and list only one UDI and product, or should I code as LVAD and then code VADImp2=Yes, and code the second UDI and product. **Include as 2 separate VAD operations, code as LVAD and then code the 2nd implant. Will look at including BiVad in the upgrade.**

Long Name:	VAD Implant Unique Device Identifier (UDI)	*SeqNo:*	3565
Short Name:	**VADImpUDI**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the Unique Device Identifier (UDI) of the implanted VAD if available, otherwise leave blank.		

Intent / Clarification:

Data Source:	User
Format:	Text
ParentLongName:	VAD Explanted And/Or Implanted
ParentShortName:	**VADExImp**
ParentHarvestCodes:	3|4
ParentValues:	= "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	VAD-First Product Type	*SeqNo:*	3569
Short Name:	**VProdTy**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the specific product implanted. Implant defined as physical placement of the VAD.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	VAD Explanted And/Or Implanted
ParentShortName:	**VADExImp**
ParentHarvestCodes:	3|4
ParentValues:	= "Yes, implanted" or "Yes, explanted and implanted"

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 MictoPump (Surgical System)
108	HeartWare HVAD
109	Impella (catheter based)
110	Jarvik 2000
111	Levitronix CentriMag
112	Levitronix PediMag
113	LifeBridge
114	Maquet ROTAFLOW Centrifugal Pump system
115	Medtronic Biomedicus (Biopump)
116	Micromed Heart Assist 5 (DeBakey)
117	pCAS
118	PediaFlow
119	PediPump
120	PennState PVAD
121	Sorin Revolution
122	Syncardia CardioWest TAH
123	Tandem Heart (catheter based)
124	Terumo Duraheart
125	Thoratec Centrimag
126	Thoratec Heart Mate II
127	Thoratec Heart Mate IP
128	Thoratec Heart Mate VE
129	Thoratec Heart Mate XVE
130	Thoratec IVAD
131	Thoratec PediMag/ PediVas
132	Thoratec PVAD
133	WorldHeart NovaCor
134	WorldHeart Pediaflow
135	WorldHeart MiFlow
136	Maquet CardioHelp model #70104-7999
137	Thoratec Heartmate lll MLP-002487

138	THORATEC HEARTMATE III IMPLANT KIT (VAD) 106524
999	Other

Long Name:	First Occurrence Involved Implantation of Two VAD Devices	*SeqNo:*	3571
Short Name:	**VADImp2**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the first occurrence involved the implantation of two VAD devices.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	VAD-First Implant Type
ParentShortName:	**VImpTy**
ParentHarvestCodes:	1|2
ParentValues:	= "RVAD - Right Ventricular Assist Device" or "LVAD - Left Ventricular Assist Device"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Second VAD Implant Unique Device Identifier (UDI)	*SeqNo:*	3573
Short Name:	**VADImpUDI2**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the UDI of the second VAD device.		

Intent / Clarification:

Data Source:	User
Format:	Text
ParentLongName:	First Occurrence Involved Implantation of Two VAD Devices
ParentShortName:	**VADImp2**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Long Name:	VAD-Second Product Type	*SeqNo:*	3574
Short Name:	**VProdTy2**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the second VAD type.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: First Occurrence Involved Implantation of Two VAD Devices
ParentShortName: **VADImp2**
ParentHarvestCodes: 1
ParentValues: = "Yes"

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 MictoPump (Surgical System)
108	HeartWare HVAD
109	Impella (catheter based)
110	Jarvik 2000
111	Levitronix CentriMag
112	Levitronix PediMag
113	LifeBridge
114	Maquet ROTAFLOW Centrifugal Pump system
115	Medtronic Biomedicus (Biopump)
116	Micromed Heart Assist 5 (DeBakey)
117	pCAS
118	PediaFlow
119	PediPump
120	PennState PVAD
121	Sorin Revolution

122	Syncardia CardioWest TAH
123	Tandem Heart (catheter based)
124	Terumo Duraheart
125	Thoratec Centrimag
126	Thoratec Heart Mate II
127	Thoratec Heart Mate IP
128	Thoratec Heart Mate VE
129	Thoratec Heart Mate XVE
130	Thoratec IVAD
131	Thoratec PediMag/ PediVas
132	Thoratec PVAD
133	WorldHeart NovaCor
134	WorldHeart Pediaflow
135	WorldHeart MiFlow
136	Maquet CardioHelp model #70104-7999
137	Thoratec Heartmate lll MLP-002487
138	THORATEC HEARTMATE III IMPLANT KIT (VAD) 106524
999	Other

Long Name: VAD-Explant Reason
Short Name: **VExpRsn**
Section Name: VAD Procedures
DBTableName: Operations
Definition: Indicate the reason the VAD was explanted.

SeqNo: 3610
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Patient Remains Hospitalized During this Episode of Care
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|4
ParentValues: = "Yes, explanted" or "Yes, explanted and implanted"

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	Cardiac Transplant	The VAD was explanted for Cardiac Transplant.
2	Recovery	The VAD was removed after cardiac recovery.

3	Device Transfer	The VAD was explanted in order to implant another assist device.
4	Device-Related Infection	An infection within the pump pocket, driveline, VAD Endocarditis, or other infection requiring explanation of the VAD. The body of the VAD 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 medical or surgical intervention.
5	Device Malfunction	The VAD pump itself is not functioning properly causing hemodynamic compromise, and/or requiring immediate intervention or VAD replacement.
6	End of Life	Mechanical device pump has reached functional life expectancy and requires replacement.

Long Name: VAD Explant Unique Device Identifier (UDI) *SeqNo:* 3611
Short Name: **VADExpUDI** *Core:* *Yes*
Section Name: VAD Procedures *Harvest:* *Yes*
DBTableName: Operations
Definition: Indicate the Unique Device Identifier (UDI) of the explanted VAD if available, otherwise leave blank.

Intent / Clarification:

Data Source: User
Format: Text

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|4
ParentValues: = "Yes, explanted" or "Yes, explanted and implanted"

Long Name: VAD-Primary VAD Comp-Intracranial Bleed *SeqNo:* 3850
Short Name: **PVCmpBld** *Core:* Yes
Section Name: VAD Procedures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate if the patient had an intracranial bleed, confirmed by CT scan or other diagnostic studies.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**

ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

June 2021: Do the VAD-related complications refer to a VAD that was implanted during that case, or to a VAD that was explanted during that case? In other words, should these fields be coded to the surgery of the VAD's implant or of the VAD's explant? **The VAD related complications refer to the VAD being explanted during that operation.**

Long Name: VAD-Primary VAD Comp-Embolic Stroke
SeqNo: 3860
Short Name: **PVCmpESt**
Core: Yes
Section Name: VAD Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate if the patient had embolic stroke caused by a blood clot, air embolus, or tissue, confirmed by CT scan or other diagnostic studies.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: VAD-Primary VAD Comp-Driveline and/or cannula infection
SeqNo: 3870
Short Name: **PVCmpDCI**
Core: Yes
Section Name: VAD Procedures
Harvest: Yes
DBTableName: Operations
Definition: Indicate if the patient had a driveline and/or cannula infection. Driveline and/or cannula infection is defined as the presence of erythema, drainage, or purulence at the VAD connection site whether entering or exiting the body in association with leukocytosis and in the presence of positive culture.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: VAD-Primary VAD Comp-Pump Pocket Infection
Short Name: **PVCmpPPI**
Section Name: VAD Procedures
DBTableName: Operations
Definition: Indicate if the patient had a pump pocket infection. A pump pocket infection is defined as a persistent drainage in the physical location of the pump, located preperitoneally or intra-abdominally with positive cultures from the pocket site.

SeqNo: 3880
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: VAD-Primary VAD Comp-VAD Endocarditis
Short Name: **PVCmpEnd**
Section Name: VAD Procedures
DBTableName: Operations

SeqNo: 3890
Core: Yes
Harvest: Yes

Definition: Indicate if the patient had VAD endocarditis. VAD endocarditis is defined as an infection of the blood contacting surface of the VAD device itself. This may include:
- internal surfaces;
- graft material;
- inflow/outflow valves of the VAD

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: VAD-Primary VAD Comp-Device Malfunction
Short Name: **PVCmpMal**
Section Name: VAD Procedures
DBTableName: Operations
Definition: Indicate if the pump itself is not functioning properly causing hemodynamic compromise, and/or requiring immediate intervention or VAD replacement.

SeqNo: 3900
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	VAD-Primary VAD Comp-Bowel Obstruction	*SeqNo:*	3910
Short Name:	**PVCmpBO**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate if the patient was diagnosed with a bowel obstruction post VAD insertion by documentation in the medical record.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	VAD-Primary VAD Comp-Hemolysis	*SeqNo:*	3920
Short Name:	**PVCmpHemo**	*Core:*	Yes
Section Name:	VAD Procedures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate if the patient was diagnosed with hemolysis post VAD insertion by documentation in the medical record.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: VAD Explanted And/Or Implanted
ParentShortName: **VADExImp**
ParentHarvestCodes: 2|3|4
ParentValues: = "Yes, explanted", "Yes, implanted" or "Yes, explanted and implanted"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Complications Table Unique Record Identifier	*SeqNo:*	4180
Short Name:	**CompUniqueID**	*Core:*	Yes

Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Complications		
Definition:	Unique identifier for the record in the Complications table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Long Name:	Complications Link to Operations Table	*SeqNo:*	4190
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Complications		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Complications record with the associated record in the Operations table.		
Intent / Clarification:			
Data Source:	Automatic		
Format:	Text		

Complications

Long Name:	Complication	*SeqNo:*	4200
Short Name:	**Complication**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Complications		
Definition:	Assign complication to the operation that is most closely associated with the complication. A complication is an event or occurrence that is associated with a disease or a healthcare intervention, is a departure from the desired course of events, and may cause, or be associated with, suboptimal outcome. A complication does not necessarily represent a breech in the standard of care that constitutes medical negligence or medical malpractice. An operative or procedural complication is any complication, regardless of cause, occurring **(1) within 30 days after surgery or intervention in or out of the hospital or (2) after 30 days during the same ~~hospitalization~~ episode of care subsequent to the operation or intervention (October 2021).** Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval. An adverse event is a complication that is associated with a healthcare intervention and is associated with suboptimal outcome. Adverse events represent a subset of complications. Not all medical errors result in an adverse event; the administration of an incorrect dose of a medication is a medical error, but it does		

not always result in an adverse event. Similarly, not all adverse events are the result of medical error. A child may develop pneumonia after an atrial septal defect repair despite intra- and peri-operative management that is free of error. Complications of the underlying disease state, which are not related to a medical intervention, are not adverse events. For example, a patient who presents for medical care with metastatic lung cancer has already developed a complication (Metastatic spread) of the primary lung cancer without any healthcare intervention. Furthermore, complications not associated with suboptimal outcome or harm are not adverse events and are known as no harm events. The patient who receives an incorrect dose of a medication without harm has experienced a no harm event, but not an adverse event.

Intent / Clarification:

(October 2021) Collect complications for the timeframe that is the longest: (1) through the 30th postoperative day or (2) through the end of the episode of care (database discharge date). The following complications will be collected only for the timeframe of the surgical hospitalization (through the surgical hospital discharge date): (75) Arrhythmia necessitating pacemaker, Temporary pacemaker, (223) Renal failure – acute renal failure, Acute renal failure requiring temporary dialysis with the need for dialysis not present at hospital discharge, (224) Renal failure – acute renal failure, Acute renal failure requiring temporary hemofiltration with the need for dialysis not present at hospital discharge, (325) Neurological deficit, Transient neurological deficit not present at (hospital) discharge.

Complications will overlap. List all complications e.g., for tracheostomy code both tracheostomy and unplanned noncardiac reoperation. Better to over report than underreport as this will help us learn and improve.

The purpose for collecting all complications is to find associations that we commonly see with specific procedures to determine if there are alternate ways of performing these procedures to avoid these complications.

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
15	No complications	No complications occurred. A complication is an event or occurrence that is associated with a disease or a healthcare intervention, is a departure from the desired course of events, and may cause, or be associated with, suboptimal outcome. A complication does not necessarily represent a breach in the standard of care that constitutes medical negligence or medical malpractice.

16	No complications during the intraoperative and postoperative time periods (No complications prior to **hospital** discharge and no complications within < or = 30 days of surgery **and no complications during the episode of care**)	No intraoperative/intraprocedural or postoperative/postprocedural complication occurred prior to hospital discharge or within < or = 30 days of surgery or intervention **and no complications during the episode of care**. A complication is an event or occurrence that is associated with a disease or a healthcare intervention, is a departure from the desired course of events, and may cause, or be associated with, suboptimal outcome. A complication does not necessarily represent a breach in the standard of care that constitutes medical negligence or medical malpractice.
350	Intraoperative death or intraprocedural death	Patient died in the operating room or procedure room (such as catheterization laboratory or hybrid suite) during the operation or procedure that is being analyzed.
360	Unplanned readmission to the hospital within 30 days of surgery or intervention	Any unplanned readmission to the hospital within 30 days of surgery or intervention. Code this if readmitted from home or transferred in from another acute care hospital or chronic care facility to which the patient had been transferred to during this episode of care.
370	Multi-System Organ Failure (MSOF) = Multi-Organ Dysfunction Syndrome (MODS)	Multi-System Organ Failure (MSOF) is a condition where more than one organ system has failed (for example, respiratory failure requiring mechanical ventilation combined with renal failure requiring dialysis). Please code the individual organ system failures as well. If MSOF is associated with sepsis as well, please also code: "Sepsis, Multi-system Organ Failure". Multi-System Organ Failure (MSOF) is synonymous with Multi-Organ Dysfunction Syndrome (MODS). Only code this complication if the patient has failure of two or more than two organs. Do not code MSOF if only failing organs are the heart and lungs.
30	Unexpected cardiac arrest, Timing = Cardiac arrest (MI) during or following procedure (Perioperative/Periprocedural = Intraoperative/Intraprocedural and/or Postoperative/Postprocedural)	A cardiac arrest is the cessation of effective cardiac mechanical function. This complication should be selected if the cardiac arrest developed after OR Entry Date and Time. Do not select this complication for patients under hospice care or DNR. Please code appropriate arrhythmia codes (codes 72, and/or 73 and/or 75 depending on if antiarrhythmic medication, defibrillation or temporary pacing was used during cardiac arrest. **Sept 2020 - Anytime the arrhythmias occur between the arterial/venous cannula insertion and removal, do not code the treatment of arrhythmias.)**

80	Cardiac dysfunction resulting in low cardiac output	Low cardiac output state characterized by some of the following: tachycardia, oliguria, decreased skin perfusion, need for increased inotropic support (10% above baseline at admission), metabolic acidosis, widened Arterial - Venous oxygen saturation, need to open the chest. If the cardiac dysfunction is of a severity that results in inotrope dependence, mechanical circulatory support, or listing for cardiac transplantation, please also code as "Cardiac failure (severe cardiac dysfunction)." A patient will be considered to have "inotrope dependence" if they cannot be weaned from inotropic support (10% above baseline at admission) after any period of 48 consecutive hours that occurs after the time of OR Exit Date and Time. ~~for the duration of the episode of care. and either (1) within 30 days after surgery in or out of the hospital, and (2) after 30 days during the same hospitalization subsequent to the operation. If patient meets criteria for severe cardiac dysfunction, only code "severe.~~" **(October 2021).**
384	Cardiac failure (severe cardiac dysfunction)	Low cardiac output state characterized by some of the following: tachycardia, oliguria, decreased skin perfusion, need for increased inotropic support (10% above baseline at admission), metabolic acidosis, widened Arterial - Venous oxygen saturation, need to open the chest, or need for mechanical support. Code if LCOS results in need for Mechanical Circulatory support. This complication should be selected if the cardiac dysfunction is of a severity that results in inotrope dependence, mechanical circulatory support, or listing for cardiac transplantation. A patient will be considered to have "inotrope dependence" if they cannot be weaned from inotropic support (10% above baseline at admission) after any period of 48 consecutive hours that occurs after the time of OR Exit Date and Time. ~~for the duration of the episode of care. and either (1) within 30 days after surgery in or out of the hospital, and (2) after 30 days during the same hospitalization subsequent to the operation. If patient meets criteria for severe cardiac dysfunction, only code "severe.~~" **October 2021.**
280	Endocarditis-postprocedural infective endocarditis	Infective endocarditis in the setting of a heart which has been altered by surgery or intervention. Duke Criteria for the Diagnosis of Infective Endocarditis (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. The two major criteria are: 1) Blood cultures positive for IE 2) Evidence of endocardial involvement. Blood cultures positive for IE requires: 1) Typical microorganism consistent with IE isolated from 2

		separate blood cultures, as noted in number two below (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 hr apart); 3) Single blood culture positive for Coxiella burnetii or an antiphase I IgG antibody titer of >1 :800. Evidence of endocardial involvement requires 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 valvular prosthesis) or 2) New valvular regurgitation (worsening or changing or preexisting murmur not sufficient). The six minor criteria are: 1) Predisposing heart disease or injection drug use (IVDA); 2) Temperature of > 38C; 3) Vascular phenomenon (major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial or conjunctival hemorrhage, Janeway's lesions); 4) Immunologic phenomenon (glomerulonephritis, Osler's nodes, Roth's spots, rheumatoid factor); 5) 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; 6) 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) htm, accessed July 5, 2006.
110	Pericardial effusion, Requiring drainage	Abnormal accumulation of fluid in the pericardial space, Requiring drainage, By any technique.

390	Pulmonary hypertension	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. This does not include NO given for hypoxemia.
140	Pulmonary hypertensive crisis (PA pressure > systemic pressure)	An acute state of inadequate systemic perfusion associated with pulmonary hypertension, when the pulmonary arterial pressure is greater than the systemic arterial pressure. This should be coded based on direct measurement in OR, based on measurement from a PA line, or based on postoperative cardiac catheterization.
130	Pulmonary vein obstruction	Clinically significant stenosis or obstruction of pulmonary veins. Typically diagnosed by echocardiography or cardiac catheterization, this may present with or without symptoms. A "clinically significant" event or condition is an event or condition that necessitates a change in treatment. Can also be based on CT or MRI findings.
120	Systemic vein obstruction	Clinically significant stenosis or obstruction of any major systemic vein (e.g., superior vena cava, inferior vena cava, femoral veins, internal jugular veins, etc.). A "clinically significant" event or condition is an event or condition that necessitates a change in treatment. Based on Cath, ECHO, CT or MRI findings.
240	Bleeding, Requiring reoperation	Postoperative/postprocedural bleeding requiring reoperation. This includes any reexploration for bleeding whether chest is open or closed, also code if explored for bleeding following ECMO or VAD.
102	Sternum left open, Planned	Sternum was left open postoperatively with preoperative plans to leave the sternum open postoperatively (i.e., planned). The goal is for delayed sternotomy closure.
104	Sternum left open, Unplanned	Sternum was left open postoperatively without preoperative plans to leave the sternum open postoperatively (i.e., unplanned). The goal is for delayed sternotomy closure.
22	Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding	Any additional unplanned cardiac operation occurring **after the time of OR exit date and time (October 2021).** ~~(1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ A cardiac operation is defined as any operation that is of the operation type of "CPB" or "No CPB Cardiovascular". The following operations will

		always be coded as "Planned Reoperation": (1) Delayed Sternal Closure, (2) ECMO Decannulation, (3) VAD Decannulation, (4) Removal of Broviac catheter. The following operations will always be coded as "Unplanned Reoperation": (1) Mediastinal exploration for infection, (2) Mediastinal exploration for hemodynamic instability, (3) Emergent mediastinal exploration for initiation of ECMO or VAD, (4) Reoperation for residual or recurrent lesion. Mediastinal exploration for bleeding is always coded separately as "Bleeding, Requiring reoperation". This includes band tightening, shunt revisions (BTS, Sano, other systemic to PA shunts) e.g., shunt clipping, upsizing shunt, milking of shunt, conversion from RV-PA conduit to BTS or vice cersa, etc. **Update March 2023: A planned cardiac reoperation is a cardiac procedure that follows an initial palliative procedure with the a priori intent for subsequent palliative or corrective intervention.**
24	Unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period	Any unplanned interventional cardiovascular catheterization procedure occurring **after the time of OR exit date and time (October 2021).** ~~(1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ Includes interventional EP cath; e.g., arrhythmia ablation.
26	Unplanned non-cardiac operation during the postoperative or postprocedural time period	Any additional unplanned non-cardiac operation occurring **after the time of OR exit date and time (October 2021).** ~~(1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ Examples: Gtube, Jtube, Tracheostomy, Diaphragm plication, Vocal cord medicalization, Nissen fundoplication, thoracic duct ligation, rigid bronchoscopy for clearing clots, exlap etc. Flexible bronchoscopy for clearance of secretion should not count as unplanned non cardiac operation.
40	Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS)	Utilization of postoperative/postprocedural mechanical support, of any type (IABP, VAD, ECMO, or CPS), for resuscitation/CPR or support, during the postoperative/postprocedural time period. ~~Code this complication if it occurs (1) within 30 days after surgery or intervention regardless of the date of hospital discharge, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ **October 2021.**
72	Arrhythmia requiring drug therapy	Arrhythmia (ROOT Definition) + An arrhythmia requiring drug therapy. Does not include electrolyte replacement, please also code if antiarrhythmic used during cardiac arrest. Do not code this complication for the use of drugs to treat arrhythmias that occur in the process of separating or

		preparing to separate from cardiopulmonary bypass but resolve prior to leaving the operating theatre. Sept 2020 - Anytime the arrhythmias occur between the arterial/venous cannula insertion and removal, do not code the treatment of arrhythmias.
73	Arrhythmia requiring electrical cardioversion or defibrillation	Arrhythmia (ROOT Definition) + An arrhythmia requiring electrical cardioversion or defibrillation. Please code if defibrillation performed during cardiac arrest. Do not code this complication for the use of cardioversion or defibrillation in the process of separating or preparing to separate from cardiopulmonary bypass. Sept 2020: Anytime the arrhythmias occur between the arterial/venous cannula insertion and removal, do not code the treatment of arrhythmias. Nov 2020: Rapid atrial pacing/overdrive pacing for a rapid rhythm should be included as arrhythmia requiring defibrillation/cardioversion not temporary pacemaker.
74	Arrhythmia necessitating pacemaker, Permanent pacemaker	Implantation and utilization of a permanent pacemaker for treatment of any arrhythmia including heart block (atrioventricular [AV] heart block). Nov 2021: This includes the placement of an AICD.
75	Arrhythmia necessitating pacemaker, Temporary pacemaker	Implantation and utilization of a temporarypacemaker for treatment of any arrhythmia including heart block (atrioventricular [AV] heart block). Please also code if temporary pacemaker used during cardiac arrest. Do not code this complication if the need for temporary pacing is no longer present by the time the patient leaves the operating theatre. Sept 2020: Anytime the arrhythmias occur between the arterial/venous cannula insertion and removal, do not code the treatment of arrhythmias. Nov 2020: Rapid atrial pacing/overdrive pacing for a rapid rhythm should be included as arrhythmia requiring defibrillation/cardioversion not temporary pacemaker. Oct 2021: Collect only for the timeframe of the surgical hospitalization (through the surgical hospital discharge date).
210	Chylothorax	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 and generally reveals a predominance of lymphocytes and/or a triglyceride level greater than 110 mg/dL. ~~In addition to biochemical confirmation should also requires placement of a new chest tube, or high outputs >10 ml/kg/day for > 48 hours necessitating one or more 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 PN/IL for longer than 7 days,~~

		~~medications such as octreotide, Albumin or IVIG transfusions - at any time, surgery for chyle leak.~~ **February 2022: Code this complication if there is:** Biochemical evidence with a predominance of lymphocytes and/or triglyceride level greater than 110mg/dl **And:** Placement of a new chest tube or high outputs >10ml/kg/day for >48 hours from an existing chest tube **And 1 or more 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 PN/IL for longer than 7 days, medications such as octreotide, albumin or IVIG infusions at any time, surgery for chyle leak.
200	Pleural effusion, Requiring drainage	Abnormal accumulation of fluid in the pleural space, Requiring drainage, By any technique. If the pleural effusion is known to be a chylothorax, please also code "Chylothorax". Interventions include chest tube insertion, needle aspiration or other invasive procedure. May include hemothorax.
180	Pneumonia	Pneumonia ROOT Definition = Pneumonia is defined as a “respiratory disease characterized by inflammation of the lung parenchyma (including alveolar spaces and interstitial tissue), most commonly caused by infection”. Pneumonia is diagnosed by appropriate clinical findings (such as fever, leukopenia or leukocytosis, and new onset of purulent sputum) and one or more of the following: positive cultures (of sputum or pulmonary secretions) and / or pulmonary infiltrate on chest x-ray. An endotracheal tube culture may or may not be positive. Patients commonly demonstrate an evolving area of focal lung consolidation accompanied by fever (>38.5). 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 x-ray observations.
190	Pneumothorax, Requiring drainage or evacuation	A collection of gas in the pleural space resulting in collapse of some or all of the lung on the affected side, requiring intervention. Interventions include chest tube insertion, needle aspiration or other invasive procedure. Do not capture a small pneumothorax followed with serial chest X-rays.
150	Postoperative/Postprocedural respiratory insufficiency requiring mechanical ventilatory support > 7 days	Respiratory insufficiency requiring mechanical ventilatory support from surgery or procedure to greater than 7 consecutive days postoperatively/postproceduraly. In other words, the inability of the patient to exchange oxygen and carbon dioxide in sufficient quantities to avoid unacceptable hypercarbia, hypoxemia, or both, without mechanical

		ventilatory support for greater than 7 consecutive days during the postoperative or postprocedural period. The patient therefore does utilize mechanical ventilatory support for greater than 7 consecutive days during the postoperative or postprocedural period. **Update Oct. 2022 – If the patient is extubated and reintubated within 24-hours of the extubation for respiratory failure, do not restart the clock for counting 7-days of continuous mechanical ventilatory support.**
160	Postoperative/Postprocedural respiratory insufficiency requiring reintubation	Reintubation required after initial extubation. In other words, the need to reinstitute postoperative or postprocedural mechanical ventilation after a planned extubation. ~~and prior to discharge, or after a planned extubation and after discharge but within 30 days of surgery.~~ The intent of this field is to capture Postoperative/Postprocedural respiratory insufficiency requiring reintubation. It is not intended to capture situations where a patient may undergo elective intubations for other additional operations or procedures (including percutaneous endoscopic gastrostomy [PEG], tube insertions, catheter placement, cardiac catheterizations, etc.). However, these elective intubations and extubations are included and counted when determining “Final Extubation Date and Time”.
170	Respiratory failure, Requiring tracheostomy	Failure to wean from mechanical ventilation necessitating the creation of a surgical airway.
230	Renal failure - acute renal failure, Acute renal failure requiring dialysis at the time of hospital discharge	Renal failure - acute renal failure (ROOT Definition)+ With new postoperative/postprocedural requirement for dialysis, including peritoneal dialysis and/or hemodialysis. Code this complication if the patient requires dialysis at the time of hospital discharge or death in the hospital. (This complication should be chosen only if the dialysis was associated with acute renal failure.) {"Renal failure - acute renal failure" ROOT Definition = Acute renal failure is defined as new onset oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine > 1.5 times upper limits of normal for age (or twice the most recent preoperative/ preprocedural values if these are available), with eventual need for dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration. Acute renal failure that will be counted as an operative or procedural complication must occur prior to hospital discharge or after hospital discharge but within 30 days of the procedure. (An operative or procedural complication is any complication, regardless of cause, occurring (1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention. Operative and procedural complications include both intraoperative/intraprocedural complications and

		postoperative/postprocedural complications in this time interval.) The complication is to be coded even if the patient required dialysis, but the treatment was not instituted due to patient or family refusal.} Do not include if a PD catheter is routinely placed postop and left open to drainage. Code if PD catheter was used for peritoneal dialysis.
223	Renal failure - acute renal failure, Acute renal failure requiring temporary dialysis with the need for dialysis not present at hospital discharge	Renal failure - acute renal failure (ROOT Definition)+ With new postoperative/postprocedural requirement for temporary dialysis, including peritoneal dialysis and/or hemodialysis. Code this complication if the patient does not require dialysis at the time of hospital discharge or death in the hospital. (This complication should be chosen only if the dialysis was associated with acute renal failure.) {"Renal failure - acute renal failure" ROOT Definition = Acute renal failure is defined as new onset oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine > 1.5 times upper limits of normal for age (or twice the most recent preoperative/preprocedural values if these are available), with eventual need for dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration. Acute renal failure that will be counted as an operative or procedural complication must occur prior to hospital discharge or after hospital discharge but within 30 days of the procedure. ~~(An operative or procedural complication is any complication, regardless of cause, occurring (1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ October 2021. Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval.) The complication is to be coded even if the patient required dialysis, but the treatment was not instituted due to patient or family refusal.}

224	Renal failure - acute renal failure, Acute renal failure requiring temporary hemofiltration with the need for dialysis not present at hospital discharge.	Renal failure - acute renal failure (ROOT Definition)+ With new postoperative/postprocedural requirement for temporary hemofiltration. Code this complication if the patient does not require dialysis at the time of hospital discharge or death in the hospital. (This complication should be chosen only if the hemofiltration was associated with acute renal failure.) {"Renal failure - acute renal failure" ROOTDefinition = Acute renal failure is defined as new onset oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine > 1.5 times upper limits of normal for age (or twice the most recent preoperative/preprocedural values if these are available), with eventual need for dialysis (including peritoneal dialysis and/or hemodialysis) or hemofiltration. Acute renal failure that will be counted as an operative or procedural complication must occur prior to hospital discharge or after hospital discharge but within 30 days of the procedure. ~~(An operative or procedural complication is any complication, regardless of cause, occurring (1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~October 2021. Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval.) The complication is to be coded even if the patient required dialysis, but the treatment was not instituted due to patient or family refusal.}
290	Sepsis	Sepsis ROOT Definition = Sepsis is defined as evidence of serious infection accompanied by a deleterious systemic response. 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. PC4 definition of: Temperature instability and abnormal WBC (leukopenia or leukocytosis) and hemodynamic instability requiring at least one of the following: (1) volume > 40 cc/kg; (2) new or increased inotropic support; or (3) new or increased mechanical ventilation support.

