**NEW YORK STATE DEPARTMENT OF HEALTH
OFFICE OF QUALITY AND PATIENT SAFETY
CARDIAC SERVICES PROGRAM**

2021 Data Collection:
12/1/2020 – 11/30/2021 Discharges

Cardiac Surgery Report, Adult (Age 18 and Over)

Instructions and Data Element Definitions
Form DOH-2254a

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Revision Highlights and Coding Clarifications

Complete data element definitions and coding instructions can be found in the main body of this document.

December 1, 2020 - The following changes take effect December 1, 2020.

Data Element Changes
Cardiac Symptoms on Admission – This element is now optional.

Cardiac Symptoms at Surgery – This element is now called "Primary Coronary Symptom for Surgery" and has a revised definition and reporting requirements to align with STS data element Sequence 895.

New Instruction on Reportable Cases
Procedures at the same time as VAD for Bridge to Transplant or Destination Therapy – ASD, Left Atrial Appendage Ligation and Cryo- or Radiofrequency Ablation procedures are not reportable when performed at the same time as VAD implantation for bridge to transplant or destination therapy. Please see "When to Complete a CSRS Form" and "Guidance on Selecting Appropriate Procedure Codes" for additional details.

New Data Element Clarifications
Vessels Diseased – A clarification has been added concerning the term "severe diffuse disease" and the expectation of detailed documentation of percent stenosis for significant vessels.

Cervical or Cerebrovascular Procedure – A new clarification has been added.

Minor Definition or Clarification Changes to Maintain Alignment with STS Data Collection
- Skin Closure Time
- Surgical Priority
- Height
- Diabetes
- Diabetes Treatment
- Renal Failure - Dialysis
- Major Event: Stroke
- Major Event: Renal Failure

March 1, 2020 - The following change took effect March 1, 2020.

COVID-19 Status and Severity – This information is being collected in the Congenital Diagnosis field. Please see Attachment D for full data reporting instructions.

December 1, 2019 - The following changes took effect December 1, 2019 and are highlighted here as a reminder.

Optional Data Elements – Several data elements became optional for 2020 reporting. The full list and reporting instructions can be found under "CSRS Reporting Policies."

Ventricular Assist Device and Transplant Procedures – These procedures are no longer reportable. Please see "When to Complete an Adult CSRS Form" for a detailed discussion and reporting instructions.

Revised Procedure Codes - 907 is now called "Repair of traumatic cardiac or vascular injury." Please see "Guidance on Selecting Appropriate Procedure Codes" for more information.

Streamlined Reporting for Selected Procedures - CSRS reportable cases that do not include CABG, valve (repair or replacement) or surgery on the Aorta may now be reported in a streamlined fashion. Details and reporting instructions can be found under "CSRS Reporting Policies."

CSRS Data Reporting Policies

Hospice Policy
Beginning with patients discharged on or after January 1, 2003, any patient that is discharged from the hospital after cardiac surgery or PCI to hospice care (inpatient or home with hospice care) and is still alive for 30 days after the discharge from the hospital will be analyzed as a live discharge.

All patients discharged to a hospice or home with hospice care should continue to be reported with Discharge Status – 12: Hospice. If a patient is still alive 30 days after discharge, whether in hospice or not, appropriate supporting documentation should be sent to the Cardiac Services Program. Examples of appropriate documentation include but are not limited to: a dated progress note from the hospice service, evidence of a follow-up doctor's visit more than 30 days after discharge, evidence of subsequent hospital admission more than 30 days after initial discharge, or evidence of death more than 30 days after initial discharge.

It will be the responsibility of the hospital (physician) to send documentation to the Department of Health's Cardiac Services Program to support this change. Upon receipt, review, and verification of the documentation, Cardiac Services Program staff will change the discharge status from dead to alive for purposes of analysis. All documentation must be received before the final volume and mortality for a given year of data is confirmed by the hospital.

Refractory Cardiogenic Shock Cases
Effective January 1, 2015, cases with the risk factor "Refractory Cardiogenic Shock" will be excluded from provider-specific publicly released reports and analyses. Cases with the risk factor "Cardiogenic Shock" will remain in analysis.

This continues the shock exclusion policy which was initiated in 2006 and reflects revised definitions and variable names. All excluded cases must meet the NYS Cardiac Services Program definition of Refractory Cardiogenic Shock and will be subject to medical record documentation review.

All cases will continue to be reported electronically and will be subject to data verification and quality monitoring activities. To ensure that the appropriate cases are identified as "Refractory Cardiogenic Shock" cases, submission of medical record documentation for any case reported with this risk factor will be required. If appropriate documentation is not provided by your center, the risk factor will be removed from the data and the case will be included in analysis. Medical record documentation will also be required for any case reported with the risk factor "Cardiogenic Shock."

It is strongly suggested that all appropriate staff closely review the definitions and documentation requirements for these two risk factors.

Physician Assignment
When multiple records exist for the same patient during a hospital admission and two or more surgeons were reported for those operations, the case will be assigned for analysis to the surgeon performing the first surgery. However, the hospital may submit a letter from the CEO or Medical Director requesting that the case be assigned to the surgeon performing the later surgery.

Alignment with STS Data Elements

As noted in the main body of this document, some data element definitions are aligned with STS Adult Cardiac Surgery data elements. Please note, every attempt has been made to assure accurate and complete definitional alignment at the time the NYS CSRS data element definitions are released. The definitions presented here should be used for all CSRS data reporting unless a clarification or amendment is issued by the Cardiac Services Program. Changes to STS data elements, definitions, clarifications or interpretations that occur during the data collection period do not supersede the CSRS definitions and reporting instructions issued by the Cardiac Services Program.

Reporting Schedule

CSRS data is reported quarterly by discharge date. It is due to the Cardiac Services Program two months after the end of the quarter. The 2021 reporting schedule is as follows.

   Quarter 1: Discharges 12/01/2020 – 02/28/2021 Due: 05/01/2021
   Quarter 2: Discharges 03/01/2021 – 05/31/2021 Due: 08/01/2021
   Quarter 3: Discharges 06/01/2021 – 08/31/2021 Due: 11/01/2021
   Quarter 4: Discharges 09/01/2021 – 11/30/2021 Due: 02/01/2022

Extensions to the above deadlines will be granted as needed related to COVID-19 or if required due to other extenuating circumstances. Extension requests should be made via email prior to the required submission date.

Streamlined Data Requirements for Selected Procedures

CSRS reportable cases that do not include CABG, valve repair or replacement, or surgery on the aorta may now be reported in a streamlined fashion. The only sections of the data collection form required for these cases are:

- I. Patient Information
- II. Procedural Information
- IV. Major Events Following Operation
- V. Discharge Information

Data elements for all other sections may be left blank or filled with 0 (zero, no punctuation). Hospitals may also elect to complete the entire form for these procedures for their own tracking or quality improvement purposes but the non-required fields will not be subject to Cardiac Services Program validation activities.

Optional Data Elements
These elements may be reported as blank (null) or 0. There will be no validation for these data elements. Hospitals may continue to report these data elements with valid responses for internal data monitoring purposes, but the information will not be used by the Cardiac Services Program. These elements are planned for removal on the next revision of the file structure.

o Cardiac Symptoms on Admission
o Post-op Temperature and Route (*POST_TEMP and TEMP_RT)*
o Hematocrit:
  o 1st in OR (*CRIT_OR)*
  o Lowest on CPB (*CRIT_LOW)*
  o Last on CPB (*CRIT_LST)*
  o Post-OP (*CRIT)*
o Stress Testing (*STRS_RES)*
o Anti-anginal Medical Therapy
  o Beta Blocker (*MED_BB)*
  o Calcium Channel Blocker *(MED_CA)*
  o Long Acting Nitrates *(MED_NIT)*
  o Ranolazine *(MED_RAN)*
  o Other (*MED_OTH)*

Technical Data Specifications
This document is supplemented by the 2021 Data Specification document which is available by request (CardiacServicesProgram@health.ny.gov).

When to Complete an Adult CSRS Form

Complete an Adult Cardiac Surgery Reporting System (CSRS) form for every patient age 18 or over on admission undergoing one or more operations on the heart or great vessels, with or without extracorporeal circulation.

Unless otherwise specified, forms should be submitted for reportable cardiac surgery no matter where in the hospital the operation is performed. References to the "operating room" in these instructions can be interpreted to mean "the location where the cardiac procedure is occurring."

If the patient has more than one cardiac surgery during a single hospital stay, complete a separate form for each reportable cardiac surgery.

Transcatheter valve replacement procedures should be reported to CSRS, wherever the procedure may occur.

Attempted and aborted cardiac surgery and transcatheter valve replacement should be reported. See "Guidance on Selecting Appropriate Procedure Codes" for additional details and definitions.

DO NOT CODE:
    Heart transplant*
    Lung transplant*
    Ventricular Assist Device (including ECMO and percutaneous assist device)
    Femoral artery repair or bypass
    Thymectomy
    Coronary endarterectomies
    Subclavian artery bypass
    Innominate artery bypass
    Carotid artery bypass
    Removal of thymoma
    Ventricular support device (e.g. Heartnet restraint)
    Aortic wrapping procedures
    Exploration alone (no repair) for confirmed or suspected bleeding after reportable cardiac surgery in the same admission
    Implantation of pacemaker and/or its leads or wires

*Special Note for hospitals performing transplantation procedures: As in the past, a patient that undergoes CABG and/or Valve surgery in the same admission as a heart transplant will not be included in analysis. If you have any such patients, you must complete a CSRS form for any cardiac surgery other than the transplant and notify the Cardiac Services Program that the patient also underwent heart transplant. These cases will be manually flagged for removal from analysis.

Report the following procedures as "998 – Other" or "498 – Other (No Bypass)" only when they are the only cardiac surgery during the admission. Only report these procedures if they were performed using an open surgical approach; do not report if using a percutaneous approach:
>   Intra-cardiac thrombus removal
>   Intra-coronary thrombus removal
>   Epicardial lead placement
>   Coronary aneurysm repair (other than CABG)
>   Ligation or excision of left atrial appendage*
>   Surgical removal of a stent
>   Aortic endarterectomy
>   Pulmonary artery endarterectomy

*Left atrial appendage ligation performed at the same time as VAD implantation for bridge to transplant or destination therapy is not reportable. It should be considered incidental to the VAD procedure and is not form generating.

During quarterly and annual data verification and validation efforts, supporting documentation for cases coded as 398, 498, or 998 may be requested. Therefore, we highly recommend that at the time of coding you keep a copy of the operative note as supporting documentation in a place for easy retrieval at a later date.

Code the following procedures only when they are performed at the same time as another reportable cardiac surgery:
>   Carotid endarterectomy (763)
>   Implantation of an AICD (764)
>   Descending Thoracic Endovascular Aortic Repair (998)

Code the following only when performed at the same time as a CABG or valve surgery:
>   Percutaneous Coronary Intervention (711)

Guidance on Selecting Appropriate Procedure Codes

ASD CLOSURE (120)
This procedure is not reportable when performed in the same setting as VAD placement for destination therapy or bridge to transplant. In this instance it should be considered incidental to the VAD procedure and not form generating.

PERICARDIECTOMY (402)
Performing a total pericardiectomy (meaning phrenic to phrenic pericardiectomy) is always reportable whether or not the patient was on CP bypass for that portion of the procedure. Pericardial window or partial pericardiectomy that is not phrenic-to-phrenic should not be coded.

VALVE REPAIR AND REPLACEMENT
Valve Repair with VAD as Destination Therapy or Bridge to Transplant:
Valve repairs are not reportable in this instance. There must be pre-operative documentation that the primary purpose of the procedure is placement of a ventricular assist device. These cases may be subject to additional auditing. Valve replacements should be reported, but mortalities for these procedures will not be included in the analysis if there is documentation of a "pre-determined VAD."

Valve Replacements and Repairs: When a repair is attempted, and the valve is ultimately replaced in the same procedure, report both the repair and the replacement.

Aortic Valve Replacements: Do not code aortic root enlargements when performed with aortic valve replacements.

Valve Debridement: If a valve has had debridement, then a valve repair should be coded.

Bicuspid Aortic Valve: When a bicuspid aortic valve is being operated on for a patient who is not in the childhood era and the operation is required due to acquired valve disease, it should be coded as a standard valve procedure (Code 520-548).

Third Digit for Valve Replacement (510- 608): When reporting valve replacement surgery (codes 510-608), use the third digit to indicate if the valve currently being replaced has been previously intervened upon and if so the reason for the reoperation.

The third digit information is specific to the valve reported. For example, a patient with previous aortic valve replacement who is now having mitral valve replacement (mechanical) would be reported using code 550 because this is not a re-operation on the mitral valve. In the event of multiple valve surgery, the third digit may be different for each valve code reported, i.e. one valve may be a re-op and the other(s) may not.

Use code 7 (Complication of Transcatheter Valve Replacement) in the event of an unsuccessful transcatheter valve replacement which requires urgent or emergent surgical valve replacement.

Adjunct Valve Information (640-645): Use these codes to indicate a transcatheter valve replacement has been performed and by which approach. These procedures should be reported even if they do not occur in the operating room. A valve replacement code must also be reported.

PCI IN SAME SETTING AS CABG OR VALVE SURGERY (711):
Use this procedure code to indicate percutaneous coronary intervention (PCI) was performed in the same procedure room visit as CABG or valve surgery. This may take place in the OR or some other location such as a hybrid procedure room. This procedure should only be reported if done at the same time as CABG or valve surgery (including transcatheter valve replacement). The PCI must be reported to the Percutaneous Coronary Interventions Reporting System if the PCI was performed for the treatment of pre-existing coronary artery disease.

RADIOFREQUENCY OR OPERATIVE ABLATION (770-772):
Code 770 (Atrial) or 771 (Ventricle) should be used when lesions are created in the atria or ventricle by an energy source (radiofrequency, microwave, cryothermia, etc.). The lesion then disrupts the abnormal re-entry pathways of electrical signals that can lead to fibrillation.

These procedures are not reportable when performed in the same setting as VAD placement for destination therapy or bridge to transplant. In this instance they should be considered incidental to the VAD procedure and not form generating.

Maze (772) should be coded when there is a standard surgical maze procedure in which full thickness incisions are made in the atria of the heart. Sutures are then used to reapproximate the incised tissue. The resulting lesion disrupts the abnormal re-entry pathways of electrical signals that lead to atrial fibrillation. Procedures coded 772 may require an operative note to verify coding.

AORTA SURGERY
Major Surgery on the Aorta (786, 804, 805): The following procedure codes are available for reporting surgery for pre-existing aortic conditions.

Surgery on the Aorta	
786	Major Surgery for Pre-existing Aortic Disease
804	Major Surgery for Pre-existing Aortic Dissections
805	Surgery for Repair of Aortic Deceleration Injury

Clarification:
Use procedure code 786 for major surgery for pre-existing disease in the thoracic aorta. This code should be used for aneurysms and conditions other than dissection (e.g. endocarditis, calcification without dissection), that were present prior to the reportable cardiac surgery.

Use procedure code 804 for major surgery on dissections of the thoracic aorta.

Use procedure code 805 for open surgical repair of an aortic deceleration injury.

Do not use 786, 804 or 805 to capture surgery undertaken to repair an intra-operative injury to the aorta. A major procedure on the aorta that is the result of an intra-operative injury may be reported with procedure code 907. This will not remove a case from analysis.

Do not use 786, 804, or 805 to capture elements of the operation that are part of a routine valve procedure. For example, aortic root enlargement when performed with an aortic valve replacement should not be coded as 786.

When the procedure includes an aortic valve repair or replacement (e.g. Bentall), report the valve procedure with an appropriate code in addition to the aorta code.

REMOVAL OF INTRACARDIAC NEOPLASM (904)

Should be reported when there is histopathological confirmation that the mass removed was a neoplasm. Report only if the mass is removed. Documentation (pathology report) will be required when this code is reported for a CABG or Valve case.

REPAIR OF TRAUMATIC CARDIAC OR VASCULAR INJURY (907)

Should be coded for repair of cardiac or vascular injury due to trauma including a procedure to repair an injury to the heart or great vessels that has resulted from a cardiac diagnostic or interventional procedure or from cardiac surgery. Documentation will be required for any case where the repair is for a pre-operative injury.

REMOVAL OF PACEMAKER OR AICD AND/OR LEADS OR WIRES (908)

Should be coded when device/lead removal is the primary goal of the operation. It should not be used when device/lead removal is an incidental part of another cardiac surgery. Only open procedures are reportable with this code. Do not report laser lead extraction.

