

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

2015 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

This document (create date February 2015) contains several technical corrections as discussed at data coordinator training. This version should be used for reporting of all 2015 discharges.

Data Element Updates

The following changes take effect January 1, 2015. Complete data element definitions are located in the main body of this document.

New Data Elements

Procedural Information

- Number of
 - Distal Anastomoses with Venous Conduits (STS Seq# 2630)
 - Distal Anastomoses with Arterial Conduits (STS Seq# 2625)
 - Distal Anastomoses using Internal Mammary Artery (STS Seq# 2665)
 - Distal Anastomoses using Radial Artery (STS Seq# 2680)
 - Distal Anastomoses using other Arterial Conduits (STS Seq# 2705)
- IMA Used for Grafts: Left, Right, Both, None (STS Seq# 2655)
- Reason IMA Not Used (STS Seq# 2660)
- Number of Radial Arteries Used for Grafts (STS Seq# 2675)

Pre-Op Surgical Risk Factors

- CAD Symptoms at Time of Admission (STS Seq# 895)
- Neurological Event – Stroke; TIA without history of Stroke
- Arterial Imaging Test – Findings of 50-79%; Findings of > 79%.
- Previous Cervical or Cerebrovascular Revascularization Procedure – Yes/No
- Cardiogenic Shock
- Refractory Cardiogenic Shock

Deleted Data Elements

- Number of Total Conduits
- Number of Arterial Conduits
- Number of Distal Anastomoses
- IMA Grafting (Never/This OR Visit/Prior to this OR Visit)
- Cerebrovascular Disease
- TIA, Only
- Hemodynamically Unstable
- Shock

Revision Highlights and Coding Clarifications (continued)

Revised Data Elements

CAD Presentation at Time of Surgery – Is now called “Cardiac Symptoms / Presentation at Time of Surgery.” Response choices have changed to maintain alignment with STS data element Seq# 900.

Procedure Codes – New codes added for Transcatheter Valve Approach and Attempted and Aborted Transcatheter Valve.

Diagnosis Codes – Updated to maintain alignment with STS diagnosis codes.

Diabetes – Additional clarification has been added to maintain alignment with STS data element Seq# 360.

Diabetes Therapy – Additional response choices have been added to maintain alignment with STS Seq# 365.

Risk Factor Renal Failure, Dialysis – A clarification has been added that “currently undergoing dialysis” refers to dialysis at the time of surgery.

Major Event Deep Sternal Wound Infection – This major event should be reported if the condition is met within 30 days of surgery in the hospital or post discharge.

Major Event Respiratory Failure – Has been renamed Prolonged Ventilator Dependence.

New Clarification

Chronic Lung Disease - a technical mapping instruction for STS v2.81 data element Seq# 405 has been added. Additional data element interpretation has also been added.

Revised Policy

Shock Exclusion – Please see CSRS Reporting Policies for updated shock exclusion policy.

Reporting attempted/aborted transcatheter valve replacement – see “When to Complete an Adult CSRS Form” for additional clarification on use of these new procedure codes.

The following clarification was added in January 2014. It is included here as a reminder for 2014 entry and validations.

Date of Surgery - report the date of first skin incision.

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. Use Adjunct Valve Information codes (640-645) to indicate a transcatheter valve replacement was performed.

Attempted and aborted transcatheter valve replacement should now also be reported. See “Guidance on Selecting Appropriate Procedure Codes” for additional details.

DO NOT CODE:

- Implantation or removal of a pacemaker and its leads or wires
- Removal of an AICD and its leads or wires
- Coronary endarterectomies
- Femoral artery repair or bypass
- Innominate artery bypass
- Aortic subclavian bypass
- Exploration of the atria, aorta, valves, ventricles, or pulmonary artery
- Removal of thymoma
- Thymectomy
- VAD removal
- Intra-cardiac thrombus removal
- Intra-coronary thrombus removal
- Epicardial lead placement
- Ventricular support device (e.g. Heartnet restraint)
- Coronary aneurysm repair (other than CABG)
- Aortic wrapping procedures
- Ligation or excision of left atrial appendage

When to Complete an Adult CSRS Form (continued)

When the following procedures are the ONLY cardiac surgery performed in a hospital admission, code them as a 498 or 998, otherwise, the procedures are NOT CODED.

- Surgical Removal of a Stent
- Aortic Endarterectomy
- Pulmonary Artery Endarterectomy

During quarterly and annual data verification and validation efforts, supporting documentation for cases coded as 398, 498, or 998 will 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)
- Percutaneous Ventricular Assist Device (use procedure code 830)

Code the following only when performed at the same time as a CABG or valve surgery:

- Percutaneous Coronary Intervention (711)

Code the following procedures only when they are performed in the same admission as a reportable cardiac surgical procedure:

- ECMO (834)

Guidance on Selecting Appropriate Procedure Codes

Repair of Cardiac Laceration Due to Trauma (907): Should be coded for repair of cardiac laceration due to trauma including a procedure to repair an injury to the heart that has resulted from a cardiac diagnostic or interventional procedure or from cardiac surgery.