320	Neurological deficit, Neurological deficit persisting at discharge	Newly recognized and/or newly acquired deficit of neurologic function leading to inpatient referral, therapy, or intervention not otherwise practiced for a similar unaffected inpatient, With a persisting neurologic deficit present at hospital discharge. In other words, new (onset intraoperatively or postoperatively - or intraprocedurally or postprocedurally) neurological deficit persisting and present at discharge from hospital.
325	Neurological deficit, Transient neurological deficit not present at discharge	Newly recognized and/or newly acquired deficit of neurologic function leading to inpatient referral, therapy, or intervention not otherwise practiced for a similar unaffected inpatient, With no persisting neurologic deficit present at hospital discharge. In other words, new (onset intraoperatively or postoperatively - or intraprocedurally or postprocedurally) neurological deficit completely resolving prior to discharge from hospital.
300	Paralyzed diaphragm (possible phrenic nerve injury)	Presence of elevated hemi-diaphragm(s) on chest radiograph in conjunction with evidence of weak, immobile, or paradoxical movement assessed by ultrasound or fluoroscopy. Also code if diaphragm plication is performed to treat diaphragm paralysis.
400	Peripheral nerve injury, Neurological deficit persisting at discharge	Peripheral nerve injury (ROOT Definition) + With a persisting neurologic deficit present at hospital discharge. {"Peripheral nerve injury" ROOT Definition = Newly acquired or newly recognized deficit of unilateral or bilateral peripheral nerve function indicated by physical exam findings, imaging studies, or both.}
331	Seizure	Seizure ROOT Definition = A seizure is defined as the clinical and/or electroencephalographic recognition of epileptiform activityregardless of whether there is a history of seizure or not.
410	Spinal cord injury, Neurological deficit persisting at discharge	Spinal cord injury (ROOT Definition) + With a persisting neurologic deficit present at hospital discharge. {"Spinal cord injury" ROOT Definition = Newly acquired or newly recognized deficit of spinal cord function indicated by physical exam findings, imaging studies, or both.}
420	Stroke	Stroke ROOT Definition = A stroke is any confirmed neurological deficit of abrupt onset caused by a disturbance in blood flow to the brain, when the neurologic deficit does not resolve within 24 hours.
440	Subdural bleed	
450	Intraventricular Hemorrhage (IVH) > grade 2	A Grade 3 IVH 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. A Grade 4 IVH 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.
470	Thrombus, Intracardiac	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombus, Intracardiac is defined as a mass of platelets, fibrin, other blood elements (and potentially additional matter) located in any of the 4 chambers of the heart.
480	Thrombus, Central vein	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombus, Central Vein is defined as a mass of platelets, fibrin, 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
510	Thrombosis/thromboembolism, Pulmonary artery	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombosis/ thromboembolism of the pulmonary artery is defined as a mass of platelets, fibrin, other blood elements (and potentially additional matter) located at least partially within the main pulmonary trunk, right or left pulmonary artery, or their respective branches. 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.
490	Thrombus, Peripheral deep vein	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombus, Peripheral Deep Vein is defined as a mass of platelets, fibrin, other blood elements (and potentially additional matter) located in any of the major deep veins of the extremities (e.g. popliteal, femoral, cephalic, brachial, axillary, etc.) or the extra-thoracic portion of the internal jugular vein.
500	Thrombus, Systemic to pulmonary shunt	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombus systemic to pulmonary artery shunt is defines as a mass of platelets, fibrin, other blood elements (and potentially additional matter) occupying the lumen of as systemic-to-pulmonary artery shunt – may obstructive, occlusive, or neither.
530	Thrombosis, Systemic artery, in situ (central)	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombus, systemic artery in situ (central) defined as a mass of platelets, fibrin, 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.
540	Thrombosis, Systemic artery, in situ (peripheral)	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombosis, systemic artery peripheral is defined as a mass of platelets, fibrin, other blood elements (and potentially additional matter) located in any of the deep arteries of the extremities (e.g. popliteal, femoral, brachial, axillary, etc.) or the extra-thoracic portion of the common, external and internal carotid artery or vertebral artery.
550	Thrombosis, Systemic artery, embolic	Code only if newly diagnosed **Update August 2022: post-procedure.** ~~this hospitalization.~~ Thrombosis, systemic artery, embolic: occurs when 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 obstructs the flow of blood distally causing ischemia or infarct (e.g., embolic stroke, splenic infarct, bowel infarction, ischemia of extremities).
310	Vocal cord dysfunction (possible recurrent laryngeal nerve injury)	Presence of poor or no vocal cord movement assessed by endoscopy **Update Jan 2023: or other definitive diagnostic modality such as ultrasound.** Patient may or may not have stridor, hoarse voice or poor cry, in conjunction with endoscopic findings. Also code if vocal cord dysfunction requires vocal cord medialization procedure.
250	Wound dehiscence (sterile)	Wound dehiscence (sterile) ROOT Definition = Wound dehiscence (sterile) is defined as separation of the layers of a surgical wound. This separation can either be superficial or deep and can include the sternum in the case of a median sternotomy incision. When the sterile separation includes the skin and sternum, in the case of a median sternotomy incision, use this code ("Wound dehiscence (sterile)"). The code "Sternal instability (sterile)" should be used to record the complication when the superficial and deep layers of the incision remain intact but non-union of the sternal edges is present. Causes of wound dehiscence can include tissue ischemia, nutritional deficiencies, use of corticosteroids, vitamin C deficiency, and others. Wound dehiscence due to wound infection should be recorded as a wound infection.
255	Wound dehiscence (sterile), Median sternotomy	Wound dehiscence (sterile) (ROOT Definition) + Location = Median sternotomy
520	Sternal instability (sterile)	Sternal instability is defined as nonphysiologic or abnormal motion of the sternum after either bone fracture or disruption of the wires reuniting the surgically divided sternum. Code this complication in the presences of sternal instability with movement of the edges of sternum on palpation. Code this if sternal instability requires further wound manipulation or surgical intervention.

261	Wound infection	Wound infection ROOT Definition = Erythema, possible induration and possible fluctuance of a surgical wound (surgical site) with possible drainage and possible tissue separation. Though wound cultures may be positive, this is not an absolute requirement for establishing this clinical diagnosis.
262	Wound infection-Deep wound infection	Wound infection-Deep wound infection ROOT Definition = 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: 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, B) localized pain, or 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, or 4) A diagnosis of a deep wound infection by a surgeon or by an attending physician.
270	Wound infection-Mediastinitis	The diagnosis of mediastinitis must meet one of the following criteria: Criterion 1: Patient has organisms cultured from mediastinal tissue or fluid that is obtained during a surgical operation or by needle aspiration. Criterion 2: Patient has evidence of mediastinitis by histopathologic examination or visual evidence of mediastinitis seen during a surgical operation. Criterion 3: Patient has at least ONE of the following numbered signs or symptoms with no other recognized cause: 1) fever, 2) chest pain, or 3) sternal instability AND at least one of the following numbered features: 1) purulent mediastinal drainage, 2) organisms cultured from mediastinal blood, drainage or tissue, or 3) widening of the cardio-mediastinal silhouette. Criterion 4: Patient ≤ 1 year of age has at least one of the following numbered signs or symptoms with no other recognized cause: 1) fever, 2) hypothermia, 3) apnea, 4) bradycardia, or 5) sternal instability AND at least one of the following numbered features: 1) purulent mediastinal discharge, 2) organisms cultured from mediastinal blood, drainage or tissue, or 3) widening of the cardio-mediastinal silhouette. Infections of the sternum (sternal osteomyelitis) should be classified as mediastinitis. Sternal instability that is not associated with a wound infection or mediastinitis is documented as "Sternal instability".
263	Wound infection-Superficial wound infection	Wound infection-Superficial wound infection ROOT Definition = A superficial wound infection must meet the following numbered criteria: 1) The infection involves only the skin and

		the subcutaneous tissue of the incision and 2) 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, and [3] the superficial portion of the incision is deliberately opened by a surgeon, unless the incision is culture negative, or D) a diagnosis of superficial wound infection by the surgeon or by the attending physician.
430	Anesthesia-related complication	Anesthesia-related complication independent of surgical procedure (e.g., cardiac arrest during induction or failed intubation).
460	Complication of cardiovascular catheterization procedure	Complication of cardiovascular catheterization procedure definition: Cardiovascular catheterization (diagnostic or interventional) related complications independent of but following the index surgical procedure but related to the catheterization procedure. The appropriate complications (from the STS-CHSD complication list) should also be coded e.g. unplanned interventional cardiac catheterization; or iliac thrombosis should be captured using the appropriate code.
902	Compartment Syndrome	Compartment syndrome definition: 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. Compartment pressure measurement is employed in the assessment of potential compartment syndrome, an absolute pressure measurement of 30 mm Hg in the compartment should be the “critical pressure” for recommending therapy. If any sequelae please capture appropriate STS-CHSD complication e.g., foot drop- code as peripheral neurologic deficit persistent at discharge; foot amputation capture unplanned non cardiac operation.
900	Other complication	Any complication not otherwise specified in this list. ~~An operative or procedural complication is any complication, regardless of cause, occurring (1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval. Please select this choice if a known complication occurred after **the time of OR Exit Date and Time** ~~Operative time period~~.**October 2021.**

901	Other operative/procedural complication	Any complication not otherwise specified in this list ~~that occurs prior to discharge, or after discharge but within 30 days of surgery or intervention. (An operative or procedural complication is any complication, regardless of cause, occurring (1) within 30 days after surgery or intervention in or out of the hospital, or (2) after 30 days during the same hospitalization subsequent to the operation or intervention.~~ Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval.) Please select this choice if the complications occurred during the Operative time period.

March 2019: For postop complication #150: What constitutes mechanical ventilatory support? Our site captures this postop complication for CPAP, BPAP and the presence of an ET tube. Is there anything else that should be included? **Invasive mechanical ventilator support requires the presence of an ET tube or trach. If an ET tube or trach is not present then there is no complication of invasive mechanical ventilatory support.**

March 2019: This is a follow-up to a December 2017 question about when to code arrhythmia complications. My example was a patient with a pacemaker requiring temporary pacing and your answer was "Need more information, if this is a permanent pacemaker and required some intervention with a temporary pacer/wires, yes". This patient had a MAZE and permanent pacemaker implantation, and required pacing from his pacing system post-op. Do I need to code his arrhythmia requiring temporary pacing, or no, since that's the whole reason he got a pacemaker implanted? Also, he was on a beta blocker for his arrhythmia prior to admission, was switched to another BB post-op and then resumed original BB. Do I need to code an arrhythmia requiring drug therapy? Another example is a patient with congenital heart block who went to the OR for an ASD repair and pacing wire implantation. He was temporarily paced prior to his pacemaker being implanted. Does this get coded as a complication of arrhythmia requiring temporary pacemaker, even though he was already in the OR planning to have pacing wires implanted? **Any arrhythmia being treated, outside of what the permanent pacemaker is treating, should be captured.**

March 2019: The medical record states "Removal of PICC line was attempted by VAT however the PICC broke off in the process with retained line in the patient. She was then taken by pediatric surgery to the OR and underwent removal of PICC via venotomy and venorrhaphy. Is this procedure considered a major complication "26 - unplanned non-cardiac operation"? Or would it be better to put it under "900 - other complication"? **Unplanned non-cardiac operation**

March 2019: I have a patient who was discharged POD 13, readmitted POD 22 then had a permanent pacemaker implanted on POD 24. I know I code unplanned readmission, arrhythmia requiring ppm, and unplanned cardiac re-op, but do the complications that occur after the pacemaker procedure but within 30 days of the original surgery get logged onto the original index case or the index case of the new admission? This patient developed sepsis and a wound infection POD 25 from original surgery, POD 3 from reoperation that required an I&D on POD 26 from original surgery, POD 4 from reoperation. His deep wound infection subsequently developed into mediastinitis, but more than 30 days out from original surgery. Do I code the sepsis and wound infection on the original index op or the index op from the readmission? **The complications that occur after the permanent pacemaker get coded to the original surgery since they occurred within 30 days of the original surgery. The mediastinitis gets coded to the second index operation since it occurred more than 30 days after the first surgery.**

April 2019: This question is similar to a question asked in May 2016 on page 152 in the December 2018 v3.3 Training Manual. I have a patient that has had several complications s/p VAD placement. This was the first operation of the episode of care and coded as Op Type = "VAD Operation Done with CPB". The patient has since had a heart transplant. My understanding is that the transplant will be considered the index operation of the episode of care as it is the first operation with an Op Type of "CPB Cardiovascular" and as such all complications will be attributed to this operation. The specs say to assign the complication to the operation that is most closely associated with. However, if we do this, will the VAD complications then be attributed to the transplant? What is the best way to capture the complications related to the VAD procedure? **The transplant is considered the index operation of the episode of care. Upon analysis, all complications are assigned to the index operation, even if they occur on a case prior to the index operation. To prevent this from happening in the analysis, the decision was made to not collect complications on the non-index operations that occur prior to the index operation. These complications can be included as preoperative factors where applicable (i.e. stroke or seizure).**

April 2019: I know from prior FAQs that STS expects an unplanned g tube placement is counted as "unplanned non-cardiac reoperation during post op period" - my question - for neonates - is in the spectrum of whether we can call a g tube planned or not when it is very clearly anticipated based on clinician "common sense". i.e. in the case of a trisomy 18, cleft palate patient with poor feeding at 42-44 weeks gestational age - our neonatologists have said every provider expects them to have a g tube, though we may not state that exact surgical plan prior to heart surgery. Is it adequate to have documentation of high g tube *likelihood* - though not a clear schedule and definite g tube surgical plan, to omit this as an UNplanned reop? **For the purposes of the database, if the GT is placed following cardiac surgery and was not included in the surgical plan, it is considered an unplanned non-cardiac reoperation.**

April 2019: When a patient returns to the OR for a mediastinal exploration and clots, hematomas, or "bleeders" are removed / cauterized, is this considered a reoperation for bleeding? Should the diagnosis be postoperative bleeding, mediastinal bleeding and the procedure be mediastinal exploration, post-operative hemorrhage (even if the bleeding is minimal but did result in a return to OR to "washout" the mediastinum)? Thank you for the clarification. **Yes, these represent reoperations for bleeding. The diagnoses and procedures listed are correct.**

May 2019: Does a Pericardiocentisis performed in the Cath lab count as an 'unplanned interventional cath'? **No, a pericardiocentesis is not a vessel intervention/cath based intervention. Unplanned interventional cath procedures are for interventional (transcatheter into a blood vessel) procedures. This represents a pericardial effusion requiring drainage (that happened to occur in the cath lab). This should be captured as the appropriate complication (e.g. pericardial effusion).**

May 2019: For consistencies sake, how should we be capturing 'other complication'? In the previous version, I would have used this once for any or multiple "other" complications. With the new version, now asking for a descriptor, should we enter this once for each "other" complication? **In this database version, select 'Other complication' once and then list all of the other complications separated by a semicolon.**

May 2019: Patient scenario: Major events overnight: Arrived intubated and sedated with mild HTN on Nipride and Milrinone. Lactates <2.0. NSR. Developed labile BP and required volume and began EPI gtt (0.01). Run Non sustained VT noted, no further episodes. Developed expected LCOS 0500, Responded to Volume and increase EPI gtt (0.02). PRVC mode with good lung compliance. Am ABG 7.42/34/147/22/-2. Lactates Peaked 2.7 and are now 2.3. CXR - reviewed. Chest tube output tapering off. Hematocrit noted 34. UO after lasix bolus and now maintained on lasix gtt- improving. NPO. MIVF 2 x maintenance for preload. 3/27 @ 1707 - the patient returned from OR to CI on Milrinone 0.7 3/28 @ 0134 - Epi 0.01 added, increased to 0.02 @ 0139. 3/29 @ 1030 - Epi was discontinued. 3/30 @ 0700 - Milrinone was discontinued. Should Cardiac Dysfunction/LCOS be coded as a complication? (and why?) (This scenario has been presented too many well respected centers, and still I don't feel comfortable either way. The various centers had different answers to how they would handle

this case. The LCOS/inotropic dependence definition needs clarification.) **Yes, this would be coded as Cardiac Dysfunction resulting in low cardiac output as it fits the definition (increased inotropes and volume).**

May 2019: I cannot find any of the old FAQ's. I think that at one time I read one that said.....Even if the pacemaker placement was the index operation, if a patient was coming in for a permanent pacemaker placement, we would use arrhythmia necessitating pacemaker, permanent pacemaker as a complication. We would not put unplanned cardiac re-operation or unplanned interventional. **Do not code the complication Arrhythmia necessitating pacemaker, permanent pacemaker as a complication of the index operation of Pacemaker, implantation.**

May 2019: Would a thrombus in the Internal Jugular be considered a 'Systemic vein obstruction' or a 'Peripheral deep vein thrombus'? According to the FAQ document for v3.3, it is listed as both and I wanted to clarify this. **The definitions can overlap, in this scenario the thrombus in the internal jugular vein does represent a peripheral deep vein thrombus and if it is causing obstruction, it would also represent Systemic vein obstruction.**

June 2019: If a patient has an unplanned postoperative HYBRID procedure in which CH surgery opens the chest and places direct access and then cardiology performs an intervention, should both unplanned cardiac surgery and unplanned interventional cardiology procedure be selected? **Assume that HYBRID does not refer to a Stage 1 hybrid for HLHS. If the surgeon opened the chest for the cardiologists to have access, then I suggest coding for the interventional cath as the postop complication.**

June 2019: Are bronchoscopies done in CVICU after surgery to evaluate the airway considered an unplanned noncardiac reoperation? They are not planned prior to the index operation but are scheduled, if necessary while in the hospital. **We have not coded this type of a *diagnostic* bronchoscopy as an unplanned non-cardiac reoperation. This is a procedure, not an operation.**

June 2019: For the Complication "Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding" the definition says that the op type must be CPB or No CPB. It later says: "Emergent mediastinal exploration for initiation of ECMO or VAD" should be counted. So does there have to be a mediastinal exploration prior to the ECMO for this to count as a complication? If they are just put on ECMO, op type is ECMO and this would not count? **The Core Group suggests that the complication prompting the re-exploration be coded, eg. “cardiac dysfunction resulting in low cardiac output” Comp code 80, or cardiac failure Comp code 384. Then coding complication 40 (Post operative mechanical circulatory support) as an additional complication. The only thing that “counts” is the index operation, not whether you code the ECMO requirement as an ECMO or a non-CPB cardiovascular procedure.**

Also, if the mediastinum is explored and the patient s cannulated for ECMO or VAD, then code: 40= Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS) and also the complication prompting the re-exploration.

July 2019: Looking to clarify the definition for Renal Failure for dialysis as a complication. We have a patient who has a preop. Creat of 0.5 which is already higher than the "upper limit of normal" for age. Post op creatinine increased to 0.7 which is beyond 1.5x ULN. Does the "1.5x ULN and/or 2x baseline" mean that we can rule this OUT as not meeting criteria? **Did the patient receive dialysis for renal failure? If the patient went on dialysis, then code the complication of renal failure for dialysis. If the patient didn’t need dialysis then other parts of the definition do not apply.**

July 2019: Does an intraparenchymal bleed count for a subdural bleed? **No, an intraparenchymal bleed is not a subdural bleed. It potentially could be classified as a stroke if the patient meets that criteria.**

August 2019: I would like some clarification on the recently updated specs for arrhythmia complications. Arrhythmia requiring drug therapy says not to code "arrhythmias that occur in the process of separating or preparing to separate from cardiopulmonary bypass but resolve prior to leaving the operating theatre." Is the main distinction here that we are to exclude only those that occur in the brief span of separating from bypass,

and all other intraoperative arrhythmias requiring drug therapy are coded? Same question for arrhythmia requiring electrical cardioversion or defibrillation. Arrhythmia necessitating temporary pacemaker says not to code "if the need for temporary pacing is no longer present by the time the patient leaves the operating theatre". Why is the timing of which arrhythmias to exclude different between the different complications, and what is the purpose of adding these distinctions now? Is this how these complications should be coded in version 3.3? **Once the patient is off bypass, and an arrhythmia occurs, then those arrhythmias count as a complication. If defibrillation or medications are given once the patient is off bypass it is a complication. The exception to this is any arrhythmias that occur on temporary pacemaker. No, this definition did not exist in v3.3. It is new with 3.41**

August 2019: Looking for clarification and possible elaboration on the Stroke complication (#420) definition. Would STS expect centers to capture hypoxic ischemic encephalopathy as stroke? We have occasionally encountered situations where HIE is present, at times with neuro deficits. This would also apply to capturing it as a pre-op risk factor if it occurred prior to surgery. **This doesn't fit the current definition for stroke and should not be coded as such. It can be coded as 'other complication', and we have noted this for a future definition. If neuro deficits occur, they should be coded as the appropriate complication and preop factor.**

August 2019: When a patient is readmitted and reintubated for respiratory failure within 30 days of the original surgery, you code a complication of reintubation even though it's a separate admission, right? **Yes, code the complication if it occurs within 30 days of the operation.**

August 2019: Regarding the new clarifications to the arrhythmia complications, do the same rules apply to planned and unplanned reops in the same admission? If a patient is in the OR for a reop and requires temporary pacing, is it still excluded from needing coding if it's only used in the OR? **Yes, the same definitions apply to subsequent operations.**

August 2019: The current definition of a cardiac arrest states: A cardiac arrest is the cessation of effective cardiac mechanical function. This complication should be selected if the cardiac arrest developed after OR Entry Date and Time. Should we code the complication "cardiac arrest" if open cardiac massage is done while separating from CPB?

Do not code as a cardiac arrest if the patient is still on bypass. Include cardiac arrests that occur after the bypass cannulas come out.

August 2019: A patient had a CPB case (TET repair). Later developed a pericardial effusion and was taken to the OR for a pericardial window. Is this coded as a postop complication of unplanned cardiac reoperation and is the pericardial window coded as a no CPB case? **If the patient has a pericardial window then the pt had an unplanned cardiac reoperation complication and a pericardial effusion complication. The op type is No CPB CV.**

September 2019: If a patient has a Diaphragm plication post operatively, is that a cardiac, or non-cardiac reop in terms of complications? **A diaphragm plication should be coded as an unplanned non-cardiac reoperation.**

October 2019: For complication #72 "arrhythmia requiring drug therapy", should I code this when a patient is given a sedative to treat his/her arrhythmia, or only when anti-arrhythmics are given? The definition says to "also code if antiarrhythmic used during cardiac arrest", so that makes me think you're specifically asking for anti-arrhythmic medication only. **If the patient received the sedative (or any other medication) to treat the arrhythmia, this complication should be coded.**

November 2019: It was mentioned at the AQO Conference that we should capture overdrive atrial pacing for JET as "arrhythmia requ. temporary pacemaker". Could this be added to the training manual? Would the same apply for rapid atrial pacing for SVT? I ask because some of our physicians say that these should be considered a cardioversion of sorts. Updated Nov 2020 - ~~**Code (75) Arrhythmia necessitating pacemaker,Temporary pacemaker for overdrive atrial pacing (as needed for JET, SVT, and/or any other**~~

~~**arrhythmia).**~~

Will more than likely also be coding (72) Arrhythmia requiring drug therapy if meds were used to treat arrhythmia.

December 2019: Pt has pericardial effusion post op. Surgeon inserts Blake drain at bedside and writes an op note. Op type 'thoracic'? Complication of pericardial effusion requiring drainage. Do I also code unplanned cardiac procedure as complication? **If the patient has a pericardial window then the pt had an unplanned cardiac reoperation complication and a pericardial effusion complication. The op type is No CPB CV.**

If the procedure is cardiovascular, but cardiopulmonary bypass is not used, this must be chosen as the case category. This includes any procedure that includes the heart, great vessels, or any of the branches from the great vessels, where CPB is not used. Examples include but are not limited to: coarctation of the aorta repair, creation of a systemic-to-pulmonary artery shunt, patent ductus arteriosus ligation. A delayed sternal closure is included in this category.

- ***pericardial drainage/pericardial window procedure for cancer = Thoracic Procedure***
- ***pericardial drainage/pericardial window procedure for cardiac disease = No CPB Cardiovascular***

Intent Clarification as of surgery dates February 1, 2022 forward: When isolated pericardial drainage procedures are undertaken as part of or as a direct result of a direct intervention to address congenital or acquired heart disease (which includes heart failure), the operation type for these isolated pericardial drainage procedures should be categorized as CPB or No CPB (as the case may be) Cardiovascular procedures. In all other instances, isolated pericardial drainage procedures should be categorized as Thoracic procedures (Optype = Thoracic).

December 2019: Patient had infection debridement and repeat valve replacements and was discharged home POD12. He was readmitted POD13 with an intracranial hemorrhage requiring left craniotomy, clot evacuation and EVD placement (POD13), respiratory failure requiring intubation (POD13) and right hemiparesis. Since Complications should be counted within 30 days post-op or the operative admission, the above complications were captured. After POD30, do we stop capturing complications on him? If so, when do we catch that the neuro deficit as either persistent at discharge or not present at discharge? **It is correct to stop capturing complications at 30 days for this episode of care. The neuro deficit would be captured as persisting at discharge because it falls within the 30-day window.**

December 2019: We are monitoring programmatic infection and have noticed that the definition between NHSH and STS for superficial wound infection is the same. The hospital and the outcomes team are coding it differently because a difference in opinion of the AND statement in section C. Specifically "C) at least ONE of the following numbered signs or symptoms: [1] pain or tenderness, [2] localized swelling, redness, or heat, ***and*** [3] the superficial portion of the incision is deliberately opened by a surgeon, unless the incision is culture negative". In the "C)" section if the wound meets ONE of the [1],[2] or [3] sections it should be coded as superficial wound infection or does it have to meet [1], OR [2], OR/AND [3]. If the wound meets criteria because of localized swelling but the surgeon did not deliberately open the incision do we still code it as infection or it HAVE to meet [3]. **No, only needs to meet (C) 1, 2, OR 3 or any combination of those to meet criteria**.

January 2020: If a patient has a permanent pacemaker placed in the cath lab post operatively, is unplanned cath coded as a complication or only arrhythmia necessitating permanent pacemaker? **The unplanned cardiac cath is only coded if there was a cath lab intervention (i.e. stent placement, angioplasty). In this scenario, only code arrhythmia necessitating permanent pacemaker. The procedure location does not determine the operation type or complication coding.**

January 2020: Patient has Complete Canal repair on 11.12.19. Discharge ECHO on 11.25.19 shows moderate to severe LAVV regurgitation. The surgical team plans to readmit the patient for surgery on 12.3.19. We coded 'unplanned cardiac reoperation', but would we also capture a complication of 'unplanned readmission', since

the patient was readmitted w/in 30 days of the surgery on 11.12.19? **Yes, both complications should be captured; unplanned readmission within 30 days of the operation and unplanned cardiac reoperation.**

January 2020: In patient's medical record it is documented, on 11.12.19 that patient has a preoperative history of sinus node dysfunction with junctional bradycardia. She has surgery on 11.21.19 for Mitral valve replacement. She is readmitted on 12.4.19 for a permanent pacemaker. We captured unplanned readmission, unplanned cardiac reoperation, and permanent pacemaker placement. Should we have not captured the permanent pacemaker placement and unplanned cardiac reoperation, as the patient was diagnosed with sinus node dysfunction with junctional bradycardia preoperatively? **All of the above complications should be captured since the pacemaker placement was not included in the initial surgical plan.**

January 2020: Patient undergoes index cardiac operation and during intubation, anesthesia determines the patient has a difficult airway. Subsequently, ENT takes the patient back to the OR after recovery from the cardiac operation and performs a slide tracheoplasty due to tracheal rings. The cardiac surgeon places the patient on bypass and provides the surgical field. The cardiac surgeon also performs a pericardial drainage procedure before turning the patient over to ENT. Do I code an unplanned Non-cardiac reoperation or Unplanned Cardiac reoperation or both given the two different surgical services operating at the same time. Also, is the operation type CPB Non-Cardiovascular or CPB Cardiovascular given the CPB was provided for the ENT (Non cardiac) procedure. **Code both reoperations, Unplanned non-cardiac reoperation and Unplanned cardiac reoperation. The operation type is CPB Non-Cardiovascular**

January 2020: I'd like some clarification on wound infections. One of the criteria for coding a superficial wound infection says "[the patient has] organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial portion of the incision". One of the criteria for coding mediastinitis says "Patient has organisms cultured from mediastinal tissue or fluid that is obtained during a surgical operation or by needle aspiration." The definition for deep wound infection does not mention anything about organisms cultured from the wound. If I have a patient who had a clot removed during a mediastinal exploration that was found positive for organisms, but the patient never had any symptoms of a wound infection, what do I code? **The patient does not meet criteria for a wound infection, the positive culture may be a contaminant. In the absence of any other signs or symptoms of infection, it is not a wound infection.** We used to culture every kid with an open sternum. We feel like if those cultures came back positive for bugs like serratia, which would not be a contaminant, then they should be coded with a wound infection regardless of symptomology. Can you please clarify? **In the absence of any other signs or symptoms of infection, it is not a wound infection.**

February 2020: If a patient develops a wound infection should we document code '261 - Wound Infection' in addition to one of the more granular choices: 262 - Wound Infection- Deep; 270 - Wound Infection - Mediastinitis; 263 - Wound Infection Superficial? Just want to clarify when we should be using code '261 - Wound Infection'.**Code as precisely as possible, i.e the more granular term. If a more specific term cannot be determined, then utilize the 261-Wound Infection.**

March 2020: Trying to figure out if these complication need to be captured when a patient dies on ecmo support. Specifically trying to figure out if neurological deficit, cardiac failure or cardiac dysfunction needs to be coded especially if the cardiac failure and dysfunction were the reasons that they went on ecmo support. **All post-operative events should be included/coded. What operation they are coded under is dependent on whether the patient underwent a prior index operation or ECMO alone**

April 2020: Data Managers have been told to capture pulmonary hypertension as a complication even if the condition existed preoperatively. **Correct. Data Managers are encouraged to capture all postoperative events in the 'complications' section. Include anything that was present pre-op unless the definition states new onset.**

May 2020: We have a question on the January 2020 FAQ: If a patient has a permanent pacemaker placed in the cath lab post operatively, is unplanned cath coded as a complication or only arrhythmia necessitating permanent pacemaker? The unplanned cardiac cath is only coded if there was a cath lab intervention (i.e. stent

placement, angioplasty). In this scenario, only code arrhythmia necessitating permanent pacemaker. The procedure location does not determine the operation type or complication coding. We have been capturing the epicardial pacemaker placement as an unplanned interventional cath procedure in addition to the need for a permanent pacemaker placement. In our thinking a pacemaker placement by the IC team is an intervention. Do we need to go back and change all these? **Code the Arrhythmia, Requiring a permanent pacemaker regardless of location of the pacemaker placement, i.e. cath lab, OR, ICU. Interventional cath procedures are caths where vessels/structure are intervened upon and include electrophysiology procedures excluding pacemaker placements**.