Opening the pocket is not considered an "open" procedure in this context. Typically, a case reportable as "908" will involve a sternotomy or a thoracotomy.

The defining criteria for reporting these cases is not who performs them but how they are performed (i.e. open surgical approach with lead/device removal as the primary goal of the operation). It is unusual for an electrophysiologist or cardiologist to perform an open cardiac surgical removal of devices or leads.

If an open surgical procedure is required to remove leads, this may be the primary goal of the operation (the primary reason it was performed with an open surgical approach) and therefore could still be reportable even if new leads or devices were placed.

If an open surgical approach is used for at least one of the leads, then report it. It does not matter if laser is reported for any other leads.

ATTEMPTED / ABORTED PROCEDURES

Attempted Transcatheter Valve Replacement (930): Should be reported when there is any vascular penetration of the patient designed to carry out a transcatheter valve replacement procedure, but the procedure did not proceed to completion. Also report the primary valve code (520-608) and the adjunct valve information code (640-645).

Aborted Transcatheter Valve Replacement (931): Should be used when the sheath for delivery of the valve has been inserted, but the procedure does not proceed to completion. If reporting aborted, you should not also report attempted. Also report the primary valve code (520-608) and the adjunct valve information code (640-645).

> ***Codes 930 and 931 may be reported in addition to codes for procedures that were performed. For example, an aborted TAVR that leads to a surgical AVR in the same visit may be coded as 530, 640, 931, 537.***

Attempted Surgical Procedure (932): Should be reported when the patient entered the operating room or its equivalent for a cardiac surgical procedure and the procedure is discontinued before any incision is made (primary or harvest site incision).

Aborted Surgical Procedure (933): Should be reported when the procedure is aborted after an incision has been made (primary or harvest site incision).

Report exploration of the atria, aorta, valves, ventricles, or pulmonary artery as "Aborted Procedure" if there was no other reportable cardiac surgery performed at the same time – except when the exploration was after a reportable cardiac surgery for suspected or confirmed bleeding. This scenario would be reported as a major event but is not form-generating if there was no surgical intervention performed.

Only report codes 932 and 933 if there was no reportable cardiac procedure performed. Also report the codes for the procedure that was intended to be performed

Item-By-Item Instructions

I. Patient Information
REMINDER: This section is required for all cases, including procedures that qualify for streamlined reporting.

Descriptive Name: PFI Number
Variable Name: PFI
Format: XXXX
Definition: The PFI Number is a Permanent Facility Identifier assigned by the Department of Health. Enter your facility's PFI Number as shown in Attachment A.

Descriptive Name: Sequence Number
Variable Name: SEQUENCE
Format: Free text
Definition: If your facility assigns a sequence number to each case on a chronological flow sheet or similar log, enter the sequence number here. The sequence number is not required for the Cardiac Surgery Reporting System but has been included on the form in case your facility finds it useful in identifying and tracking cases.

Descriptive Name: Patient Last Name
Variable Name: LASTNAME
Format: Free text
Definition: Enter the patient's last name.

Descriptive Name: Patient First Name
Variable Name: FIRSTNAME
Format: Free text
Definition: Enter the patient's first name.

Descriptive Name: Medical Record Number
Variable Name: MEDRECNO
Format: 0-9 or A-Z; no punctuation or other characters
Definition: Enter the patient's medical record number.

Note:
Characters A-Z and 0-9 may be reported. Do not report punctuation or other symbols of any kind in the medical record number.

Descriptive Name: Social Security Number
Variable Name: SSNO
Format: XXX-XX-XXXX
Definition: Enter the patient's Social Security Number as shown in the medical record. If the medical record does not contain the patient's Social Security Number, leave this item blank.

Descriptive Name: Date of Birth
Variable Name: DOB
Format: MM/DD/YYYY
Definition: Enter the patient's exact date of birth.

Descriptive Name: Sex
Variable Name: SEX
Format: 1 or 2
Definition: Check the appropriate box for the patient's sex at birth.

1 - Male
2 - Female

Note:
In the absence of any other information, it is reasonable to assume that the sex at birth is the same as at the time of admission.

Descriptive Name: Ethnicity
Variable Name: ETHNIC
Format: 1 or 2
Definition: Check the appropriate box.

1 - Hispanic
2 - Non-Hispanic

Note:
The term "Hispanic" refers to persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Central and South America or other Spanish cultures.

Descriptive Name: Race
Variable Name: RACE
Format: 1-5 or 8
Definition: Choose the appropriate response from the list below.

1 - White. A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
2 - Black or African American. A person having origins in any of the black racial groups of Africa.
3 - Native American / American Indian or Alaska Native. 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.
4 - Asian. 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.
5 - Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
8 - Other. Report for those responses that are not covered by an above category. Provide the specific race for any case marked "Other."

Directions:
Race should be based on the patient's racial/ethnic origins, which is not necessarily the same as their country or place of origin.

Multi-racial can be indicated by checking "8-Other" and providing details in the "specify" field.

For White Hispanics, check "White." For Black Hispanics, check "Black."

Descriptive Name: Race Specify
Variable Name: RACESPEC
Format: Free text
Definition: If RACE was reported as 8 – Other, provide the specific race.

Descriptive Name: ZIP Code
Variable Name: ZIPCODE
Format: XXXXX
Definition: For patients residing in NYS, enter the ZIP code of the primary residence. If the patient lives outside NYS, enter 99999.

Directions:
If the patient lives in a foreign country but is temporarily staying in the US during the pre-operative and post-operative time period, enter 99999. Do not enter the ZIP code of where the patient is staying in the US.

Descriptive Name: State or Country of Residence
Variable Name: STATE
Format: Free Text
Definition: For patients living outside NYS, enter the name of the state or country where the patient resides.

Directions:
If a valid NYS ZIP Code has been entered, then the "State or Country" field should be left blank.

Descriptive Name: Hospital Admission Date
Variable Name: ADMIDATE
Format: MM/DD/YYYY
Definition: Enter the date that the current hospital stay began.

Note:
Report the date that the patient arrived at the hospital, even if it is not equal to the technical "admission date" (i.e., this date may be prior to official inpatient status).

Descriptive Name: Primary Payer
Variable Name: PAYER
Format: 01-07, 11, or 19
Definition: Enter the primary source of payment for this hospital stay.

01 – Medicare—Fee For Service
02 – Medicare—Managed Care
03 – Medicaid—Fee For Service
04 – Medicaid—Managed Care
05 – Blue Cross
06 – HMO/Managed Care
07 – Other Private Insurance Company
11 – Self Pay
19 – Other

Interpretation:
For "Medicaid Pending" code Primary Payer as "11-Self-Pay" and check the box "Medicaid."

For patients in prison, code Primary Payer as "19-Other."

Please note the difference between "07-Other Private Insurance Company" and "19-Other." Code "07" refers to a Private Insurance Company (also referred to as "Commercial" insurance) that is not listed elsewhere. Code "19" is any other type of insurance that is not given a code of its own (e.g. Corrections, Worker's Compensation).

Report a PPO (Preferred Provider Organization) as "06 – HMO/Managed Care."

Descriptive Name: Medicaid
Variable Name: MEDICAID
Format: 1 = Yes, 0 or Blank = No
Definition: Check this box if the patient has Medicaid that will provide payment for any portion of this hospital stay.

Directions:
If the patient's primary payer is Medicaid, check this box in addition to entering "03" or "04" under Primary Payer.

Descriptive Name: PFI of Transferring Hospital
Variable Name: TRANS_PFI
Format: XXXX
Definition: If the patient was transferred from another acute care facility, enter the PFI of the transferring hospital.

Directions:
This element should only be completed for transfer patients.
- If transferred from a Veterans Administration hospital in NYS, enter 8888.
- If transferred from outside NYS, enter 9999.
- A list of PFIs for cardiac diagnostic centers in NYS is provided in Attachment A.
- For patients transferred from another hospital in NYS, please see http://www.health.ny.gov/statistics/sparcs/reports/compliance/alpha_facilities.htm for a complete listing of NYS hospitals, including PFI.

Note:
PFI on the above website is listed as 6 digits. For purposes of cardiac reporting, PFI should always be four (4) numeric characters. Do not report the first two digits as provided on the linked website.

II. Procedural Information

REMINDER: This section is required for all cases, including procedures that qualify for streamlined reporting.

Descriptive Name: Hospital That Performed Diagnostic Cath
Variable Name: CATHPFI
Format: XXXX
Definition: If the cardiac surgery was preceded by a diagnostic catheterization, enter the name and PFI number of the hospital in the spaces provided.

Directions:
- If the catheterization was at a cardiac diagnostic center in NYS, enter its PFI Number from Attachment A.
- If done at a Veterans Administration hospital in NYS, enter 8888.
- If done outside NYS, enter 9999.
- If there was no diagnostic catheterization, leave this item blank.

Do not use this field to report any diagnostic procedure other than catheterization (e.g. CT).

File Structure Note:
Diagnostic Catheterization Hospital name is included on the paper form for abstractor convenience. It is not part of the CSRS file structure.

Descriptive Name: Date of Surgery
Variable Name: SURGDATE
Format: MM/DD/YYYY
Definition: Enter the date on which the cardiac surgical procedure was performed.

Clarification:
Report the date of first skin incision.

If there was no skin incision (procedure code 932) report the date of entry to the Operating Room or its equivalent.

Descriptive Name: Prior Surgery This Admission
Variable Name: PRIOSURG
Format: 1, 2
Definition: Indicate whether the patient had any reportable (form generating) cardiac operation prior to the present operation during the same hospital admission.

1 - Yes
2 - No

Descriptive Name: Date of Prior Surgery This Admission
Variable Name: PRIODATE
Format: MM/DD/YYYY
Definition: If the patient had prior surgery this admission (PRIOSURG = 1), enter the date of that prior surgery.

Explanation:
The date of the most recent previous cardiac operation MUST be entered. This is very important because this date aids in combining multiple procedures that occurred on the same day in the proper order.

Descriptive Name: Cardiac Procedures This OR Visit
Variable Name: PROC1, PROC2, PROC3, PROC4, PROC5
Format: XXX
Definition: Enter the 3-digit State Cardiac Advisory Committee Code (SCAC) from the procedure code list in Attachment B – Congenital and Acquired Cardiac Procedure Codes.

List up to 5 cardiac procedures performed during this operating room visit.

If there are more than 5, list the 5 most significant.

Note:
Please see Attachment B: Congenital and Acquired Cardiac Procedure Codes and "When to Complete an Adult CSRS Form" and "Guidance on Selecting Appropriate Codes" for additional coding instructions and scenarios for reporting procedure codes.

Descriptive Name: Congenital Diagnosis (and COVID-19)
Variable Name: DIAG1, DIAG2, DIAG3
Format: XXXX
Definition: Indicate the three most significant congenital diagnoses for any patient with a congenital diagnosis.

The diagnosis codes in Attachment C are identical to those used for the Pediatric Cardiac Surgery Reporting System. Inclusion of this information will allow for meaningful evaluation of outcomes for adult congenital cardiac surgery.

Report in every case where a congenital diagnosis exists, even if there is no procedure for congenital disease during this operation.

Some diagnoses listed in Attachment C are not congenital cardiac conditions. Those codes should not be used for this data element.

****Special Instruction for Reporting COVID-19 Status and Severity ****
Effective March 1, 2020 discharges, a new, temporary data collection for COVID-19 has been instituted and is to be reported in the Congenital Diagnosis field. Please see Attachment D for detailed reporting instructions.

Coding Note:
Other than the temporary COVID-19 code, Congenital Diagnosis Codes in Attachment C are aligned with those used for STS v4.20.2 data elements 6500, 6505, 6510. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Primary Physician Performing Operation
Variable Name: PHYSNUM
Format: XXXXXXXXXX
Definition: Enter the name and National Provider ID (NPI) number of the primary physician who performed the cardiac surgical procedure.

Directions:
If no surgeon participated in this procedure report 9999999999.

For transcatheter valve replacement and PCI (at the same time as CABG or Valve surgery), report the cardiac surgeon as the primary physician for these purposes and also report the NPI number for the interventional cardiologist in the "Interventional Cardiologist" field.

Explanation:
The primary physician should be the one who performed the majority of the cardiac procedure in that surgery.

The following is one of many possible examples: In a single trip to the OR, a radiofrequency ablation is performed by one surgeon and then a CABG by a second surgeon. The primary physician reported on the CSRS form should be the one who performed the CABG even though the ablation was performed before the CABG.

File Structure Note:
Physician name is included on the paper version of the data collection form for abstractor convenience. Physician name is not part of the required CSRS data structure.

Coding Note:
PHYSNUM definition is aligned with STS v4.20.2 data element 1960. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Anesthesiologist (1)
Variable Name: ANESNUM1
Format: XXXXXXXXXX
Definition: Enter the name and National Provider ID (NPI) number of the responsible anesthesiologist at the start of the cardiac surgery.

If no anesthesiologist participated in this procedure report 8888888888.

File Structure Note:
Anesthesiologist name is included on the paper version of the data collection form for abstractor convenience. Anesthesiologist name is not part of the required CSRS data structure.

Descriptive Name: Anesthesiologist (2)
Variable Name: ANESNUM2
Format: XXXXXXXXXX
Definition: Enter the name and National Provider ID (NPI) number of the responsible anesthesiologist at the end of the cardiac surgery.

If no anesthesiologist participated in this procedure report 8888888888.

File Structure Note:
Anesthesiologist name is included on the paper version of the data collection form for abstractor convenience. Anesthesiologist name is not part of the required CSRS data structure.

Descriptive Name: Interventional Cardiologist
Variable Name: CARDNUM
Format: XXXXXXXXXX
Definition: If the procedure is a Transcatheter Valve Replacement (procedure code 640-645) or PCI in same setting as CABG or Valve Surgery (procedure code 711), enter the name and National Provider ID (NPI) number of the interventional cardiologist participating in the case.

Directions:
- For procedure codes 640-645 and 711, if there was no interventional cardiologist participating enter code 0000000000.
- If a case does not include these procedure codes, then the cardiologist identifier is not collected.

Note:
Interventional cardiologist name is included on the paper version of the data collection form for abstractor convenience. Interventional cardiologist name is not part of the required CSRS data structure.

CABG Information
The following information must be completed for all CABG procedures.

Descriptive Name: Number of Distal Anastomoses with Venous Conduits
Variable Name: DIST_VEIN
Format: 1-9, 0 or Blank
Definition: Indicate the total number of distal anastomoses with venous conduits.

Explanation:
Distal anastomosis refers to the connection between the bypass graft (conduit) and coronary artery. Record the total number of venous anastomoses constructed using a venous conduit connection to a coronary artery. More than one anastomosis can be constructed from a single vein.

Coding Note:
DIST_VEIN definition is aligned with STS v4.20.2 data element 2638.*Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission***.**

Descriptive Name: Total Number of Distal Anastomoses with Arterial Conduits
Variable Name: DIST_ART
Format: 1-9, 0 or Blank
Definition: Indicate the total number of distal anastomoses with arterial conduits, whether IMA, GEPA, radial artery, etc.

Explanation:
Distal anastomosis refers to the connection between the bypass graft (conduit) and coronary artery. Record the total number of arterial anastomoses constructed using an arterial conduit connection to a coronary artery. Multiple distal anastomoses can be constructed from any conduit. Capture each distal anastomosis.

Example: LIMA to LAD jumped to the diagonal equals two distal anastomoses.

Coding Note:
DIST_ART definition is aligned with STS v4.20.2 data element 2631.
Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.

Descriptive Name: Number of Distal Anastomoses using IMA Conduits
Variable Name: DIST_IMA
Format: 1-9, 0 or Blank
Definition: Indicate the total number of distal anastomoses done using Internal Mammary Artery (IMA) grafts.

Explanation:
More than one anastomosis can be constructed from each IMA; the IMA may be used as a pedicle graft or a free graft. A pedicle graft remains connected at its proximal origin and requires only a distal anastomosis.

Descriptive Name: Number of Distal Anastomoses using Radial Artery Conduits
Variable Name: DIST_RA
Format: 1-9, 0 or Blank
Definition: Indicate the total number of distal anastomoses done using radial artery grafts.

Explanation:
More than one anastomosis can be constructed from each radial artery.

Coding Note:
DIST_RA definition is aligned with STS v4.20.2 data element 2634.
Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.

Descriptive Name: Number of Distal Anastomoses using Other Arterial Conduits
Variable Name: DIST_OA
Format: 1-9, 0 or Blank
Definition: Indicate the number distal anastomoses that used arterial conduits, other than radial or IMA.