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.

A 772 (Maze) should be coded when there is a surgical procedure (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.

All procedures coded 772 will require an operative note to verify coding.

Pericardiectomy (402): Any time the procedure consists of more than a pericardial window (i.e. stripping or partial pericardiectomy) and the procedure is performed on CP bypass it should be coded 402. A pericardial window is a small hole in the pericardium usually done by removing a small amount of the pericardial wall and is usually done for a large or symptomatic collection of pericardial fluid or for diagnosis (biopsy).

Aortic Root Replacement or Repair, With Graft, With Coronary Reimplantation (785): This code only refers to procedures that involve the aortic root repair/replacement and an aortic valve replacement. An Ascending Aorta, with Graft, With Coronary Reimplantation should be coded 780.

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).

Guidance on Selecting Appropriate Procedure Codes (continued)

Adjunct Valve Information (640-645): Use these codes to indicate a transcatheter valve replacement has been performed and by which approach.

- 640 Transfemoral Approach
- 641 Transapical Approach
- 642 Arch Branches
- 643 Ascending Aorta
- 644 Venous
- 645 Venous Crossover

These procedures should be reported even if they do not occur in the operating room. A valve replacement code must also be reported.

Attempted/Aborted Transcatheter Valve Replacement (930 – 931): Use code 930 for an Attempted Transcatheter Valve Replacement and code 931 for an Aborted Transcatheter Valve replacement. Report these codes in addition to the primary valve code (520-608) and the adjunct valve information code (640-645).

Attempted Transcatheter Valve Replacement (code 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.

Aborted Transcatheter Valve Replacement (code 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.

Third Digit for Valve Replacement (510- 608): When reporting valve replacement surgery (codes 510-608), use the third digit to indicate if the valve(s) currently being replaced have 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.

Codes for re-operation due to failed catheter-based or surgical valve repair and as a complication of a transcatheter valve replacement are also available. 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.

Guidance on Selecting Appropriate Procedure Codes (continued)

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). Data for the PCI must be reported to the Percutaneous Coronary Interventions Reporting System except in the event of a PCI on the Left Main in the same setting as, and required as a complication of, transcatheter valve replacement.

Ventricular Assist Device as a Destination Therapy (840): If an LVAD is placed as the final therapy, code 840 in addition to the LVAD. For example, if the patient is not a candidate for a heart transplant, but an LVAD is placed as a long-term treatment option this code would be appropriate.

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 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 newly created risk factor "Refractory Cardiogenic Shock" will be excluded from provider-specific publicly released reports and analyses. Cases with the new 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.

CSRS Data Reporting Policies (continued)

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.

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 2015 reporting schedule is as follows.

Quarter 1 (1/1/15 – 3/31/15 Discharges) due on or before May 31, 2015
Quarter 2 (4/1/15 – 6/30/15 Discharges) due on or before August 31, 2015
Quarter 3 (7/1/15 – 9/30/15 Discharges) due on or before November 30, 2015
Quarter 4 (10/1/15 – 12/31/15 Discharges) due on or before February 28, 2016

Limited extensions to the above deadlines will be granted on a case by case basis when warranted by extenuating circumstances. They must be requested in writing prior to the required submission date.

Item-By-Item Instructions

PFI Number

Variable Name: PFI

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.

Sequence Number

Variable Name: SEQUENCE

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.

I. Patient Information

Patient Name

Variable Names: LASTNAME, FIRSTNAME

Enter the patient's last name followed by his/her first name.

Medical Record Number

Variable Name: MEDRECNO

Enter the patient's medical record number.

Social Security Number

Variable Name: SSNO

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.

Date of Birth

Variable Name: DOB

Enter the patient's exact date of birth.

I. Patient Information (continued)

Sex

Variable Name: SEX

Check the appropriate box for the patient's sex at birth.

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.

Ethnicity

Variable Name: ETHNIC

Check the appropriate box.

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.

Race

Variable Names: RACE, RACESPEC

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. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."

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."

I. Patient Information (continued)

Race (continued)

Note: Please note that 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."

Residence Code

Variable Names: RESIDENC, STATE

Enter the county code of the patient's principal residence, as shown in Attachment B. If the patient lives outside NYS, use code 99 and print the name of the state or country where the patient resides in the space provided. If you enter a valid NYS County Code then the "State or Country" field should be left blank.

If the patient is from a foreign country, but is staying in the US during the pre-operative and post-operative time period, you must enter 99 and print the name of the country that the patient is from. Do not enter the residence code of where the patient is staying in the US.

Hospital Admission Date

Variable Name: ADMIDATE

Enter the date that the current hospital stay began.

Primary Payer

Variable Name: PAYER

Enter the primary source of payment for this hospital stay as shown in Appendix C.

Please note that Worker's Compensation, Family Health Plus, and Other Federal Programs are reported as code "19-Other."

Interpretation: Primary Payer and Medicaid: 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."