May 2020: Patient has cardiac surgery then has a laparotomy 4 days later. The laparotomy incision dehisces. Would the laparotomy incision be coded in the database as a complication of 'wound dehiscence'? There is some debate as to whether or not this should be captured based on the definition of a complication: 'An operative or procedural complication is any complication, regardless of cause' **Do not include the dehiscing of the laparotomy incision as a complication, but do capture unplanned non-cardiac reoperation.**

July 2020: Pt has +blood culture (stenotrophomonas), tachycardia, tachypnea, fever 39.0C and thrombocytopenia. Treated with 6 weeks antibiotics. Complication for sepsis states the PC4 def requires 2 of the following treatment; volume, new or increased inotrope or mechanical support, which didn't happen here. Progress note states this as stenotrophomonas sepsis. Should this be coded as sepsis or other-bacteremia? **Yes this should be coded as sepsis in the complications.**

August 2020: If a patient died during a mediastinal exploration done on ECMO that was an unplanned reop, would I use complication code #350 "Intraoperative death or intraprocedural death", or is that only for deaths that occur during the index operation? **This should only be captured on the index operation.**

August 2020: A patient had a PA Banding at our facility in 2018 and was then transferred to another acute care center for further surgery. They are now recently discharged and I am discharging them from the database. Just making sure that I am to capture all complications that occurred at the second center after discharge from our center. **Yes, collect and include as much information as possible.**

September 2020: During endotracheal tube repositioning patient, in NSR, develops sinus bradycardia with HR down to the 30s and is treated with atropine and epi spritzer. Should we code complication ‘arrhythmia requiring drug therapy’? **Yes, include all arrhythmias that occur regardless of the cause.**

September 2020: How do I capture this event? Patient had mitral valve replacement and maze procedure on 7/1/20. His echo showed wall motion abnormality post-op, therefore right and left cath was done.Circumflex: Artery is a medium caliber vessel. First marginal is patent. Circumflex artery has an abrupt cut off after the first marginal. This appears to be related to a surgical suture for the mitral valve. Conclusion: Circumflex artery is occluded with the distal continuation of the circumflex is supplied 2 marginal branches no longer visible and not seem to be filling by any collaterals. **There is no way to capture this. The complication is defined by what happened to the patient – the diagnosis itself is not a complication. Code any sequelae of this event, i.e. unplanned interventional cardiac cath, unplanned cardiac reoperation**.

~~September 2020: I wanted to clarify 'biochemical confirmation' for the complication Chylothorax. Does this specifically mean that you must have lab confirmation on pleural fluid that reveals a predominance of lymphocytes and/or a triglyceride level greater than 110 mg/dL? We may have a post-op patient that has obvious chyle from their chest tube and we would not necessarily send lab testing. However, we would treat with diet change and/or medications. **The definition will be updated in the training manual and the complication should be coded if any of the listed findings from the definition are present.**~~ **Please see updated clarification in definition for (210) Chylothorax above**

September 2020: If a patient receives CPR due to poor cardiac output (hypotension, bradycardia), but the patient didn't cease having cardiac activity, is that still considered a cardiac arrest? Or should that be entered as a different complication? **Yes, this meets the definition of cardiac arrest.**

October 2020: Patient left the OR after the first CPB surgery with Temporary Pacemaker. Returned to the OR on post-op day 19 for Permanent Pacemaker. Should I include both temporary and permanent pacemakers under the complications of the first surgery? **Yes, include all applicable complications.**

October 2020: In reference to complication: 150 Postoperative/Postprocedural respiratory insufficiency requiring mechanical ventilatory support > 7 days. My first question is for clarification that the 7 consecutive days starts from the date of surgery? If a patient is intubated and extubated in less that 7 days from the date of surgery, and then is reintubated at some point later and stays intubated > 7 days from that point, is that also considered vent support > 7 days even though it is 7 days past the date of surgery? Specific example: surgery on 7/16, extubated 7/19; reintubated 7/21, extubated 8/5; reintubated 8/6. **The complication of postop mechanical ventilatory support should be coded for periods of mechanical ventilation intubation greater than 7 consecutive days postop. This includes any 7 consecutive days after the index operation anytime during the hospitalization, not just the time frame immediately following the surgery.**

October 2020: We have a patient with the diagnosis of Severe Ebstein's Anomaly of the Triscuspid Valve, ASD and PDA. The patient underwent surgery at 28 days of life for placement of a Right BT Shunt (3.5mm) and PDA Ligation complicated by thrombosis of the BT shunt requiring patch repair of the innominate/subclavian artery and revision of the BT shunt. Surgeon's note "We were reluctant to commit her to a single ventricle pathway in view of the antegrade pulmonary flow decided that at just over 3 weeks of age we should augment her pulmonary blood flow with a BT s hunt allowing us to close the ductus arteriosus. We felt that if she was not able to be extubated following this then we would need to proceed with a Starnes procedure". Twelve days later the patient underwent a cardiac catheterization due to failed extubation,suspected restricted atrial septum and suspected BT shunt stenosis, for hemodynamic evaluation, evaluation of BT shunt stenosis and balloon atrial septostomy. The catheterization was complicated by Atrial flutter after balloon atrial septostomy, needing amiodarone and multiple doses of cardioversion. Two days later the patient returned to the OR for a Starnes procedure. Our question is should this be coded as unplanned return to surgery and unplanned cathetherization intervention? Our physicians feel that the post op catheterization intervention and return to surgery for the Starnes procedure was "planned" as noted in surgeons note at the first BT Shunt surgery (above). Second question is about documentation of the pot ential to return in regards to the STS definitions. If that is stated or documented in higher risk patients(maybe all of them) does that prevent deeming as a return to Cath or surgery? **In this scenario, the patient experienced both an unplanned cardiac reoperation and an unplanned interventional cardiac catheterization. The surgeon note is speaking to their plan if the first surgery didn't work – not the plan regardless.**

October 2020: I have a patient that had an RVOT procedure and Pulmonic valve replacement last month.
In the postop note the Resident documented surgery complicated by injury to the aorta, pt given 5FFP, 2RBC's, 5 plts, Factor 7 and cell saver. I have coded this an #901 "Other operative/procedural complication". Would this be correct? **There is no other way to capture this in the database, use Other operative/procedural complication**.

November 2020: A patient dies during their hospital encounter after the index operation. The patient had a stroke, brain hemorrhage during the admission. The patient dies prior to discharge. Do the centers code 320-Neurological deficit persisting at discharge and 420 Stroke? **Code stoke and code the neurological deficit if the patient was still experiencing the neurological deficit.**

November 2020: Patient has the following documented in the medical record: "patient had JET yesterday afternoon that required: Precedex, CaCl, and milrinone". The clinical team stated that these are not antiarrhythmics, and the medications were given to augment cardiac output. Should this be coded using the complication 'arrhythmia requiring drug therapy'? **Yes, code the complication of arrhythmia requiring drug therapy as these as medications were used to treat the arrhythmia (with the exception of the CaCl).**
November 2020: Would a patient who had a brain injury and died prior to discharge be considered to have complication 320: "neurologic deficit persistent at discharge"? The definition states only that the neurologic deficit should be "persisting and present at hospital discharge". In contrast, the definition for complication 230:

"renal failure persistent at discharge" states that it should be coded "if the patient requires dialysis at the time of hospital discharge or death in the hospital". This implied to us that 320 can only be coded if the pa tient is discharged but not if the patient died in the hospital prior to discharge. Is this correct? **If the patient dies with a known neurologic deficit, code the complication neurologic deficit persistent at discharge. This definition will be reviewed in the upgrade.**

November 2020: How do I code the complication for a splicing procedure that is done at the bedside of a patient that is on a VAD? He would develop a clot, we would clamp him off for a short amount of time, and the surgeons would splice out the clot and reconnect. Do I say "Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding" or "Other complication: Thrombus in VAD circuit"? **Do not code the unplanned cardiac reoperation as the operation type is VAD. Other complication can be included with the free text.**

November 2020: Can you please clarify coding for the following scenario. A patient has a seizure postoperatively and is discharged on anti-seizure medication with a scheduled follow up with neurology. Should both "seizure" and "neuro deficit persisting at discharge" be coded for postoperative events? No, seizure medications alone do not constitute a neurological deficit. **Code the seizure and only a neurologic deficit if there is a deficit present.**

November 2020: Should we consider entering disseminated intravascular coagulation (DIC) as an "other complication", or consider that part of MultiSystem Organ Failure? **Do not include isolated DIC under multi-system organ failure and can be included as an Other complication. DIC may be a component of MSOD.**

November 2020: Scenario: A patient is admitted and has an AVC, complete repair. Postoperatively, there are several wound procedures related to mediastinitis. The last wound procedure occurs on POD 42. The patient is discharged from the index procedure on POD 55 and then readmitted POD 67 (but within 30 days of the last non-index case for wound debridement). Should this get listed as a postoperative readmission event/complication, or just on the field readmitted within 30 days of discharge (sequence 4270)? **If the last non-index case was not a cardiovascular operation (CPB or No CPB Cardiovascular), then do not include the complication a post op readmission. Do include the readmission with 30 days of discharge.**

November 2020: Clarification from AQO: If a patient has several procedures prior to their index procedure that is associated with a STAT score, should complications be listed on the initial procedures that do not have a STAT score associated with them, or should no complications be selected? **Complications that occur prior to the index operation should be included as preoperative factors where applicable. Complications should not be coded until after the index operation. Clarification – procedures associated with a STAT score would be your index operation with operation types CPB cardiovascular or No CPB cardiovascular.**

November 2020: Should rapid atrial pacing utilized to treat an arrhythmia be coded as complication (73) arrhythmia requiring defibrillation/cardioversion or (75) arrhythmia requiring temporary pacemaker**? Rapid atrial pacing/overdrive pacing for a rapid rhythm should be included as arrhythmia requiring defibrillation/cardioversion not temporary pacemaker.**

November 2020: Regarding complication 75-Arrhythmia necessitating pacemaker, temporary pacemaker: The definition states "Implantation and utilization of a temporary pacemaker for treatment of any arrhythmia including heart block (atrioventricular [AV] heart block). Please also code if temporary pacemaker used during cardiac arrest." If a patient is A-paced s/p aortic arch repair and ECMO decannulation for the purpose of pressure support but is in sinus rhythm, should this complication be coded since there is no arrhythmia? **Code the temporary use of pacemakers to support arrhythmias and to augment cardiac output.**

December 2020: Please advise me on how to proceed as I have been coding unplanned surgery for a return to the OR unless the Op note in the prior surgery states "chest left open for delayed closing".
"What documentation is required so that planned open sternum is not reported as a STS complication- it is not a complication- it is part of the surgical plan. A suggestion. I discuss this option with every parent in every case. If I include this as a written line of every consent, will that do?" **Complications are really included as post-operative**

events and the database is attempting to keep track of this measure. There is no punitive impact for these events. Code this based on the surgical plan which may differ from the surgical consent. Please code if the sternum is left open, planned or unplanned. The subsequent delayed sternal closure is always a planned cardiac reoperation, regardless of whether the sternum was left open planned or unplanned.

January 2021: If a patient has a diagnostic cardiac cath after a procedure, is that coded as an unplanned interventional cardiovascular catheterization? E.g., a patient with HLHS/IAS who has low sats post Norwood, goes to cath lab and the shunt is patent and normal branch PAs/ no intervention. Patient started on pulmonary vasodilators. Is that an unplanned reintervention? **No, this would not be unplanned interventional cath.**

January 2021: A patient has a known diagnosis of A fib (treated with medication), after surgery she has A fib that is treated with temporary pacing is this a complication? If she hadn't already had the diagnosis I wouldn't question it. **Yes, capture it if it occurred.**

February 2021: We have a patient who came to us from an OSH on ECMO d/t ventricular arrhythmias and arrest. We decannulated, treated arrhythmias and the patient also had a subcutaneous ICD placed by one of our cath lab doctors in the cath lab. Would this be an unplanned cath intervention as a complication? No vascular access or touching the heart. **Remember that if your facility only completed an ECMO procedure, you do not have an index operation and thus, do not have an operation that would be analyzed. If the ICD placement was unplanned, select this for your local data use if desired.**

February 2021: Patient had PA banding, PDA ligation, and G-tube placement all done within one operation. How do I capture the G-tube placement? It was planned prior to the decision to do the PA banding, so I don't think it would be an unplanned operation, and I can't capture in Preop Factors because patient didn't have it prior to going to OR**. Do not capture in the preop factors as it was not in place when the patient entered the OR. It is not an unplanned reoperation. You can answer the patient discharged with a GT in the discharge information.**

March 2021: If a single patient has two separate episodes of care in one analysis year, each with an index case, and has the same complication each episode of care (for example, superficial wound infection) do the complications each get counted in the overall percentage of superficial wound infections for that year (separate episodes of care) or are they only counted once (since it is a single patient)? **Each episode of care is treated as a separate event, so if the same complication occurred in a different episode of care, code the complication that occurred. Patients may experience the same complication in a different episode of care.**

March 2021: There was a formal presurgical plan for tracheostomy, prior to the patient's index cardiac surgery. Would we code the following complications: code 170 – Respiratory failure, Requiring tracheostomy and code 26 – Unplanned non-cardiac reoperation during the postoperative or postprocedural time period? **If there as a documented formal plan for tracheostomy prior to the cardiac surgery, code the respiratory failure requiring tracheostomy, but do not code the unplanned non-cardiac reoperation.**

March 2021: At our site, the surgeon discusses a 50% rate of needing a G-Tube post-operatively during the informed consent on all neonatal cases. Does this discussion imply that a post-op G-Tube insertion is planned, therefore not qualifying as an unplanned non-cardiac reoperation in the post-op period? **No, as the plan is not specific to an individual patient, please code the unplanned non-cardiac reoperation.**

March 2021: Please provide some clarification regarding unplanned cardiac reoperations vs. bleeding requiring reoperation. Does the bleeding need to be active bleeding to code the bleeding requiring reoperation, as in suture lines revised or cautery employed? In the following scenarios, which complication code should be utilized: (1) patient returns to the OR for a pericardial effusion noted to be old blood with no active bleeding noted; (2) hemopericardium; (3) removal of clots from the mediastinum; (4) oozing within the mediastinum. **The bleeding does not have to be active bleeding, but if there is blood in the chest that requires a reoperation or evacuation constitutes bleeding requiring reoperation.**

March 2021: "Dr. X was consulted by PCCU team due to non-capture and increased ventricular pacing in the first few post op hours. The pacer was interrogated and an extension of the VIP algorhythm was performed to

minimize ventricular pacing with no further issues. He recommended her pacer be interrogated prior to discharge and this was done on 2/2, he adjusted the lower atrial output". Does this also fall under arrhythmia requiring defibrillation/cardioversion, or does it fall under arrhythmia requiring temporary pacing? **Currently, the best way to capture this is an arrhythmia requiring defibrillation/cardioversion. This will be reviewed for the next upgrade.**

April 2021: Would a first degree AV block after surgery WITHOUT intervention be considered a complication? **No, only code the complications if the mentioned interventions were completed, i.e. medication, pacing etc.**

April 2021: I have 2 patients that I coded under Complications, Sternum left open, planned.
One patient had a bilateral bidirectional cavopulmonary anastomosis (bideirectional Glenn) and the other patient had an aortic arch repair. In the Medical Record the MD has documented sternum left open, planned as previously discussed. My Surgeon's response to my coding this as a Complication is "I don't think a staged case where the sternum is left open is a complication". In a staged case should I be capturing Sternum left open, planned? **Yes, you would capture here. The open sternum planned is meant to capture any planned sternum left open. The open sternum fields are being re-evaluated in the upcoming upgrade.**

April 2021: Do you consider a patient who had a hybrid procedure Stage 1 and then returns to the cath lab for an atrial septostomy to be an unplanned cath intervention? My surgeon says that the standard is for most of these patients to return to the cath lab for the septostomy after the hybrid and is planned. I had a patient that they thought had adequate atrial communication on his pre-op ECHO, had his hybrid, and then had to have the atrial septostomy because it ended up being restrictive. **If the patient's overall plan included doing the septostomy then the cath intervention is planned. In this specific scenario, it was thought the patient had adequate atrial communication and then ultimately needed a septostomy, this is an unplanned interventional card cath.**

April 2021: My patient developed a chylothorax post op and had to go to interventional radiology for a thoracic duct embolization. Would I code chylothorax and unplanned non cardiac reoperation during the postoperative or postprocedural time period as separate complications or would I only code chylothorax. **Code the chylothorax. This does not constitute a reoperation. See Clarification November 2021 (also code Unplanned interventional cardiovascular catheterization).**

April 2021: A neonate is born with CHB, congenital, due to maternal lupus. A temporary PM is placed 2 days post birth with plans to place a PPM after the baby grows. I selected arrhythmia, necessitating pacemaker, temporary pacemaker after the initial operation. Should I also select arrhythmia, necessitating pacemaker, permanent pacemaker after the second procedure? The second procedure, PPM placement, was planned prior to the index operation so I did not select unplanned cardiac reoperation. ~~**Yes, code the permanent pacemaker as a complication following the 2nd operation.**~~ **Updated 4/8/2021: Code the permanent pacemaker as a complication of the 1st procedure, do not code the need for the temporary pacing following the first procedure.**

May 2021: If a neonate is discovered to have a noncardiac congenital anatomic abnormality of pyloric stenosis or biliary atresia that is diagnosed post-op and requires surgical intervention, is this considered an unplanned noncardiac reop? **Yes, code the complication as the patient underwent an unplanned non-cardiac reoperation in the post-operative time period. These can be included under NCAA as well.**

May 2021: The training guide mentioned, January 2021, if a patient is being treated for A. Fib preop, and then has A. Fib postop requiring pacing, we should capture this as a complication. Is this true of all complications? For example, thrombus states to "code only if newly diagnosed at this hospitalization." So if a thrombus was discovered preop during the hospitalization, and is still present post-op, should that be captured as a complication? What about some of the other complications such as renal failure? Vocal cord paralysis? Etc. **Yes, capture the complication that occurred regardless of whether the arrhythmia was present preoperatively. Each complication's definition needs to be considered separately to determine if a new diagnosis is required. Renal failure requires a new diagnosis of acute renal failure requiring dialysis. Seizure is coded regardless of the preoperative history.**

June 2021: The following question was asked of me, however I am not able to find a concrete definition for failure to wean from CPB. Can you offer guidance? Or is this an intraoperative decision?
I am wondering if you would be able to help me identify how the STS database may define failure to wean from CPB. I looking to define in the way of the following:
• Level of pharmaceutical support
• Laboratory markers
• Use of nitric oxide
• Use of mechanical circulatory support to include ECMO or transition to VAD
• Any thing else that the STS may consider as a marker or indication as failure to wean
The definition of failure to wean from bypass support would mean that the patient is subsequently converted to another support type, for example ECMO, or the patient is deceased.

June 2021: If a patient was on ECMO prior to surgery and remained on ECMO post-op, should the ECMO be coded as a complication? Or only if they were newly placed on ECMO post-op?If the patient underwent a non-ECMO procedure (i.e. a CPB case).**If a patient arrived to the OR on ECMO and underwent an ECMO procedure, do not code the complication mechanical circulatory support. If a patient arrived on ECMO to the OR and underwent a cardiac operation, op types CPB Cardiovascular or No CPB Cardiovascular, and returned to the unit on ECMO, do code the complication of mechanical circulatory support as a complication.**

June 2021: For VAD implant surgeries, should the complication of post-op mechanical circulatory support be coded? Should it be coded for all subsequent surgeries (until the VAD is removed?)**If the patient went to the OR for VAD placement, do not include the complication of post-op mechanical circulatory support. If the patient was cannulated for a VAD following an index operation, the mechanical circulatory support complication should be coded. All complications are attributed to the index operation and are only counted once. You don't have to re-code the complications unless you want that information for local use.**

August 2021: For the complication "arrhythmia requiring drug therapy" (code 72) - does this include all routes of administration, or only IV? For example, a patient experiencing short runs of V-tach who was placed on PO amiodarone as treatment. **Complication (72) Arrhythmia requiring drug therapy includes all routes of medication administration, including oral.**

August 2021: For cardiac dysfunction/LCOS (code 80), does the patient specifically need to have evidence of cardiac dysfunction (for example, on echo) to meet the criteria? Or do they just need to meet the criteria of an LCOS state (which I am told may not necessarily be due to cardiac dysfunction.) Also, should "expected" LCOS 12-24 hours post-op be included if it resolves in a usual amount of time? **Code the complication of Cardiac dysfunction utilizing the specific defintion in the Training Manual regardless of the timing or whether it was expected or unexpected in the patient's post-operative course. An echo is not required to show cardiac dysfunction resulting in low cardiac output.**

August 2021: Should we code paralyzed diaphragm when chart says diaphragm paresis? My surgeon doesn't think so. Fluroscopy states mild paradoxical motion with mild elevation. **Yes, code complication (300) Paralyzed diaphragm**

August 2021: Needing clarification about the coding of "Unplanned interventional cardiovascular catheterization procedure during the postoperative or postprocedural time period." Does the cath truly need to be "interventional" or is the intent such that diagnostic only catheterization should also be captured with this code? Examples: 1) Arterial switch patient goes to the cath lab following OR for angiographic assessment of coronary arteries and is subsequently taken back to the OR for additional surgical intervention. 2) s/p VSD repair patient with extended hospitalization is taken to the cath lab for pulmonary hypertension assessment. In both these case there was no interventional procedure, but additionally the patients went to the lab with no intention of any intervention being performed. **The intent of the complication of Unplanned interventional cardiac cath is to capture unplanned transcatheter interventions, not diagnostic assessments. The scenarios above refer to**

diagnostic cardiac catheterizations, not interventional procedures and would not meet the criteria for this complication.

August 2021: A patient returned from OR on an epi infusion of 0.172 which was weaned off within a few hours of arrival. After the epi was dc'd the patient's SBP drifted to 70-80 range (previously 90-100). the U.O. also dropped off to less than 1ml/kg but only for about 4 hours. The cerebral and somatic oximetry readings had no real change and the HR didn't increase. The epi was restarted about 4 hours after it had been dc'd. The patient only required epi support for 7 hours. The epi dose during this time was about 0.343. Would this scenario fit an expected post-op course or should it be coded as cardiac dysfunction resulting in low cardiac output? **Code the complication of Cardiac dysfunction utilizing the specific defintion in the Training Manual regardless of the timing or whether it was expected or unexpected in the patient's post-operative course.**

September 2021: If hospital A does a CPB case and then transfers the patient to hospital B where another CPB operation is completed. The patient then expires before going home. How is the episode of care determined? Which hospital has the index operation? **Each hospital, A and B, has an index operation and an operative mortality. While the episodes of care will overlap, each hospital's start of the episode of care will differ.**

September 2021: My patient was born 6/16/2021 and prior to Congenital Surgery on 6/22/2021 he/she had episodes of SVT that required treatment with adenosine. In the OR 6/22/2021 prior to CPB he/she had an episode of SVT during central line placement, he broke with Adeniosine, but went back into SVT when the chest was open he was successfully cardioverted. Do I code Arrythmia requiring electrical cardioversion or defibrillation as a complication? **Please code all applicable intraoperative events as complications regardless of the patient's preoperative history. The patient experienced complication (72) Arrhythmia requiring drug therapy prior to cannulation for bypass. If the recurrence of SVT occurred while the patient was on bypass or in the process of separating from bypass, do not code complication (73) Arrhythmia requiring electrical cardioversion or defibrillation.**

September 2021: For complication "Cardiac dysfunction resulting in low cardiac output", should it be taken into consideration if the patient was given volume in response to their clinical condition? The original definition does not include this, but some of the later FAQ answers do mention it. **Code complication (80) Cardiac dysfunction resulting in low cardiac output if the patient meets the defintion parameters regardless of subsequent treatment modalities.**

September 2021: I'm unclear on the September 2020 clarification of the chylothorax definition which states, "The definition will be updated in the training manual and the complication should be coded if any of the listed findings from the definition are present." If a patient meets the biochemical requirements but does not have any of the listed treatments (patient was treated with a low-fat diet x 24 hours only), should I code it as a complication? **Do not code complication (210) Chylothorax as treatment with a low-fat diet for 24-hours does not meet the diagnostic criteria.**

September 2021: I realize that this will not be an analyzed index case, but some guidance would still be helpful: If a patient had only ECMO operations (cannulation, then 3 additional ECMO procedures), should the complication of post-op ECMO be coded for the ECMO cannulation even though the purpose of the surgery was solely to place the child on ECMO? **No, do not code complication (40) Postoperative/ Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS) as that is the procedure the patient went to the OR for. This complication would be coded if the patient had undergone a previous operation and was then subsequently cannulated for ECMO.**

September 2021: A patient is taken back to the OR for re-exploration due to hemodynamic instability. While in the chest, the surgeon drains a pleural effusion. We captured 'Unplanned Cardiac Reoperation.' Should we also capture 'Pleural Effusion, Requiring Drainage? **Yes, code all applicable complications. The patient did have a pleural effusion drained, therefore also code complication Pleural effusion, Requiring drainage.**

September 2021: I have heard guidance from STS core group members on calls but don't actually see clear guidance in the training manual re: whether or not to capture things like pulmonary hypertension and/or arrhythmias that are being treated prior to the index procedure. Example: Pt admitted for Glenn and currently receiving treatment for EAT/SVT. Pt continues to be treated with propranolol (home med) after surgery. Similar situation for Pulmonary Hypertension. Thank you. **Each complication has it's own specified defintion for onset, i.e. seizure is captured if the patient had the event of seizure after surgery irrespective of preoperative history or treatment. Code the appropriate arrhythmia requiring treatment complication if the patient experienced the event of an arrhythmia that required treatment, regardless of any preoperative history of arrhythmia. The definition for complication pulmonary hypertension is a clinical significant elevation of PAP requiring intervention. A clinically significant event is an event that necessitates a change in treatment. Continuing the patient's same home medication dose and timing is not a change in treatment.**

September 2021: The definition for arrhythmia necessitating temporary pacemaker includes a clarification that says not to code if the need for temporary pacing is no longer present by the time patient leaves the OR. There is another clarification in September 2020 that says not to code the complication if it occurs between the arterial/venous cannula insertion and removal. So which is it? I shouldn't code this when it occurs at any time in the OR, or only when the patient is cannulated to bypass. **Code complication (75) Arrhythmia necessitating pacemaker, Temporary pacemaker if the pacing occurs in the OR outside of the time spent on bypass *if* the pacing is still present when the patient leaves the OR. Code this complication anytime the patient is temporarily paced while outside of the OR.**

October 2021: When a chest tube site or pacer wire site is treated with antibiotic for erythema and/or drainage, should this be captured as a wound infection? **Yes, capture wound infections of other sites including pacer wire or chest tube sites with the appropriate wound infection complication code.**

~~October 2021: We are requesting clarification for a question in the FAQs from September 2020 regarding Chylothorax. The STS response: "the complication (chylothorax) should be coded if any of the listed findings from the definition are present." We have a patient with a triglyceride level of 1,183 mg/dl from thoracic fluid. However, this was the only indication of a chylothorax. The patient did not have any other listed findings present in the chylothorax definition, nor was there an intervention. Should we capture the complication of Chylothorax for this patient? **The definition for complication (210) Chylothrax requires treatment or intervention for inclusion. In this scenario, if there was no intervention, do not code the complication chylothorax. The definition will be updated in the Training Manual.**~~ **Please see updated clarification in definition for (210) Chylothorax above**

October 2021: Should the following scenario be coded with the complication of "cardiac dysfunction resulting in low cardiac output" if the clinical diagnosis was considered to be hypovolemia/vasoplegia rather than LCOS? How should we differentiate between those two diagnoses? Patient arrived to ICU post-operatively on Epi @ 0.05 and Milrinone @ 0.5. ABG pH = 7.25, lactate 6.8. Epi weaned to 0.03. Overnight, had vasoplegia requiring up-titration of inotropes (added calcium gtt @ 10mg/kg/hr, added vasopressin gtt (max 0.7 milliunits/kg/min), increased epi to 0.06, stopped milrinone.) Volume given (approx. 35ml/kg of 5% albumin and FFP) without much response in blood pressure. Stable HR in 150s-160s since post-op arrival, O2 sats stable in low 90s. Head NIRS slowly decreased over the course of the night from 50s to high 30s, somatic NIRS were stable. Post-op arrival ABG 7.25, lactate 6.8 - did not worsen overnight. **Only code the complication (80) Cardiac dysfunction resulting in low cardiac output if the low cardiac output state was specifically related to cardiac dysfunction. The patient must have both cardiac dysfunction and low cardiac output. Vasoplegia or hypovolemia causing low cardiac output does not meet the criteria in the setting of normal cardiac function.**

October 2021: Is the complication "Intraventricular Hemorrhage (IVH) > grade 2" (code 450) intended to be applied only to infants/neonates, or to patients of all age groups who experience a bleed that extends into the intraventricular space? Also, the PC4 complication for IVH specifies that they are looking for findings on cranial ultrasound - is that intended to be the same for STS, or can any imaging be used? **The definition will be updated utilizing the existing Preoperative factor definition for IVH Grade 3 and Grade 4: A Grade 3 IVH 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. A Grade 4 IVH 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. This complication and defnition is for patients of all ages, not just infants or neonates. Any imaging utilized to make the diagnosis is acceptable, including cranial ultrasound, CT, or MR.