Explanation:
An example is the inferior epigastric artery

Descriptive Name: Internal Mammary Artery Used as Conduit
Variable Name: IMA_USED
Format: 1-4, 0 or Blank
Definition: Use the following codes to indicate which, if any, Internal Mammary Arteries were used for grafts.

1 – Left
2 – Right
3 – Both
4 – None

Explanation:
IMA may be used as a free graft or pedicle, in situ, graft. A pedicle graft remains connected at its proximal origin (in situ) and requires only a distal anastomosis; i.e. the internal mammary artery.

Coding Note:
IMA_USED definition is aligned with STS v4.20.2 data element 2627 and 2628. Response mapping is required. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission*.

Descriptive Name: Primary Reason IMA Not Used
Variable Name: NOT_IMA
Format: 2-7, 0 or Blank
Definition: Use the following codes to indicate the primary reason an Internal Mammary Artery was not used (as documented in medical record).

2 – Subclavian stenosis
3 – Emergent or salvage procedure
4 – Previous cardiac or thoracic surgery
5 – No (Bypassable) LAD disease
6 – Previous mediastinal radiation
7 – Other

Clarification:
Response #5 - No (Bypassable) LAD Disease can include clean LAD, diffusely diseased LAD or other condition resulting in the LAD not being bypassed

Coding Note:
NOT_IMA definition is aligned with STS v4.20.2 data element 2629 however, the values associated with the response categories are different. This will require response mapping prior to submission.

Descriptive Name: LAD Bypassed this OR Visit
Variable Name: BYP_LAD
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the Left Anterior Descending (LAD) or its branches were bypassed this OR visit.

Descriptive Name: RCA Bypassed this OR Visit
Variable Name: BYP_RCA
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the Right Coronary Artery (RCA) or its branches were bypassed this OR visit.

Descriptive Name: LCX Bypassed this OR Visit
Variable Name: BYP_LCX
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the Right Coronary Artery or its branches were bypassed this OR visit.

Descriptive Name: Number of Radial Arteries Used for Grafts
Variable Name: NUM_RA
Format: 1-2, 0 or Blank
Definition: Indicate the number of radial arteries that were used for grafts.

All Surgery Procedure Information
The following information is not limited to CABG surgery.

Descriptive Name: Minimally Invasive
Variable Name: MINI_INV
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the cardiac surgical procedure began through an incision other than a complete sternotomy or thoracotomy (less than 12 centimeters in length) regardless of whether the case converted to a standard incision or cardiopulmonary bypass was used.

Descriptive Name: Converted to Standard Incision
Variable Name: STND_INC
Format: 1= Yes, 0 or Blank = No
Definition: Indicate if a minimally invasive procedure was modified to a standard incision.

Explanation:
This box should never be checked unless Minimally Invasive is also checked.

Descriptive Name: Converted from Off Pump to On Pump
Variable Name: CONVERT
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the procedure began without the use of cardiopulmonary bypass, but prior to the completion of the procedure the patient was placed on pump. This should only be checked if the patient was placed on pump unexpectedly.

Descriptive Name: Entire Procedure Off Pump
Variable Name: ALL_OFF
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the cardiac procedure was performed entirely without the use of cardiopulmonary bypass.

Descriptive Name: Reason PCI Performed During this Procedure
Variable Name: PCI_RSN
Format: 1-3, 0 or Blank
Definition: For cases that include a CABG and/or Valve procedure and a PCI as part of the same procedure, choose the response that best describes why the PCI was performed.

1 – Planned treatment of pre-existing coronary artery disease (CAD)
2 – Prophylactic
3 – Required due to a complication

Directions:
- Report this element whenever procedure code 711 ("PCI in the same setting as CABG or Valve Surgery") is reported.
- Leave this item blank if procedure code 711 is not reported.

Cases reported with response category 1-Treatment of pre-existing CAD, must also be reported in PCIRS. Cases with other response categories are not reportable to PCIRS.

IIa. Peri-Operative Information

REMINDER: This section is optional for procedures that qualify for streamlined reporting.

Descriptive Name: Skin Incision Time
Variable Name: SURGHOUR, SURGMIN
Format: SURGHOUR = HH; SURGMIN = (MM)
Definition: Indicate the time to the nearest minute (using 24-hour clock) that the first skin incision or its equivalent was made.

Explanation:
The intent of this field is to capture the time the first skin incision is made regardless of if the first incision is a harvest site incision or a sternal/ thoracotomy incision.

If there was no skin incision (procedure code 932), report the time of entry to the Operating Room or its equivalent.

Coding Note:
SURGHOUR and SURGMIN definition is aligned with the time portion of STS V4.20.2 data element 2265. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Skin Closure Time
Variable Name: CLOSEHOUR, CLOSEMIN
Format: CLOSEHOUR = HH; CLOSEMIN = MM
Definition: Capture the time to the nearest minute (using 24-hour clock), that the skin incision was closed, or its equivalent.

Explanation:
This element refers to the time of the final incision closure prior to leaving the operating room.

If the patient leaves the operating room with an open incision, collect the time that the dressings were applied to the incision.

If the patient dies in the OR after incision, but prior to incision stop time, code the incision stop date and time as the time of death.

Coding Note:
CLOSEHOUR and CLOSEMIN definition is aligned with the time portion of STS v4.20.2 data element 2270. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Pre-Induction Systolic Blood Pressure
Variable Name: BP_SYS
Format: 0-999
Definition: Enter the patient's systolic blood pressure just prior to the induction of anesthesia as measured by any means.

Directions:
For a patient who does not have "induction of anesthesia," for example a TAVR patient under monitored anesthesia care (MAC), report the pre-sedation blood pressure.

Descriptive Name: Pre-Induction Diastolic Blood Pressure
Variable Name: BP_DIA
Format: 0-999
Definition: Enter the patient's diastolic blood pressure just prior to the induction of anesthesia as measured by any means.

Directions:
For a patient who does not have "induction of anesthesia," for example a TAVR patient under monitored anesthesia care (MAC), report the pre-sedation blood pressure.

Descriptive Name: Post-Op Temperature – Element Optional for All Cases
Variable Name: POST_TEMP
Format: 00.0-99.9
Definition: Report the patient's post-op temperature in degrees Celsius.

This should be the temperature on arrival at the next level of care after the operating room (e.g. Critical Care, PACU, Recovery, etc.).

If a pulmonary artery temperature is available upon arrival at the next level of care, report that value. Otherwise report temperature via other method.

Report temperature as 00.0 if no post-operative temperature is available (e.g. patient expires prior to arrival at next level of care).

Descriptive Name: Temperature Route – Element Optional for All Cases
Variable Name: TEMP_RT
Format: 1-4, 8 or 9
Definition: Report the route of post-operative temperature measurement using the following codes:

1 – Pulmonary Artery
2 – Rectal/Bladder
3 – Nasopharyngeal
4 – Tympanic
8 – Other
9 – Unknown

If Post-Op Temperature is reported as "00.0" because none is available (e.g. patient expires prior to arrival at next level of care), report Temperature Route as "9-Unknown."

Descriptive Name: Hematocrit – Element Optional for All Cases
Variable Name: CRIT_OR, CRIT_LOW, CRIT_LST, CRIT
Format: 01-99, 00 or Blank
Definition: Report the patient's hematocrit at the following specified time periods.
■ First recorded in the operating room
■ Lowest on Cardiopulmonary Bypass - report as "00" or leave blank if entire procedure was "off-pump."
■ Last on Cardiopulmonary Bypass - report as "00" or leave blank if entire procedure was "off-pump."
■ Post-Op – value on arrival at next level of care after the operating room (e.g. Critical Care, PACU, Recovery, etc.). If no value is available (e.g. patient expires prior to arrival at next level of care) then report as "00" or leave blank.

Clarification:
Values from any source are acceptable (e.g. lab, Istat, ABG), however if available from multiple sources for the same time-frame, central lab values are preferred to point of care values.

If blood is drawn for "post-op" lab work just prior to leaving the operating room, that value may be reported for "Post-op - value on arrival at next level of care."

If only one Hematocrit value is recorded for the entire time that the patient is on Cardiopulmonary Bypass, then this value would be reported as both "Lowest" and "Last."

Descriptive Name: Pre-Op Beta Blocker Use
Variable Name: PRE_BETA
Format: 1, 2, 3
Definition: Use the following codes to indicate pre-op beta blocker use or contraindication.

1 – Yes - The patient received beta blockers within 24 hours prior to incision in the OR.
2 – Contraindicated - Beta blocker was contraindicated. The contraindication must be documented in the medical record by a physician, nurse practitioner, or physician assistant.
3 – No - The patient did not receive beta blockers within 24 hours prior to incision in the OR and there is no documented contraindication for beta blockers.

Coding Note:
PRE_BETA definition is aligned with STS v4.20.2 data element 1030, however the response values must be mapped. CSRS response 1 = STS response 1; CSRS 2 = STS 3; CSRS 3 = STS 2. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Extubation at 24 Hours – Report Only for CABG Patients
Variable Name: EXTUBATE
Format: 1, 2, 3, blank or 0
Definition: Use the following codes to indicate extubation at 24 hours post-op.

1 – Yes - The patient was extubated at 24 hours post-op.
2 – Contraindicated - The patient was not extubated at 24 hours post-op due to a contraindication. Contraindications include the following: myocardial dysfunction; valvular heart disease; active systemic illness; respiratory disease; neuropsychiatric disease or problems with communication secondary to language. This would include stroke (new neurological deficit) and neuropsychiatric state (paranoia, confusion, dementia).
3 – Neither - The patient was not extubated at 24 hours post-op and there was no contraindication as defined above.

Directions:
Leave blank or enter 0 for any case that did not include a CABG.

Explanation:
Post-op is defined as starting when the patient leaves the actual procedure room where the cardiac operation occurred.

Descriptive Name: Post-Op Beta Blocker Use – Report Only for CABG Patients
Variable Name: PO_BETA
Format: 1, 2, 3, blank or 0
Definition:
1 – Yes - The patient received beta-blockers within 24 hours post-op.
2 – Contraindicated - The patient did not receive beta-blockers with 24 hours post-op due to a contraindication. Contraindications include the following: allergy, bradycardia (heart rate less than 60 bpm) and not on beta blockers, second or third degree heart block on ECG on arrival or during hospital stay and does not have a pacemaker, systolic blood pressure less than 90 mmHg and not on beta blockers, or other reasons documented by a physician, nurse practitioner, or physician's assistant in the medical chart.
3 – Neither- The patient did not receive beta-blockers within 24 hours post-op and there was no contraindication as defined above.

Directions:
- Leave blank or enter 0 for any case that did not include a CABG.
- Enter 3 -Neither for a patient that expired in the OR.

Explanation:
Post-op is defined as starting when the patient leaves the actual procedure room where the cardiac operation occurred.

Descriptive Name: Intra-Operative Blood Transfusion
Variable Name: TRANSFUS
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if packed red blood cells were transfused intraoperatively. Do not include autologous, cell-saver, pump-residual or chest tube recirculated blood. Intraoperatively is defined as any blood started inside of the OR.

Coding Note:
CSRS "TRANSFUS" is a Yes/No variable with a definition such that when STS element 2520 IBdRBCU is $\geq$ 1 then TRANSFUS should be "checked" (i.e. reported as 1 for text file upload). *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Glucose Control Protocol
Variable Name: GLUCOSE
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if a glucose control protocol was used for this patient.

Interpretation:
This element is referring to a post-op glucose control protocol. These may be initiated in the pre- or intra-operative period but continued post-op.

Expected documentation would be an order in the patient's chart indicating use of protocol or evidence that there are standing orders for all patients to be on a protocol.

III. Pre-Op Surgical Risk Factors

REMINDER: This section is optional for procedures that qualify for streamlined reporting.

Descriptive Name: Surgical Priority
Variable Name: PRIORITY
Format: 1-4
Definition: Indicate the clinical status of the patient prior to entering the operating room.

1 – Elective: The patient's cardiac function has been stable in the days or weeks prior to the operation. The procedure could be deferred without increased risk of compromised cardiac outcome.
2 – Urgent: Procedure required during same hospitalization in order to minimize chance of further clinical deterioration. Examples include but are not limited to: worsening, sudden chest pain; CHF; acute myocardial infarction; anatomy; IABP; unstable angina with intravenous nitroglycerin or rest angina.
3 – Emergent: Patients requiring emergency operations will have ongoing, refractory (difficult, complicated, and/or unmanageable) unrelenting cardiac compromise, with or without hemodynamic instability, and 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 – Emergent Salvage: The patient is undergoing CPR enroute to the OR prior to anesthesia induction or has ongoing ECMO to maintain life.

Coding Note:
PRIORITY is aligned with STS v4.20.2 element 1975. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Height
Variable Name: HEIGHT
Format: 1-999
Definition: Enter the patient's height in centimeters (cm) closest to the time of OR entry.

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

Coding Note:
HEIGHT definition is consistent with STS v4.20.2 data element 330. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Weight
Variable Name: WEIGHT
Format: 1-999
Definition: Indicate the weight of the patient, in kilograms (kg), closest to the date of the procedure.

Coding Note:
WEIGHT definition is consistent with STS v4.20.2 element 335. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Stress Test Findings – Element Optional For All Cases
Variable Name: STRS_RES
Format: 1-6 or 9
Definition: Use the codes below to indicate the stress test results if a stress test was performed in the last 6 months.

1 – Low Risk – (<1% annual risk of death or MI)
   Select if any of the following stress test findings are documented:
   - Low risk treadmill score (score ≥5) or no new ST segment changes or exercise induced chest pain symptoms; when achieving maximal levels of exercise.
   - Normal or small myocardial perfusion defect at rest or with stress encumbering <5% of the myocardium.
   - Normal stress or no change of limited resting wall motion abnormalities during stress.
2 – Intermediate Risk (1% to 3% annual death or MI)
   Select if any of the following stress test findings are documented:
   - Mild/moderate resting LV dysfunction (LVEF 35% to 49%) not readily explained by noncoronary cause.
   - Resting perfusion abnormalities in 5% to 9.9% of the myocardium in patients without a history or prior evidence of M.
   - ≥ 1mm of ST-segment depression occurring with exertional symptoms.
   - Stress-induced perfusion abnormalities encumbering 5% to 9.9% of the myocardium or stress segmental scores (in multiple segments) indicating 1 vascular territory with abnormalities but without LV dilation.
   - Small wall motion abnormality involving 1 – 2 segments and only 1 coronary bed.
3 – High Risk (>3% annual death or MI)
   Select if any of the following stress test findings are documented:
   - Severe resting LV dysfunction (LVEF <35%) not readily explained by noncoronary cause.
   - Resting perfusion abnormalities ≥10% of the myocardium in patients without prior history or evidence of M.
   - Stress ECG findings including ≥2mm of ST-segment depression at low workload or persisting into recovery, exercise-induced ST-segment elevation, or exercise induced VT/VF.
   - Severe stress induced LV dysfunction (peak exercise induced LVEF <45% or drop in LVEF with stress ≥ 10%).
   - Stress induced perfusion abnormalities encumbering ≥10% myocardium or stress segmental scores indicating multiple vascular territories with abnormalities.
   - Stress induced LV dilation.
   - Inducible wall motion abnormality (involving >2 segments or 2 coronary beds)
   - Wall motion abnormality developing at low dose of dobutamine (≤10 mg/kg/min) or at a low heart rate (<120 beats / min).
4 – Positive, Risk Unavailable
   - The study was "positive" but the risk or extent of ischemia was not documented.
5 – Indeterminate
   - The results of the study were uninterpretable. They cannot be considered positive or negative.
6 – Unavailable
   - A study was performed but the results of the study are not available
9 – Not Done/ Unknown
   - No stress test/imaging study was performed within the past 6 months or it is not known if a stress test/imaging study was performed in the past 6 months.

Clarification:
"Normal" or "Negative" stress test should be reported under 1 – Low risk.
If findings were in more than one risk level, select the highest level of risk indicated.

Descriptive Name: Ejection Fraction
Variable Name: EJEC_FRA
Format: 1-99 or 0 for Unknown
Definition: Record the pre-operative ejection fraction taken closest to, but before, the start of the cardiac procedure.

Directions:
- If an ejection fraction is unavailable, enter "0".
- Any ejection fraction that is described as "Normal" in the medical record should be considered 55%.

Explanation:
Intra-operative direct observation of the heart is NOT an adequate basis for a visual estimate of the ejection fraction.

Intra-operative TEE is acceptable, if no pre-operative ejection fraction is available.

Descriptive Name: Ejection Fraction Measure
Variable Name: MEASURE
Format: 1-4, 8 or 9
Definition: Indicate how the ejection fraction was measured using one of the following:

1 – LV Angiogram
2 – Echocardiogram
3 – Radionuclide Studies
4 – Transesophageal Echocardiogram (TEE), this includes intra-operative
8 – Other
9 – Unknown

Directions:
If an ejection fraction is unavailable, enter "9 – Unknown."

Descriptive Name: Anginal Classification within 2 Weeks
Variable Name: CCS_CLAS
Format: 1-4 or 8
Definition: Indicate the patient's anginal classification or symptom status within the past 2 weeks prior to surgery. The anginal classification or symptom status is classified as the highest grade of angina or chest pain by the Canadian Cardiovascular Angina Classification System (CCA).

1 – CCA I - Ordinary physical activity does not cause angina; for example, walking or climbing stairs, angina occurs with strenuous or rapid or prolonged exertion at work or recreation.
2 – CCA II - Slight limitation of ordinary activity; for example, angina occurs walking or stair climbing after meals, in cold, in wind, under emotional stress or only during the few hours after awakening, walking more than two blocks on the level or climbing more than one flight of ordinary stairs at a normal pace and in normal conditions.
3 – CCA III - Marked limitation of ordinary activity; for example, angina occurs walking one or two blocks on the level or climbing one flight of stairs in normal conditions and at a normal pace.
4 – CCA IV - Inability to carry on any physical activity without discomfort - angina syndrome may be present at rest.
8 – No Symptoms, No Angina - The patient has no symptoms, no angina.

Directions:
If this is a subsequent episode of care (within 2 weeks), code the most recent Anginal Classification.

When the only chest pain the patient experienced is during an exercise stress test, code no angina, since this system is designed to classify angina during activities of daily living. Do not capture angina that only occurred during diagnostic testing.

If the patient presents with atypical symptoms of myocardial ischemia (i.e. only shortness of breath, upper abdominal pain, left arm pain, etc.) that is known and documented to be myocardial ischemia, and is considered to be an angina equivalent, code the selection that fits their presentation.

Descriptive Name: Cardiac Symptoms at Time of Admission – Optional for All Cases
Variable Name: SYMP_ADM
Format: 1-7
Definition: Indicate the patient's cardiac symptoms at the time of admission using the codes below.

1 – No Symptoms - No Symptoms, no angina.
2 – Stable Angina - Angina without a change in frequency or pattern for the prior 6 weeks. Angina is controlled by rest and/or oral or transcutaneous medications.
3 – Unstable Angina - There are three principal presentations of unstable angina:
> a. Rest angina (occurring at rest and prolonged, usually >20 minutes);
> b. New-onset angina (within the past 2 months, of at least Canadian Cardiovascular Society Class III severity); or
> c. Increasing angina - (previously diagnosed angina that has become distinctly more frequent, longer in duration, or increased by 1 or more Canadian Cardiovascular Society class to at least CCS III severity).
4 – Non-ST Elevation MI (Non- STEMI) - The patient was hospitalized for a non-ST elevation myocardial infarction (NSTEMI) as documented in the medical record.
5 – ST Elevation MI (STEMI) – The patient presented with a ST-elevation myocardial infarction (STEMI) or its equivalent as documented in the medical record.
6 – Angina equivalent - An anginal equivalent is a symptom such as shortness of breath (dyspnea), diaphoresis, extreme fatigue, or belching, occurring in a patient at high cardiac risk. Anginal equivalents are considered to be symptoms of myocardial ischemia. Anginal equivalents are considered to have the same importance as angina pectoris in patients presenting with elevation of cardiac enzymes or certain EKG changes which are diagnostic of myocardial ischemia. For the patient with diabetes who presents with "silent angina", code anginal equivalent.
7 – Other - Presentation/symptom not listed above (e.g., aortic dissections, sudden death, heart block, arrhythmia, syncope or heart failure).

Clarification:
There must be documentation that symptoms are anginal equivalent to code response 6-Anginal Equivalent.

Descriptive Name: Primary Coronary Symptom for Surgery
Variable Name: SYMP_SURG
Format: 1-7
Definition: Indicate the patient's worst symptom prior to surgery from Admission to OR Entry.

1 – No coronary symptoms – No coronary symptoms, no angina, no acute STEMI, non-STEMI, no anginal equivalent, and no other atypical chest pain.
2 – Stable angina – Angina without a change in frequency or pattern for the 6 weeks prior. Angina is controlled by rest and/or oral or transcutaneous medications.
3 – Unstable angina - There are three principal presentations of unstable angina.
    o Rest angina (occurring at rest and prolonged, usually >20 minutes)
    o New-onset angina (within the past 2 months, of at least Canadian Cardiovascular Society Class III severity)
    o Increasing angina (previously diagnosed angina that has become distinctly more frequent, longer in duration, or increased by 1 or more Canadian Cardiovascular Society class to at least CCS III severity)
4 – Non-STEMI - The patient was hospitalized for a non-ST elevation myocardial infarction (NSTEMI) as documented in the medical record. NSTEMIs are characterized by the presence of both criteria:
        a. Cardiac biomarkers (creatinine kinase-myocardial band, Troponin T or I) exceed the upper limit of normal according to the individual hospital's laboratory parameters with a clinical presentation which is consistent or suggestive of ischemia. ECG changes and/or ischemic symptoms may or may not be present.
        b. Absence of ECG changes diagnostic of a STEMI (see STEMI).
5 – ST Elevation MI (STEMI) - The patient presented with a ST elevation myocardial infarction (STEMI) or its equivalent as documented in the medical record. STEMIs are characterized by the presence of both criteria:
        a. ECG evidence of STEMI: New or presumed new ST-segment elevation or new left bundle branch block not documented to be resolved within 20 minutes. ST-segment elevation is defined by new or presumed new sustained ST-segment elevation at the J-point in two contiguous electrocardiogram (ECG) leads with the cutoff points: >=0.2 mV in men or >= 0.15mV in women in leads V2-V3 and/or >= 0.1 mV in other leads and lasting greater than or equal to 20 minutes. If no exact ST elevation measurement is recorded in the medical chart, physician's written documentation of ST elevation or Q waves is acceptable. If only one ECG is performed, then the assumption that the ST elevation persisted at least the required 20 minutes is acceptable. Left bundle branch block (LBBB) refers to new or presumed new LBBB on the initial ECG.
        b. Cardiac biomarkers (creatinine kinase-myocardial band, Troponin T or I) exceed the upper limit of normal according to the individual hospital's laboratory parameters with a clinical presentation which is consistent or suggestive of ischemia. Note: For purposes of the Registry, ST elevation in the posterior chest leads (V7 through V9), or ST depression that is maximal in V1-3, without ST-segment elevation in other leads, demonstrating posterobasal myocardial infarction, is considered a STEMI equivalent and qualifies the patient for reperfusion therapy.

6 – Anginal Equivalent - An anginal equivalent is a symptom such as shortness of breath (dyspnea), diaphoresis, extreme fatigue, or belching, occurring in a patient at high cardiac risk. Anginal equivalents are considered symptoms of myocardial ischemia. Anginal equivalents are considered to have the same importance as angina pectoris in patients presenting with elevation of cardiac enzymes or certain EKG changes which are diagnostic of myocardial ischemia. There needs to be supportive documentation in the medical record that the symptoms are representative of angina. For example, if the patient presents with the symptoms above and it is proven that the patient has documented obstructive CAD, then anginal equivalent may be coded even if there is no Provider documentation specifically stating that the symptoms are an anginal equivalent. For the patient with diabetes who presents with "silent angina", code anginal equivalent.

7 – Other

Explanation:
Choose the worst status from arrival at transferring facility / your facility to OR Entry. For elective patients, choose the CAD presentation that is bringing them into the hospital.

If this is a subsequent episode of care, do not code the CAD Presentation from the previous episode of care.

If the patient presents with atypical symptoms of myocardial ischemia (i.e. only shortness of breath, upper abdominal pain, left arm pain, etc.) that is known and documented to be myocardial ischemia, and is considered to be an angina equivalent, code the selection that fits their presentation. If these symptoms are not thought to be or have not been proven to be the anginal equivalent, code "No Coronary Symptoms."

Coding Note:
SYMP_SURG definition is aligned with STS v4.20.2 data element 895. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Creatinine
Variable Name: CREATININE
Format: XX.X
Definition: Indicate the creatinine level closest to the date and time of surgery but prior to anesthetic management (induction area or operating room).

Directions:
If no preoperative creatinine value is available, enter 00.0.

Explanation:
Acceptable documentation may include that from an outpatient record.

Coding Note:
CREATININE definition is aligned with STS v4.20.2 data element 605. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: Anti-Anginal Medication Within 2 Weeks – Optional For All Cases
Variable Name: MED_BB, MED_CA, MED_NIT, MED_RAN, MED_OTH
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the patient was taking any of the following agents to treat anginal symptoms within the past two weeks. Check all that apply.
- Beta-Blockers
- Calcium Channel Blockers
- Long Acting Nitrates
- Ranolazine
- Other

Clarification:
Do not report if the patient was given sublingual, IV, or short acting form of the medications.

Do not report if the patient has been prescribed the medication but is known to be not taking it.

Report if the patient was started on an oral form of the medication after admission but prior to this surgical procedure.

Report if this medication was prescribed for this patient, but you are unsure it has been prescribed specifically to treat anginal symptoms.

Nitro paste and nitro patch are considered Long Acting Nitrates.

"Other" excludes short acting anti-anginal medications such as nitroglycerin sublingual tablets or spray that is used to relieve an acute episode of chest pain.

Vessels Diseased

Directions:
- This section must be completed for all CABG cases.
- Also report vessels diseased whenever available for other procedures, otherwise leave blank.

If the diseased segment of the native vessel is bypassed by an open artery or vein graft, do not code as diseased. This vessel is revascularized.

Explanation:
Typically, the percent stenosis (as a numeric value) should be well-documented in the medical record for any significant vessel (≥ 2mm). In the absence of this documentation, the ranges listed below may be used.

> MILD   < 50%
> MODERATE   50-69%
> SEVERE   ≥ 70%

- If a vessel or branch is described as having "Mild" stenosis then the vessel would NOT be coded as diseased, since that is interpreted as < 50% stenosis.
- If the medical record reports the range "40-50%" stenosis, then DO NOT CODE as diseased.
- If the medical record reports the range "60-70%" stenosis, then code 50-69%.

The term "severe diffuse disease" should not be interpreted to mean that the vessel has a stenosis of ≥ 70%.

Always take the highest stenosis reported for a vessel. If the medical record reports the Proximal RCA with a 70% lesion and the Distal RCA with a 50% you should code the RCA as 70-100%, since the Proximal RCA has a 70% lesion.

If the medical record only has documentation that states the LAD was stenosed (and does not specify location within the LAD) then code the Mid LAD and not the Proximal LAD.

Disease of the Major Diagonal should be reported with Mid/Distal LAD. The Ramus Intermediate should be coded as the Diagonal or Marginal.

Descriptive Name: LMT
Variable Name: LMT
Format: 1, 2, 3, blank or 0
Definition: If the Left Main is diseased, check the appropriate box to indicate the percent diameter stenosis as determined by angiography.

1 – 50-69%
2 – 70-89%
3 – 90–100%

Directions and Explanation:
See Vessels Diseased.

Descriptive Name: Proximal LAD
Variable Name: PROX_LAD
Format: 4, 5, blank or 0
Definition: If the Proximal Left Anterior Descending is diseased, check the appropriate box to indicate the percent diameter stenosis as determined by angiography.

4 – 50-69%
5 – 70 – 100%

Directions and Explanation:
See Vessels Diseased.

Descriptive Name: Mid/Distal LAD
Variable Name: MID_LAD
Format: 6,7, blank or 0
Definition: If the Mid or Distal Left Anterior Descending (or its major branches) are diseased, check the appropriate box to indicate the percent diameter stenosis as determined by angiography. Include significant branches.

6 – 50-69%
7 – 70 – 100%

Directions and Explanation:
See Vessels Diseased.

Descriptive Name: RCA
Variable Name: RCA
Format: 8,9, blank or 0
Definition: If the Right Coronary Artery (RCA) is diseased, check the appropriate box to indicate the percent diameter stenosis as determined by angiography. Include significant branches.

8 – 50-69%
9 – 70-100%

Directions and Explanation:
See Vessels Diseased.

Descriptive Name: LCX
Variable Name: LCX
Format: 10,11, blank or 0
Definition: If the Left Circumflex is diseased, check the appropriate box to indicate the percent diameter stenosis as determined by angiography. Include significant branches.

10 – 50-69%
11 – 70-100%

Directions and Explanation:
See Vessels Diseased.

Descriptive Name: Left Main - Minimal Luminal Area
Variable Name: LM_MLA
Format: X.X
Definition: Report the minimal luminal area in mm^2 as found by IVUS or OCT for the Left Main. If IVUS and OCT were not used, leave blank.

Descriptive Name: Proximal LAD - Minimal Luminal Area
Variable Name: PLAD_MLA
Format: X.X
Definition: Report the minimal luminal area in mm^2 as found by IVUS or OCT for the Proximal LAD. If IVUS and OCT were not used, leave blank.

Descriptive Name: Mid/Distal LAD - Minimal Luminal Area
Variable Name: MLAD_MLA,
Format: X.X
Definition: Report the minimal luminal area in mm^2 as found by IVUS or OCT for the Mid/Distal LAD or major branches. If IVUS and OCT were not used, leave blank.

Descriptive Name: RCA - Minimal Luminal Area
Variable Name: RCA_MLA
Format: X.X
Definition: Report the minimal luminal area in mm^2 as found by IVUS or OCT for the RCA or major branches. If IVUS and OCT were not used, leave blank.

Descriptive Name: LCX - Minimal Luminal Area
Variable Name: LCX_MLA
Format: X.X
Definition: Report the minimal luminal area in mm^2 as found by IVUS or OCT for the LCX or major branches. If IVUS and OCT were not used, leave blank.

Descriptive Name: Left Main – Fractional Flow Reserve
Variable Name: LM_FFR
Format: X.XX
Definition: Indicate the fractional flow reserve ratio (FFR) or instantaneous wave-free ratio (iFR) for the Left Main.

Directions:
- If FFR and iFR were not done, leave blank.
- If both FFR and iFR were done, report FFR values.

Descriptive Name: Proximal LAD - Fractional Flow Reserve
Variable Name PLAD_FFR
Format: X.XX
Definition: Indicate the fractional flow reserve ratio (FFR) or instantaneous wave-free ratio (iFR) for the Proximal LAD.

Directions:
See Left Main – Fractional Flow Reserve.

Descriptive Name: Mid/Distal LAD - Fractional Flow Reserve
Variable Name: MLAD_FFR
Format: X.XX
Definition: Indicate the fractional flow reserve ratio (FFR) or instantaneous wave-free ratio (iFR) for the Mid/Distal LAD and its major branches.

Directions:
See Left Main – Fractional Flow Reserve.

Descriptive Name: RCA - Fractional Flow Reserve
Variable Name: RCA_FFR
Format: X.XX
Definition: Indicate the fractional flow reserve ratio (FFR) or instantaneous wave-free ratio (iFR) for the RCA and its major branches.

Directions:
See Left Main – Fractional Flow Reserve.

Descriptive Name: LCX - Fractional Flow Reserve
Variable Name: LCX_FFR
Format: X.XX
Definition: Indicate the fractional flow reserve ratio (FFR) or instantaneous wave-free ratio (iFR) for the LCX and its major branches.

Directions:
See Left Main – Fractional Flow Reserve.

Descriptive Name: MLA Measurement Type
Variable Name: MLA_TYPE
Format: 1, 2, blank or 0
Definition: If minimal luminal area (MLA) is reported, indicate if the measurements were obtained from IVUS or OCT evaluation.

1 – IVUS
2 – OCT

Directions:
If no MLA is reported, leave this field blank or enter 0.

Descriptive Name: Flow Measurement Type
Variable Name: FLW_TYPE
Format: 1 or 2
Definition: If fractional flow reserve ratio (FFR) or Instantaneous wave-free ratio (iFR) is reported, indicate if the measurements were obtained from FFR or iFR evaluation.

1 – FFR
2 – iFR

Directions:
- If no FFR/iFR is reported, leave this field blank or enter 0.
- If both FFR and iFR were used, check FFR and report the values from FFR.

Valve Disease

Valve Disease should be reported for all valve surgery patients and for any other patient if the information is available.

Directions and Explanation:
Moderate or Severe Stenosis – Aortic, Mitral, or Tricuspid: Should be demonstrated by appropriate imaging technique, echocardiography, or hemodynamic measurement during cardiac catheterization or operation.