October 2021: Does (80) Cardiac dysfunction resulting in low cardiac output include the long term use of milrinone postop? Or the startup of milrinone several days postop? **Code complication Cardiac dysfunction if the milrinone was started or infusing at >10% at baseline for greater than 48 hours for a low cardiac output state with cardiac dysfunction. The treatment does not define this complication.**

October 2021: Regarding patients with significant vasoplegia post operatively. They may actually meet criteria (below) for low cardiac output but is it appropriate to capture when physician notes are very clear about vasoplegia with adequate cardiac output? Low cardiac output state characterized by some of the following: tachycardia, oliguria, decreased skin perfusion, need for increased inotropic support (10% above baseline at admission), metabolic acidosis, widened Arterial - Venous oxygen saturation, need to open the chest. Thank you for your time and hopefully I haven't been "over capturing" LCOS. **Only code the complication (80) Cardiac dysfunction resulting in low cardiac output if the low cardiac output state was specifically related to cardiac dysfunction. The patient must have both cardiac dysfunction and low cardiac output. Vasoplegia causing low cardiac output does not meet the criteria in the setting of normal cardiac function.**

November 2021: Patient develops left arm numbness and weakness after surgery requiring a Neurology consult. Based on Neuro evaluation, patient is diagnosed as having a brachial plexus injury. PT and OT were also consulted and patient will continue outpatient PT and OT treatment. At discharge, patient's symptoms have not resolved. Is it correct to code complication 320: Neurological deficit, Neurological deficit persisting at discharge? **Yes, code complication (320) Neurologic deficit, Neurological deficit persisting at discharge for this scenario**

November 2021: We have a patient that is transferred to us after having his LPA ligated inadvertently during a PDA ligation. The surgeon takes this patient to the OR to repair the LPA. Blood flow was not reestablished following this procedure. POD 28, the patient is taken to the cath lab for attempts at recanalization of the LPA after LPA ligature removal in the OR. "Attempts to cross the ligated LPA with multiple wires were unsuccessful". The procedure was terminated.
1. Would this be considered an interventional cath despite the fact that it was terminated prior to intervention?
2. Would this be considered planned since blood flow was not reestablished during the index operation?

This scenario does represent complication (24) Unplanned interventional cardiac catheterization. Regardless of the success of the cath procedure, the patient underwent an unplanned catheter based intervention following a cardiac operation.

November 2021: If a patient is admitted from another hospital with an open chest after a surgery at that hospital, and then the patient has a surgery at our hospital, and the chest is not closed at the time of surgery, should sternum left open be added as a complication, or should it be left off as the patient already had an open chest prior to the surgery? **The sternum was left open following the procedure at your facility and thus should be captured as a postoperative complication. The surgical plan should be reviewed to determine if the sternum being left open was planned vs. unplanned for this patient for the procedure completed at your facility.**

November 2021: For "Unplanned non-cardiac operation during the postoperative or postprocedural time period", do you consider injection of a gel/material into the vocal cord as "vocal cord medialization"? (done by ENT in the operating room). **Yes, the vocal cord injection does represent vocal cord medialization. Thus, for the following scenario, code the following complications: (310) Vocal cord dysfunction and (26) Unplanned non-cardiac reoperation.**

November 2021: Patient has a CPB Cardiovascular operation, develops a chylothorax, goes to interventional radiology (IR) for thoracic duct embolization, then develops a retroperitoneal bleed that requires a return to IR for “gelfoam embolization at the peripheral aspect of the right main renal artery.” We captured the chylothorax as a complication, but would the embolization in IR to repair the retroperitoneal bleed be captured as an unplanned non cardiac reoperation? **Yes, you are correct to code complication (210) Chylothorax. An unplanned intravascular procedure was completed (irrespective of the location being IR) and thus, complication (24) Unplanned interventioal cardiac catheterization should also be coded. Additionally, the patient experienced complication (460) Complication of cardiovascular catheterization procedure as this was an intravascular procedure. Do not code complication (26) Unplanned non-cardiac reoperation.**

November 2021: During intraoperative course of a cardiac operation, patient experienced bleeding from an unidentified source. General surgery called in and following an abdominal exploration, repaired a liver laceration. Do I code this as bleeding requiring a reoperation or unplanned non-cardiac reoperation (or both)? In the event of cardiac reoperation, I do not select both complications as a cardiac reop states exclusive of a reop for bleeding. **There is not a post-operative event to capture as this occurred within the same operative setting. Do not code any complications related to this event.**

November 2021: The cardiac dysfunction resulting in low output definition states "need for increased inotropic support" but does not define which inotropes are included. Can we get a list of specific inotropes for this definition? Some of our patients stay on Milrinone over 48 hours although it is not for the inotropic properties of the drug. Should these patients have the complication cardiac dysfunction resulting in low output added? **Do not code complication (80) Cardiac dysfunction resulting in low cardiac output in this scenario. Only code this complication if the low cardiac output state was specifically related to cardiac dysfunction. The patient must have both cardiac dysfunction and low cardiac output. Vasoplegia or hypovolemia causing low cardiac output does not meet the criteria in the setting of normal cardiac function. There is not a defined list of medications included in the definition as medications are develped all the time.**

November 2021: Does an arrhythmia requiring implantation of an ICD get coded with complication #74 "arrhythmia necessitating pacemaker, permanent pacemaker", since there is no code specifying an ICD? **Yes, do code complication (74) Arrhythmia necessitating pacemaker, Permanent pacemaker. The definition will be updated in the next version upgrade.**

December 2021: I have a 14 yr old pt with medication induced cardiomyopathy who has failed medical treatment. His preop CT was positive for mediastinal enhancement which led the Team to pause immediate consideration for a VAD, and instead bridge with ECMO until a pathological diagnosis could be made. 5/28/21 He was cannulated and placed on VA ECMO. 6/2/21 After a pathological diagnosis determined no residual malignancy, with caution MD's proceeded with "VAD-to-decision" placement of HM3. My question is would I code the VAD operation as Complication # 40 Postoperative/postprocedural mechanical circulatory support (IABP, VAD, ECMO or CPS)? Would this be captured as #22 Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding. **Do not code complication (40) Postoperative/postprocedural mechanical circulatory support (IABP, VAD, ECMO or CPS) as you are switching modes of mechanical circulatory support. Do not code complication (22) Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding as it is not a cardiac reoperation (Operation type CPB Cardiovascular or No CPB Cardiovascular).**

December 2021: My patient had a procedure done and post procedure had significant bleeding from the chest tube (600cc/hr). He received multiple blood products, Vitamin K, factor 7 and DDAVP. The chest cavity filled with blood spilling out the sides of the dressing. There is an MD note that states " bedside echo shows tamponade physiology from external compression likely due to clot in the chest and packing from OR but there is no documentation of the bedside echo being done nor any results to view as they decided to open the chest to attempt hemostasis, I have coded "Bleeding, requiring reoperation" but would I also code it as pericardial effusion, requiring drainage? **Code complication (240) Bleeding requiring reoperation only.**

December 2021: Patient admitted on 8/24/2021. First operation of this admission was a VAD placement on bypass, and the patient's chest was closed. Second operation of the admission was a VAD explant on bypass with LV bipolar lead placement for future use, the chest was left open. Third operation, off bypass, previously placed lead was retested and inadequate, so a new screw-in lead was placed into the left ventricle and atrial leads were also placed and the chest closed. No pacemaker generator was placed at this time, just permanent leads for future use if indicated. How should each of the 3 operations be coded? Would any of the 3 operations be considered an index procedure? If so, which operation is the index procedure? **The operation types for this scenario are as follows: Operation #1: VAD Operation Done with CPB; Operation #2: VAD Operation Done without CPB; Operation #3: No CPB Cardiovascular; Operation #3 is procedure code (1460) Pacemaker procedure and is the index operation of the episode of care.**

December 2021: A patient is diagnosed with fetal bradycardia. No temporary pacing is used although the patient is administered caffeine to assist in elevating the heart rate. Does the caffeine count as drug treatment for arrhythmia? **If caffeine was used to elevate the heart rate/treat an arrhythmia, code complication (72) Arrhythmia requiring drug therapy.**

December 2021: We could use some clarification regarding the definition for operation type "Thoracic." The definition for operation type "Thoracic," states "If a procedure is performed on a structure within the chest cavity but does not involve the cardiac chambers or vessels, it would be a Thoracic category case," and then the example of lobectomy is provided. My understanding is that a lobectomy involves the great vessels. So, what operation type should we code for the following scenario? A pneumonectomy on a 15-year-old with a normal heart and a diagnosis of mucormycosis. The procedure was not performed on bypass. **The Operation type for a pneumonectomy off bypass is Thoracic as the procedure is primary completed on the lungs.**

December 2021: Patient entered the OR at 9:01 am for a Norwood. At 10:51 am, the patient developed SVT requiring cardioversion. The incision was made at 10:57 am. There is some discussion about whether or not we should capture arrhythmia requiring cardioversion based on language in the general definition of a complication: "within 30 days after surgery" and "Operative and procedural complications include both intraoperative/intraprocedural complications and postoperative/postprocedural complications in this time interval." Should we capture complication (73) Arrhythmia requiring electrical cardioversion or defibrillation in the database? **Yes, code complication (73) Arrhythmia requiring electrical cardioversion or defibrillation as the patient was in the OR when the event occurred, and it was prior to the initiation of bypass.**

December 2021: ~~I have 2 questions regarding how to code a complication of chylothorax:~~
~~1. If a patient was treated with IVIG for a chylothorax, but never had output >10ml/kg/day for >48 hours, then I don't code him as having a chylothorax?~~
~~2. If a patient had output >10ml/kg/day for >48 hours, was treated with a change in diet (low-fat feeds) for 5 days, went back to a full-fat diet for 3 days, then went back to low-fat diet for 5 days prior to discharge, do I code as having a chylothorax, or does the change in diet need to be >7 consecutive days? **Code complication (210) Chylothorax for both scenarios.**~~ **Please see updated clarification in definition for (210) Chylothorax above**

December 2021: Patient was readmitted with persistent right pleural drainage. Over the course of the admission, multiple chest tubes were placed. Pleural effusions continued to accumulate. Decision was made to perform a chemical pleurodesis at the bedside in PICU. Would this be considered an unplanned non-cardiac operation? **If the procedure completed consisted of injecting a chemical into an existing chest tube to treat the persistent pleural drainage, this is not a reoperation. However, if the procedure completed consisted of an invasive procedure, do code complication (26) Unplanned non-cardiac reoperation.**

January 2022: Patient with new onset seizures and SDH. Patient is sedated and under neuromuscular blockade, so unable to conduct a good neuro exam. Patient later died without sedation ever being lifted. Should a neuro deficit be coded? **Do not code complication (320) Neurological deficit, Neurological deficit persisting at**

discharge as there is no evidence of the deficit in the absence of a neurological examination. Do code complications (331) Seizure and (440) Subdural bleed.

January 2022: In the case of a mediastinal exploration for post-op bleeding is it appropriate or redundant to also code for pleural effusion requiring drainage? Copy of dx/proc info from OpNote below:

POSTOPERATIVE DIAGNOSIS:
1. Left ventricular outflow tract obstruction, status post interrupted arch repair and VSD closure.
2. Status post aortic valvotomy and subaortic stenosis repair.
3. Status post Konno.
4. Status post epicardial pacemaker placement.
5. Status post Ross-Konno procedure with closure of aorto-mitral curtain aneurysm and replacement of pacemaker generator.
6. Left hemothorax and mediastinal hematoma.
PROCEDURE: Mediastinal washout and evacuation of left hemothorax.
In the submitted scenario, code only complication (240) Bleeding, Requiring reoperation.

January 2022: In terms of complications, is a VAD pump exchange considered an unplanned non-cardiac re-operation, an unplanned cardiac re-operation, or neither? **VAD procedures are not Unplanned non-cardiac reoperations or Unplanned cardiac reoperations. VAD procedures are Operation type VAD (with or without CPB respectively) and thus are not considered Unplanned cardiac reoperations. If the VAD was required following an index operation, code complication (40) Postoperative/Postprocedural mechanical circulatory support (IABP, VAD, ECMO, or CPS) on the index operation.**

January 2022: We would like a little more clarification for "Unplanned non-cardiac operation during the postoperative or postprocedural time period", specifically related to rigid bronchoscopy - should this be coded as a complication any time a rigid bronch is performed or only if it's for clearing clots as is listed in the data dictionary? One particular scenario: the rigid bronch was done for respiratory failure and atelectasis, only had clear secretions. **Please code the rigid bronchoscopy as complication (26) Unplanned non-cardiac reoperation as the procedure was intended to remove mucous plugs/clots.**

January 2022: What is the difference between (15) No Complications and (16) No complications during the intraoperative and postoperative time periods (No complications prior to hospital discharge and no complications within < or + 30 days of surgery and no complications during the episode of care? I've always chosen (15) but just noticed that some people were using (16) on the IQVIA dashboard. **There was historic need for inclusion of both complication terms of No complications. Only one term will remain in Version 6.22.**

February 2022: Regarding the complications for temporary dialysis and temporary hemofiltration - is all CRRT meant to be captured as hemofiltration, and intermitted PD/HD meant to be captured as dialysis? If not, how do I determine which code to use for CRRT? It is often difficult to glean from the notes whether or not dialysate was used (or it changes from day to day.) **If dialysis was ever instituted for acute renal failure, select the most appropriate complication term. Only 1 renal failure complication should be selected to identify the patient's most severe renal failure status. In your scenario, if CRRT was instituted for acute renal failure and the patient did not go home/die on any form of dialysis, then select complication (224) Renal failure - acute renal failure, Acute renal failure requiring temporary hemofiltration with the need for dialysis not present at hospital discharge. If the patient instead discharged home or died with PD or HD in place, code complication (222) Renal failure - acute renal failure, Acute renal failure requiring dialysis at the time of hospital discharge.**

March 2022: A patient has a VSD repair, followed by a pericardial drainage procedure (No-CPB Cardiovascular). They were subsequently discharged and then readmitted for pulmonary hypertension. They had an unplanned interventional cath and a cardiac arrest. The readmission and associated events occurred > 30 days after the VSD repair, but within 30 days of the pericardial drainage (which was a No-CPB op type.) Should the events be coded as complications, and if so, to which procedure? I am unsure if I should code them or not since it outside of the

window for index op complications, considering that all complications go back to the index op. **Yes, include the noted events as complications as they occurred within the appropriate timeframe of a Cardiac Operation (an operation with an Operation type CPB Cardiovascular or No CPB Cardiovascular). All complications are to be captured following any Cardiac operation following the index operation. All complications are then appropriately assigned to the index operation upon analysis as they did occur in the post-operative care of the patient.**

March 2022: My question is related to the complication code 261 Wound Infection, defined; Wound infection ROOT Definition = Erythema, possible induration and possible fluctuance of a surgical wound (surgical site) with possible drainage and possible tissue separation. Though wound cultures may be positive, this is not an absolute requirement for establishing this clinical diagnosis. When should we use this code? The other wound complication codes (262, 263, 270) are very descriptive and easy to apply when coding a case but the definition for this code is quite vague and broad. **Complication (261) Wound infection is intentionally vague to capture a wound infection that does not meet the more descriptive wound infection complications. Always code the more descriptive complication fields if able to do so.**

March 2022: The wound dehiscence (sterile) is very confusing. If the physician documents "superior pole of sternotomy has developed very minimal clear drainage, seems like SQ edematous fluid draining" "work up signs of infection, clindamycin started for wound dehiscence (upper sternotomy pole)." The wound dehiscence definition also refers to a definition for Sternal instability (sterile) but this contradicts the actual stand alone definition of Sternal instability. Should this be coded as wound infection or wound dehiscence? **Wound dehiscence is used to collect the separation/dehiscence of a surgical wound unrelated to infectious causes. Wound infections that lead to or cause wound dehiscence should be captured with the appropriate wound infection complication term. Wound dehiscence will include some layers of tissue and may or may not include the sternum. In the scenario where the superficial and deep layers of the incision remain intact but there is non-union of the sternal edges, code (520) Sternal instability instead of wound dehiscence. Again, sternal instability caused by infection should be coded as the appropriate wound infection complication.**

There is not enough information to determine if the wound dehiscence in your scenario was related to infection. If your clinical team determined an infectious cause, code the appropriate wound infection complication. If the wound dehiscence was unrelated to an infection, code (255) Wound dehiscence (sterile), Median sternotomy. It does not seem there was sternal instability noted in this scenario.

March 2022: I just wanted to ask if there had been any conclusion to the discussion re: pericardial drainage procedures in non-cardiac patients (see below email thread.) This will affect my upcoming harvest so I want to be sure I code the cases accurately. **There is a new clarification to the definition of procedure (920) Pericardial drainage procedure. This defintion is applied to surgery dates from 02/01/22 forward. Do not recode the operation type for pericardial drainage procedures completed prior to 02/01/22.**

> **When isolated pericardial drainage procedures are undertaken as part of, or as a direct result of a direct intervention to address congenital or acquired heart disease (which includes heart failure), the operation type for these isolated pericardial drainage procedures should be categorized as CPB or No-CPB (as the case may be) cardiovascular procedures. In all other instances, isolated pericardial drainage procedures should be categorized as Thoracic procedures (Optype = Thoracic).**

March 2022: If a patient is put on ECMO in the operating room at the time of the index operation, in addition to postop/post procedural mechanical circulatory support being entered as a complication, does unplanned cardiac reoperation have to be entered as a complication as well? **No, do not code complication (22) Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding. The unplanned cardiac reoperation complication is intended to capture reoperations that are operation types CPB Cardiovascular and No CPB Cardiovascular.**

March 2022: Patient had complete AVSD repair, discharged home with no complications. Patient returned as outpatient within 30 days due to fractured sternal wires. Outpatient operation performed to remove fractured

wires. I understand that the add'l sternal op will be a new event. However, do I code this as a readmission (on index) seeing as the child was not admitted? And do I capture complication "unplanned non-cardiac reoperation during the postoperative or postprocedural time period" as this would be considered a thoracic procedure? **You are correct, the patient was not readmitted to the hospital. Do capture complication (26) Unplanned non-cardiac reoperation as a complication on the index operation.**

April 2022: Would angiojet of a shunt thrombosis be counted as both shunt thrombosis and an unplanned interventional cath procedure? **Yes, code complications (500) Thrombus, Systemic to pulmonary shunt and (24) Unplanned interventional cardiovascular catheterization as angiojet is a catheter-based intervention.**

April 2022: 1/18: right thoracotomy for TE fistula repair with general surgery. 1/24: Patient developed a chylous effusion. 1/27: Coarctation repair. 1/31: Chest tube placement for chylous drainage (general surgery) Chylous effusion can be added as a pre op factor as OTHER. Would it count as a complication post Coarcatation repair? **Complications are viewed as post-op events and are captured to show the postop course of a patient. The patient was treated for a chylothorax post-cardiac surgery, thus, code complication (210) Chylothorax.**

April 2022: If medical providers document "abdominal compartment syndrome; condition improved rapidly after reestabling abdominal drain patency" but no pressure measurement was performed to confirm compartment syndrome, can the complication of compartment syndrome be coded**?** **Pressure measurements are not required to code complication (902) Compartment syndrome. Code this complication if there is a clinical diagnosis of compartment syndrome noted in the medical record.**

April 2022: For the complication 'Unplanned readmission to the hospital within 30 days of surgery or intervention' (Code 360), should we include patients who were readmitted on observation status and remained on observation status for the entirety of their readmission? The definition does not specify -- it just states 'Any unplanned readmission to the hospital within 30 days of surgery or intervention.' The definition for sequence 4270 Readmission within 30 Days does, however, specify not to include patients who were 'readmitted' on observation status and remained on observation status for the entirety of their 'readmission'. **To maintain consistency amongst the STS databases, readmission does not include observation status.**

May 2022: I have a patient that had an index procedure done 11/04/21 (Aortic arch augmentation and PA banding). On 12/11/21 she went to IR for ultrasound guided mediastinal fluid drainage. Would I capture this as unplanned non cardiac operation during the postoperative or postprocedural time period? **This is not an Unplanned non-cardiac reoperation. However, depending on what was drained, code other potentially relevant complications if present; perhaps (200) Pleural effusion, requiring drainage or (110) Pericardial effusion, requiring drainage.**

May 2022: If a patient goes to the OR and undergoes a diagnostic laryngoscopy & bronchoscopy under general anesthesia (no interventions done), would this be considered a non-cardiac re-operation? Based on the training manual I am assuming a diagnostic flexible bronchoscopy done at the bedside with IV sedation would not be considered a reoperation, correct? Regarding post-op event 360 (unplanned readmission </= 30 days after operation or intervention), does this refer only to the index operation or would any subsequent operation or procedure done be considered when calculating readmission 30 days or < after an operation or procedure? **Diagnostic bronchoscopies are not reoperations. Procedural/treatment bronchoscopies, for example rigid bronchoscopies for clearing mucous plugs, are Unplanned non-cardiac reoperations. Complication (360) Unplanned readmission to the hospital within 30 days of surgery or intervention applies to all cardiac operations - those with operation type CPB Cardiovascular and No CPB Cardiovascular, not just the index operation.**

May 2022: For Pulmonary Hypertension - At my facility, patients with pre-existing PHTN (treated with an oral agent at home) will usually come out of the OR on nitric oxide until extubated and no longer NPO. Then they will resume their home oral agent. Does this mean the criteria for the complication of pulmonary hypertension (necessitating a change in treatment to an inhaled agent?). **Emperic use of Nitric Oxide in the postoperative period or because a patient is NPO in the postoperative period does not constitute a clinically significant event or condition. In this scenario, do not code complication (390) Pulmonary hypertension.**

May 2022: Frequently our patients come out of the OR with "backup" pacing in place - should this be captured as arrhythmia necessitating temporary pacing? **Only capture complication (75) Arrhythmia necessitating pacemaker, Temporary pacemaker if the patient was actually paced. Patients often return from the OR with pacing wires in place connected to a pacemaker. The database is only capturing the scenarios where the patient received pacing.**

May 2022: Patient had brief bedside overdrive pacing for junctional tachycardia 2 days post operative. Patient did not go to the cath lab for this brief therapy. Would this be captured as "unplanned interventional CV catheterization proc. during the post op/post procedure time" or Arrhythmia necessitating pacemaker, temporary pacemaker" or not at all. **The current instruction to capture rapid atrial pacing or overdrive pacing is to code complication (73) Arrhythmia requiring electrical cardioversion or defibrillation.**

May 2022: March 2022 update to the CHSD Training Manual on pages 141 & 240 states "If the wound drainage involves the mediastinum, the operation type is No CPB Cardiovascular. If it is superficial to the sternum, the operation type is Thoracic.". So, if patient returns to OR in the same episode of care for wound drainage and it is superficial to the sternum, are we to code 'Unplanned non-cardiac operation during the postoperative or postprocedural time period' since the op type is Thoracic and not No CPB Cardiovascular? **Yes, you are correct. If the patient underwent a procedure that was Operation type Thoracic following their index operation, code complication (26) Unplanned non-cardiac operation during the postoperative or postprocedural time period.**

June 2022: Should I capture post op delirium/agitation that improved on seroquel and return to baseline neuro status prior to discharge under Seq 325 Neurological deficit Transient neurological deficit not present at discharge. Patient an Adult congenital case. **Post operative delirium and/or agitation are not included as neurodeficits in the STS database. Do not code complication (325) Neurological deficit.**

June 2022: At the time of DSC, if you do a concurrent mediastinal exploration - it does not count as a cardiac reop however, if during the exploration prior to closure the surgeon remove dried blood/ old hematoma, does this count as bleeding, reop? To clarify - the primary reason for this operation was DSC, there was not bleeding or patient decompensation previous to this procedure to close the chest. The surgeon just included during the procedure to close the chest; an old hematoma was removed. **Do not code complication (240) Bleeding, requiring reoperation as this was an incidental finding of old blood during a planned delayed sternal closure.**

July 2022: This patient is peripherally cannulated on ECMO. Two days later, there is bleeding from the femoral cannula site which required emergent exploration and replacement of the cannula. Should I code the complication of re-operation for bleeding, or is that only meant for mediastinal bleeding? **In this scenario, code complcation (240) Bleeding, Requiring reoperation. Complication (240) Bleeding, Requiring reoperation is not specific to mediastinal bleeding. Code for bleeding at any surgical site related to a cardiac intervention/procedure. This may include bleeding at pacemaker wire sites, chest tube sites, VAD/ECMO cannulation sites etc.**

July 2022: Is there any specific complication that I should be coding in the case of a VAD patient with poor wound healing, dehiscence, and/or infection of the VAD cannula sites? **Code all applicable complications for every surgical procedure. The wound infection fields can be used for any surgical site including VAD canulation sites, pacemaker wire sites, thoracotomy incisions etc.**

August 2022: The chylothorax complication definition states "presence of lymphatic fluid in the pleural space". If the patient only has a mediastinal chest tube and that fluid has a predominance of lymphocytes and/or a triglyceride lever greater than 110 mg/dL as well as meeting all other criteria, should the complication of chylothorax be assigned to the patient? **The pleural space was likely entered during the surgery causing the chyle to enter the mediastinal space. Code complication (210) chylothorax.**

August 2022: For the thrombus complications, the manual states that it should be coded if newly diagnosed during the hospitalization. Does that include if they were diagnosed PRIOR to the OR date, but treatment is ongoing post-operatively (such as a heparin infusion?) **Only code the thrombus complications if a new diagnosis was made postoperatively. Do not include if the patient's thrombus in the specified location was made preoperatively, even if treatment was continued postoperatively.**

August 2022: Pre-operative plan was for patient to get a permanent pacemaker during his PVR, but it was unable to be completed due to density of adhesions/scar tissue. A permanent pacemaker was placed in the cath lab 5 days later. Do I need to code unplanned interventional cath even though the plan was always for this patient to get a PPM? Do I need to code arrhythmia requiring permanent pacemaker? **Pacemaker procedures completed in the cath lab are not included as Unplanned interventional cath procedures. The pacemaker was a part of the original surgical plan, thus, do not code complication (74) Arrhythmia necessitating pacemaker, Permanent pacemaker.**

September 2022: The definition for pulmonary hypertensive crisis says that it must be based on direct measurement in the OR, measurements from a PA line, or postoperative cath. If a patient is showing suprasystemic PA pressures by echo, and there are no OR, PA line or cath measurements, I should not code a phtn crisis? Should I code them with pulmonary hypertension? **The direct measurements from a PA line or measurements taken during a cardiac cath must be available to correctly code complication (140) Pulmonary hypertensive crisis. The definition for pulmonary hypertension does not require those direct measurements.**

September 2022: For the complication of "unplanned interventional cath procedure", is it the cath itself that needs to be unplanned, or the specific interventions done as part of the cath? For example, a diagnostic cath where collaterals were found and coiled (but the coils were not part of the pre-cath plan), or an interventional cath where the plan was to balloon the LPA, but then during the cath it was decided to also balloon the RPA.

The interventions completed during the cath are the determining factor. A planned interventional cath is a cardiac cath that was being planned before the time of the cardiac operation. For example, the surgical plan for a patient to undergo single ventricle palliation including surgically banding the bilateral pulmonary arteries and placing a PDA stent in the cath lab sometime after the banding. It is known that the patient will undergo both procedures and this is the documented 'plan' of care for the patient. If at the time of the planned PDA stenting, the patient also must have arch ballooning, that was an unplanned interventional cath as the need for arch ballooning was not determined in the original plan of care. Another example is the patient post-index operation who cannot wean from vasoactive and invasive respiratory support goes to the cath lab for a diagnostic cath. There it is determined the patient has a stenotic pulmonary artery that requires stenting. This is now an unplanned interventional cath as the patient underwent and unplanned interventional cath procedure following their cardiac operation.

September 2022: If a patient has a post op hemopericardium requiring open drainage by a cardiothoracic surgeon, do I choose unplanned cardiac reoperation and bleeding requiring reoperation and pericardial effusion requiring drainage? I am unsure after reading the STS CH dictionary. Also, if a patient has a post op pericardial effusion later drained by a surgeon, do I choose both unplanned cardiac reoperation and pericardial effusion requiring drainage. **In the immediate post-operative period, a patient that requires a reoperation due to hemopericardium, code complication (240) Bleeding, Requiring reoperation. In the event of a later pericardial effusion requiring drainage by the cardiothoracic surgeon, code both complication (110) Pericardial effusion and (22) Unplanned cardiac reoperation during the postoperative or postprocedural time period, exclusive of reoperation for bleeding.**

October 2022: I have a question about coding 150: Postoperative/Postprocedural respiratory insufficiency requiring mechanical ventilatory support > 7 days. My patient was extubated and reintubated within the same day does the extubation restart the 7 days or since it was still within the same calendar day does the count continue? Example Patient was intubated 6/20-6/23, extubated 6/23, reintubated on 6/23 and extubated on 6/28. Should I code this patient with complication 150: Postoperative/Postprocedural respiratory insufficiency requiring mechanical ventilatory support > 7 days since he had mechanical ventilation for 8 consecutive calendar days or because he was extubated (even though he was reintubated the same day) does the 7 days not apply? **Yes, if the patient is extubated and reintubated within 24 hours of the extubation for respiratory failure, do not restart the clock for counting the >7 days. Also code complication (160) Postoperative/postprocedural respiratory insufficiency requiring reintubation.**

October 2022: What complication(s) should be coded in the event of a Glenn thrombus/obstruction and in the event of a Fontan circuit thrombus/obstruction? Not sure if I should code any of the thrombus complications, and also not sure if I should code the systemic vein obstruction complication. Or should it just be coded as "other?" **Glenn thrombus can be captured by complication (480) Thrombus, Central vein. Fontan circuit thrombis can be captured by complication (900) Other complication. If the thrombus in the Fontan circuit also extends into the PA, the code complication (510) Thrombosis/ thromboembolism, Pulmonary artery. The other thrombus codes including systemic vein obstruction do not fit this scenario.**

November 2022: This patient had a VAD implanted and later was found to have diaphragm paralysis (I coded this as a complication.) Progress notes state that the intent was to do a surgical plication at some point. When her VAD was explanted after recovery, the surgeon also performed the diaphragm plication at the same time. Do I capture this plication as a non-cardiac re-operation despite the op type of the surgery being VAD? **Yes, code complication (26) Unplanned non-cardiac operation during the postoperative or postprocedural time period as it is an event that occurred post procedure even if the OpType is VAD.**

November 2022: Patient s/p TOF repair left OR with open sternum. Two days later, the surgeon performed a mediastinal washout and closed the sternum. Within minutes of sternal closure, the patient experienced hemodynamic changes and the surgeon reopened the sternum. The sternum was successfully closed 48-hours later. Does the initial attempt at sternal closure then become an unplanned reoperation and also the complication unplanned cardiac reoperation exclusive of bleeding? **This scenario represents an unplanned cardiac reoperation, specifically the reopening of the sternum is an unplanned cardiac reoperation following the index operation.**

December 2022: The definition for unplanned non-cardiac re-operation states that a rigid bronchoscopy for clearing clots should count, but a flexible bronchoscopy for clearing secretions should not. Why is clearing of secretions not considered therapeutic/treatment (and therefore a re-operation), but clearing of clots is? Is the determination of whether this is a complication more about the procedure performed, or about whether it is done with a rigid vs. flexible bronchoscope? **The use of a flexible bronchoscopy to clear secretions following cardiac surgery is considered routine critical care in some centers similar to deep suctioning. The use of a rigid bronchoscopy is not a part of routine care and is being done to specifically perform a procedure to clear clots or blood.**

December 2022: If a patient does not leave the OR suite, but the chest has to be reopened before leaving the OR to address other bleeding issues, is this considered a complication of bleeding requiring reoperation? In our scenario, the chest had been closed but there was increased chest tube output that led to reopening the chest, "Several bleeding points in the sternum were re-sutured and then the wound was again closed in layers." **Given the patient did not leave the OR, this is considered a part of the same operation and not a reoperation. Do not code complication (240) Bleeding, requiring reoperation.**

December 2022: How much documentation is required to consider a trach or GT placement post index operation as planned. If my program were to consent all patients at admission is this alone sufficient? If the preop documentation said we would place a trach if the patient cannot separate from ventilatory support or insert a GT if the patient cannot tolerate oral feeds post op, are these sufficient alone to consider these procedures planned? **Consenting a patient upon admission does not mean the trach or GT operations are planned. Surgical plans should be individualized for the each patient. The plan and reason for the trach or GT must be clearly documented in the surgical plan at the time of the index/cardiac operation. Statements including, "if the patient fails to separate from mechanical ventilatory support or if the patient cannot tolerate oral feeds after cardiac surgery, then we will plan to do a tracheostomy or GT" do not make the tracheostomy or GT procedures planned.**

In the rare event where a patient is admitted requiring invasive mechanical ventilatory support and the cardiac surgery is not expected to allow the patient to be removed from invasive mechanical ventilatory support, the insertion of a tracheostomy tube may be considered as a planned operation. Likewise, in the

event a patient who upon admission is tube feed dependent and is not expected to separate from tube feeds following cardiac surgery, the surgical placement of a GT may be considered a planned operation. These scenarios still require clear documentation of the procedures being planned following the cardiac surgery in the initial surgical planning.

January 2023: Our EHR states the patient has vocal cord dysfunction as seen on US, but the definition listed in the training manual specifically speaks to the use of endoscopy (Presence of poor or no vocal cord movement assessed by endoscopy). We are no longer sending patients to endoscopy but are diagnosing vocal cord dysfunction off of US. Can we code the vocal cord dysfunction, or do we follow the strict definition where endoscopy is required. **If the vocal cord dysfunction is diagnosed utilizing other diagnostic methods including ultrasound, do code complication (310) Vocal cord dysfunction. The definition will be clarified to the following: Presence of poor or no vocal cord movement assessed by endoscopy or other definitive diagnostic modality such as ultrasound.**

January 2023: The complication of arrhythmia req. drug therapy says to not code for the use of drugs to treat "arrhythmias that occur in the process of separating or preparing to separate from cardiopulmonary bypass but resolve prior to leaving the operating theatre." Should it be coded if the patient was started on an infusion which was continued after leaving the operating theatre - but the arrhythmia never reoccurred after separating from bypass? I am asking because the complication of temporary pacing indicates that it should be coded if pacing is still present when the patient leaves the operating theatre and it seems to be more based on the treatment still being present rather than if the arrhythmia itself is still present. **Correct, if the patient leaves the operating room with a continuous medication infusing to treat an arrhythmia, do code complication (72) Arrhythmia requiring drug therapy**

February 2023: pt s/p Norwood. chest open post op but had already been closed, Pt Developed septic shock a few days later, pt then arrested. The chest was opened for CPR/arrest. Blood and sputum grew the same ecoli (drawn day prior to arrest). Very unstable, required multiple pressors. Chest washout and line placement done the next day. Mediastinum was cultured. Grew same ecoli as in blood and sputum. Is this a wound infection, or just septic shock complication. There are multiple opinions on this one. **Code all applicable complications. Include (270) Wound Infection - Mediastinitis as mediastinitis is evident due to the presence of E.Coli in the mediastinum. If the patient meets criteria for sepsis, also code as a complication (as well as any other appropriate complications).**

March 2023: Would this be a "planned operation" since it's the next stage, even though during the same admission? I coded as unplanned cardiac reoperation. term infant with d-TGA, severe TV stenosis (near TA), hypoplastic RV, long segment CoA. Managed preoperatively on prostins. Went to OR for bilateral PA bands, delayed sternal closure on POD6. Course complicated by bactermia with staph aureus then staph capitis and large R MCA infarct. Went on to Norwood stage 1 and delayed sternal closure
Based on the given scenario, this is a planned operation. A planned cardiac reoperation is a cardiac procedure that follows an initial palliative procedure with the a priori intent for subsequent palliative or corrective intervention.
March 2023: In terms of the complication "unplanned cardiac reoperation", what do you do if there is NO specific defined plan until after the index operation? It's not that the plan changed...the plan just had not yet been made.
Example: The patient is a borderline single ventricle, and the index operation was an emergent Hybrid w/ PA bands. Over three weeks later, the clinical team was still determining whether to move forward with a Norwood or a biventricular repair. Ultimately, the patient received an HLHS biventricular repair. Is this an unplanned cardiac re-op? Would it be different if the patient received a Norwood instead?
In your example, either is planned. In this case, there was a plan for the next step, they just weren't sure which step it would be.

March 2023: Patient with postoperative neurologic exam, EEG, TCDs, and CT consistent with severe irreversible brain injury from cerebral hypoxia and secondary cerebral edema. Care is withdrawn. Should complication (320) Neurological deficit, Neurological deficit persisting at discharge be coded? Please also clarify as to why or why not. If more information is needed, please let me know. **Yes, it is appropriate to capture (320) Neurological deficit, Neurological deficit persisting at discharge because the injury existed at this patient's discharge (death).**
March 2023: A patient had surgery for cor triatriatum membrane resection, closure of ASD, and PDA ligation. POD #1 an ultrasound was done that showed concern for right hemidiaphragm paresis d/t no movement noted. Patient had no intervention done and on POD #9 the patient underwent a diaphragm fluoroscopy that showed normal movement of both hemidiaphragms with no paresis or paralysis noted. Patient was inpatient through the additional testing and left the hospital with a normally functioning diaphragm. Should I code 300 Paralyzed diaphragm even though patient was d/c'd with normal diaphragm function? **Do not code (300) Paralyzed diaphragm as there was no intervention and follow up showed normal function.**

May 2023: I have a patient who has a tracheostomy that is on a trach collar during the day and hooked up to the LTV at night when asleep while at home as his baseline. He was orally intubated for his recent surgery, then extubated and his trach tube put back in after surgery. He was weaned from full vent settings back to his at home trach regimen prior to discharge. Is it appropriate to code mechanically ventilated for > 7 days as a post op complication if the ETT was removed before 7 days but he remained on LTV settings at night via trach tube (per his normal at home routine) for longer than 7 days before discharge? **In this case, do not code the complication (150) Postoperative/Postprocedural respiratory insufficiency requiring mechanical ventilatory support > 7 days. as the patient returned to baseline prior to 7 consecutive days.**

May 2023: A patient is admitted on 2/8, has their 1st and only surgery on 2/8, and is discharged on 2/15. They are readmitted on 3/9 and have a pericardial drain (3/9) and a pericardial window (3/13), do I count the window on 3/13 as an unplanned cardiac reop?
I have unplanned readmit and pericardial effusion requiring drainage. Do complications that occurred outside of 30 days from the original surgery, but within the readmit within 30 days, count as complications? **Only code the complications which occurred within 30 post operative days. In this case, code the readmission and pericardial effusion requiring drainage, as you have. The pericardial window will not be included as a complication for the 2/8 event.**

June 2023: Patient went to the OR for RV to PA conduit replacement and replacement of atrial pacemaker lead. When surgeon went in, patient had purulent fluid in the mediastinum-pocket around the pacemaker generator. Gram stain was sent from the OR which came back no organisms. However, the culture came back + Candida. Patient ultimately went back to the OR within the same admission for removal of epicardial pacemaker and placement of transvenous pacemaker implant. Should this be coded as complication-unplanned reoperation and Wound infe ction-mediastinitis. Would you agree with the mediastinitis complication? I am unsure of complication of mediastinitis because it was not a complication from the initial surgery, it was found during the initial surgery. There were no signs of infection prior to surgery but should this be a pre-op factor instead of complication? Thank you! **Mediastinitis as a secondary diagnosis would be appropriate, but do not capture as a complication. Do code unplanned cardiac reoperation as a complicaiton/postoperative event. And, if helpful, you can include, as a preop factor, "other" and free text in details.**

Long Name:	Other Complication – Specify	*SeqNo:*	4201
Short Name:	**CompOthSpecify**	*Core:*	Yes

Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Complications		
Definition:	Indicate any other complications.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		
ParentLongName:	Complication		
ParentShortName:	**Complication**		
ParentHarvestCodes:	900		
Parent Value:	= "Other complication"		

Long Name:	Other Operative/procedural Complication - Specify	*SeqNo:*	4202
Short Name:	**CompOthOpSpecify**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Complications		
Definition:	Indicate other operative/procedural complications.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		
ParentLongName:	Complication		
ParentShortName:	**Complication**		
ParentHarvestCodes:	901		
Parent Value:	= "Other operative/procedural complication"		

Discharge / Readmission

Long Name:	Patient Remains Hospitalized During this Episode of Care	*SeqNo:*	4210
Short Name:	**EpisodeCarePatInHosp**	*Core:*	Yes
Section Name:	Anesthesia Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient remains in the acute care setting for this admission / episode of care.		
Intent / Clarification:	At time of harvest, this indicates that the patient remains in the acute care setting. This field was added to assist the data manager in identifying which patients remain in the hospital at the time of harvest.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
Harvest Codes:			

Code:	*Value:*
1	Yes
2	No

January 2022: If a patient is discharged from our hospital, and transferred to a chronic care facility, is the EpisodeCarePatInHosp Yes or No? The definition states: "Indicate whether the patient remains in the acute care setting for this episode of care." The training manual clarifies that this also include the "admission" and "This field was added to assist the data manager in identifying which patients remain in the hospital at the time of harvest." If I say "No," IQVIA has responded that the data specs specify that the "DBDischDt is required whenever EpisodeCarePatInHosp is No." So since I do not have a date of db discharge, this will count towards my percent missing, which is not accurate. If the patient is discharged from our hospital and transferred to a chronic care facility, is this supposed to be yes or no? If the patient is discharged from our hospital and transferred to another acute care facility, is this supposed to be yes or no? Field (4210) EpisodeCarePatInHosp is not functioning as intended to assist data managers at the time of data harvest and should be resolved in the 6.22 upgrade. Complete this field as Yes if the patient remains in your facility at the time of harvest. **Complete the field as No if the patient left your facility, regardless of their destination/location (other acute care facility, chronic care facility, home, died). This is the only way you can then capture your hospital discharge date and location. You are correct that the missing variable report will show the Database discharge date as missing for patient who transferred to other facilities. The report is designed to report all missing data and it does not analyze the data nor does it include any logic to exclude specific scenarios. After the data is submitted at time of harvest, the analysis performed will then exclude patients where both the Database discharge status and the Database discharge date are missing or unknown.**

Long Name:	Date of Hospital Discharge	*SeqNo:*	4220
Short Name:	**HospDischDt**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the date that the patient is discharged from the hospital where the surgery took place. In rare instances, the “Date of Hospital Discharge” differs from the “Date of Database Discharge”. In situations where the patient is discharged to another acute care facility or to a chronic care facility, the “Date of Hospital Discharge” is the date the patient is transferred from the hospital where the surgery took place to another facility. This field is intended to capture the total length of stay in your hospital regardless of the medical service managing the patient.		
Intent / Clarification:			
Data Source:	User		
Format:	Date - mm/dd/yyyy		
ParentLongName: :	Patient Remains Hospitalized During this Episode of Care		
ParentShortName:	**EpisodeCarePatInHosp**		
ParentHarvestCodes:	2		
ParentValues:	= "No"		

August 2019: Our chief surgeon believes that there is (or should be) some means to petition for a patient to have a functional discharge from the STS entry even though they are still in house, in cases when their surgery is

fully recovered from - they are several months out from repair, but remain hospitalized due to unrelated reasons i.e. extreme prematurity, sequela from a syndrome, or oncologic therapy. Can you clarify if there is any precedent for this? **There is not. This is an issue we will take to surgeon leadership to consider.**

June 2021: A child died in the operating hospital on 11/7/2020 at 2230, but not discharged from the hospital until 11/8/2020 due to family visitation. The case is coded as death at discharge, entered 11/7/2020 for mortality date and database discharge date, 11/8/2020 for hospital discharged date. This came as a critical error during submission and the record is not accepted by IQVIA. Should we code date of death, 11/7/2020, as hospital discharged date? **The hospital discharge date is the date the patient deceased.**

Long Name:	Mortality Status At Hospital Discharge	*SeqNo:*	4230
Short Name:	**MtHospDisStat**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was Alive or Dead at date and time of "Date of Hospital Discharge" for this operation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	**EpisodeCarePatInHosp**
ParentHarvestCodes:	2
ParentValues:	= "No"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead

Long Name:	Discharge Location	*SeqNo:*	4240
Short Name:	**DisLoctn**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the location to where the patient was discharged at the Date of Hospital Discharge.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Mortality Status At Hospital Discharge
ParentShortName:	**MtHospDisStat**
ParentHarvestCodes:	1
ParentValues:	= "Alive"

Harvest Codes:

Code:	Value:
1	Home
2	Other acute care center
3	Other chronic care center

December 2021: Patient is discharge to sober house for recovery. He has severe alcohol disorder in early remission. Case management documents patient returning to recovery center. Is a recovery center considered another acute care center? **A sober house is most likely a chronic care center as acute care services are generally not available in such centers.**

September 2022: Is there STS definition for Chronic Care Facility? There is not a formal STS definition for Chronic Care Facility, however it would be a center that does not provide acute care services. Centers have a formal designation based on the level of care they are licensed to provide, for example an acute care hospital vs. a rehabilitation hospital.

Long Name:	VAD-Discharge Status	*SeqNo:*	4245
Short Name:	**VADDiscS**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient had a VAD in place at discharge from the hospital.		
Intent / Clarification:	If the patient had a VAD inserted indicate whether the VAD was in place at the time of discharge.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Patient Remains Hospitalized During this Episode of Care		
ParentShortName:	**EpisodeCarePatInHosp**		
ParentHarvestCodes:	2		
ParentValues:	= "No"		

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

Long Name:	Discharged with Nasoenteric Tube	*SeqNo:*	4246
Short Name:	**NasoTubeDisc**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was discharged from the hospital with a nasoentereric tube.		

Intent / Clarification:	Code if any nasoenteric tube is present at hospital discharge, regardless of how it is being used.
Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	**EpisodeCarePatInHosp**
ParentHarvestCodes:	2
ParentValues:	= "No"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

May 2020: How should the fields "Discharged with Nasoenteric Tube" (SeqNo: 4246) and "Discharged with Transabdominal Gastrostomy or Jejunostomy Tube" (SeqNo: 4247) be completed for patients whose Hospital Discharge Status is "Dead"? Should we answer Yes if either was in place/utilized at time of death? **If the patient has any of these tubes at the time of death (discharge), code as yes.**

January 2022: Should these be completed based on hospital discharge date, or database discharge/episode of care end date? Example: A patient had an NG tube in place at the time of transfer to another facility, but it was removed before they were ultimately discharged to home. **The intent of fields (4246) NasoTubeDisc and (4247) TransGasDisc are to capture the presence of the tubes at the time of discharge from the surgical hospital (Hospital discharge date) and not another care facility (Episode of care end date).**

Long Name:	Discharged with Transabdominal Gastrostomy or Jejunostomy Tube	*SeqNo:*	4247
Short Name:	**TransGasDisc**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was discharged from the hospital with a transabdominal gastrostomy or jejunostomy tube.		
Intent / Clarification:	Code if any gastrostomy or jejunostomy tube is present at hospital discharge, regardless of how it is being used.		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Patient Remains Hospitalized During this Episode of Care		
ParentShortName:	**EpisodeCarePatInHosp**		
ParentHarvestCodes:	2		
ParentValues:	= "No"		

Harvest Codes:

Code:	Value:
1	Yes
2	No

May 2022: I have a patient who was transferred from my hospital to another acute care facility on 12/21/2021. He was just discharged from that facility on 4/15/2022. He had a Glenn and a G-tube placed while at the other acute care facility. When I'm answering question 4247 about whether the patient was discharged with a G-tube, am I answering the question based upon his discharge from my facility (in which the question would be answered "NO") or am I answering it for discharge from an acute care facility period, in which case the question would be answered "yes". Also, would I enter unexpected non-cardiac operation during the post op period in the complications section as a "yes", since it occurred during the episode of care (even though it occurred at the second facility and not mine)? **Field (4247) TransGasDic is meant to capture the presence of the gastric tube at the time of discharge from the surgical hospital and not another care facility. Answer No to whether the patient was discharged from your facility with a gastrostomy tube. The complications are captured for the entire episode of care including the time spent at the other facility. In this scenario, code complication (Unplanned non-cardiac operation during the postoperative or postprocedural time period.**

Long Name:	Date of Database Discharge	*SeqNo:*	4250
Short Name:	**DBDischDt**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate the “Date of Database Discharge”. The “Date of Database Discharge” is defined as a date that is determined by three rules (presented below as Rule A, Rule B, and Rule C), which specify how to complete the field “Date of Database Discharge”. [Rule A]: If a patient was admitted from their home, they must be either dead or discharged to home prior to completing the field “Date of Database Discharge”. Their “Date of Database Discharge” is the date they are discharged to home or their date of mortality. If a patient was admitted from their home, the field “Date of Database Discharge” cannot be completed if the patient is transferred to another acute care facility or chronic care facility until they are either dead or discharged to home. However, if this patient survives in a chronic care facility for 6 postoperative months (i.e., 183 postoperative days in the chronic care facility), the patient can then be assigned a “Date of Database Discharge” that is the date when the patient is in the chronic care facility for 183 days. (Some institutions may 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, this institution can apply to this Rule [Rule A] whenever one of their patients survives for 6 postoperative months (i.e., 183 postoperative days) on “chronic care status” within their institution.) [Rule B]: If a patient was admitted from (i.e., transferred from) a chronic care facility where they chronically reside, they must be either dead or discharged either to home or to a chronic care facility prior to completing the field “Date of Database Discharge”. Their “Date of Database Discharge” is the date they are discharged either to home or to a chronic care facility, or their date of mortality. [Rule C]: If a patient was admitted from (i.e., 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. If a patient was transferred from another acute care facility, Rule B as previously stated 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] and 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.

Intent / Clarification: 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 (social or medical) is not considered when determining the Database discharge date. The patient must remain on chronic care status for 183 days, discharge to home, or expire before the database discharge date can be completed. In the event a patient discharges from the 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.

Data Source: User
Format: Date - mm/dd/yyyy

ParentLongName: Patient Remains Hospitalized During this Episode of Care
ParentShortName: **EpisodeCarePatInHosp**
ParentHarvestCodes: 2
ParentValues: = "No"

August 2019: I have 2 complex patients who have been discharged to a chronic care facility. They both had index procedures one in back in 2017 and one in 2018. They have had multiple readmissions to our facility from the rehab center for other non-cardiac issues. Does the 183 days have to be consecutive, or does it just have to be survived 183 days from hospital discharge date? In other words, does the 183 days start over after each hospital discharge back to the chronic care facility? One of these patients had a Norwood in 2017 and since she has yet to be analyzed because she doesn't have a database discharge date, it makes the numbers for US News and World Report challenging to report out. Do we count her or not since she does not show up on the tables? In the

meantime, we are missing out on a STAT score, and she just had her cath for her next procedure which we will also miss out on since she is yet to be discharged from the chronic care facility. **The patient must survive 183 consecutive days on chronic care status. If the patient returns for acute/ICU care, the clock starts over.**

March 2021: I have a patient that was discharged from our hospital to a chronic care facility. She was readmitted two days later. What is her database discharge date? **If after the second admission the patient discharges to home, the database discharge date is the hospital discharge date. If the patient went back to the chronic care facility, the date the patient survives in the chronic care facility for 183 days starting from the new transfer date is the database discharge date or the date of the patient's death if before 183 days.**

August 2021: I am requesting additional clarification regarding the "183-day rule" for patients admitted to chronic care facilities. In our case, we have a chronic care unit. There have been several occasions where a surgical patient has transferred to the chronic care unit and returned to the ICU for a minor procedure, returned to the ICU for a scheduled procedure, and/or had a minor procedure that required 23-hour observation outside of the chronic care unit. Would the 183-day clock reset for any of these scenarios? There has been debate that in these scenarios, the patient was merely moved (not readmitted) to a different unit for a procedure or observation, and the patient should still be considered "chronic care" status, so the 183-day clock should not reset. **The clock does not reset if the patient was not 'admitted' to the acute care service as Observation status is not considered a readmission.**

September 2021: Can hospitals use their own inhouse rehab unit and if so, can they enter a hospital discharge date? **Yes, hospitals may have their own inhouse long-term care or rehabilitation units where patients may transfer or discharge to. These units are separate from acute care units. If a hospital does transfer a patient to inpatient rehab (in a separate unit), one can complete the hospital discharge date as the transfer/admit to rehab date. The database discharge date is the date the patient expires or discharges to home following the appropriate database rules for completion.**

September 2021: I have a patient that was transferred on 4/9/2021 to a hospital near her home (after a very long hospitalization, along with a surgical procedure, within our institution). She came back to us from the outside hospital on 7/25/2021 (she never went home from the outside hospital), but had no cardiac surgery during this second admission. On 8/10/2021 she was then transferred back to the outside hospital near her home, and as of today she is still in that hospital. Would I list a database discharge date on her original long admission, or do I re-start the 6 months count from her 8/10/2021 discharge date (second discharge date)? **Based on the rules for database discharge, the patient must be discharged to home or expire before the database discharge date can be completed. The 183-day rule only applies to chronic care facilities, not acute care hospitals or units. If the hospital closer to home is an acute care facility, then the patient must discharge to home or expire before the date of database discharge can be completed. If the hospital closer to home is a chronic care facility, the patient must survive there for 183 continuous days or expire before the database discharge date can be completed. Thus, the count would restart from the second hospital discharge date on 08/10/2021.**

May 2022: My patient was born at our facility and had multiple cardiac surgeries while he was here. His Index procedure was July 13, 2021, and he was discharged to a Chronic Care Facility 12/16/2021. He was transferred back to us an acute care hospital for further cardiac surgery on 4/8/2022.What do I enter as his Date of Data Base Discharge for the July 13, 2021, surgery as it has not been 183 days? The plan is to return to the Chronic Care Facility. **The patient does not have a database discharge date until the patient survives on chronic care status for 183 continuous days, dies, or discharges to home. The cardiac surgery on 04/08/22 is still within the same episode of care as the 07/13/21 surgery. Thus, the database discharge date for these hospitalizations will be the same date - the date the patient discharges to home, dies, or survives on chronic care status for 183 continuous days. The 183-day time period for this will begin on the day the patient transfers back to the chronic care facility.**

May 2022: We have a pt who was born at our facility and dc'd to Chronic Care. The pt is re-admitted to our facility prior to the 183 days. That clock now resets once dc'd back to Chronic care or expired. Yes, the clock now resets when the patient discharges back to chronic care. The database discharge date can be entered when the patient survives 183 days on chronic care status, dies, or discharges to home. The re-admit; Since the pt was admitted from Chronic Care and will be dc'd back to Chronic Care. This database DC date will be the date of discharge from the hospital to Chronic Care. Yes? **Incorrect. The database discharge date cannot be completed until the patient discharges to home, dies, or survives on chronic care status for 183 continuous days. The date the patient discharges from the hospital and goes to chronic care is the hospital discharge date, not the database discharge date. This patient does not yet have a database discharge date as the patient has not met any of the criteria for completion of that field. Unfortunately, this may mean patients do not have a database discharge date for an extended period of time.**

Long Name:	Mortality Status At Database Discharge	*SeqNo:*	4260
Short Name:	**MtDBDisStat**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was Alive or Dead at the date and time of "Date of Database Discharge" for this operation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Patient Remains Hospitalized During this Episode of Care
ParentShortName:	**EpisodeCarePatInHosp**
ParentHarvestCodes:	2
ParentValues:	= "No"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

August 2019: I have a patient who is donating organs and there case was entered into STS. This is the first one I have come across and I am not sure how to proceed with data entry. This patient was in PICU and then became a One Legacy patient to prepare for procurement of organs. Since it is stated on the Operative tab that this is organ procurement, fields that normally are filled in will be left blank. Will that cause a problem with submitting data for harvest? Also, under the Hospitalization tab, is it correct in documenting the discharge date when the organs were procured and the patient passed away? **Organ procurement cases are not analyzed, so there is no issue with submitting. It is advised to use the date/time of hospital discharge (rather than brain death) to ensure there isn't a logic error in the DQR mismatching surgical date/time with discharge date/time.**

Long Name:	Readmission Within 30 Days	*SeqNo:*	4270
Short Name:	**Readmit30**	*Core:*	Yes

Section Name:	Discharge/Readmission	*Harvest:* Yes
DBTableName:	Operations	
Definition:	Indicate whether the patient was readmitted within thirty days of discharge.	
Intent / Clarification:	Indicate whether the patient was readmitted to any acute care facility within thirty days of discharge. Do not include patients who were 'readmitted' on observation status and remained on observation status for the entirety of their 'readmission'.	
Data Source:	User	
Format:	Text (categorical values specified by STS)	
ParentLongName:	Mortality Status At Hospital Discharge	
ParentShortName:	**MtHospDisStat**	
ParentHarvestCodes:	1	
ParentValues:	= "Alive"	

Harvest Codes:

Code:	Value:
1	Yes
2	No

November 2019: If a patient has a planned re-admission (chemo in this case), does that still count as a re-admission? Yes. Code in **Readmission after 30 days: Not related to index operation.**