Moderate or Severe Aortic Incompetence: Should be demonstrated by aortography or by pre-op or intraoperative echocardiography.

Moderate or Severe Mitral Incompetence: Should be demonstrated by left ventriculography or by pre-op or intraoperative echocardiography.

Moderate or Severe Tricuspid Incompetence: Should be demonstrated by physical examination or by pre-op or intraoperative echocardiography.

Use pre-incision intra-operative TEE results if either: a) these findings changed the planned surgery or b) no other values are available. Otherwise, use the most recent values from 6 months prior to surgery up to OR entry.

Choose the **highest** level of valve dysfunction when there are differences in interpretation of the most recent study.

Capture when available, even if patient is not scheduled for valve repair and/or replacement.

Report findings of "Trace" or "Trivial" as "None."

If a report shows "mild to moderate" disease, it would be appropriate to code "moderate."

Descriptive Name: Aortic Valve Stenosis
Variable Name: STEN_AOR
Format: 0-3 or Blank
Definition: Report the aortic valve stenosis using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions and Explanation:
See Valve Disease.

Descriptive Name: Mitral Valve Stenosis
Variable Name: STEN_MIT
Format: 0-3 or Blank
Definition: Report the mitral valve stenosis using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions and Explanation:
See Valve Disease.

Descriptive Name: Tricuspid Valve Stenosis
Variable Name: STEN_TRI
Format: 0-3 or Blank
Definition: Report the tricuspid valve stenosis using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions and Explanation:
See Valve Disease.

Descriptive Name: Aortic Valve Incompetence
Variable Name: INCO_AOR
Format: 0-3 or Blank
Definition: Report the aortic valve incompetence using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions and Explanation:
See Valve Disease.

Descriptive Name: Mitral Valve Incompetence
Variable Name: INCO_MIT
Format: 0-3 or Blank
Definition: Report the mitral valve incompetence (regurgitation) using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions:
When reporting mitral valve Incompetence, also report information for the type, etiology and leaflet involvement.

See additional directions and explanation under Valve Disease.

Descriptive Name: Tricuspid Valve Incompetence
Variable Name: INCO_TRI
Format: 0-3 or Blank
Definition: Report the tricuspid valve incompetence using the following codes.

0 – None
1 – Mild
2 – Moderate
3 – Severe

Directions and Explanation:
See Valve Disease.

Descriptive Name: Mitral Regurgitation Type - Secondary
Variable Name: SEC_MR
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with mitral valve regurgitation, report if Secondary mitral valve disease is present.

Directions:
Report only when "Mitral Incompetence" is reported. (INCO_MIT = 1, 2, 3)

This data element may be skipped for patients with a mitral valve prosthesis in place prior to the current cardiac surgery.

It is acceptable to report both Primary and Secondary Mitral Regurgitation

Explanation:
In "Secondary" MR, the mitral valve is usually normal and LV dysfunction is caused by coronary artery disease, myocardial infarction or idiopathic myocardial disease.

Descriptive Name: Mitral Regurgitation Type - Primary
Variable Name: PRIME_MR
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with mitral valve regurgitation, indicate the presence of Primary mitral valve disease is present.

Directions:
See Secondary Mitral Regurgitation.

Explanation:
"Primary" MR involves pathology of valve component(s), i.e. leaflets, chords, papillary muscle, annulus. This may be evidenced by mitral valve prolapse and associated with Barlow's Valve, Fibroelastic deficiency disease, infective endocarditis, connective tissue disorders, rheumatic heart disease, cleft MV, or Radiation Heart Disease. May also be called "degenerative" disease.

Descriptive Name: Etiology for Primary MR - Degenerative
Variable Name: MR_DEGEN
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with Primary Mitral Regurgitation, indicate if the etiology is Degenerative.

Directions:
Report only when the patient has Primary Mitral Regurgitation (PRIME_MR = 1).

This data element may be skipped for patients with a mitral valve prosthesis in place prior to the current cardiac surgery.

Descriptive Name: Etiology for Primary MR - Rheumatic
Variable Name: MR_ RHEUM
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with Primary Mitral Regurgitation, indicate if the etiology is Rheumatic.

Directions:
See Degenerative Etiology.

Descriptive Name: Etiology for Primary MR - Endocarditis
Variable Name: MR_ ENDO
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with Primary Mitral Regurgitation, indicate if the etiology is Endocarditis.

Directions:
See Degenerative Etiology.

Descriptive Name: Etiology for Primary MR - Calcified
Variable Name: MR_ CALC
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with Primary Mitral Regurgitation, indicate if the etiology is Calcified.

Directions:
See Degenerative Etiology.

Descriptive Name: Etiology for Primary MR - Other
Variable Name: MR_ OTH
Format: 1 = Yes, 0 or Blank = No
Definition: For patients with Primary Mitral Regurgitation, indicate if the etiology is Other.

Directions:
See Degenerative Etiology.

Descriptive Name: Leaflet Involvement for Primary MR
Variable Name: MR_LEAF
Format: 1, 2, 3, blank or 0
Definition: For patients with Primary Mitral Regurgitation, indicate which leaflets are involved.

1 – Posterior
2 – Anterior
3 – Both

Directions:
Report only when the patient has Primary Mitral Regurgitation (PRIME_MR = 1).

This data element may be skipped for patients with a mitral valve prosthesis in place prior to the current cardiac surgery.

Descriptive Name: Valve Symptoms
Variable Name: VALVE_SYMP
Format: 1 or 2, blank or 0
Definition: For patients with any valve disease, indicate their symptom status.

1 – Asymptomatic
2 – Symptomatic

Directions:
- Report for patients with stenosis or incompetence of any valve.
- Leave blank or enter 0 for patients with no valve disease.

Explanation:
Symptomatic patients are those with symptoms believed to be related to their valve disease such as: decreased exercise tolerance, exertional dyspnea, or heart failure symptoms.

Descriptive Name: Five-Meter Walk Test – Result 1
Variable Name: FIVE_WALK1
Format: XXX.XX
Definition: For patients undergoing transcatheter aortic valve replacement or surgical aortic valve replacement, if the five-meter walk test was performed within 90 days of the procedure, report the time the patient took to walk 5 meters for the first test.

Directions:
This may not be available for all TAVR and SAVR patients but should be reported when available.

Descriptive Name: Five-Meter Walk Test – Result 2
Variable Name: FIVE_WALK2
Format: XXX.XX
Definition: For patients undergoing transcatheter aortic valve replacement or surgical aortic valve replacement, if the five-meter walk test was performed within 90 days of the procedure, report the time the patient took to walk 5 meters for the second test.

Directions:
This may not be available for all TAVR and SAVR patients but should be reported when available.

Descriptive Name: Five-Meter Walk Test – Result 3
Variable Name: FIVE_WALK3
Format: XXX.XX
Definition: For patients undergoing transcatheter aortic valve replacement or surgical aortic valve replacement, if the five-meter walk test was performed within 90 days of the procedure, report the time the patient took to walk 5 meters for the third test.

Directions:
This may not be available for all TAVR and SAVR patients but should be reported when available.

Descriptive Name: 0. None
Variable Name: NORISK
Format: 1 = Yes, 0 or Blank = No
Definition: Report if none of the pre-operative risk factors listed below are present.

Descriptive Name: 1. Previous CABG – Patent Grafts
Variable Name: PAT_GRAFT
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if, prior to this cardiac surgery, the patient has undergone CABG and currently has one or more patent grafts.

Directions:
Include any surgeries that occurred prior to this one including those earlier in the current admission.

Check this box if there are any patent grafts, even if there are also occluded grafts. Only check box 1 or box 1a, not both.

If the patient has a history of CABG and a history of other cardiac surgery, you should report both risk factors.

Descriptive Name: 1a. Previous CABG – No Patent Grafts
Variable Name: OTH_CABG
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if, prior to this cardiac surgery, the patient has previously undergone CABG and has no patent grafts.

Directions:
Include any surgeries that occurred prior to this one including those earlier in the current admission.

Check this box only if there are no patent grafts. Only check box 1 or box 1a, not both.

If the patient has a history of CABG and a history of other cardiac surgery, you should report both risk factors.

Descriptive Name: 2a. Previous Valve Surgery/Intervention
Variable Name: PRE_VALV
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if, prior to this cardiac surgery, the patient has previously undergone surgery or catheter-based intervention for valve repair or replacement.

Note:
It is acceptable to report this risk factor as well as a risk factor for previous CABG surgery and/or other previous cardiac surgery.

Descriptive Name: 2. Any Other Previous Cardiac Surgery
Variable Name: OTH_SURG
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if prior to this OR visit the patient has had any cardiac surgery other than CABG or valve repair / replacement.

Note:
Do not include catheter-based interventions.

If the patient has previously had CABG and/or valve surgery as well as another cardiac surgery, report this risk factor in addition to the appropriate Previous CABG and/or Valve risks.

Descriptive Name: 4. Previous MI < 6 hours
Variable Name: PREMILT6
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the symptom onset of the patient's most recent MI was less than 6 hours before surgery.

Explanation:
Timing should be from the onset of symptoms to the start of the surgery. If the exact time that the symptoms started is not available in the medical record, every effort should be made to create a close estimate based on available documentation.

The diagnosis of Acute Coronary Syndrome (ACS) in the medical record is not sufficient to Code risk factors 4 – 6. There must be documentation of a diagnosed myocardial infarction.

Descriptive Name: 5. Previous MI 6 - 23 hours
Variable Name: PREMI623
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if the symptom onset of the patient's most recent MI was 6 - 23 hours before surgery.

Explanation:
See Previous MI < 6 hours.

Descriptive Name: 6. Previous MI Days
Variable Name: PREMIDAY
Format: 1 = Yes, 0 or Blank = No
Definition: If the patient's most recent MI was 1 day or more before surgery, enter the number of days since symptom onset. If the MI was 21 days or more prior to surgery, enter 21.

Explanation:
See Previous MI < 6 hours.

Descriptive Name: 64. Neurological Event
Variable Name: CVD_EVENT
Format: 1, 2 or 0 or Blank
Definition: Use the following codes to indicate if the patient has a history of a neurological event:

1 – Stroke
2 – TIA, without history of stroke

Directions:
If no history of stroke or TIA, enter 0 or leave blank.

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

TIA is defined as a transient episode of focal neurological dysfunction caused by brain, spinal cord, or retinal ischemia, without acute infarction, where the neurological dysfunction resolves within 24 hours.

Coding Note:
CVD_EVENT definition is aligned with STS v4.20.2 data element 530 and 540 according to the following mapping instructions. If STS Seq 530 = 1 then CVD_EVENT = 1; If STS Seq 540 = 1 and STS Seq 530 ≠ 1 then CVD_EVENT = 2. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 65. Arterial Imaging Test
Variable Name: CVD_IMG
Format: 1, 2, 0 or Blank
Definition: Use the codes below to indicate if a noninvasive or invasive arterial imaging test demonstrated >=50% stenosis of any of the major extracranial or intracranial vessels to the brain.

1 – 50-79% occlusion
2 – >79% occlusion

Directions:
If no findings in this range, or no testing performed, enter 0 or leave blank.

Descriptive Name: 66. Cervical or Cerebrovascular Procedure
Variable Name: CVD_PROC
Format: 1 = Yes, 0 or Blank = No
Definition: Check the box to indicate if the patient has previous cervical or cerebral artery surgery or percutaneous intervention.

Explanation:
It is acceptable to report cerebrovascular aneurysm clipping or coiling for this risk factor.

The procedure should be related to cerebrovascular disease, not trauma.

Descriptive Name: 67. Cardiogenic Shock
Variable Name: SHOCK_COND
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if, in the immediate pre-operative period, the patient was in cardiogenic shock as defined below.

Cardiogenic shock is defined as an episode of systolic blood pressure <90 mmHg and/or cardiac index < 2.2 L/min /m^2 determined to be secondary to cardiac dysfunction and the requirement for parenteral inotropic or vasopressor agents or mechanical support (e.g., IABP, extracorporeal circulation, VAD) to maintain blood pressure and cardiac index above those specified levels.

Explanation:
See Refractory Cardiogenic Shock.

Descriptive Name: 68. Refractory Cardiogenic Shock
Variable Name: SHOCK_REFR
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate if, in the immediate pre-operative period, the patient was in refractory cardiogenic shock as defined below.

Refractory cardiogenic shock is defined as an episode of systolic blood pressure <80 mm Hg and/or cardiac index < 2.0 L/min /m^2 determined to be secondary to cardiac dysfunction despite the use of parenteral inotropic or vasopressor agents or mechanical support (e.g., IABP, extracorporeal circulation, VADs).

Cases with Refractory Cardiogenic Shock will be excluded from analysis.

Explanation (Applies to Cardiogenic Shock and Refractory Cardiogenic Shock):
Transient episodes of hypotension reversed with IV fluid or atropine do not constitute cardiogenic shock or refractory cardiogenic shock.

For these purposes, the immediate pre-operative period is defined as the period just prior to anesthesia taking responsibility for the patient.

Ongoing CPR warrants the coding of Refractory Cardiogenic Shock.

If the patient has an IABP, the augmented or non-augmented systolic BP < 80 mmHg may be used as support for coding Refractory Cardiogenic Shock.

If the patient is Ventricular Assist Device (VAD) dependent then Refractory Shock can be coded. For these purposes ECMO is treated like a VAD. Use of Impella is treated like a VAD when there is evidence prior to insertion that the hemodynamic criteria above are met.

Descriptive Name: 10. Peripheral Vascular Disease
Variable Name: PERIPH
Format: 1 = Yes, 0 or Blank = No
Definition: Angiographic demonstration of at least 50% narrowing in a major aortoiliac or femoral/popliteal vessel, previous surgery for such disease, absent femoral or pedal pulses, or the inability to insert a catheter or intra-aortic balloon due to iliac aneurysm or obstruction of the aortoiliac or femoral arteries. Ankle-Brachial Index < 0.9 is also acceptable documentation.

Examples:

Peripheral Vascular Disease	Code	Do Not Code
1. Tortuosity of the vessel alone		X
2. Tortuosity of the vessel with an inability to insert a Catheter	X	
3. Abdominal aortic aneurysm (AAA)	X	
4. Aneurysm in the ascending or descending aorta	X	
5. Absence of femoral pulse on either the right or the left	X	
6. Diminished femoral pulse on either right or left or both		X
7. Claudication		X
8. A negative popliteal pulse alone (1+1- or 1-1+)		X
9. Palpable dorsalis pedis and posterior tibial pulses		X
10. If pulses are non-palpable, but are dopplerable	X	
11. Inability to insert a catheter or IABP in femoral Arteries	X	
12. Amputated toes, necrotic toes, gangrene of the foot in the absence of other acceptable criteria		X
13. Renal artery with significant stenosis	X	
14. Subclavian artery with significant stenosis	X	
15. Iliac artery aneurysm	X	
16. Infrarenal aortic dissection	X	
17. "Moderate" subclavian artery stenosis with no % documented		X

Descriptive Name: 18. Heart Failure, Current
Variable Name: CHF_CUR
Format: 1 = Yes, 0 or Blank = No
Definition: Within 2 weeks prior to the procedure, the patient has a clinical diagnosis of heart failure and symptoms requiring treatment for heart failure.

Physician diagnosis of heart failure may be based on one of the following:
- Paroxysmal nocturnal dyspnea (PND)
- Dyspnea on exertion (DOE) due to heart failure
- Chest X-Ray showing pulmonary congestion

Documentation must include the presence of a diagnosis of heart failure, evidence of symptoms, and treatment for heart failure.

Explanation:
The diagnosis component may be documented with a variety of terms such as: congestive heart failure (CHF), heart failure (HF), systolic heart failure, diastolic heart failure, heart failure with reduced EF (HFrEF), heart failure with preserved EF (HFpEF).

Renal dialysis is acceptable for the treatment component of this definition, if there is documentation that the patient is receiving dialysis as a treatment for heart failure.

Documentation of NYHA Class III or IV may fulfill both the diagnosis and symptoms components of this definition. Documentation of a lower NYHA class may fulfill the symptoms component, but there must also be documentation of a heart failure diagnosis.

It is acceptable to report both Heart Failure Current and Past.

Descriptive Name: 19. Heart Failure, Past
Variable Name: CHF_PAST
Format: 1 = Yes, 0 or Blank = No
Definition: Between 2 weeks and 6 months prior to the procedure, the patient has a clinical diagnosis / past medical history of heart failure and ongoing treatment for heart failure.

Note:
Physician diagnosis of heart failure may be based on one of the following:
- Paroxysmal nocturnal dyspnea (PND)
- Dyspnea on exertion (DOE) due to heart failure
- Chest X-Ray showing pulmonary congestion

Documentation must include a diagnosis of heart failure and evidence of treatment for heart failure. Patient's clinical status may be compensated.

Explanation:
See Heart Failure, Current.

Descriptive Name: 20. Malignant Ventricular Arrhythmia
Variable Name: MAL_VENT
Format: 1 = Yes, 0 or Blank = No
Definition: Recent (within the past 14 days) sustained ventricular tachycardia requiring electrical defibrillation or conversion with intravenous anti-arrhythmic agents or ventricular fibrillation requiring electrical defibrillation. Excludes V-Tach or V-Fib occurring within 6 hours of the diagnosis of a myocardial infarction and responding well to treatment.

Explanation:
Sustained arrhythmia is that which continues until something is done to stop it; it does not resolve on its own.

For patients within 6 hours of the diagnosis of an MI who are experiencing V-Tach or V-Fib that otherwise meets the above criteria, you may still code this risk factor if the arrhythmia is not responding well to treatment. That is, if it continues despite electrical defibrillation or conversion with intravenous anti-arrhythmic agents.

If the patient has an AICD that is documented to have fired then CODE, unless the patient is within 6 hours of the diagnosis of an MI.

Regular oral medication for a ventricular arrhythmia is NOT sufficient reason to code the risk factor.

Descriptive Name: 21. Chronic Lung Disease
Variable Name: COPD
Format: 1-4
Definition: Indicate whether the patient has chronic lung disease, and the severity level according to the following classification:

1 – None
2 – Mild - FEV_1 60% to 75% of predicted, and/or on chronic inhaled or oral bronchodilator therapy.
3 – Moderate - FEV_1 50% to 59% of predicted, and/or on chronic oral steroid therapy aimed at lung disease.
4 – Severe - FEV_1 < 50% predicted, and/or Room Air pO_2 < 60 or Room Air pCO_2 > 50.

Explanation:
A history of chronic inhalation reactive disease (asbestosis, mesothelioma, black lung disease or pneumoconiosis) may qualify as chronic lung disease. Radiation induced pneumonitis or radiation fibrosis also qualifies as chronic lung disease (if above criteria are met). A history of atelectasis is a transient condition and does not qualify.

Chronic lung disease can include patients with chronic obstructive pulmonary disease, chronic bronchitis, or emphysema. Patients with asthma or seasonal allergies are not considered to have chronic lung disease.

Acceptable documentation for "severe" includes pO_2 < 60 or pCO_2 > 50 on supplemental oxygen as well as on room air.

Do not use values obtained more than 12 months prior to the date of surgery.

Bedside spirometry may be used to identify the severity of chronic lung disease when there is a diagnosis of COPD or other qualifying chronic lung disease in the patient's medical record. Findings on a full PFT or bedside spirometry such as "moderate obstructive defect" are not a diagnosis of chronic lung disease. For all cases, there must be a diagnosis of pre-procedure chronic lung disease to report this risk factor.

Diagnosis must be present in the medical record. This information must be included with any medical record documentation submitted for review of this risk factor.

Descriptive Name: 23. Extensive Aortic Atherosclerosis
Variable Name: CALCAORT
Format: 1 = Yes, 0 or Blank = No
Definition: Ascending, transverse, and/or descending aortic atherosclerosis marked by either extensive calcification or luminal atheroma such that the intended surgical procedure is altered.

Explanation:
It is necessary to demonstrate that the intended surgical procedure is altered. An operative note that dictates a change in the intended surgical procedure (i.e. clamp moved, procedure performed off pump) is acceptable documentation.

Documentation of the advanced aortic pathology by either transesophageal echocardiography, epi aortic echocardiography, intravascular ultrasound, magnetic resonance angiography or other imaging modality performed in the perioperative period should be available either by official report or dictated in the operative notes.

Calcium in aortic arch on chest X-ray is not enough to code this risk.

Extensive evaluation *does not* represent a change in the intended surgical procedure.

Descriptive Name: 24. Diabetes
Variable Name: DIABETES
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether patient has a history of diabetes diagnosed and/or treated by a healthcare provider.

Explanation:
Exclusions are steroid induced hyperglycemia and gestational (transient), without elevated HbA1c and/or treatment.

Not all patients receiving diabetic medications are considered diabetic. It is important to remember, some medications used to treat diabetes may be used to treat other conditions.

A hemoglobin A1c value of >= 6.5%, collected within 3 months prior to surgery, is acceptable to use for documentation of diabetes.

Patients with a history of diabetes who have had a pancreatic transplant are coded as Yes to Diabetes.

Coding Note:
DIABETES definition is aligned with STS V4.20.2 data element 360. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 24a. Diabetes Therapy
Variable Name: DM_TRT
Format: 1-7 or Blank
Definition: Indicate the patient's diabetes control method (long-term management) as presented on admission.

Patients placed on a pre-procedure diabetic pathway of insulin drip at admission but whose diabetes was controlled by diet or oral methods are not coded as being treated with insulin.

1 – None - No treatment for diabetes
2 – Diet only - Treatment with diet only
3 – Oral - Treatment with oral agent (includes oral agent with or without diet treatment)
4 – Insulin - Insulin treatment (includes any combination with insulin)
6 – Other subcutaneous medication - Other subcutaneous medications (such as GLP-1 agonists)
5 – Other - Other adjunctive treatment, not oral/insulin/diet
7 – Unknown

Directions:
Choose the most aggressive therapy from the order below.
• Insulin: insulin treatment (includes any combination with insulin)
• Other subcutaneous medications (e.g., GLP-1 agonist)
• Oral: treatment with oral agent (includes oral agent with or without diet treatment)
• Diet only: Treatment with diet only
• None: no treatment for diabetes
• Other: other adjunctive treatment, not oral/insulin/diet
• Unknown

Report this element for all cases where "Risk Factor #24 - Diabetes" is also reported, otherwise leave the field blank or enter 0.

Explanation:
If the patient has had a pancreatic transplant code "other" since the insulin from the new pancreas is not exogenous insulin.

Coding Note:
DM_TRT definition is aligned with STS v4.20.2 data element 365. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 25. Hepatic Failure
Variable Name: HEPATICF
Format: 1 = Yes, 0 or Blank = No
Definition: The patient has cirrhosis or other liver disease and has a bilirubin > 2 mg/dL and a serum albumin < 3.5 g/dL.

Descriptive Name: 27. Renal Failure, Dialysis
Variable Name: REN_DIAL
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether the patient is currently (prior to surgery) undergoing dialysis on a routine basis.

Explanation:
Includes any form of peritoneal or hemodialysis patient is currently receiving routinely prior to surgery with the intent to resume post-op. Also may include Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D), and Continuous Renal Replacement Therapy (CRRT) as dialysis.

Code "No" for renal dialysis if ultrafiltration is the only documentation found in the record since this is for volume management.

Coding Note:
REN_DIAL definition is aligned with STS v4.20.2 data element 375. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 32. Previous PCI, This Episode of Care
Variable Name: PCITHIS
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether there was a previous PCI performed within this episode of care. Episode of care is defined as continuous inpatient hospitalization which includes transfer from one acute care hospital to another.

Explanation:
This is reported only for PCI prior to the surgical procedure; therefore, do not report PCI in the same OR visit.

Coding Note:
PCITHIS should be reported (file upload value of 1) when STS v4.20.2 data element 780 POCPCIWhen = 1 or 2. S*ociety of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 33. PCI Before This Episode of Care
Variable Name: PCIBEFO
Format: 1 = Yes, 0 or Blank = No
Definition: The patient has had a PCI before this episode of care.

Descriptive Name: 38. Stent Thrombosis
Variable Name: THROMBOS
Format: 1 = Yes, 0 or Blank = No
Definition: Formation of a blood clot/thrombus in the stented segment of an artery and/or adjacent area. This usually results in an acute occlusion, chest pain or development of an acute MI. Patient must be currently affected by stent thrombosis as evidenced by AMI, ACS, or clinical angina to code this risk factor.

Explanation:
An occlusion alone, plaque build-up or in-stent restenosis does not constitute coding. There must be documentation noting thrombus. The thrombus needs to be in or around the area that was stented for the risk factor to be code.

Descriptive Name: 39. Any Previous Organ Transplant
Variable Name: ORGAN
Format: 1 = Yes, 0 or Blank = No
Definition: The patient has had any organ transplant prior to the current cardiac surgery. This includes, but is not limited to, heart, lung, kidney, and liver transplants. If a heart or lung transplant was performed during the operating room visit that generated this form, do not code this risk factor.

Explanation:
Also code for bone marrow transplant. Do not code for corneal or skin transplant (grafting).

If the patient had a previous organ transplant and that organ was later removed, do not code this risk factor.

Descriptive Name: 40. Heart Transplant Candidate
Variable Name: HT_TRANS
Format: 1 = Yes, 0 or Blank = No
Definition: This risk factor should be coded when the patient is an approved heart transplant candidate before the start of the procedure.

Explanation:
Supporting documentation must be included in the patient's medical record showing that the patient was a transplant candidate prior to the start of the procedure. Acceptable documentation includes: notes that a pre-transplant evaluation was performed and patient was accepted, notes from the transplant coordinator that they have discussed this issue with the patient/family, or a note indicating the transplant patient's status based on UNOS urgency criteria.

During quarterly and annual data verification and validation efforts, supporting documentation for cases coded with this risk factor will be requested.

Descriptive Name: 62. Active Endocarditis
Variable Name: ENDOCARD
Format: 1 = Yes, 0 or Blank = No
Definition: Two or more positive blood cultures without other obvious source with demonstrated valvular vegetations or acute valvular dysfunction caused by infection.

Includes patients who are on antibiotics at the time of surgery.

Excludes patients who have completed antibiotic therapy and have no evidence of residual infection.

Descriptive Name: 69. Immediate Surgery after Catheter Based Procedure
Variable Name: IMMED_SURG
Format: 1-7, 0 or Blank
Definition: If the patient required immediate surgery after a catheter-based procedure, select one response from the list below that best describes the procedure or reason for surgery.

1 – Diagnostic Catheterization - Complication
2 – Diagnostic Catheterization - Cath Findings
3 – PCI Complication
4 – EP Procedure Complication
5 – Valve Procedure Complication
6 – Left Atrial Appendage Occlusion Device Complication
7 – Other Catheter-Based Procedure Complication

Immediate surgery is defined as surgery as soon as the surgeon and/or operating room could accommodate the patient.

IV. Major Events Following Operation

REMINDER: This section is required for all cases, including procedures that qualify for streamlined reporting.

Check to be sure that all of the listed major events occurred during or after the current cardiac surgery. Check at least one box in this section.

Please Note:
Unless otherwise specified, a documented pre-operative condition that persists post-operatively with no increase in severity is not a major event. This is true even if the pre-operative condition is not part of this reporting system.

Unless otherwise specified, major events are only reported if they occur post-operatively, but before hospital discharge.

Descriptive Name: 0. None
Variable Name: NOCOMPs
Format: 1 = Yes, 0 or Blank = No
Definition: Check if none of the major events listed below occurred following the operation.

Descriptive Name: 1. Stroke
Variable Name: STROKE
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether the patient has a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that was confirmed by imaging or did not resolve within 24 hours.

Coding Note:
STROKE definition is aligned with STS v4.20.2 data element 6810. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 2. Q-Wave MI
Variable Name: POSTMI
Format: 1 = Yes, 0 or Blank = No
Definition: New Q waves occurring within 48 hours after surgery.

Descriptive Name: 4. Deep Sternal Wound Infection
Variable Name: STERNINF
Format: 1 = Yes, 0 or Blank = 0
Definition: Indicate whether the patient had a deep sternal wound infection within 30 days of surgery (whether in the initial hospital stay or after discharge).

A deep incisional SSI must meet the following criteria:
Infection occurs within 30 days after the operative procedure **and** involves deep soft tissues (e.g., fascial and muscle layers) of the incision **and** patient has at least 1 of the following:

     a. Purulent drainage from the deep incision but not from the organ/space component of the surgical site.
     b. A deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least 1 of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion.
     c. An abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination.
     d. Diagnosis of a deep incisional SSI by a surgeon or attending physician.

Descriptive Name: 5. Bleeding Requiring Reoperation
Variable Name: BLEDREOP
Format: 1, 2, Blank or 0
Definition: If the patient was re-explored for mediastinal bleeding with or without tamponade either in the ICU, PACU or returned to the operating room, use the code below to indicate the time frame.

1 – Acute (within 24 hours of the end of the case);
2 – Late (more than 24 hours after the case ends).

Interpretation:
Do not capture reopening of the chest or situations of excessive bleeding that occur prior to the patient leaving the operating room at the time of the primary procedure. Tamponade is a situation which occurs when there is compression or restriction placed on the heart within the chest that creates hemodynamic instability or a hypo-perfused state. Do not include medically (non-operatively) treated excessive post-operative bleeding/tamponade events. Include patients that return to an OR suite or equivalent OR environment (i.e., ICU setting) as identified by your institution, that require surgical re-intervention to investigate/correct bleeding with or without tamponade. Include only those interventions that pertain to the mediastinum or thoracic cavity.

Code exactly 24 hours as acute.

Coding Note:
BLEDREOP definition is aligned with STS v4.20.2 data element 6760. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 8. Sepsis
Variable Name: SEPSIS
Format: 1 = Yes, 0 or Blank = No
Definition: Sepsis is defined as evidence of serious infection accompanied by a deleterious systemic response.

Explanation:
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). 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.

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.

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.

Descriptive Name: 9. G-I Event
Variable Name: GIBLEED
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether the patient had a postoperative occurrence of any GI event, including but not limited to:
- GI bleeding requiring transfusion;
- Pancreatitis with abnormal amylase/lipase requiring nasogastric (NG) suction therapy;
- Cholecystitis requiring cholecystectomy or drainage;
- Mesenteric ischemia requiring exploration;
- Prolonged ileus;
- Clostridium difficile

Explanation:
GI events may require medical management, observational management or surgical intervention to control. DO NOT include events such as prolonged nausea and/or vomiting with no other documented physiological cause. Refer to the specific list included within the definition.

Example # 1: A patient has a placement of a Percutaneous Endoscopic Gastrostomy (PEG). Patients that receive PEG's are generally very sick patients that require long term nutritional support because of multiple postoperative complications and the inability to eat. If a PEG is placed in the stomach, it means that the stomach is working well enough to support the nutritional support that the PEG feedings are providing. Do not code a GI complication in this situation.

Example # 2: A patient experiences a postoperative paralytic ileus that does not increase the length of stay and does not require invasive therapy. Do not code a GI complication.

Example # 3: A patient has elevated liver enzymes postoperatively; a transient rise in the patient's liver enzymes does not represent a GI complication.

Descriptive Name: 10. Renal Failure
Variable Name: RENAL_FAI
Format: 1 = Yes, 0 or Blank = No
Definition: Indicate whether the patient had a new requirement for dialysis postoperatively, which may include hemodialysis or peritoneal dialysis.

Explanation:
This includes a one-time need for dialysis as well as implementation of longer term therapy.

Do not include patients who need dialysis but refuse or expire prior to initiation of dialysis.

If the patient was on preoperative peritoneal dialysis and moved to hemodialysis postoperatively, this does not constitute a worsening of the condition and should not be coded as an event.

Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D), Continuous Renal Replacement Therapy (CRRT) and Intermittent hemodialysis (iHD) should be coded here as "Yes."

Does not include aquapheresis or ultrafiltration which is for fluid overload and is not counted as dialysis.

Coding Note:
RENAL_FAI definition is aligned with STS v4.20.2 data element 6875. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 4.20.2, used with permission.*

Descriptive Name: 13. Prolonged Ventilator Dependence
Variable Name: RESP_FAI
Format: 1 = Yes, 0 or Blank = No
Definition: Pulmonary insufficiency requiring intubation and ventilation for a period of 72 hours or more, at any time during the post-operative stay. For patients who are placed on and taken off ventilation several times, the total of these episodes should be 72 hours or more.

Explanation:
If the patient is intubated for 72 or more hours after surgery this major event should be coded, even if the patient was intubated prior to the procedure.

The following scenario would be coded:
> Patient was extubated 48 hours post-op. Patient was re-intubated sometime the next day. Patient was extubated 32 hours later.

It is not necessary to show that the prolonged ventilatory dependence was due to respiratory failure.