October 2020: The clarification for this field says it includes readmission to any acute care facility with 30 days. If the patient is transferred/discharged to an "Acute Care Center" in DisLoctn (Seq4240), should the readmission within 30 days field be marked as "Yes", and the date of discharge from our facility be entered for the field ReadmitDt (Seq4280)? **This is a transfer to another acute care center, so do not fill out the readmission field for this type of transfer.**

May 2021: A patient is discharged with to an acute care facility in another state for rehab and recovery from lower extremity paraplegia complication, is this considered a Readmission? Would you code the readmit30 as yes and code the readmit reason (Readmitrsn) with the complication? **No, the patient discharged from your hospital and completed their episode of care at the other facility. This does not represent a readmission to that other hospital.**

February 2022: For a patient who transfers to another facility, does the "readmit within 30 days" time frame refer to 30 days from my hospital discharge, or from database discharge/episode of care? Should I mark "yes" for readmission within 30 days of discharge? **Per the current database specs, the Readmission within 30 days field is intending to capture readmission following discharge from the surgical center (Hospital discharge).**

December 2022: Does the definition for "readmission within 30 days" require the patient to have made it "home" first - meaning that their episode of care needs to have ended? For example, a patient who discharges to an acute rehab center rather than to home, but then transfers back to us as an escalation of care - does that count as a readmission despite being part of the same episode of care? **No, during one episode of care a patient can undergo multiple hospital admissions and readmissions and multiple operations. Field Readmit30 is a child to field Mortality Status at Hospital Discharge. In this scenario, your patient discharged from your hospital to another hospital with mortality status alive. If the patient is readmitted to any acute care facility including your own within 30 days of the hospital discharge, answer Readmit30 as yes.**

Long Name:	Readmission Date	*SeqNo:*	4280
Short Name:	**ReadmitDt**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the date on which the patient was readmitted.		
Intent / Clarification:	Indicate the date the patient was readmitted to any acute care facility within 30 days of discharge.		
Data Source:	User		
Format:	Date - mm/dd/yyyy		
ParentLongName:	Readmission Within 30 Days		
ParentShortName:	**Readmit30**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

January 2019: Patient originally discharged on 10/4/18. Reported to local ED for desaturations on 10/13/18. Transferred and direct admit to our facility at that time. Kept overnight, as inpatient, then discharged the following morning. 10/22 patient admitted for incisional infection, DC'd again on 10/25. I can only code one readmission. How should I code this readmission? **You can only code the first readmission closest to the surgery.**

November 2020: Pt had an Aortic Valve Replacement 8/31 and discharged home POD #6. Readmitted POD #21 for a superficial sternal wound infection. I captured the readmission and sternal wound infection in the complications section of the 8/31 Index procedure. On POD #24 he went to the OR for a superficial wound debridement, had no complications and STS 620 Admitted from home after cardiac surgical procedure within the last 30 days was captured in the risk section. Should this second procedure be a separate Index procedure? **Yes, with a new admission following discharge to home, you do have a second index procedure and the events are complications of the previous index operation.**

January 2022: For a patient who transfers to another facility, does the "readmit within 30 days" time frame refer to 30 days from my hospital discharge, or from database discharge/episode of care? Example: Discharged/transferred to another facility on 8/13/21. Final discharge to home (episode of care ends) on 10/12/21. Readmitted to other facility on 11/4/21. Should I mark "yes" for readmission within 30 days of discharge? **Per the current database specs, the Readmission within 30 days field is intending to capture readmission following discharge from the surgical center (Hospital discharge).**

Long Name:	Primary Readmission Reason	*SeqNo:*	4290
Short Name:	**ReadmitRsn**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
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.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Readmission Within 30 Days
ParentShortName: **Readmit30**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
26	Thrombotic Complication	Complication involving development of a blood clot possibly leading to vascular obstruction
27	Embolic Complication	Complication involving migration of blood clot or other matter possibly leading to vascular obstruction
28	Hemorrhagic Complication	Complication involving life threatening bleeding
29	Stenotic Complication	Complication involving narrowing of lumen resulting in flow disruption
2	Arrhythmia	
3	Congestive Heart Failure	Physician documentation or report of insufficient cardiac output leading to fluid retention, rales, jugular venous distention, hepatic congestion or pulmonary edema. Low ejection fraction without clinical evidence of heart failure does not qualify as heart failure.
	Embolic Complication	
30	Cardiac Transplant Rejection	Rejection refers to the organ recipient's immune system recognizing a transplanted organ as foreign and mounting a response to it via cellular and/or humoral (antibody-mediated) mechanisms. Routine endomyocardial biopsy remains the criterion standard for monitoring for such rejection.
31	Myocardial Ischemia	Insufficient oxygen delivery to meet the demand of myocardial tissue may result in pain, wall motion abnormality and EKG changes. Untreated ischemia may progress to infarction.
14	Renal Failure	Renal Failure is defined as the oliguria with sustained urine output < 0.5 cc/kg/hr for 24 hours and/or a rise in creatinine >1.5 times upper limits of normal for age.
6	Pericardial Effusion and/or Tamponade	Abnormal accumulation of fluid in the pericardial space requiring drainage
32	Pleural Effusion	Abnormal accumulation of fluide in the pleural space.
33	Neurologic Complication	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

7	Respiratory Complication/Airway Complication	Complication related to the respiratory system, includes airway issues
34	Septic/Infectious Complication	Complication related to infection, includes infection of wound(s), bloodstream infection or other infectious conditions
35	Cardiovascular Device Complications	Complication related to a device
36	Residual/Recurrent Cardiovascular Defects	Complication related to residual or recurrent cardiac abnormality
37	Failure to Thrive	Current weight or rate of weight gain is significantly lower than that of other children of similar age and gender
25	VAD Complications	Complication related to ventricular assist device
39	Gastrointestinal Complication	Gastrointestinal complication (Includes readmission for percutaneous endoscopic tube [PEG tube] and readmission for Nissen fundoplication, as well as readmission for nausea, vomiting, GI bleed, GERD or diarrhea)
38	Other Cardiovascular Complication	Unlisted complication related to the cardiovascular system
998	Other - Readmission related to this index operation	Example: Shunt thrombosis in a patient who has had a Norwood procedure.
999	Other - Readmission not related to this index operation	Example: Orthopedic procedure in a patient who has had a Norwood procedure.

October 2019: If a patient is readmitted within 30 days for a viral infection (Rhinovirus, norovirus, etc.), is the Primary Readmission Reason Septic/Infectious Complication? or Other-Readmission not related to this index operation? **Code the readmission reason as Septic/Infectious Complication. Code the readmission reasons as specific as possible.**

Long Name:	Mortality - 30-Day Status	*SeqNo:*	4300
Short Name:	**Mt30Stat**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was alive or dead on the 30th day post-surgical procedure whether in hospital or not.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

Long Name:	Mortality - 30-Day Status - Method Of Verification	*SeqNo:*	4310
Short Name:	**Mt30StatMeth**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes

DBTableName: Operations
Definition: Indicate the primary method used to verify the patient's 30-day mortality status.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Evidence of life or death in medical record
2	Contact with patient or family
3	Contact with medical provider
4	Office visit to provider greater than or equal to 365 days post op
5	SSDMF
9	Other

Long Name: Status at 365 days after Surgery
SeqNo: 4311
Short Name: **Mt365Stat**
Core: Yes
Section Name: Discharge/Readmission
Harvest: Yes
DBTableName: Operations
Definition: Indicate the mortality status for the patient at 365 days following the index operation for this hospitalization.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Mortality - 30-Day Status
ParentShortName: **Mt30Stat**
ParentHarvestCodes: 1
ParentValues: = "Alive"

Harvest Codes:

Code:	Value:
1	Alive
2	Dead
3	Unknown

February 2020: This is supposed to be a required field only for those OR dates using version 3.41. My question is, up to what OR date are we expected to answer this question. For example, with a harvest submission date of March 22, 2020, are we expected to have a 365 day mortality answer for OR dates 1/1/2019 (when version 3.41 started) - 3/21/2019? We would have to be on the phone the day before harvest and make appointments to ensure people answer the phone. **The**

intent of the 365 day mortality status is 1-year from the date of surgery. Currently this is not included in the missing % calculation precluding a program from being included in the risk model analysis.

Long Name:	365 Day Status Method Verification	*SeqNo:*	4312
Short Name:	**Mt365StatMeth**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the source of information for the patient's status at 365 days following the index operation for this hospitalization.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Mortality - 30-Day Status
ParentShortName:	**Mt30Stat**
ParentHarvestCodes:	1
ParentValues:	= "Alive"

Harvest Codes:

Code:	Value:
1	Evidence of life or death in medical record
2	Contact with patient or family
3	Contact with medical provider
4	Office visit to provider greater than or equal to 365 days post op
5	SSDMF
9	Other

Long Name:	Mortality - Operative Death	*SeqNo:*	4330
Short Name:	**MtOpD**	*Core:*	Yes
Section Name:	Discharge/Readmission	*Harvest:*	Yes
DBTableName:	Operations		
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 or death at < 183 days if transferred to a chronic care facility); and (2) all deaths, regardless of cause, occurring after discharge from the hospital, but before the end of the thirtieth postoperative day.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

January 2019: Patient has a cath lab procedure for an ablation due to ventricular tachycardia. During the procedure the catheter caused a linear tear in the posterior aspect of the right atrium just anterior and medial to the inferior vena cava. This was repaired (off bypass) by the cardiac surgeon. This is the first and only cardiothoracic procedure performed by the surgeon. The patient died the next day. The diagnosis would be 'Complication of cardiovascular catheterization procedure', and the operative type No CPB cardiovascular, correct? Would the procedure be coded as 'cardiac, other'? This will be an operative mortality, correct? This will be included in the STS Harvest report mortality analysis even though it will not have a STAT mortality category, correct? **This is an operative mortality and should be included as the database, however will not be included in the risk adjusted mortality analysis as there is no associated STAT score.**

July 2019: I would like a little clarification about operative mortality. A patient has an index procedure and survives greater than 30 days and then has another procedure after 30 days during the same hospitalization. The patient is discharged to home shortly after. Unfortunately, the patient dies at home a few days after the last operation so the status at 30 days after surgery would be "dead" for the last operation during the admission. Would I check yes for an operative mortality for the last surgery since the patient died within 30 days of the last operation or does this only pertain to the index? Would this then count as an operative mortality for the index procedure? The patient had a mortality status at database discharge as alive. **If the last procedure is operation type CPB Cardiovascular or No CPB Cardiovascular, this will count as an operative mortality for the index procedure. This information is in Report Overview in the Operative Mortality section:**

Determination of episode of care-based Operative Mortality is based on:

1) **Status (alive/dead) at Date of Database Discharge, and**
2) **Status (alive/dead) at 30 days after the last cardiovascular surgical operation of the episode of care.**

August 2019: Patient has a VAD Implantation and a Primary PFO closure on Jan 1. The patient has no additional cardiothoracic procedures during this admission. Patient dies 4 days later while still in the hospital. This should be coded as an indexed surgery, and the Primary PFO closure would be the primary procedure of the indexed surgery, correct? This would be an operative mortality assigned to this indexed case, correct? **Yes and yes**

October 2019: We have a patient that had a STS code 1450 Pacemaker implantation, Permanent as the first surgery of her admission. This was the only procedure performed during that surgery, and she was 0 days old at the time of the surgery. She had a subsequent tricuspid valvuloplasty (CPB Cardiovascular) during that same admission followed by a BT Shunt (CPB Cardiovascular). She died in the hospital just a few days after her BT Shunt surgery. Am I correct that she will not be analyzed as a mortality in the STS Harvest report since she was <30 days old at the time of her primary/index procedure of STS code 1450 Pacemaker implantation, Permanent? **Code as a pacemaker procedure. As the patient is less than 30 days, this patient is excluded from the analysis.**

March 2021: A baby was born at 28 weeks with a birth weight of 1300 grams on 6/25/2020. This baby (during the same hospitalization) had a PDA ligation on 9/9/2020 with a weight of 3.1kg. This baby later died during the same hospitalization. My understanding is a PDA ligation for an infant less than 2500 grams will not count in the operative mortality analysis. This baby was technically over this weight at the time of surgery but born less than

2500 grams during the same hospitalizations. Not sure if this case will be in the analysis for mortality. **The weight at the time of surgery is the weight that is included in the analysis, thus this patient will be included in the mortality analysis and this will be an operative mortality.**

June 2021: Is the time frame for an operative mortality based upon the episode of care or upon the hospitalization during which the surgery took place? For example, a patient who received a heart transplant, discharged to another acute care facility, then was readmitted to us before finally discharging home (database discharge date.) He ultimately died at home, 22 days after his database discharge date, but it was 85 days after the discharge date of his original hospitalization during which the transplant took place. Is this an operative mortality? Another example: A patient with a similar circumstance - discharged to another facility, then readmitted to us and died during the readmission. The database discharge date is the date of death - which was 10 months after the original surgery. Is this an operative mortality? **The field operative mortality is determined using the episode of care. The answers to the scenarios are as follows: In the first scenario, the patient discharged to home which then closes the episode of care. The patient did not expire within the episode of care, so this does not represent an operative mortality. In the second scenario, this will be dependent on whether the other facility the patient discharged to. For example, if the patient were to have discharged to an acute care facility and then back to your institution – there was no discharge to home and the patient expired during the episode of care – this would represent an operative mortality. Alternatively, if the patient had discharged to a chronic care facility and resided there for >183 days on chronic care status – you would complete the database discharge date, and this would represent the end of the episode of care. Thus, the patient would not have expired during the episode of care and then would not represent an operative mortality.**

August 2021: I have a patient that I am unsure if I should mark operative mortality or not: this patient was admitted 10/10/20 with quite an extended surgical and hospital course, was discharged to another hospital closer to home on 12/17/20, readmitted to my hospital 12/23/20, had more surgeries, transferred back to the other hospital on 4/13/21, was readmitted to my hospital on 6/7, had a cath on 6/18 and ended up passing away on 6/24 in my hospital. The piece that is confusing is that if the patient went to an acute care facility, it is an operative mortality because it occurred during the episode of care. If the patient went to a chronic care facility, it would not count as it exceeds the 183 days. So what is considered an acute vs chronic care facility? What is the definition of each? This is not defined in the training manual. **This is an operative mortality as the patient never discharged to home following cardiac surgery at your facility**. **The patient would need to be on chronic care status for 183 consecutive days days regardless of the facility type, acute or chronic care. The patients stay at another hospital was 6 days. The second stay at this hospital was 55 days. The patient was never on chronic care status for 183 consecutive days, so this does represent an operative mortality regardless of whether the patient was on acute or chronic care status. Hospitals are labeled by one administrative designation of chronic vs. acute care centers.**

November 2021: Newborn is admitted and has Aortic arch repair with CPB. On postop day 25, patient is put on ECMO and has Aortic valvuloplasty POD 26. On POD 31 patient has AVR with root replacement. On POD 33, ECMO decannulation followed be delayed sternal closure on POD 38. Patient expires 18 days later in hospital. Since the patient was never discharged, is it correct that Operative Mortality is assigned to the index operation? Should all operations that followed the index operation, be coded as operative mortality?

You are correct, the operative mortality is assigned to the index operation. However, data field (4330) Mortality - Operative Death should be answered as Yes for all of the operations, both index and non-index durin this episode of care. Upon analysis, the index operation defined as the first CPB Cardiovascular or No CPB Cardiovascular operation, is where the mortality will be assigned.

Long Name:	Eligibility For CHSS Study	*SeqNo:*	4331
Short Name:	**CHSSElig**	*Core:*	Yes

Section Name: Discharge/Readmission *Harvest:* Yes
DBTableName: Operations

Definition: Indicate patient's eligibility for the Congenital Heart Surgeon Society (CHSS) study.

Intent / Clarification: Refer to the CHSS study website for enrollment criteria for each individual study. The study availability and enrollment criteria do periodically change periodically. ~~http://www.chssdc.org/studies~~

Update March 2023: https://chss.org/

Data Source: User
Format: Text (categorical values specified by STS)
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

Long Name: Patient's care discussed at preoperative multidisciplinary planning conference *SeqNo:* 4340
Short Name: **CareDiscussed** *Core:* Yes
Section Name: Patient Process Measures *Harvest:* Yes
DBTableName: Operations
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.

Intent / Clarification: This is collected once for the episode of care, on the index operation. This categorization includes all reoperations (cardiac and non-cardiac) as well as interventional catheterization procedures. The codes included in these 6 major complications are:

a.New postoperative renal failure requiring dialysis (230, 223, 224)
b.New postoperative neurological deficit persisting at discharge (320, 400, 410)
c.Arrhythmia necessitating permanent pacemaker insertion (74)
d.Paralyzed diaphragm (300)
e.Need for postoperative mechanical circulatory support (40)
f.Unplanned reoperation and/or interventional cardiovascular catheterization procedure (22, 24, 26, 240)

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Patient Process Measures

Long Name: Reason why patient's care was not discussed
Short Name: **CareDiscussedRsn**
Section Name: Patient Process Measures
DBTableName: Operations
Definition: Indicate the reason why the patient's case was not discussed at a preoperative multidisciplinary planning conference.

SeqNo: 4350
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Patient's care discussed at preoperative multidisciplinary planning conference
ParentShortName: **CareDiscussed**
ParentHarvestCodes: 2
ParentValues: = "No"

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	Urgent / emergent / salvage case	This case was an urgent / emergent /salvage case and the patient went to surgery prior to the next scheduled conference.
2	Patient admitted between conferences	This patient who was admitted after the previous conference and went to surgery prior to the next scheduled conference.

3	Program does not routinely discuss all cases	This case was not discussed at conference because program does not routinely discuss all cases at a pre-operative multidisciplinary planning conference.
4	Program does not have regular conferences	Program does not have a regularly scheduled pre-operative multidisciplinary planning conference to plan pediatric and congenital heart surgery cases.
5	Other	Reason not listed

Long Name:	Transesophageal Echocardiography (TEE) available for case	*SeqNo:*	4370
Short Name:	**TEEAvail**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
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.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|2|9		
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"		

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Intraoperative transesophageal echocardiography (TEE) performance	*SeqNo:*	4380
Short Name:	**TEEEpicEchoPerf**	*Core:*	Yes

Section Name: Patient Process Measures *Harvest:* Yes
DBTableName: Operations
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.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Transesophageal Echocardiography (TEE) available for case
ParentShortName: **TEEAvail**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Preoperative antibiotic prophylaxis given *SeqNo:* 4400
Short Name: **PreopAntiProph** *Core:* Yes
Section Name: Patient Process Measures *Harvest:* Yes
DBTableName: Operations
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.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Patient on ongoing antibiotic

Long Name:	Preoperative antibiotic prophylaxis - Cephalosporin	*SeqNo:*	4410
Short Name:	**PreopAntiProphCeph**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the preoperative antibiotic prophylaxis included Cephalosporin.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative antibiotic prophylaxis given
ParentShortName:	**PreopAntiProph**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Preoperative antibiotic prophylaxis - Penicillin or related medication	*SeqNo:*	4420
Short Name:	**PreopAntiProphPen**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the preoperative antibiotic prophylaxis included penicillin or related medications (i.e., Oxacillin, Nafcillin, Ampicillin, etc.)		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative antibiotic prophylaxis given
ParentShortName:	**PreopAntiProph**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Preoperative antibiotic prophylaxis - Aminoglycoside	*SeqNo:*	4430
Short Name:	**PreopAntiProphAmino**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the preoperative antibiotic prophylaxis included Aminoglycoside.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative antibiotic prophylaxis given
ParentShortName: **PreopAntiProph**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Preoperative antibiotic prophylaxis - Vancomycin	*SeqNo:*	4440
Short Name:	**PreopAntiProphVan**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the preoperative antibiotic prophylaxis included Vancomycin.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative antibiotic prophylaxis given
ParentShortName: **PreopAntiProph**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Preoperative antibiotic prophylaxis - Other	*SeqNo:*	4450
Short Name:	**PreopAntiProphOth**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the preoperative antibiotic prophylaxis included any other class of antibiotic.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative antibiotic prophylaxis given
ParentShortName:	**PreopAntiProph**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Preoperative antibiotic prophylaxis - Time started	*SeqNo:*	4470
Short Name:	**PreopAntiProphTime**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the time when the antibiotic infusion started.		

Intent / Clarification:

Data Source:	User
Format:	Time - hh:mm (24-hour clock)
ParentLongName:	Preoperative antibiotic prophylaxis given
ParentShortName:	**PreopAntiProph**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

August 2022: If patient received Vancomycin starting time 08:24 and ancef starting time 08:29 which time should be captured? Incision time was 09:08. Is it closest to incision time or the first dose time? **The measure is met by both antibiotics so for analysis purposes either time is correct. Select both antibiotics and for the time, the suggestion is to include the time the first antibiotic was administered.**

Long Name:	Conventional preprocedure time-out	*SeqNo:*	4480
Short Name:	**ConvTimeOut**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a conventional preprocedural “time-out”, which includes identification of patient, operative site, procedure, and history of any allergies, was performed.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by user)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|2|9
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Surgeon shares essential elements of operative plan	*SeqNo:*	4490
Short Name:	**PostProcBrief**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a preprocedural briefing was performed wherein the surgeon shares with all members of the operating room team the essential elements of the operative plan; including diagnosis, planned procedure, outline of essentials of anesthesia and bypass strategies, antibiotic prophylaxis, availability of blood products, anticipated or planned implants or device applications, and anticipated challenges.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by user)
ParentLongName:	Operation Type
ParentShortName:	**OpType**
ParentHarvestCodes:	1|2|9
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Postprocedure debriefing	*SeqNo:*	4500
Short Name:	**PostProcDebrief**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a postprocedural debriefing was performed wherein the surgeon succinctly reviews with all members of the operating room team the essential elements of the operative plan, identifying both the successful components and the opportunities for improvement. This debriefing should take place prior to the patient leaving the operating room or its equivalent, and may be followed by a more in-depth dialogue involving team members at a later time. (The actual debriefing in the operating room is intentionally and importantly brief, in recognition of the fact that periods of transition may be times of instability or vulnerability for the patient.)		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by user)		
ParentLongName:	Operation Type		
ParentShortName:	**OpType**		
ParentHarvestCodes:	1|2|9		
ParentValues:	= "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"		

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name:	Hand-off protocol at the time of transfer to the Intensive Care Unit	*SeqNo:*	4510
Short Name:	**HandoffProtocol**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a briefing and execution of a hand-off protocol (checklist) was performed at the time of transfer (arrival) to the Intensive Care Unit at the end of the operation, involving ALL of the following: the anesthesiologist, surgeon, physician staff of the Intensive Care Unit (including critical care and cardiology) and nursing.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Operation Type
ParentShortName: **OpType**
ParentHarvestCodes: 1|2|9
ParentValues: = "CPB Cardiovascular", "No CPB Cardiovascular" or "CPB Non-Cardiovascular"

Harvest Codes:

Code:	Value:
1	Yes - All required team members present
2	Yes - Not all required team members present
3	No

Long Name: Hand-off protocol - Anesthesiologist
Short Name: **HandoffAnesth**
Section Name: Patient Process Measures
DBTableName: Operations
Definition: Indicate whether the anesthesiologist or designee attended the hand-off protocol at the time of transfer to the Intensive Care Unit at the end of the operation.

SeqNo: 4520
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Hand-off protocol at the time of transfer to the Intensive Care Unit
ParentShortName: **HandoffProtocol**
ParentHarvestCodes: 2
ParentValues: = “Yes – Not all required team members present”

Harvest Codes:

Code:	Value:
1	Attended hand-off protocol
2	Did not attend hand-off protocol

Long Name: Hand-off protocol - Surgeon
Short Name: **HandoffSurg**

SeqNo: 4530
Core: Yes

Section Name: Patient Process Measures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the surgeon or designee attended the hand-off protocol at the time of transfer to the Intensive Care Unit at the end of the operation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Hand-off protocol at the time of transfer to the Intensive Care Unit
ParentShortName: **HandoffProtocol**
ParentHarvestCodes: 2
ParentValues: = "Yes – Not all required team members present"

Harvest Codes:

Code:	Value:
1	Attended hand-off protocol
2	Did not attend hand-off protocol

Long Name: Hand-off protocol - Physician staff of the Intensive Care Unit *SeqNo:* 4540
Short Name: **HandoffPhysStaff** *Core:* Yes
Section Name: Patient Process Measures *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the physician staff of the Intensive Care Unit or designee attended the hand-off protocol at the time of transfer to the Intensive Care Unit at the end of the operation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Hand-off protocol at the time of transfer to the Intensive Care Unit
ParentShortName: **HandoffProtocol**
ParentHarvestCodes: 2
ParentValues: = "Yes – Not all required team members present"

Harvest Codes:

Code:	Value:
1	Attended hand-off protocol
2	Did not attend hand-off protocol

Long Name:	Hand-off protocol - Nursing	*SeqNo:*	4550
Short Name:	**HandoffNursing**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a nurse or designee attended the hand-off protocol at the time of transfer to the Intensive Care Unit at the end of the operation.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Hand-off protocol at the time of transfer to the Intensive Care Unit
ParentShortName: **HandoffProtocol**
ParentHarvestCodes: 2
ParentValues: = "Yes – Not all required team members present"

Harvest Codes:

Code:	Value:
1	Attended hand-off protocol
2	Did not attend hand-off protocol

Long Name:	Patient died or had major postoperative complication(s)	*SeqNo:*	4560
Short Name:	**PostOpComp**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient died before hospital discharge and/or had any of these major postoperative complication(s): a. New postoperative renal failure requiring dialysis (230, 223, 224) b. New postoperative neurological deficit persisting at discharge (320, 400, 410) c. Arrhythmia necessitating permanent pacemaker insertion (74) d. Paralyzed diaphragm (300) e. Need for postoperative mechanical circulatory support (40) f. Unplanned reoperation and/or interventional cardiovascular catheterization procedure (22, 24, 26, 240) The detailed definitions for the six postoperative complications are the definitions used in the current version of the STS Congenital Heart Surgery Database. These detailed definitions for these six postoperative complications may be found in the following manuscript: Jacobs JP et al. Quality measures for congenital and pediatric cardiac surgery. World Journal for Pediatric and Congenital		

Heart Surgery 2012;3:32-47

Intent / Clarification: This is collected once for the episode of care, on the index operation. This categorization includes all reoperations (cardiac and non-cardiac) as well as interventional catheterization procedures.

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No

Long Name: Patient management and outcomes reviewed
Short Name: **PostOpReview**
Section Name: Patient Process Measures
DBTableName: Operations
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).

SeqNo: 4570
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Patient died or had major postoperative complication(s)
ParentShortName: **PostOpComp**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:	Definition:
1	Reviewed at conference	This patient's management and outcome were reviewed as a part of a regularly scheduled Quality Assurance and Quality Improvement Cardiac Care Conference (i.e., Morbidity and Mortality Conference).
2	Scheduled to be reviewed at next conference	This 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). (Please log back in to the Quality Module and change this answer to "Reviewed at conference" after the patient has been discussed in Quality Assurance and Quality Improvement Cardiac Care Conference).

3	Not reviewed and not scheduled to be reviewed	This patient's management and outcome were NOT reviewed as a part of 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	Program does not have a regularly scheduled Quality Assurance and Quality Improvement Cardiac Care Conference (i.e., Morbidity and Mortality Conference).

Long Name:	Patient management and outcomes reviewed – date	*SeqNo:*	4580
Short Name:	**PostOpReviewDate**	*Core:*	Yes
Section Name:	Patient Process Measures	*Harvest:*	Yes
DBTableName:	Operations		
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).		

Intent / Clarification:

Data Source:	User
Format:	Date - mm/dd/yyyy

ParentLongName:	Patient management and outcomes reviewed
ParentShortName:	**PostOpReview**
ParentHarvestCodes:	1
ParentValues:	= "Reviewed at conference"

Anesthesia

Anesthesia Administrative

Long Name:	Anesthesiology Data Collected	*SeqNo:*	4581
Short Name:	**Anesthesia**	*Core:*	Yes
Section Name:	Anesthesia Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether anesthesia data is being collected.		

Intent / Clarification:

Data Source:	User

Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Anesthesiologist Present
Short Name: **AnesPresent**
Section Name: Anesthesia Administrative
DBTableName: Operations
Definition: Indicate whether an anesthesiologist was present for the procedure.

SeqNo: 4585
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Primary Anesthesiologist Attending Name
Short Name: **PrimAnesName**
Section Name: Anesthesia Administrative
DBTableName: Operations
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.

SeqNo: 4590
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by user)

ParentLongName: Anesthesiologist Present
ParentShortName: **AnesPresent**
ParentHarvestCodes: 1

ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes

Long Name: Primary Anesthesiologist National Provider Identifier
Short Name: **PrimAnesNPI**
Section Name: Anesthesia Administrative
DBTableName: Operations
Definition: Indicate the individual-level National Provider Identifier (NPI) of the anesthesiologist performing the procedure.

SeqNo: 4600
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Lookup
Format: Text

ParentLongName: Anesthesiologist Present
ParentShortName: **AnesPresent**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Secondary Anesthesiologist Attending
Short Name: **SecAnes**
Section Name: Anesthesia Administrative
DBTableName: Operations
Definition: Indicate whether a relieving anesthesiologist and/or second anesthesiology attending was present during this procedure.