Descriptive Name: 14. Unplanned Cardiac Reoperation or Interventional Procedure
Variable Name: UNPLANREOP
Format: 1 = Yes, 0 or Blank = No
Definition: Any unplanned cardiac reoperation or percutaneous coronary intervention that is required as a result of the current cardiac surgery. This would exclude a reoperation to control bleeding that is reported under Major Event #5.

Explanation:
This major event should be reported for any cardiac surgery, not just those reportable in CSRS. Procedures should be directly related to the heart. Examples of reportable surgeries include but are not limited to: CABG, cardiac massage, or cardiac explorations. Some examples of the procedures not reportable are: pacemaker insertion, pericardiocentesis, and pleurocentesis.

If the chest is left open after surgery with a return to the operating room to close, this would not be considered an unplanned cardiac reoperation. If clots need to be removed from an open chest this would not be considered an unplanned cardiac reoperation.

The procedure does not have to be performed in the operating room or cath lab.

V. Discharge Information

REMINDER: This section is required for all cases, including procedures that qualify for streamlined reporting.

Descriptive Name: Discharge Status
Variable Name: STATUS
Format: 2-6, 8, 11-15, or 19
Definition: Enter the appropriate code.

Discharged Alive:
11 – Home
12 – Hospice
13 – Acute Care Facility
14 – Skilled Nursing Facility
15 – Inpatient Physical Medicine and Rehab
19 – Other(specify)

Died In:
2 – Operating Room
3 – Recovery Room
4 – Critical Care Unit
5 – Medical/Surgical Floor
6 – In-transit to Other Facility
8 – Elsewhere in Hospital (specify)

Directions:
If a patient is discharged to hospice (including home with hospice), the discharge status should be reported with code 12. Note that for purposes of analysis a hospice discharge (code 12) is considered an in-hospital mortality unless the hospital can provide documentation that 30 days after discharge the patient was still alive (even if still in hospice). Please see the full hospice policy and reporting requirements in "CSRS Data Reporting Policies."

If the patient came from a prison or correctional facility and is being discharged back to the same setting then "11 – Home" would be coded.

Use code 14 for patients who arrive from and are discharged to a skilled nursing home.

If the patient is discharged to sub-acute rehab that is in a skilled nursing facility then the discharge status would be code 14. If it is unknown where the sub-acute rehab facility is located, then the discharge status would be code 19.

If the patient is discharged to an inpatient physical medicine and rehabilitation unit, the discharge status should be code 15.

Code 19 – Other (specify) should only be checked for a live discharge status not otherwise specified in this section (e.g. AMA).

Descriptive Name: Discharge to Other Location - Specify
Variable Name: DISWHERE
Format: Free Text
Definition: For patients reported with discharge status 19 – Other Live Discharge or 8 – Died Elsewhere in Hospital, enter the specific discharge disposition or location of death.

Descriptive Name: Hospital Discharge Date
Variable Name: DISDATE
Format: MM/DD/YYYY
Definition: Enter the date the patient was discharged from the hospital.
If the patient died in the hospital, the hospital discharge date is the date of death.

Descriptive Name: 30 Day Status
Variable Name: THIRTYDAY
Format: 1, 2, or 9
Definition: Report the patient's status at 30 days post-procedure using the appropriate
code.

1-Live
2-Dead
9-Unknown

VI. Person Completing Report

REMINDER: This section is optional for all cases

Descriptive Name: Person Completing Report - Optional
Variable Name: REPORT_NAME
Format: Free Text (not on upload file)
Definition: This space is provided as an aid to the hospital. This space may be used to enter the name and telephone number of the person completing the report, and the date the report was completed. This field is not required and is not used by the Department of Health. It is provided solely for the use of the individual hospitals.

This field appears only on the hard copy form, it is not part of data entry or file specification for transmission to the Cardiac Services Program.

Descriptive Name: Referring Physician - Optional
Variable Name: REF_PHYS
Format: Free Text
Definition: This space is provided as an aid to the hospital. It is intended to allow the name of the referring cardiologist or primary care physician to be entered. For many hospitals, this is useful for tracking 30-day status. By entering the name of the referring physician, case lists can be generated and sent to the referring physician for follow-up.

This field is not required and is not used by the Department of Health. It is provided solely for the use of the individual hospitals.

Attachment A
PFI Numbers for Cardiac Diagnostic and Surgical Centers

PFI   Facility

___

ALBANY AREA
0001   Albany Medical Center Hospital
0746   Bassett Medical Center
0829   Ellis Hospital
1005   Glens Falls Hospital
0756   Samaritan Hospital
0818   Saratoga Hospital
0005   St. Peter's Hospital
0135   University of Vermont Health Network Champlain Valley Physicians
          Hospital

BUFFALO AREA
0207   Buffalo General Medical Center
0210   Erie County Medical Center
0213   Mercy Hospital of Buffalo
0574   Niagara Falls Memorial Medical Center
0066   Olean General Hospital
0103   Women's Christian Association Hospital

ROCHESTER AREA
0116   Arnot Ogden Medical Center
0411   Rochester General Hospital
0413   Strong Memorial Hospital
0471   The Unity Hospital of Rochester

SYRACUSE AREA
0977   Cayuga Medical Center at Ithaca
0636   Crouse Hospital
0598   St. Elizabeth Medical Center
0630   St. Joseph's Hospital Health Center
0058   United Health Services Hospital, Inc.-Wilson Medical Center
0635   University Hospital SUNY Health Science Center (Upstate)

PFI   Facility

NEW ROCHELLE AREA
0885   Long Island Community Hospital (formerly Brookhaven Hospital)
0779   Good Samaritan Hospital of Suffern
0925   Good Samaritan Hospital Medical Center-West Islip
0913   Huntington Hospital
0990   HealthAlliance Hospital – Broadway Campus
0989   HealthAlliance Hospital – Mary's Avenue Campus (formerly Benedictine)
0513   Mercy Medical Center
0180   MidHudson Regional Hospital of Westchester Medical Center
1072   Montefiore New Rochelle Hospital
0694   Montefiore St. Luke's Cornwall Hospital (formerly St. Luke's Conrnwall Hospital-Newburgh)
0527   Mount Sinai South Nassau (formerly South Nassau Communities Hospital)
0528   Nassau University Medical Center
0541   North Shore University Hospital
0192   Northern Dutchess Hospital
1117   Northern Westchester Hospital
1122   NYP Lawrence Hospital
0511   NYU-Winthrop University Hospital
0776   Nyack Hospital
0699   Garnet Health Medical Center (formerly Orange Regional Medical Center)
0938   Peconic Bay Medical Center
0924   Southside Hospital
0943   St. Catherine of Siena Medical Center
0563   St. Francis Hospital (aka St. Francis Hospital The Heart Center, Roslyn)
0551   St. Joseph Hospital
0889   Stony Brook Southampton Hospital
0245   University Hospital at Stony Brook
0181   Vassar Brothers Medical Center
1139   Westchester Medical Center
1045   White Plains Hospital

NY CITY AREA
1438   Bellevue Hospital Center
1178   BronxCare Health System-Concourse
1286   Brookdale University Hospital Medical Center
1288   Brooklyn Hospital Center-Downtown
1294   Coney Island Hospital
1626   Elmhurst Hospital Center
1445   Harlem Hospital Center
1309   Interfaith Medical Center (Brooklyn)
1165   Jacobi Medical Center
1629   Jamaica Hospital Medical Center
1301   King's County Hospital Center
1450   Lenox Hill Hospital

PFI   Facility

1630   Long Island Jewish Medical Center
1305   Maimonides Medical Center
1169   Montefiore Medical Center-Henry and Lucy Moses Division
1304   NYU Langone Hospital-Brooklyn
3058   Montefiore Medical Center-Jack D. Weiler Hospital of
         A. Einstein College Division
1439   Mount Sinai Beth Israel
1456   Mount Sinai Hospital
1469   Mount Sinai Morningside
1306   NYP Hospital - Brooklyn Methodist Hospital
1464   NY Presbyterian-Columbia Presbyterian Center
1458   NY Presbyterian-NY Weill Cornell Center
1637   NY Presbyterian-Queens
1463   NYU Hospitals Center
1176   St. Barnabas Hospital
1740   Staten Island University Hospital-North
1738   Richmond University Medical Center
1320   University Hospital of Brooklyn
1318   Wyckoff Heights Medical Center

8888   Catheterization Laboratory at a Veterans Administration Hospital in New
         York. (for use in this reporting system; not an official Permanent Facility
         Identifier)

9999   Catheterization Laboratory Outside New York State (for use in this
         reporting system; not an official Permanent Facility Identifier)

A complete listing of NYS hospitals, including their PFI can be found
at: http://www.health.ny.gov/statistics/sparcs/reports/compliance/alpha_facilities.htm
Use the last four digits of the number listed to the right of the name for the PFI.

Attachment B

Congenital and Acquired Cardiac Procedure Codes
NYSDOH CARDIAC ADVISORY COMMITTEE

100-398   **Congenital Heart Disease - Operations With or Without Extracorporeal Circulation**

Note: Extracorporeal circulation will be determined from the data element Entire Procedure Off Pump reported under Section II. Procedural Information on the front of the form. Please accurately complete this item for all appropriate cases.

Anomalies of Pulmonary Veins

100   Repair of Anomalous Pulmonary Venous Return
101   Repair of Pulmonary Vein Stenosis
103   Repair of Partial Anomalous Pulmonary Venous Return

Anomalies of Atrial Septum

120   ASD Closure
121   Creation of ASD
122   Repair of Cor Triatriatum
123   PFO Closure

Atrioventricular Septal Defect (AVSD)

130   Repair of Complete AV Canal
131   Repair of Partial AV Canal

Anomalies of Ventricular Septum

140   Repair of VSD
141   Creation/Enlargement of VSD
142   Fenestration of VSD Patch

Anomalies of Atrioventricular Valves

Tricuspid Valve
150   Repair (Non-Ebstein's Valve)
       Replacement
151   Homograft
152   Prosthetic
153   Tricuspid Valve Closure
154   Repair Ebstein's Anomaly

Anomalies of Atrioventricular Valves (continued)

Mitral Valve
160   Resect supramitral ring
161   Repair (including annuloplasty)
       Replacement
162   Homograft
163   Prosthetic
170   Common AV Valve Repair

Anomalies of Ventricular Outflow Tract(s)

Pulmonary Ventricular Outflow Tract
180   Pulmonary Valvotomy/Valvectomy
181   Resection of subvalvular PS
182   Repair of supravalvular PS
       Pulmonary Valve Replacement
190   Homograft
191   Prosthetic
192   Xenograft
Pulmonary Outflow Conduit
       Valved
200   Homograft
201   Prosthetic
202   Non-Valved
          Transannular Patch
210   With Monocusp Valve
211   Without Monocusp Valve
212   Repair Branch PS
Aortic Ventricular Outflow Tract
220   Aortic Valvuloplasty
221   Aortic Valvotomy
230   Repair Supravalvular AS
231   Resection of Discrete Subvalvular AS
235   Aortoventriculoplasty (Konno Procedure)
       Aortic Valve Replacement
240   Autograft (Ross Procedure)
241   Homograft
242   Prosthetic
243   Heterograft
       Aortic Root Replacement
250   Autograft (Ross Procedure)
251   Homograft
252   Prosthetic
255   LV Apex to Aorta Conduit

Tetralogy of Fallot

260	Repair with Pulmonary Valvotomy
261	Repair with Transannular Patch
262	Repair with Non-valved Conduit
	Repair with Valved Conduit
263	Homograft
264	Prosthetic
265	Repair with reduction/plasty of PAs
	Repair with pulmonary valve replacement
266	Homograft
267	Prosthetic

Truncus Arteriosus

262	Repair with Non-Valved Conduit
	Repair with Valved Conduit
263	Homograft
264	Prosthetic

Univentricular Heart (Single Ventricle)

	Fontan Operations
270	Direct RV-PA Connection
	Total Cavopulmonary Connection
271	Lateral tunnel – nonfenestrated
272	Lateral tunnel – fenestrated
273	Extracardiac – nonfenestrated
274	Extracardiac – fenestrated
275	Septation of Single Ventricle
	Hypoplastic Right Ventricle
	Valved
200	Homograft
201	Prosthetic
202	Non-Valved
	Transannular Patch
210	With Monocusp Valve
211	Without Monocusp Valve
	Hypoplastic Left Ventricle
280	Norwood
290	Damus Kaye Stansel (DSK)

Transposition of Great Arteries or Double Outlet RV

310	Arterial Switch
311	Senning Procedure
312	Mustard Procedure
313	Intraventricular Repair of DORV

Transposition of Great Arteries or Double Outlet RV (continued)

	Rastelli Procedure
	RV-PA Conduit
	Valved
320	Homograft
321	Prosthetic
322	Non-Valved
325	REV operation (Modified Rastelli)
	LV-PA Conduit
	Valved
326	Homograft
327	Prosthetic
328	Non-Valved

Great Vessel Anomalies

330	PDA Ligation
331	Repair Aortopulmonary Window
332	Reimplantation of left or right pulmonary artery
333	Repair Sinus of Valsalva Aneurysm
	Aortic Repair (Coarctation or Interruption)
340	End to end anastomosis
348	End to side anastomosis
341	Subclavian flap angioplasty
342	Onlay Patch
343	Interposition graft
344	Vascular Ring Division
345	Repair of PA Sling
346	Reimplantation of Innominate Artery
347	Aortoplexy

Coronary Artery Anomalies

350	Translocation of LCA to Aorta
350	Direct
351	Transpulmonary Tunnel (Takeuchi)
352	Coronary Artery Ligation
353	Coronary Fistula Ligation

Cardiomyopathies

360	Left Ventricular Reconstruction (Batiste Procedure, Surgical Ventricular Restoration)
361	Radical Myomectomy

Interval Procedures

370   Pulmonary Artery Band
375   Unifocalization of Pulmonary Vessels
         Shunts
381   Central Aortopulmonary Shunt
                Blalock Taussig Shunts
382   Classical
383   Modified
            Glenn Shunts
384   Unidirectional (Classical)
385   Bidirectional
386   Bilateral Bidirectional
390   Cardiac Arrhythmia Surgery
398   Other Operations for Congenital Heart Disease

400-998 Acquired Heart Disease –
Operations Performed With or Without Extracorporeal Circulation

401   Mitral Valvotomy
402   Pericardiectomy
403   Stab Wound of Heart or Great Vessel Repair (without extracorporeal circulation)

Other

498   Other Operation for Acquired Heart Disease (without extracorporeal circulation)

Valve Repair

500   Aortic
501   Mitral
502   Tricuspid
503   Pulmonary

Valve Replacement

510-518*   Ross Procedure
520-528*   Aortic Mechanical
530-538*   Aortic Heterograft
540-548*   Aortic Homograft

Valve Replacement (continued)

550-558*	Mitral Mechanical
560-568*	Mitral Heterograft
600-608*	Mitral Homograft
570-578*	Tricuspid Mechanical
580-588*	Tricuspid Heterograft
590-598*	Pulmonary

*REOPERATIONS: For Valve Replacement (510-608), use third digit to indicate reason for reoperation, as below. Note, the information below is specific to the valve reported. For example, a patient with previous aortic valve replacement who is now having mitral valve replacement (mechanical) would be reported using code 550 because this is not a re-operation on the mitral valve. In the event of multiple valve surgery, the third digit may be different for each valve code reported, i.e. one valve may be a re-op and the other(s) may not.

Use code 7 – Complication of Transcatheter Valve Replacement in the event of an unsuccessful Transcatheter Valve Replacement which requires surgical valve replacement.

0 Not a Reoperation	5 Disease of Another Valve
1 Periprosthetic Leak	6 Failed Catheter-based Valve Repair
2 Prosthetic Endocarditis	7 Complication of Transcatheter Valve
3 Prosthetic Malfunction	Replacement
4 Failed Surgical Valve Repair	8 Other Reason

Adjunct Valve Information

Transcatheter Valve Replacement
640	Transfemoral Approach
641	Transapical Approach
642	Arch Branches
643	Ascending Aorta
644	Venous
645	Venous Crossover

Note: Use these codes in conjunction with the valve replacement codes above to indicate if the valve replacement was performed using a transcatheter (transcutaneous) approach. You must also report the appropriate code for valve replacement. Report these procedures no matter where in the hospital they are performed.

Valve Conduits

660   Apical Aortic Conduit

Note: Record aortic valve and ascending aorta replacement under aneurysms.

Coronary Artery Bypass Grafts

670   Coronary Artery Bypass Graft

Other Revascularization

710   Transmyocardial Revascularization
711   Percutaneous Coronary Intervention in the same setting as CABG or
       Valve surgery
715   Growth Factor Installation

Additional Procedures with or without CABG

760   Acquired Ventricular Septal Defect
761   Resection or Plication of LV Aneurysm
762   Ventricular Reconstruction (Batiste Procedure, Surgical Ventricular
       Restoration)
763   Carotid Endarterectomy (report only if done with another reportable
       cardiac surgical procedure)
764   Implantation of AICD (report only if done with another reportable cardiac
       surgical procedure)

Radiofrequency or Operative Ablation

770   Atrial
771   Ventricular
772   Maze Procedure

Surgery on the Aorta

786   Major Surgery for Pre-existing Aortic Disease
804   Major Surgery for Pre-existing Aortic Dissection
805   Surgery for Repair of Aortic Deceleration Injury

Other

902	Pulmonary Embolectomy
903	Stab Wound of Heart or Great Vessel Repair (with extracorporeal circulation)
904	Removal of Intracardiac Neoplasm
905	Removal of Intracardiac Catheter (surgical)
907	Repair of a Traumatic Cardiac or Vascular Injury
908	Removal of Pacemaker or AICD and/or leads or wires
915	Septal Myomectomy
916	Ventricular Myomectomy
920	Ventricular Free Wall Rupture
930	Attempted Transcatheter Valve Replacement
931	Aborted Transcatheter Valve Replacement
932	Attempted Surgical Procedure
933	Aborted Surgical Procedure
998	Other Operation for Acquired Heart Disease (with extracorporeal circulation)

Attachment C
Congenital Cardiac Diagnosis Codes[1]

SEPTAL DEFECTS

ASD
10	PFO
20	ASD, Secundum
30	ASD, Sinus venosus
40	ASD, Coronary sinus
50	ASD, Common atrium (single atrium)
2150	ASD, Postoperative interatrial communication

VSD
71	VSD, Type 1 (Subarterial) (Supracristal) (Conal septal defect) (Infundibular)
73	VSD, Type 2 (Perimembranous) (Paramembranous) (Conoventricular)
75	VSD, Type 3 (Inlet) (AV canal type)
77	VSD, Type 4 (Muscular)
79	VSD, Type: Gerbode type (LV-RA communication)
80	VSD, Multiple

AV Canal
100	AVC (AVSD), Complete (CAVSD)
110	AVC (AVSD), Intermediate (transitional)
120	AVC (AVSD), Partial (incomplete) (PAVSD) (ASD, primum)

AV Window
140	AP window (aortopulmonary window)
150	Pulmonary artery origin from ascending aorta (hemitruncus)

Truncus Arteriosus
160	Truncus arteriosus
170	Truncal valve insufficiency
2470	Truncal valve stenosis
2010	Truncus arteriosus + Interrupted aortic arch

PULMONARY VENOUS ANOMALIES

Partial Anomalous Pulmonary Venous Connection
180	Partial anomalous pulmonary venous connection (PAPVC)
190	Partial anomalous pulmonary venous connection (PAPVC), scimitar

Total Anomalous Pulmonary Venous Connection
200	Total anomalous pulmonary venous connection (TAPVC), Type 1 (supracardiac)
210	Total anomalous pulmonary venous connection (TAPVC), Type 2 (cardiac)
220	Total anomalous pulmonary venous connection (TAPVC), Type 3 (infracardiac)
230	Total anomalous pulmonary venous connection (TAPVC), Type 4 (mixed)

COR TRIATRIATUM

250	Cor triatriatum

PULMONARY VENOUS STENOSIS

260	Pulmonary venous stenosis
2480	Pulmonary venous stenosis, acquired
2490	Pulmonary venous stenosis, spontaneous

Attachment C
Congenital Cardiac Diagnosis Codes[1]

SYSTEMIC VENOUS ANOMALIES

Anomalous Systemic Venous Connection
270   Systemic venous anomaly

Systemic Venous Obstruction
280   Systemic venous obstruction

RIGHT HEART LESIONS

Tetralogy of Fallot
290   TOF
2140   TOF, Pulmonary stenosis
300   TOF, AVC (AVSD)
310   TOF, Absent pulmonary valve

Pulmonary Atresia
320   Pulmonary atresia
330   Pulmonary atresia, IVS
340   Pulmonary atresia, VSD (Including TOF, PA)
350   Pulmonary atresia, VSD-MAPCA
360   MAPCA(s) (major aortopulmonary collateral[s]) (without PA-VSD)

Tricuspid Valve Disease and Ebstein's Anomaly
370   Ebstein's anomaly
380   Tricuspid regurgitation, non-Ebstein's related
390   Tricuspid stenosis
400   Tricuspid regurgitation and tricuspid stenosis
410   Tricuspid valve, Other

RVOT Obstruction and/or Pulmonary Stenosis
420   Pulmonary stenosis, Valvar
430   Pulmonary artery stenosis (hypoplasia), Main (trunk)
440   Pulmonary artery stenosis, Branch, Central (within the hilar bifurcation)
450   Pulmonary artery stenosis, Branch, Peripheral (at or beyond the hilar bifurcation)
470   Pulmonary artery, Discontinuous
490   Pulmonary stenosis, Subvalvar
500   DCRV

Pulmonary Valve Disease
510   Pulmonary valve, Other
530   Pulmonary insufficiency
540   Pulmonary insufficiency and pulmonary stenosis

SHUNT FAILURE

Shunt Failure
2130   Shunt failure

CONDUIT FAILURE

Conduit Failure
520   Conduit failure

[1]*Society of Thoracic Surgeons, Adult Cardiac Surgery Database, used with permission.*
Attachment C: Congenital Cardiac Diagnosis Codes
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Attachment C
Congenital Cardiac Diagnosis Codes[1]

Aortic Valve Disease
550	Aortic stenosis, Subvalvar
560	Aortic stenosis, Valvar
570	Aortic stenosis, Supravalvar
590	Aortic valve atresia
600	Aortic insufficiency
610	Aortic insufficiency and aortic stenosis
620	Aortic valve, Other
2500	Aortic stenosis, subvalvar, discrete
2510	Aortic stenosis, subvalvar, IHSS
2520	Aortic stenosis, subvalvar, tunnel-like

Sinus of Valsalva Fistula/Aneurysm
630	Sinus of Valsalva aneurysm

LV to Aorta Tunnel
640	LV to aorta tunnel

Mitral Valve Disease
650	Mitral stenosis, Supravalvar mitral ring
660	Mitral stenosis, Valvar
670	Mitral stenosis, Subvalvar
680	Mitral stenosis, Subvalvar, Parachute
695	Mitral stenosis
700	Mitral regurgitation and mitral stenosis
710	Mitral regurgitation
720	Mitral valve, Other

Hypoplastic Left Heart Syndrome
730	Hypoplastic left heart syndrome (HLHS)

Shone's Syndrome
2080	Shone's syndrome

CARDIOMYOPATHY

740	Cardiomyopathy (including dilated, restrictive, and hypertrophic)
750	Cardiomyopathy, End-stage congenital heart disease

PERICARDIAL DISEASE

760	Pericardial effusion
770	Pericarditis
780	Pericardial disease, Other

SINGLE VENTRICLE

790	Single ventricle, DILV
800	Single ventricle, DIRV
810	Single ventricle, Mitral atresia
820	Single ventricle, Tricuspid atresia
830	Single ventricle, Unbalanced AV canal
840	Single ventricle, Heterotaxia syndrome

Attachment C
Congenital Cardiac Diagnosis Codes[1]

850   Single ventricle, Other
851   Single Ventricle + Total anomalous pulmonary venous connection (TAPVC)

TRANSPOSITION OF THE GREAT ARTERIES

Congenitally Corrected TGA
870   Congenitally corrected TGA
872   Congenitally corrected TGA, IVS
874   Congenitally corrected TGA, IVS-LVOTO
876   Congenitally corrected TGA, VSD
878   Congenitally corrected TGA, VSD-LVOTO

Transposition of the Great Arteries
880   TGA, IVS
890   TGA, IVS-LVOTO
900   TGA, VSD
910   TGA, VSD-LVOTO

DORV

930   DORV, VSD type
940   DORV, TOF type
950   DORV, TGA type
960   DORV, Remote VSD (uncommitted VSD)
2030   DORV + AVSD (AV Canal)
975   DORV, IVS

DOLV

980   DOLV

THORACIC ARTERIES AND VEINS

Coarctation of Aorta and Aortic Arch Hypoplasia
990   Coarctation of aorta
1000   Aortic arch hypoplasia
92   VSD + Aortic arch hypoplasia
94   VSD + Coarctation of aorta

Coronary Artery Anomalies
1010   Coronary artery anomaly, Anomalous aortic origin of coronary artery (AAOCA)
1020   Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
1030   Coronary artery anomaly, Fistula
1040   Coronary artery anomaly, Aneurysm
2420   Coronary artery anomaly, Ostial atresia
1050   Coronary artery anomaly, Other

Interrupted Arch
1070   Interrupted aortic arch
2020   Interrupted aortic arch + VSD
2000   Interrupted aortic arch + AP window (aortopulmonary window)

Patent Ductus Arteriosus
1080   Patent ductus arteriosus

Attachment C
Congenital Cardiac Diagnosis Codes[1]

Vascular Rings and Slings
1090   Vascular ring
1100   Pulmonary artery sling

Aortic Aneurysm
1110   Aortic aneurysm (including pseudoaneurysm)

Aortic Dissection
1120   Aortic dissection

THORACIC AND MEDIASTINAL DISEASE

Lung Disease
1130   Lung disease, Benign
1140   Lung disease, Malignant

Tracheal Stenosis
1160   Tracheal stenosis
2430   Tracheomalacia
1170   Airway disease

Pleural Disease
1430   Pleural disease, Benign
1440   Pleural disease, Malignant
1450   Pneumothorax
1460   Pleural effusion
1470   Chylothorax
1480   Empyema

Esophageal Disease
1490   Esophageal disease, Benign
1500   Esophageal disease, Malignant

Mediastinal Disease
1505   Mediastinal disease
1510   Mediastinal disease, Benign
1520   Mediastinal disease, Malignant

Diaphragmatic Disease
1540   Diaphragm paralysis
1550   Diaphragm disease, Other

Chest Wall
2160   Rib tumor, Benign
2170   Rib tumor, Malignant
2180   Rib tumor, Metastatic
2190   Sternal tumor, Benign
2200   Sternal tumor, Malignant
2210   Sternal tumor, Metastatic

Pectus Excavatum, Carinatum
2220   Pectus carinatum
2230   Pectus excavatum

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Attachment C: Congenital Cardiac Diagnosis Codes
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Attachment C
Congenital Cardiac Diagnosis Codes[1]

Thoracic Outlet
2240   Thoracic outlet syndrome

ELECTROPHYSIOLOGICAL

1180	Arrhythmia
2440	Arrhythmia, Atrial, Atrial fibrillation
2450	Arrhythmia, Atrial, Atrial flutter
2460	Arrhythmia, Atrial, Other
2050	Arrhythmia, Junctional
2060	Arrhythmia, Ventricular
1185	Arrhythmia, Heart block
1190	Arrhythmia, Heart block, Acquired
1200	Arrhythmia, Heart block, Congenital
1220	Arrhythmia, Pacemaker, Indication for replacement
2530	Short QT syndrome
2540	Long QT syndrome (Ward Romano syndrome)
2550	Wolff-Parkinson-White syndrome (WPW syndrome)

MISCELLANEOUS, OTHER

1230	Atrial Isomerism, Left
1240	Atrial Isomerism, Right
2090	Dextrocardia
2100	Levocardia
2110	Mesocardia
2120	Situs inversus
1250	Aneurysm, Ventricular, Right (including pseudoaneurysm)
1260	Aneurysm, Ventricular, Left (including pseudoaneurysm)
1270	Aneurysm, Pulmonary artery
1280	Aneurysm, Other
1290	Hypoplastic RV
1300	Hypoplastic LV
2070	Postoperative bleeding
1310	Mediastinitis
1320	Endocarditis
1325	Rheumatic heart disease
1330	Prosthetic valve failure
1340	Myocardial infarction
1350	Cardiac tumor
1360	Pulmonary AV fistula
1370	Pulmonary embolism
1385	Pulmonary vascular obstructive disease
1390	Pulmonary vascular obstructive disease (Eisenmenger's)
1400	Primary pulmonary hypertension
1410	Persistent fetal circulation
1420	Meconium aspiration
2250	Kawasaki disease
1560	Cardiac, Other
1570	Thoracic and/or mediastinal, Other
1580	Peripheral vascular, Other
2260	Complication of cardiovascular catheterization procedure
2270	Complication of cardiovascular catheterization procedure, Device embolization
2280	Complication of cardiovascular catheterization procedure, Device malfunction
2290	Complication of cardiovascular catheterization procedure, Perforation

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Attachment C: Congenital Cardiac Diagnosis Codes
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Attachment C
Congenital Cardiac Diagnosis Codes[1]

2300	Complication of interventional radiology procedure
2310	Complication of interventional radiology procedure, Device embolization
2320	Complication of interventional radiology procedure, Device malfunction
2330	Complication of interventional radiology procedure, Perforation
2340	Foreign body, Intracardiac foreign body
2350	Foreign body, Intravascular foreign body
2360	Open sternum with closed skin
2370	Open sternum with open skin (includes membrane placed to close skin)
2380	Retained sternal wire causing irritation
2390	Syncope
2400	Trauma, Blunt
2410	Trauma, Penetrating
2560	Cario-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
7777	Miscellaneous, Other

Attachment D
COVID-19 Status and Severity – Coding Instructions

WHY ADD INFORMATION TO CSRS FOR COVID-19?
- Determine the prevalence of COVID-19 among cardiac surgery patients.
- Identify the independent impact of COVID-19 on outcome for patients undergoing cardiac surgery.
- Investigate changes in volume and risk profile of cardiac surgery patients during the COVID-19 pandemic.

WHAT WILL BE COLLECTED?
- A 4-digit code will be used to identify the COVID-19 status and severity during the episode of care.

WHEN DOES THIS COLLECTION START?
- Please report this information beginning with March 1, 2020 discharges.

WHERE WILL THIS INFORMATION FIT IN THE CSRS DATA STRUCTURE?
- The new COVID-19 code will be reported in the existing Congenital Diagnosis fields.
- No new programming will be required by your vendor to report this information.
- You will continue to use these fields for Congenital Diagnosis as well. The values do not overlap. For any case with both COVID-19 and three or more congenital diagnoses, simply select the two most important congenital diagnoses and report the COVID-19 code in the third Congenital Diagnosis field.

HOW DO I BUILD THE CSRS COVID-19 CODE?
- Select the most appropriate response for both components below to construct a 4- digit code for each patient.
- The first two digits represent the COVID-19 Status (Suspected or Confirmed) and the second two digits represent the highest severity of COVID symptoms.

COVID-19 Status
60 = Suspected but not Confirmed
70 = Confirmed
88 = COVID-19 History / Recovered

COVID-19 severity this episode of care
10 = No Acute Respiratory Distress Syndrome (ARDS) due to COVID-19
20 = ARDS without intubation
30 = Requiring Intubation but not intubated due to DNR/DNI
40 = Ventilator Dependent (pre-op or post-op ***due to COVID-19***)
50 = ECMO (due to COVID-19)
88 = COVID-19 History / Recovered

Special Coding Instructions
- In the situation where there is a negative test (PCR) but based on clinical symptoms the patient is still suspected to be COVID+, report the status as "Suspected but not Confirmed."

- Report code "8888" for patients who do not have clinical or laboratory evidence of an active COVID-19 infection but who have previously had COVID-19 based on documented clinical history or positive antibody test. Status response 88 and severity response 88 should only be used for creation of COVID-19 code "8888." This should be used for patients with a documented history of

COVID-19 prior to surgery who are no longer "COVID+" (via PCR or clinical suspicion overriding a negative PCR) at the time of surgery.

- Bi-Pap, when used as "non-invasive ventilator" for ARDS in COVID-19 patients, should be reported as Severity response 40.

- Report worst severity as "40 – Ventilator Dependent" for any COVID-19 related pre-op or post-op ventilator use. Do not report this severity level for patients with routine post-op ventilator use unrelated to COVID-19.

Examples of Valid Codes and their Meaning (not an exhaustive list, provided for illustration)
- 6020 – Suspected COVID-19 (not confirmed) with ARDS not requiring intubation
- 7010 – Confirmed COVID-19 with no ARDS due to COVID-19
- 7040 – Confirmed COVID-19, ventilator dependent due to COVID-19
- 8888 – COVID-19 History/Recovered