SeqNo: 4610
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiologist Present
ParentShortName: **AnesPresent**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Fellow or Resident Present	*SeqNo:*	4630
Short Name:	**FelRes**	*Core:*	Yes
Section Name:	Anesthesia Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a Fellow or Resident was present during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Mid-Level Provider (CRNA, AA) Present	*SeqNo:*	4640
Short Name:	**CRNA**	*Core:*	Yes
Section Name:	Anesthesia Administrative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a Certified Registered Nurse Anesthetist (CRNA) or Anesthesia Assistant (AA) participated in the patient care during all or part of this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Medications Table Unique Record Identifier	*SeqNo:*	4670

Short Name:	**PMUniqueID**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	PreopMeds		
Definition:	Unique identifier for the record in the Preoperative Medications table.		

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: : Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name:	Preoperative Medication Link to Operations Table	*SeqNo:*	4680
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	PreopMeds		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Preoperative Medications record with the associated record in the Operations table.		

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: : Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Anesthesia Pre-operative

Long Name:	Preoperative Medication Category	*SeqNo:*	4700
Short Name:	**PreopMedCat**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	PreopMeds		
Definition:	Indicate the categories of preoperative medication(s) given to the patient within 24 hours (unless noted otherwise) prior to the period of anesthetic care.		

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
5	None
10	Amiodarone
20	Angiotensin Converting Enzyme (ACE) Inhibitors
760	Angiotensin Receptor Blockers (ARB)
700	Anti-arrhythmics Not Otherwise Listed
770	Anticoagulents Not Otherwise Listed
30	Anti-reflux Medications (H2 antagonists, PPI, propulsives)
40	Anti-seizure Medications
50	Aspirin (within 5 days)
60	Benzodiazepines
70	Beta blockers
80	Birth Control (Oral, Intramuscular)
200	Bronchodilators, Inhaled
90	Calcium Channel Blockers
100	Calcium Chloride Infusion
750	Clonidine
110	Coumadin
740	Dexmedetomidine
120	Digoxin
130	Direct Thrombin Inhibitors (e.g., argatroban)
140	Diuretics
150	Dobutamine
160	Dopamine
170	Endothelin Antagonist (e.g., Bosentan)
180	Epinephrine
190	Heparin
220	Heparin, Low Molecular Weight
710	Inotropes Not Otherwise Listed
210	Insulin
230	Milrinone
240	Narcotics
250	Nitric Oxide
260	Nitroglycerin
270	Nitroprusside
280	Norepinephrine
290	PDE-5 Inhibitors (e.g., Sildenafil)
300	Platelet Inhibitors other than Aspirin (e.g., Plavix) (within 5 days)
310	Prostacyclin (e.g., Flolan, Remodulin)
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

900 Other

Long Name:	Preoperative Sedation	*SeqNo:*	4710
Short Name:	**PreopSed**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received preoperative sedation.		
Intent / Clarification:	Preop sedation refers to medication given by the anesthesiologists prior to induction of anesthesia, regardless of location		
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Anesthesiology Data Collected		
ParentShortName:	**Anesthesia**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

May 2019: The definition states indicate whether the patient received preoperative sedation. My question is is this section asking if the patient received any medication on the unit prior to entering the OR? **Preop sedation refers to medication given by the anesthesiologists prior to induction of anesthesia, regardless of location.**

Long Name:	Preoperative Sedation Route	*SeqNo:*	4720
Short Name:	**PreopSedRte**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the route used for preoperative sedation.		
Intent / Clarification:			
Data Source:	User		
Format:	Text (categorical values specified by STS)		
ParentLongName:	Preoperative Sedation		
ParentShortName:	**PreopSed**		
ParentHarvestCodes:	1		
ParentValues:	= "Yes"		

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
1	IM	

2	IV	
3	Nasal	
4	PO/GT	Indicate if preoperative sedation given either by mouth or via G-Tube.
5	Rectal	

June 2022: When 2 or more medications are given for pre-op sedation via different routes, what is suggested for entry for route (PreopSedRte, 4720)? If a route is selected for one med it would be incorrect route coded for other med(s). **It is appropriate to select one of the routes for one of the medications given.**

Long Name:	Preoperative Sedation Drug - Atropine	*SeqNo:*	4730
Short Name:	**PreopSedDrugAtro**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Atropine for preoperative sedation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative Sedation
ParentShortName:	**PreopSed**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug - Demerol	*SeqNo:*	4740
Short Name:	**PreopSedDrugDem**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Demerol for preoperative sedation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative Sedation
ParentShortName:	**PreopSed**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug - Dexmedetomidine	*SeqNo:*	4741
Short Name:	**PreopSedDrugDex**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Dexmedetomidine for preoperative sedation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative Sedation
ParentShortName:	**PreopSed**
ParentHarvestCodes:	1
ParentValues:	= “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug - Diazepam	*SeqNo:*	4750
Short Name:	**PreopSedDrugDiaz**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Diazepam for preoperative sedation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Preoperative Sedation
ParentShortName:	**PreopSed**
ParentHarvestCodes:	1
ParentValues:	= “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug - Fentanyl	*SeqNo:*	4751
Short Name:	**PreopSedDrugFent**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Fentanyl for preoperative sedation.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug – Glycopyrrolate	*SeqNo:*	4760
Short Name:	**PreopSedDrugGlyco**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received Glycopyrrolate for preoperative sedation.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Preoperative Sedation Drug – Ketamine	*SeqNo:*	4770

Short Name: **PreopSedDrugKet** *Core:* Yes
Section Name: Anesthesia Preoperative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the patient received Ketamine for preoperative sedation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Preoperative Sedation Drug - Lorazepam *SeqNo:* 4780
Short Name: **PreopSedDrugLoraz** *Core:* Yes
Section Name: Anesthesia Preoperative *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the patient received Lorazepam for preoperative sedation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Preoperative Sedation Drug - Midazolam *SeqNo:* 4790
Short Name: **PreopSedDrugMidaz** *Core:* Yes
Section Name: Anesthesia Preoperative *Harvest:* Yes
DBTableName: Operations

Definition: Indicate whether the patient received Midazolam for preoperative sedation.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Preoperative Sedation Drug - Morphine
Short Name: **PreopSedDrugMorph**
Section Name: Anesthesia Preoperative
DBTableName: Operations
Definition: Indicate whether the patient received Morphine for preoperative sedation.

SeqNo: 4800
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Preoperative Sedation Drug - Pentobarbital
Short Name: **PreopSedDrugPent**
Section Name: Anesthesia Preoperative
DBTableName: Operations
Definition: Indicate whether the patient received Pentobarbital for preoperative sedation.

SeqNo: 4810
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Preoperative Sedation
ParentShortName: **PreopSed**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Preoperative Baseline Oxygen Saturation
Short Name: **PreopO2Sat**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate the preoperative resting pulse oximeter saturation (%) recorded either in the clinic or immediately prior to the procedure.

SeqNo: 4820
Core: Yes
Harvest: Yes

Low Value: 1.0
High Value: 100.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Preoperative Oxygen Supplementation
Short Name: **PreopOxygen**
Section Name: Anesthesia Preoperative
DBTableName: Operations
Definition: Indicate whether the patient received preoperative oxygen supplementation.

SeqNo: 4830
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Transport to Procedure Location Date and Time	*SeqNo:*	4840
Short Name:	**PLocTransDT**	*Core:*	Yes
Section Name:	Anesthesia Preoperative	*Harvest:*	Yes
DBTableName:	Operations		
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.		

Intent / Clarification:

Data Source: User
Format: Date/Time - mm/dd/yyyy hh:mm

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Anesthesia Monitoring

Long Name:	Arterial Line	*SeqNo:*	4850
Short Name:	**ArtLine**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether an arterial line was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Arterial Line Type - Radial	*SeqNo:*	4860
Short Name:	**ArtLineTypeRad**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a radial arterial line type during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Arterial Line Type - Brachial	*SeqNo:*	4870
Short Name:	**ArtLineTypeBrach**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a brachial arterial line type was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Arterial Line Type - Axillary	*SeqNo:*	4880
Short Name:	**ArtLineTypeAx**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether an axillary arterial line type was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line Type - Femoral *SeqNo:* 4890
Short Name: **ArtLineTypeFem** *Core:* Yes
Section Name: Anesthesia Monitoring *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether a femoral arterial line type was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line Type - Ulnar *SeqNo:* 4900
Short Name: **ArtLineTypeUlnar** *Core:* Yes
Section Name: Anesthesia Monitoring *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether an ulnar arterial line type was used during this procedure.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line Type - Dorsalis Pedis
Short Name: **ArtLineTypeDors**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether a dorsalis pedis arterial line type was used during this procedure.

SeqNo: 4910
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line Type – Posterior Tibial
Short Name: **ArtLineTypePost**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether a posterior tibial arterial line type was used during this procedure.

SeqNo: 4920
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line Type - Umbilical
SeqNo: 4930
Short Name: **ArtLineTypeCent**
Core: Yes
Section Name: Anesthesia Monitoring
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether an umbilical arterial line type was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Arterial Line In-Situ Pre-Procedure
SeqNo: 4931
Short Name: **ArtLinePreProc**
Core: Yes
Section Name: Anesthesia Monitoring
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether the arterial line was in-situ pre-procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Arterial Line
ParentShortName: **ArtLine**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cutdown	*SeqNo:*	4940
Short Name:	**Cutdown**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a cutdown was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cutdown Type - Radial	*SeqNo:*	4950
Short Name:	**CutdownRad**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a radial cutdown was used.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cutdown
ParentShortName: **Cutdown**
ParentHarvestCodes: n1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Cutdown Type - Femoral	*SeqNo:*	4960
Short Name:	**CutdownFem**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a femoral cutdown was used.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cutdown
ParentShortName: **Cutdown**
ParentHarvestCodes: n1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Cutdown Type - Ulnar
Short Name: **CutdownUln**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether an ulnar cutdown was used.

SeqNo: 4970
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cutdown
ParentShortName: **Cutdown**
ParentHarvestCodes: n1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Cutdown Type - Other
Short Name: **CutdownOth**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether any other type of cutdown was used.

SeqNo: 4980
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Cutdown

ParentShortName: **Cutdown**
ParentHarvestCodes: n1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure
Short Name: **PercCentPress**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used during this procedure.

SeqNo: 4990
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure Location – Right Internal Jugular
Short Name: **PCPLocRJug**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in the right internal jugular.

SeqNo: 5000
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Percutaneous Central Pressure Location – Left Internal Jugular	*SeqNo:*	5010
Short Name:	**PCPLocLJug**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the percutaneous central pressure was used in the left internal jugular.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Percutaneous Central Pressure Location – Right Subclavian	*SeqNo:*	5020
Short Name:	**PCPLobRSub**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the percutaneous central pressure was used in the right subclavian.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Percutaneous Central Pressure Location – Left Subclavian	*SeqNo:*	5030
Short Name:	**PCPLobLSub**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes

DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in the left subclavian.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure Location – Right Femoral Vein
Short Name: **PCPLocRFem**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in the right femoral vein.

SeqNo: 5040
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure Location – Left Femoral Vein
Short Name: **PCPLocLFem**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in the left femoral vein.

SeqNo: 5050
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure Location - PICC
Short Name: **PCPLocPICC**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in the PICC.

SeqNo: 5051
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Percutaneous Central Pressure Location - Other
Short Name: **PCPLocOth**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the percutaneous central pressure was used in any other location.

SeqNo: 5060
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: CVP, PICC, LA or RA Line(s) In-Situ Pre-Procedure
SeqNo: 5062
Short Name: **CVPPICCPreProc**
Core: Yes
Section Name: Anesthesia Monitoring
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a CVP, PICC, LA or RA line(s) were in place prior to entering the OR.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Percutaneous Central Pressure
ParentShortName: **PercCentPress**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: CVP Placed By Anesthesia
SeqNo: 5070
Short Name: **CVPPlaced**
Core: Yes
Section Name: Anesthesia Monitoring
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether a CVP was placed by anesthesia during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Surgeon Placed Lines INSTEAD of Anesthesia Placed Central Lines	*SeqNo:*	5071
Short Name:	**SurgMonLines**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
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 existence percutaneous CVL or PICC. This does not include monitoring lines placed during the procedure in addition to the anesthesia or in-situ catheters.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

October 2021: My anesthesiologist placed and used a RIJ central line for CVP monitoring. The surgeon also placed a RA line - that was not inserted until the end of the case after the patient was off bypass. My first question is: do I include the RA line as "other" under percutaneous central pressure because the end of the case, they did monitor a CVP pressure using this line. Relating to: Sequence Number: 5070/5071 Field Name: CVPPlaced and SurgMonLines - My second question is: it is asked if the CVP was placed by anesthesia - in this case, the RIJ was placed by anesthesia, but the RA was not. It also asks if the surgeon placed the lines instead of anesthesia and this is not accurate - how do I answer these questions if I use the RA Line under monitoring? **In this scenario, a CVP was placed by anesthesia (CVPPlaced is yes), however the surgeon did not placed lines instead of anesthsia (SurgMonLines is no).**

Long Name:	Swan-Ganz Catheter	*SeqNo:*	5080
Short Name:	**SGCath**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a Swan-Ganz catheter was inserted or utilized by anesthesia during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Oximetric Central Line
Short Name: **ScVO2**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether an oximetric central line was inserted or utilized by anesthesia during this procedure.

SeqNo: 5090
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Ultrasound Guidance Used For Line Placement
Short Name: **UltraGuide**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether real-time ultrasound imaging was used for line placement (i.e., Sonosite or equivalent).

SeqNo: 5100
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	None
2	Yes – arterial line only
3	Yes – central venous line only
4	Yes – arterial and central venous lines

Long Name:	Neurologic Monitoring	*SeqNo:*	5110
Short Name:	**NeuroMonitor**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient received neurologic monitoring during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Neurologic Monitoring – Bispectral Index	*SeqNo:*	5130
Short Name:	**NeuroMonBIS**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the neurologic monitoring performed during this procedure included Bispectral Index (BIS).		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Neurologic Monitoring
ParentShortName: **NeuroMonitor**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Neurologic Monitoring – Transcranial Doppler	*SeqNo:*	5140
Short Name:	**NeuroMonTCD**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether the neurologic monitoring performed during this procedure included Transcranial Doppler (TCD).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Neurologic Monitoring
ParentShortName: **NeuroMonitor**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Neurologic Monitoring – NIRS (Cerebral) *SeqNo:* 5141
Short Name: **NeuroMonNIRS** *Core:* Yes
Section Name: Anesthesia Monitoring *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the neurologic (cerebral) monitoring performed during the procedure included Near Infrared Spectroscopy (NIRS).

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Neurologic Monitoring
ParentShortName: **NeuroMonitor**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Neurologic Monitoring - Other *SeqNo:* 5150
Short Name: **NeuroMonOth** *Core:* Yes
Section Name: Anesthesia Monitoring *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether the neurologic monitoring performed during this procedure included some other method.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Neurologic Monitoring
ParentShortName: **NeuroMonitor**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Lowest Recorded Intraoperative Temperature
Short Name: **LowIntraopTemp**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate the patient's lowest temperature (in degrees Centigrade) recorded during the intraoperative period.

SeqNo: 5160
Core: Yes
Harvest: Yes

Low Value: 0.1
High Value: 40.9

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Lowest Intraoperative Temperature Monitoring Site
Short Name: **IntraopTempSite**
Section Name: Anesthesia Monitoring
DBTableName: Operations
Definition: Indicate whether the site where the patient's lowest temperature was being recorded intraoperatively.

SeqNo: 5170
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
1	Nasal
2	Esophageal
3	Bladder
4	Rectal
5	Axillary
6	Skin
7	Tympanic
9	Other

Long Name:	Transesophageal Echocardiography	*SeqNo:*	5180
Short Name:	**TEE**	*Core:*	Yes
Section Name:	Anesthesia Monitoring	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a transesophageal echocardiography probe was placed or attempted during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Anesthesia Anesthetic Techique

Long Name:	Induction Date and Time	*SeqNo:*	5190
Short Name:	**InductionDT**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the date (mm/dd/yyyy) and time (hh:mm 24-hour clock) of day when the patient was first induced.		

Intent / Clarification:

Data Source:	User
Format:	Date/Time - mm/dd/yyyy hh:mm
ParentLongName: :	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1

ParentValues: = "Yes"

Long Name: Induction Type - Inhalation
Short Name: **IndTypeInh**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether an inhalation drug was used as an induction agent.

SeqNo: 5200
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Inhalation - Sevoflurane
Short Name: **IndAgentInhalSevo**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether sevoflurane was used for induction of anesthesia.

SeqNo: 5220
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Inhalation
ParentShortName: **IndTypeInh**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Inhalation - Isoflurane

SeqNo: 5230

Short Name: **IndAgentInhalIso** *Core:* Yes
Section Name: Anesthesia Anesthetic Technique *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether isoflurane was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Inhalation
ParentShortName: **IndTypeInh**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous *SeqNo:* 5240
Short Name: **IndTypeIV** *Core:* Yes
Section Name: Anesthesia Anesthetic Technique *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether an intravenous drug was used as an induction agent.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anethesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Sodium Thiopental *SeqNo:* 5260
Short Name: **IndAgentIVSodT** *Core:* Yes
Section Name: Anesthesia Anesthetic Technique *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether sodium thiopental was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Ketamine
Short Name: **IndAgentIVKet**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether ketamine was used for induction of anesthesia.

SeqNo: 5270
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Etomidate
Short Name: **IndAgentIVEtom**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether etomidate was used for induction of anesthesia.

SeqNo: 5280
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Propfol
SeqNo: 5290
Short Name: **IndAgentIVProp**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether propofol was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Fentanyl
SeqNo: 5300
Short Name: **IndAgentIVFent**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether fentanyl was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Midazolam
SeqNo: 5310
Short Name: **IndAgentIVMid**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations

Definition: Indicate whether midazolam was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous – Dexmedetomidine
Short Name: **IndAgentIVDex**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether dexmedetomidine was used for induction of anesthesia.

SeqNo: 5320
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous - Sufentanil
Short Name: **IndAgentIVSuf**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether intramuscular sufentanil was used for induction of anesthesia.

SeqNo: 5330
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intravenous - Remifentanil
Short Name: **IndAgentIVRem**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether remifentanil drug was used for induction of anesthesia.

SeqNo: 5340
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type – Intravenous
ParentShortName: **IndTypeIV**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Type – Intramuscular
Short Name: **IndTypeIM**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether an intramuscular drug was used for induction.

SeqNo: 5350
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intramuscular - Ketamine
SeqNo: 5370
Short Name: **IndAgentIMKet**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether intramuscular ketamine was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type - Intramuscular
ParentShortName: **IndTypeIM**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Induction Agent – Intramuscular - Midazolam
SeqNo: 5380
Short Name: **IndAgentIMMid**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether intramuscular midazolam was used for induction of anesthesia.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Induction Type - Intramuscular
ParentShortName: **IndTypeIM**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic	*SeqNo:*	5400
Short Name:	**RegionalAnes**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether a regional anesthetic was used during this operation.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

January 2022: What is the difference between fields (5400) Regional Anesthetic and (5540) Regional Field Block by Surgery or Anesthesia?

A regional field block is when local anesthetics are injected into the subcutaneous tissue (the skin). It is most often done by surgery.

A regional anesthetic is when a specific regional anesthetic block is done. They usually have a name as listed 5410 and these are almost always done by anesthesia. They may involve placing a catheter as well.

An intercostal nerve infiltration is usually listed as "intercostal nerve block or local" in either the operative report or in the anesthetic record if it has been done. It might be done by surgery or anesthesia.

It is possible for patients to have multiple techniques used. Although, if the surgeon does an "intercostal nerve block", do not also select regional field block unless it was specifically mentioned that they infiltrated the skin as well.

Long Name:	Regional Anesthetic Site	*SeqNo:*	5410
Short Name:	**RegAnesSite**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the technique used for the regional anesthetic.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName: : Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "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
9	Other

Long Name: Regional Anesthetic Drug – Bupivicaine
Short Name: **RegAnesDrugBup**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether the regional anesthetic drug Bupivicaine was used during this procedure.

SeqNo: 5420
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Anesthetic Drug – Bupivicaine/Fentanyl
Short Name: **RegAnesDrugBupFen**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether the regional anesthetic drug Bupivicaine/Fentanyl was used during this procedure.

SeqNo: 5430
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Anesthetic Drug – Clonidine
Short Name: **RegAnesDrugClon**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether the regional anesthetic drug Fentanyl was used during this procedure.

SeqNo: 5440
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Anesthetic Drug – Fentanyl
Short Name: **RegAnesDrugFen**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether the regional anesthetic drug Fentanyl was used during this procedure.

SeqNo: 5450
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic Drug – Hydromorphone	*SeqNo:*	5460
Short Name:	**RegAnesDrugHydro**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the regional anesthetic drug Hydromorphone was used during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Regional Anesthetic
ParentShortName:	**RegionalAnes**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic Drug – Lidocaine	*SeqNo:*	5470
Short Name:	**RegAnesDrugLido**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the regional anesthetic drug Lidocaine was used during this procedure.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Regional Anesthetic
ParentShortName:	**RegionalAnes**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic Drug – Morphine	*SeqNo:*	5480
Short Name:	**RegAnesDrugMorph**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the regional anesthetic drug Morphine was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic Drug – Ropivicaine	*SeqNo:*	5490
Short Name:	**RegAnesDrugRop**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the regional anesthetic drug Ropivicaine was used during this procedure.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Regional Anesthetic Drug – Ropivicaine/Fentanyl	*SeqNo:*	5500
Short Name:	**RegAnesDrugRopFen**	*Core:*	Yes
Section Name:	Anesthesia Anesthetic Technique	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether the regional anesthetic drug Ropivicaine/Fentanyl was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Anesthetic Drug – Tetracaine
SeqNo: 5510
Short Name: **RegAnesDrugTetra**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether the regional anesthetic drug Tetracaine was used during this procedure.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Anesthetic Drug – Other
SeqNo: 5520
Short Name: **RegAnesDrugOth**
Core: Yes
Section Name: Anesthesia Anesthetic Technique
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether any other regional anesthetic drug was used during this procedure.

Intent / Clarification:

Data Source: User

Format: Text (categorical values specified by STS)

ParentLongName: Regional Anesthetic
ParentShortName: **RegionalAnes**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Intercostal Nerve Infiltration By Surgeon or Anesthesia
Short Name: **IntNerveInf**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether intercostal nerve infiltration was performed by the surgeon or anesthesiologist.

SeqNo: 5530
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Regional Field Block by Surgeon or Anesthesia
Short Name: **RegFieldBlock**
Section Name: Anesthesia Anesthetic Technique
DBTableName: Operations
Definition: Indicate whether a regional field block was performed by the surgeon or anesthesiologist.

SeqNo: 5540
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

January 2022: If the surgeon writes A 0.2% ropivacaine was injected into the intercostal spaces for local and regional anesthesia--should we be coding this and how? Do we fill in the regional anesthetic drug and location as "other" or code 5540 for regional block or none of the above? does this only apply to spinal blocks? More clarity is definitely appreciated**. Regional field block by surgeon/anesthesiologist is appropriate. Don't need to code the drugs.**

Anesthesia Airway

Long Name:	Airway In-situ (ETT or Tracheostomy)	*SeqNo:*	5550
Short Name:	**AirwayInsitu**	*Core:*	Yes
Section Name:	Anesthesia Airway	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether an Endotracheal Tube (ETT) or tracheostomy was in place prior to arrival in the procedure area.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	ETT or Tracheostomy Replaced For Procedure	*SeqNo:*	5551
Short Name:	**AirwayReplaced**	*Core:*	Yes
Section Name:	Anesthesia Airway	*Harvest:*	Yes
DBTableName:	Operations		
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.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName: Airway In-situ (ETT or Tracheostomy)
ParentShortName: **AirwayInsitu**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Airway Type
Short Name: **AirwayType**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate the type of airway support that was used during this procedure.

SeqNo: 5560
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentValue: 1
ParentHarvestCodes: = "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

Long Name: Airway Size – Laryngeal Size Mask Airway
Short Name: **AirwaySizeLMA**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate the size of the laryngeal mask airway used during this operation.

SeqNo: 5570
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Airway Type
ParentShortName: **AirwayType**
ParentHarvestCodes: 4
ParentValues: = "Laryngeal Mask Airway (LMA)"

Harvest Codes:

Code:	*Value:*
10	1.0
15	1.5
20	2.0
25	2.5
30	3.0
40	4.0
50	5.0

Long Name: Airway Size - Endotracheal Intubation
Short Name: **AirwaySizeIntub**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate the size of the endotracheal intubation airway used during this procedure. Measurement should be the inner diameter (ID) size measured in millimeters (mm).

SeqNo: 5580
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Airway Type
ParentShortName: **AirwayType**
ParentHarvestCodes: 5
ParentValues: = "Endotracheal intubation"

Harvest Codes:

Code:	*Value:*
25	2.5
30	3.0
35	3.5
40	4.0
45	4.5
50	5.0
55	5.5
60	6.0
65	6.5
70	7.0
75	7.5
80	8.0
95	Other
96	Airway size not listed (DLETT, Tracheotomy)

Long Name:	Cuffed	*SeqNo:*	5590
Short Name:	**AirwaySitelCuffed**	*Core:*	Yes
Section Name:	Anesthesia Airway	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the endotracheal tube was cuffed.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Airway Type
ParentShortName: **AirwayType**
ParentHarvestCodes: 5
ParentValues: = "Endotracheal intubation"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Airway Site	*SeqNo:*	5600
Short Name:	**AirwaySite**	*Core:*	Yes
Section Name:	Anesthesia Airway	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the endotracheal intubation site.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Airway Type
ParentShortName: **AirwayType**
ParentHarvestCodes: 5|6
ParentValues: = "Endotracheal intubation" or "Tracheostomy"

Harvest Codes:

Code:	*Value:*
1	Oral
2	Nasal
3	Tracheostomy

Long Name:	Endobronchial Isolation (DLETT, Bronchial Blocker)	*SeqNo:*	5610
Short Name:	**EndobroncIso**	*Core:*	Yes
Section Name:	Anesthesia Airway	*Harvest:*	Yes
DBTableName:	Operations		

Definition: Indicate whether endobronchial isolation was employed using a double lumen ETT or bronchial blocker.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Endobronchial Isolation Method
Short Name: **EndobronchIsoMeth**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate the method used to isolate lung.

SeqNo: 5611
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Endobronchial Isolation (DLETT, Bronchial Blocker)
ParentShortName: **EndobroncIso**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Double Lumen ETT
2	Arndt Bronchial Blocker
3	Fogarty Catheter
4	Intentional Mainstem ETT
5	Univent ETT
6	Other

Long Name: ICU-Type Ventilator Used Intraop
Short Name: **ICUTypeVent**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate whether an ICU-type ventilator was used during the procedure.

SeqNo: 5620
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Anesthesia Ready / End of Induction
Short Name: **EndOfInductDT**
Section Name: Anesthesia Airway
DBTableName: Operations
Definition: Indicate the date and time at which anesthesia preparations for surgery, such as placement of desired airway and vascular access, have been completed.

SeqNo: 5621
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Date/Time - mm/dd/yyyy hh:mm

ParentLongName: : Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Intraoperative Pharmacology Table Unique Record Identifier
Short Name: **IPUniqueID**
Section Name: Anesthesia Pharmacology On Arrival To ICU/PACU
DBTableName: IntraopPharm
Definition: Unique identifier for the record in the Intraoperative Pharmacology table.

SeqNo: 6120
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: : Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name:	Intraoperative Pharmacology Link to operations Table	*SeqNo:*	6130
Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Anesthesia Pharmacology On Arrival To ICU/PACU	*Harvest:*	Yes
DBTableName:	IntraopPharm		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Intraoperative Pharmacology records with the associated record in the Operations table.		

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: : Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentHarvestCodes: 1
ParentValues: = "Yes"

Anesthesia Intra-operative Pharmacology (including CPB)

Long Name:	IntraOperative Pharmacology (Including CPB)	*SeqNo:*	6140
Short Name:	**IntraopPharm**	*Core:*	Yes
Section Name:	Anesthesia Pharmacology On Arrival To ICU/PACU	*Harvest:*	Yes
DBTableName:	IntraopPharm		
Definition:	Indicate the medications that were given during the intraoperative time period.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: : Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
10	None
450	5-HT3 Agents (e.g., Ondansetron)
520	Acetaminophen
20	Adenosine bolus
50	Amiodarone
440	Benzodiazepine
420	Bronchodilators - Inhaled
70	Calcium Chloride infusion
75	Calcium Gluconate infusion
480	Desflurane
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
460	Isoflurane
170	Isoproterenol infusion
490	Ketamine
530	Ketorolac
540	Levosimendan
190	Magnesium Sulfate
210	Milrinone
430	Narcotic
230	Nesiritide Infusion
240	Nicardipine Infusion
250	Nitric Oxide Inhalation
260	Nitroglycerin (Tridil) Infusion
270	Nitroprusside (Nipride)
180	Norepinephrine (Levophed) infusion
280	Phenoxybenzamine bolus
290	Phentolamine (Regitine)
300	Phenylephrine infusion
500	Procainamide
310	Propofol (Diprivan) infusion
320	Prostaglandin infusion
470	Sevoflurane
400	Sodium Bicarbonate bolus
160	Steroids IV / CPB (Hydrocortisone/Methylprednisolone/Dexamethasone)
340	Thyroid Hormone
410	Tromethamine (THAM) bolus
390	Vasoconstrictor, Other
380	Vasodilator, Other
360	Vasopressin infusion

April 2019: I would like some clarification as to what to include in the anesthesia intraop pharmacology section. Are we only to include Calcium continuous drips or should we include 1 time doses of Calcium? This would be when it is not given as a code drug or continuous drip. There seems to be several drugs that are given as infusions on the list but don't have infusions behind their name like Milrinone. The data collection form says Dopamine Infusion but then it just says Milrinone. Should we include epi given as code drugs or only when it is an infusion? How long does the drip have to be on to be considered an infusion? Also, in the preop pharmacology section, Calcium Gluconate is not an option. So we should only capture Calcium Chloride, and again, only when it is continuous or when they have received replacement doses? Some more clarification would definitely be appreciated. **Boluses are not included; definition of an infusion is any dosage where it is listed as mg/kg/HR or the equivalent rather than a series of boluses. Calcium Gluconate is not listed as premedication; no particular reason why, just never bothered listing it. Probably could change the wording to Calcium infusion, but that might also be confusing as a lot of TPN mixtures have some calcium in them so technically that might count.**

Long Name:	AT III Measured Preoperatively	*SeqNo:*	6141
Short Name:	**ATMeasPreop**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes

DBTableName: Operations
Definition: Indicate whether antithrombin III level was measured prior to arrival in the operating room.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

July 2019: What is the time frame for AT III Measured Preoperatively? Within 24 hours of OR entry? 48 hours? Within the same admission? **Within 24 hours provides the most meaningful data.**

Long Name: Fibrinogen Checked During CPB
SeqNo: 6142
Short Name: **CPBLabFib**
Core: Yes
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
Harvest: Yes
DBTableName: Operations
Definition: Indicate whether fibrinogen was checked during CPB.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Fibrinogen Value - mg/dL
SeqNo: 6143
Short Name: **CPBLabFibVal**
Core: Yes
Section Name: Anesthesia ICU/PACU Care
Harvest: Yes
DBTableName: Operations
Definition: Indicate the fibrinogen value in mg/dl.
Low Value: 1
High Value: 500

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Fibrinogen Checked During CPB
ParentShortName: **CPBLabFib**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Platelet Count Checked During CPB
Short Name: **CPBLabPlatelet**
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
DBTableName: Operations
Definition: Indicate whether the platelet count was checked during CPB.

SeqNo: 6144
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Platelet Count Value
Short Name: **CPBLabPlateletVal**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the platelet count value.
Low Value: 1
High Value: 500

SeqNo: 6145
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Platelet Count Checked During CPB
ParentShortName: **CPBLabPlatelet**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name:	TEG Checked During CPB	*SeqNo:*	6146
Short Name:	**CBPLabTEG**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TEG was checked during CPB.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

September 2019: If Platelet Count was checked more than once during CPB, should we report the first value taken or the last? **The last platelet value is the best to report as it should be the lowest and reflect the true thrombocytopenia induced by bypass.**

Long Name:	TEG-FF Checked During CPB	*SeqNo:*	6147
Short Name:	**CPBLabTEGFF**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TEG-FF was checked during CPB.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	**Anesthesia**
ParentHarvestCodes:	1
ParentValues:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	ROTEM Checked During CPB	*SeqNo:*	6148

Short Name: **CPBLabROTEM** *Core:* Yes
Section Name: Anesthesia Intraoperative Pharmacology (including CPB) *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether ROTEM was checked during CPB.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: FIBTEM Checked During CPB *SeqNo:* 6149
Short Name: **CPBLabFIBTEM** *Core:* Yes
Section Name: Anesthesia Intraoperative Pharmacology (including CPB) *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether FIBTEM was checked during CPB.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: SONOCLOT Checked During CPB *SeqNo:* 6150
Short Name: **CPBLabSONO** *Core:* Yes
Section Name: Anesthesia Intraoperative Pharmacology (including CPB) *Harvest:* Yes
DBTableName: Operations
Definition: Indicate whether SONOCLOT was checked during CPB.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Post CPB - Fibrinogen Checked
Short Name: **PostCPBLabFib**
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
DBTableName: Operations
Definition: Indicate whether fibrinogen was checked in the operating room after CPB was completed.

SeqNo: 6151
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Post CPB - Fibrinogen Value - mg/dL
Short Name: **PostCPBLabFibVal**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the fibrinogen value.
Low Value: 1
High Value: 500

SeqNo: 6152
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Post CPB – Fibrinogen Checked

ParentShortName: **PostCPBLabFib**
ParentHarvestCodes: 1
Parent Value: = "Yes"

September 2019: If Fibrogen and/or platelet labs were done more than once after CPB and before patient left the OR, would you like the first value, last value, highest value, or lowest value? **Use the lowest value**

Long Name: Post CPB - Platelet Count Checked
Short Name: **PostCPBLabPlatelet**
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
DBTableName: Operations
Definition: Indicate whether platelet count was checked in the operating room after CPB was completed.

SeqNo: 6153
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Post CPB - Platelet Count Value
Short Name: **PostCPBLabPlateletVal**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the platelet count value.
Low Value: 1
High Value: 500

SeqNo: 6154
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: Post CPB - Platelet Count Checked
ParentShortName: **PostCPBLabPlatelet**
ParentHarvestCodes: 1
Parent Value: = "Yes"

September 2019: If Fibrogen and/or platelet labs were done more than once after CPB and before patient left the OR, would you like the first value, last value, highest value, or lowest value? **Use the lowest value**

Long Name:	Post CPB – TEG Checked	*SeqNo:*	6155
Short Name:	**PostCPBLabTEG**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TEG was checked in the operating room after CPB was completed.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentShortName: Anesthesiology Data Collected
ParentLongName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Post CPB – TEG-FF Checked	*SeqNo:*	6156
Short Name:	**PostCPBLabTEGFF**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether TEG-FF was checked in the operating room after CPB was completed.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Post CPB - ROTEM Checked	*SeqNo:*	6157
Short Name:	**PostCPBLabROTEM**	*Core:*	Yes
Section Name:	Anesthesia Intraoperative Pharmacology (including CPB)	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether ROTEM was checked in the operating room after CPB was completed.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Post CPB - FIBTEM Checked
Short Name: **PostCPBLabFIBTEM**
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
DBTableName: Operations
Definition: Indicate whether FIBTEM was checked in the operating room after CPB was completed.

SeqNo: 6158
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Post CPB - SONOCLOT Checked
Short Name: **PostCPBLabSONO**
Section Name: Anesthesia Intraoperative Pharmacology (including CPB)
DBTableName: Operations
Definition: Indicate whether SONOCLOT was checked in the operating room after CPB was completed.

SeqNo: 6159
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: ICU Pharmacology Table Unique Record Identifier
Short Name: **ICUPUniqueID**
Section Name: Anesthesia Pharmacology On Arrival To ICU/PACU
DBTableName: ICUPharm
Definition: Unique identifier for the record in the ICU Pharmacology table.

SeqNo: 6165
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: ICU Pharmacology Link to Operations Table
Short Name: **OperationID**
Section Name: Anesthesia Pharmacology On Arrival To ICU/PACU
DBTableName: ICUPharm
Definition: An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the ICU Pharmacology record with the associated record in the Operations table.

SeqNo: 6166
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Anesthesia Pharmacology on Arrival to ICU/PACU

Long Name:	ICU/PACU Arrival Pharmacology	*SeqNo:*	6170
Short Name:	**ICUPharm**	*Core:*	Yes
Section Name:	Anesthesia Pharmacology On Arrival To ICU/PACU	*Harvest:*	Yes
DBTableName:	ICUPharm		
Definition:	Indicate the medications that were given to the patient on arrival to ICU (Intensive Care Unit) / PACU (Post Anesthesia Care Unit).		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	Value:
5	None
20	Aminocaproic Acid (Amicar) infusion
30	Amiodarone infusion
40	Aprotinin (Trasylol) infusion
370	Benzodiazepine infusion
50	Calcium Chloride infusion
60	Calcium 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
410	Ketamine infusion
400	Levosimendan
350	Local anesthetic infusion via catheter (On-Q, pleural catheters)
150	Milrinone infusion
170	Muscle Relaxant infusion
360	Narcotic 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

290 Tranexamic Acid infusion
330 Vasoconstrictor, Other
320 Vasodilator, Other
300 Vasopressin infusion

Anesthesia ICU / PACU Care

Long Name: ICU/PACU Arrival Date and Time
Short Name: **ICUArrDT**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the date (mm/dd/yyyy) and time (hh:mm 24-hour clock) the patient arrived to the ICU / PACU.

SeqNo: 6180
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Date/Time - mm/dd/yyyy hh:mm

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Long Name: Initial FiO2
Short Name: **InitialFiO2**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the initial FiO2 (closest to the patient's arrival).
Low Value: 0.17
High Value: 1.0

SeqNo: 6190
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentShortName: Anesthesiology Data Collected
ParentLongName: **Anesthesia**
ParentHarvestCodes: 1
Parent Value: = "Yes"

<u>September 2021:</u> My institution calculates the FiO2 as a percentage. The field in the registry will not accept 21, for example. The parameter must be between .17 and 1. What is the unit of measurement that the registry is using? How do I convert a percentage to this unit? **You are correct, FiO2 (fraction of inspired oxygen) is reported as a percentage. The database collects the FiO2 percentage as a decimal. To convert the percentage to a decimal, divide by 100. For example, the FiO2 on room air is 21%. To enter this into the database as a decimal, divide 21 by 100 and you get 0.21. This is an allowable value in the acceptable range for this data field (0.17 - 1.0) which is 17% to 100% FiO2.**

Long Name:	Mechanical Circulatory Support (ECMO/VAD)	*SeqNo:*	6200
Short Name:	**MechCircSup**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient was on extracorporeal membrane oxygenation (ECMO) or on Ventricular Assist Device (VAD) on arrival.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	ICU/PACU Arrival Labs	*SeqNo:*	6211
Short Name:	**ICUPACULabs**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether lab tests were drawn upon arrival to PACU or ICU.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
ParentValues: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

May 2019: The definition states to document labs that are done upon arrival to the ICU. I would like to clarify how many minutes are acceptable to document labs that have been completed? There are many patients that have labs drawn 20 to 30 minutes after arriving on the unit and I know that it can take a few minutes to settle the patient in their room, gather orders and draw labs. Or can we document up to 1 hour after they arrive on the unit? **Up to an hour is fine.**

Long Name:	pH	*SeqNo:*	6220
Short Name:	**pH**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the pH level from the first ABG obtained.		
Low Value: 6.00			
High Value: 8.00			

Intent / Clarification:

Data Source:	User
Format:	Real
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	**ICUPACULabs**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

Long Name:	pCO2	*SeqNo:*	6230
Short Name:	**pCO2**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the pCO2 level from the first ABG obtained.		
Low Value: 20			
High Value: 150			

Intent / Clarification:

Data Source:	User
Format:	Integer
ParentLongName:	ICU/PACU Arrival Labs
ParentShortName:	**ICUPACULabs**
ParentHarvestCodes:	1
Parent Value:	= "Yes"

Long Name:	pO2	*SeqNo:*	6240
Short Name:	**pO2**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the pO2 level from the first ABG obtained.		
Low Value: 15			
High Value: 650			

Intent / Clarification:

Data Source:	User
Format:	Integer

ParentLongName: ICU/PACU Arrival Labs
ParentShortName: **ICUPACULabs**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Base Excess
Short Name: **BaseExcess**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the Base Excess level from the first ABG obtained.
Low Value: -30
High Value: 30

SeqNo: 6250
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Integer

ParentLongName: ICU/PACU Arrival Labs
ParentShortName: **ICUPACULabs**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Lactate
Short Name: **Lactate**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the Lactate level from the first ABG obtained.
Low Value: 0.1
High Value: 30.0

SeqNo: 6260
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: ICU/PACU Arrival Labs
ParentShortName: **ICUPACULabs**
ParentHarvestCodes: 1
Parent Value: = "Yes"

Long Name: Hematocrit

SeqNo: 6270

Short Name:		**Hematocrit**	*Core:*	Yes
Section Name:		Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:		Operations		
Definition:		Indicate the hematocrit level from the first ABG obtained.		
Low Value:	5.0			
High Value:	70.0			
Intent / Clarification:				
Data Source:		User		
Format:		Real		
ParentLongName:		ICU/PACU Arrival Labs		
ParentShortName:		**ICUPACULabs**		
ParentHarvestCodes:		1		
Parent Value:		= "Yes"		

May 2022: The definition of this field states to indicate the hematocrit level from the first ABG obtained. My program does not routinely obtain a hematocrit with the ABG, but instead obtains a CBC at the same time as the ABG. Can we use the hematocrit from the CBC or should be leave this field blank? **Yes, it is appropriate to use the hematocrit from the first CBC obtained postoperatively in the event it is not available on the ABG.**

Long Name:		Initial Pulse Oximeter	*SeqNo:*	6280
Short Name:		**InitPulseOx**	*Core:*	Yes
Section Name:		Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:		Operations		
Definition:		Indicate the first pulse oximeter measurement after arrival to ICU / PACU.		
Low Value:	50.0			
High Value:	100.0			
Intent / Clarification:				
Data Source:		User		
Format:		Real		
ParentLongName:		Anesthesiology Data Collected		
ParentShortName:		**Anesthesia**		
ParentHarvestCodes:		1		
Parent Value:		= "Yes"		

Long Name:		Temperature ICU/PACU Arrival	*SeqNo:*	6290
Short Name:		**TempICUArr**	*Core:*	Yes
Section Name:		Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:		Operations		
Definition:		Indicate the patient's temperature in degrees centigrade on arrival to		

the ICU/PACU.

Low Value: 30.0
High Value: 43.0

Intent / Clarification:

Data Source: User
Format: Real

ParentLongName: Anesthesiology Data Collected
ParentShortName: **Anesthesia**
ParentHarvestCodes: 1
Parent Value: = "Yes"

January 2022: For the data element " indicate the patient's temperature upon arrival to the ICU/PACU " is there a time frame for which to take the information. For example: the patient arrives in the ICU at 1400 and there is no temperature documented til 1450, is this temperature acceptable or do I leave that field blank? **Record the first temperature documented regardless of the timeframe. Sometimes temperatures are included on the first blood gas sent.**

Long Name: Temperature Measurement Site
Short Name: **TempSite**
Section Name: Anesthesia ICU/PACU Care
DBTableName: Operations
Definition: Indicate the location where the patient's temperature was measured.

SeqNo: 6300
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Temperature ICU/PACU Arrival
ParentShortName: **TempICUArr**
ParentHarvestCodes: Is Not Missing
ParentValues: 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

Long Name:	Temporary Pacemaker on Arrival In ICU/PACU	*SeqNo:*	6310
Short Name:	**TempPace**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the need for a temporary pacemaker on arrival to the ICU/PACU.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentValue: 1
ParentHarvestCodes: = “Yes”

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Temporary Pacemaker Site	*SeqNo:*	6320
Short Name:	**TempPaceSite**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate the site of the temporary pacemaker.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Temporary Pacemaker on Arrival In ICU/PACU
ParentShortName: **TempPace**
ParentHarvestCodes: 1
ParentValue: = "Yes"

Harvest Codes:

Code:	*Value:*
1	Epicardial
2	Transvenous

Long Name:	Type of Temporary Pacing	*SeqNo:*	6330
Short Name:	**TempPaceType**	*Core:*	Yes

Section Name: Anesthesia ICU/PACU Care *Harvest:* Yes
DBTableName: Operations
Definition: Indicate the type of temporary pacing.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

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

Long Name: Disposition Under Anesthesia *SeqNo:* 6340
Short Name: **DispUnderAnes** *Core:* Yes
Section Name: Anesthesia ICU/PACU Care *Harvest:* Yes
DBTableName: Operations
Definition: Indicate patient disposition after completion of anesthetic management.

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

ParentLongName: Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentValue: 1
ParentHarvestCodes: = “Yes”

Harvest Codes:

Code:	*Value:*
1	Discharge home as 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

October 2021: If a patient dies in the OR during open heart surgery re;ated to the surgical management should this field be completed with "Patient expired while under anesthetic management"? I put yes in for a patient. It appears only the numerator is 12 for the 4 year STS comparative data which means only 12 people in 4 years died on the OR table. Does this field need a better definition? Should be be No when the patient dies from a surgery related non anesthesia issue

even if anesthesia is present and providing anesthesia. **Yes, code patient expired while under anesthetic management when a patient expires in the OR. The field is trying to determine the patient disposition and is not saying the death is or is not related to anesthesia care. In this scenario, the patient died while under anesthesia care.**

Long Name:	Peri-Anesthetic Demise (Within 24 Hours of Last Anesthesia End Time)	*SeqNo:*	6350
Short Name:	**PeriAnesDemise**	*Core:*	Yes
Section Name:	Anesthesia ICU/PACU Care	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	Indicate whether the patient died within 24 hours of end of anesthesia.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentValue:	1
ParentHarvestCodes:	= "Yes"

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Anesthesia Adverse Events Unique Record Identifier	*SeqNo:*	6360
Short Name:	**AAEUniqueID**	*Core:*	Yes
Section Name:	Anesthesia Adverse Events	*Harvest:*	Yes
DBTableName:	AAdvEvents		
Definition:	Unique identifier for the record in the Anesthesia Adverse Events table.		

Intent / Clarification:

Data Source:	Automatic
Format:	Text
ParentLongName:	Anesthesiology Data Collected
ParentShortName:	Anesthesia
ParentValue:	1
ParentHarvestCodes:	= "Yes"

Long Name:	Anesthesia Adverse Events Link to Operation Table	*SeqNo:*	6370

Short Name:	**OperationID**	*Core:*	Yes
Section Name:	Anesthesia Adverse Events	*Harvest:*	Yes
DBTableName:	AAdvEvents		
Definition:	An arbitrary, unique value generated by the software that permanently identifies each operation record in the participant's database. This field is the foreign key that links the Anesthesia Adverse Events record with the associated record in the Operations table.		

Intent / Clarification:

Data Source: Automatic
Format: Text

ParentLongName: Anesthesiology Data Collected
ParentShortName: Anesthesia
ParentValue: 1
ParentHarvestCodes: = "Yes"

Anesthesia Adverse Events

Long Name:	Anesthesia Adverse Event	*SeqNo:*	6380
Short Name:	**AnesAdvEvent**	*Core:*	Yes
Section Name:	Anesthesia Adverse Events	*Harvest:*	Yes
DBTableName:	AAdvEvents		
Definition:	Indicate the anesthesia-related adverse events that occurred.		

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes and Value Definitions:

Code:	Value:	Definition:
10	None	No adverse events recognized.
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.
30	Respiratory Arrest	Indicate whether the patient experienced preoperative, intraop or post-op 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, 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 TX 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.d. ischemic leg, venous obstruction) SECONDARY TO CVL placement.
120	Pneumothorax – CVL Placement	Indicate whether the patient experienced a pneumontorax 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 cacellation 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 neurolgic injury.
160	IV/IA Air Embolism	Indicate whether the patient experienced an 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 insterion site.
380	Intravenous Infiltration	Extravasation of fluid, blood or medication into tissue surrounding IV access site.
170	Bleeding – Regional	Indicate whether the patient experienced bleeding at

	Anesthesia site	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.
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.
310	TEE-Related AIRWAY COMPROMISE	Indicate whether the patient experience an airway compromise during TEE placement or manipulation REQUIRING REMOVAL OF TEE.

315	TEE-Related	Indicate whether the patient experienced hemodynamic.
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 EXTUBATION.
340	Peripheral Nerve Injury due to positioning	Indicate if the patient experience 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 (such as 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
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 uncooperation REQUIRING MEDICATION ADMINISTRATION OTHER THAN FOR PAIN
900	Other	Unlisted adverse event related to anesthesia care

October 2022: I have a 6-year-old patient that entered the OR with a loose tooth prior to intubation. The tooth was noted to be missing after intubation and was noted to be near the esophagus. Anesthesia attempted to retrieve the tooth with Mcgillis unsuccessfully and had to call ENT in whom successfully retrieved the tooth with no injury to the child. Would this be captured as an Anesthesia complication and what would the action be? **Yes, this should be captured as an anesthesia complication. Sequence number (6381) is asking if additional intervention was required because of this complication (yes or no), however, you do not need to list the intervention. In this scenario, answer yes as the patient had to undergo tooth retrieval by ENT.**

November 2022: Is there a limited timeframe during which anesthesia adverse events should be coded? I know peri-anesthetic demise is limited to 24 hours post anesthesia but there is no timeframe defined for the adverse events. For example I have a patient that was extubated on POD 1 and then on POD 3 required heliox, would that constitute an anesthetic adverse event or no since it was so far removed from the anesthesia? **The anesthesia related complications are intended to be collected while the patient is under anesthesia care unless otherwise indicated in the definitions. A patient requiring heliox 3 days following the operative procedure does not constitute an anesthesia related complication.**

December 2022: My question is about the timeframe to be considered when coding for field 6380, Anesthesia Adverse Event. For this field are we to consider just the time in the OR or also beyond, after transfer to ICU? If so, how long? (I don't see this specified in the Training Manual with regard to Anesthesia Adverse Event.) For example, patient had retroperitoneal bleed felt to be related to Fem art line. Had no issues in OR but later that evening bleed was noted and required surgical intervention. I see in Training Manual for the field 4200

Complication, the timeframe is identified. **The timing of the anesthesia complications generally occur within the OR or around the immediate postoperative time period. However, if there is a complication that occurs that is related to the anesthesia care, then the complication should be coded. In the scenario below, you stated the bleed was related to a line inserted by anesthesia in the OR, thus you can code the relevant anesthesia complication.**

March 2023: My pt had congenital surgery 11/15/22. 11/16 extubated to HFNC with iNO via nasal cannula. Due to stridor he received airway decadron from 11/16-11/18 with PRN racemic epinephrine. Would I capture this as a complication? Would it be Anesthesia Complication #430 and Stridor/Subglotic stenosis #50? **I would consider the majority of anesthesia complications within the first 24 hours after the anesthetic. There is an exception for cardiac arrest as it should only be included when under the care of an anesthesiologist. Some complications will still need to be recorded in the surgical portion of the database (i.e. they may be recorded in both sections) as this question demonstrates.**

Long Name:	Anesthesia Adverse Event – Additional Intervention Required	*SeqNo:*	6381
Short Name:	**AnesAdEventInt**	*Core:*	Yes
Section Name:	Anesthesia Adverse Events	*Harvest:*	Yes
DBTableName:	AAdvEvents		
Definition:	Indicate whether additional intervention was required as a result of this adverse event.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

ParentLongName:	Anesthesia Adverse Event
ParentShortName:	**AnesAdvEvent**
ParentHarvestCodes:	<>10 And Is Not Missing
ParentValue:	Is Not "None" And Is Not Missing

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name:	Temporary Yes/No Field #1	*SeqNo:*	6721
Short Name:	**TempYN1**	*Core:*	Yes
Section Name:	STS Temporary Fields	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	This is a temporary field that should not be used for data collection until expressly instructed to by the STS.		

Intent / Clarification:

Data Source:	User
Format:	Text (categorical values specified by STS)

Harvest Codes:

Code:	*Value:*
1	Yes
2	No

Long Name: Temporary Yes/No Field #2
Short Name: **TempYN2**
Section Name: STS Temporary Fields
DBTableName: Operations
Definition: This is a temporary field that should not be used for data collection until expressly instructed to by the STS.

SeqNo: 6722
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Text (categorical values specified by STS)

Harvest Codes:

Code:	Value:
1	Yes
2	No
3	Not Applicable

Long Name: Temporary Date Field
Short Name: **TempDt**
Section Name: STS Temporary Fields
DBTableName: Operations
Definition: **To further understand the impact of Covid-19 on surgical patients, STS will begin collecting the date of positive PCR testing for Covid-19 patients with surgery dates starting May 1, 2020. If there is more than one positive test date, collect the date that is closest to the OR date. Positive antibody testing is not captured in this field. Sites have the option to retroactively collect this field back to January 1 if they choose to do so. To achieve this, the temporary field (TempDt) will be utilized for patients who have a confirmed Covid-19 diagnosis through PCR testing.**

SeqNo: 6723
Core: Yes
Harvest: Yes

Intent / Clarification:

Data Source: User
Format: Date - mm/dd/yyyy

Long Name: Temporary Coded Field

SeqNo: 6724

Short Name: **TempCode**
Section Name: STS Temporary Fields
DBTableName: Operations
Core: Yes
Harvest: Yes

Definition:

May 2020: This field will be used to collect data on Covid-19. Please complete on patients entered into the database starting April 1, 2020. Sites have the option to retroactively collect this field back to January 1 if they choose to do so.
Did the patient have a laboratory confirmed diagnosis of Covid-19?

- **No (Harvest code 10)**
- **Yes, prior to hospitalization for this surgery (Harvest Code 11)**
- **Yes, in hospital prior to surgery (Harvest Code 12)**
- **Yes, in hospital after surgery (Harvest Code 13)**
- **Yes, after discharge within 30 days of surgery (Harvest Code 14)**

Intent / Clarification: **August 2022: Effective for surgery dates 07/01/22 forward, covid testing to include patient self-reports of testing, including home testing kits. Includes preop and postop reporting of home testing**

Data Source: User
Format: Text (categorical values specified by STS)

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

May 2020: **There are many tests for different types of coronavirus. The STS is only collecting data on the one that causes COVID 19 which is SARS-CoV-2.**

May 2020: **Code No for patients who are not tested and for patients who are tested for Covid-19 and that test is negative**

May 2020: Can I abstract a patient who is assumed to be Covid-19+ but was not tested**? No, only code yes for a patient who has been confirmed to have Covid-19 through laboratory testing.**

May 2020: **If the patient was tested within 30 days of surgery but the result comes back after 30 days, still code this as within 30 days.**

May 2020: During a follow up phone call, a patient says that they tested positive for COVID-19. Shall I take their word, or do I need an official result? **Code Yes, after discharge within 30 days of surgery for patients who self-report testing positive for COVID-19 within 30 days of surgery.**

May 2020: For Harvest Code 10, does this only apply to the pre-op status? How do we collect post-op hospitalized patients who test negative? **Harvest Code 10 - NO applies to any of the above timeframe's pre-op, during hospitalization, and post-op. For example, if the patient tested negative or was not tested pre-op, then code as NO. If the patient is then tested and is negative or not tested during the hospitalization, code NO. If the patient is discharged and is found to be COVID 19 positive within 30 days of surgery, remove code 10 and code Yes to Code 13.**

May 2020*:* For harvest Code 11 - Yes, prior to hospitalization for this surgery. Can you specify the time frame? **There is no timeframe for harvest Code 11. Capture any COVID 19 positive test pre-op and enter the date in SEQ 6723 TempDt**

September 2021: If a patient tests positive prior to surgery (more then 30 days) and then again tests positive after surgery (1day) which code/date should be used? **Use the date of the test closest to the surgery date. In this case, it would be the test that was positive the day after surgery.**

November 2021: A pt is hospitalized at an outside facility on 8/3 with a positive covid test. On 8/20 the pt is transferred to us for management of their CHD. Their Covid test is negative on 8/20. On 9/15 the pt has their VSD closed. Questions - what is defined as hospitalization in the pre-op period? Their test closest to their surgery was negative. I am assuming I answer Yes for having a positive COVID test and during this hospitalization as it was a direct transfer in. I am concerned about how the COVID positive patients will be manage as I have quite a lot of them in the community we serve. **Hospitalization begins at the date and time the patient entered your facility. In this scenario, the patient had a positive test prior to this hospitalization for this surgery (Harvest code 11).**

April 2022: Our hospital has 2 mortality cases with the primary cause of COVID complication. I understand the COVID positive patients are analyzed from 1/1/2022 as the population is only 0.18%, but since the complication is solely COVID (pulmonary and coagulation disorder), can we exclude the following cases for analysis for our hospital? **Per the most recent STS database guidance, all cases with a surgical date of 01/01/22 forward will be included in the analysis regardless of their Covid status.**

April 2022: How should we capture if the BAL of an organ donor came back positive COVID19? **An organ donor's positive Covid test is not captured in the database. Do not code a positive Covid test for the patient unless the patient tests positive.**

August 2022: Patient says they tested positive for Covid-19 during the preop assessment. **Code (11) Yes, prior to hospitalization for this surgery for patients who self-report testing positive for Covid-19. This includes self-reported positive home testing kits.**

August 2022: Are we still only using a PCR test as confirmation of Covid? **Self/parent reporting of positive Covid-19 tests including results from home testing kits can now be used as confirmation of Covid-19 for surgery dates on or after 07/01/22.**

August 2022: If is documented my patient had a positive Covid-19 test in April 2022. How do I code the date when only the month and year are known? **If month and year are known, code month/01/year. If only the year is known, code 01/01/year. Leave the date field blank if you have no information on at least one of the date fields, month, date, year. In this scenario, code 04/01/22.**

August 2022: If a patient or parent is self-reporting a positive covid test but isn't able to give a date, how should that be handled? For pre surgery, as long as the operation occurs after 7/1/2022 and the test was prior to admission we will count that as a + test regardless of ability to give a date, correct? What about after discharge if they self-report without a date? **Leave the date field blank if you have no information on at least one of the date fields, month, date, year. If the surgery date is on or later than 07/01/22, you can include the positive self-reported test result using the available harvest codes specifying the timing, whether pre or postoperatively.**

Long Name:	Temporary Text Field	*SeqNo:*	6725
Short Name:	**TempText**	*Core:*	Yes
Section Name:	STS Temporary Fields	*Harvest:*	Yes
DBTableName:	Operations		
Definition:	This is a temporary field that should not be used for data collection until expressly instructed to by the STS.		
Intent / Clarification:			
Data Source:	User		
Format:	Text		