I. Patient Information (continued)

Primary Payer (continued)

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).

If the patient has Blue Cross and Medicare, code Medicare if there is no indication of which is primary.

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

If you know a patient has Medicare or Medicaid, but do not know if it is Fee for Service or Managed Care, code Fee for Service.

Medicaid

Variable Name: MEDICAID

Check this box if the patient has Medicaid that will provide payment for any portion of this hospital stay. If the patient’s primary payer is Medicaid, check this box in addition to entering “03” or “04” under Primary Payer.

PFI of Transferring Hospital

Variable Name: TRANS_PFI

If the patient was transferred from another acute care facility, enter the PFI of the transferring hospital.

This element only needs to be completed for transfer patients.

A list of PFIs for cardiac diagnostic centers in NYS is provided in Attachment A. If transferred from a Veterans Administration hospital in NYS, enter 8888; if transferred from outside NYS, enter 9999. For patients transferred from another hospital in NYS, please see <http://hospitals.nyhealth.gov/> for a complete listing of NYS hospitals, including PFI.

Note: PFI on the above website is listed without leading 0s. For purposes of cardiac reporting, PFI should always be four (4) numeric characters. For example, PFI “1” should be reported as 0001.

II. Procedural Information

REMINDER: Fill out a separate CSRS form for each cardiac surgery involving the heart or great vessels during the hospital admission.

Hospital That Performed Diagnostic Cath

Variable Name: CATHPFI

If the cardiac surgery was preceded by a diagnostic catheterization, enter the name and PFI number of the hospital in the spaces provided. 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 (e.g. CT) other than catheterization.

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

Date of Surgery

Variable Name: SURGDATE

Enter the date on which the cardiac surgical procedure was performed.

Clarification: Report the date of first skin incision.

Prior Surgery This Admission

Variable Names: PRIOSURG, PRIODATE

Check the appropriate box to indicate whether the patient had any reportable (form generating) cardiac operation prior to the present operation during the same hospital admission.

If "Yes" then 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.

II. Procedural Information (continued)

Cardiac Procedures This OR Visit

Variable Names: PROC1, PROC2, PROC3, PROC4, PROC5

Enter the 3-digit State Cardiac Advisory Committee Code (SCAC) from the procedure code list in Attachment D – 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 D: 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.

Congenital Diagnosis

Variable Names: DIAG1, DIAG2, DIAG3

If the patient had a congenital defect repair either in conjunction with, or as the primary surgical procedure, indicate the three most significant congenital diagnoses.

The diagnosis codes in Attachment E 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 only when a Congenital Procedure Code is reported. Report in every case where a congenital procedure code is reported.

Coding Note: Congenital Diagnosis Codes in Attachment E are aligned with those used for STS v2.81 data elements 4500, 4505, 4510.

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II. Procedural Information (continued)

Primary Physician Performing Operation

Variable Name: PHYSNUM

Enter the name and NYS physician license number of the primary physician who performed the cardiac surgical procedure.

Interpretation: 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. It does not matter that the ablation was performed before the CABG.

If a procedure includes both a cardiac surgeon and a cardiologist (e.g. hybrid revascularization, transcatheter valve replacement) report the cardiac surgeon as the primary physician for these purposes and also report the physician license number for the interventional cardiologist in the "Interventional Cardiologist" field.

If no surgeon participated in this procedure report 999999.

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.

Anesthesiologist (1)

Variable Name: ANESNUM1

Enter the name and NYS physician license number of the responsible anesthesiologist at the start of the cardiac surgery.

If no anesthesiologist participated in this procedure report 888888.

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.

Anesthesiologist (2)

Variable Name: ANESNUM2

Enter the name and NYS physician license number of the responsible anesthesiologist at the end of the cardiac surgery.

II. Procedural Information (continued)

Anesthesiologist (2) (cont'd.)

If no anesthesiologist participated in this procedure report 888888.

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.

Interventional Cardiologist

Variable Name: CARDNUM

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 NYS physician license number of the interventional cardiologist participating in the case.

For procedure codes 640-645 and 711, if there was no interventional cardiologist participating enter code 000000. 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.

Number of Distal Anastomoses with Venous Conduits

Variable Name: DIST_VEIN

Indicate the total number of distal anastomoses with venous conduits.

Clarification: 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 v2.81 data element 2630. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

II. Procedural Information (continued)

Total Number of Distal Anastomoses with Arterial Conduits

Variable Name: DIST_ART

Indicate the total number of distal anastomoses with arterial conduits, whether IMA, GEPA, radial artery, etc.

Clarification: 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 distals 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 v2.81 data element 2625. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

Number of Distal Anastomoses using IMA Conduits

Variable Name: DIST_IMA

Indicate the total number of distal anastomoses done using Internal Mammary Artery (IMA) grafts.

Clarification: 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.

Coding Note: *DIST_IMA* definition is aligned with STS v2.81 data element 2665. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

Number of Distal Anastomoses using Radial Artery Conduits

Variable Name: DIST_RA

Indicate the total number of distal anastomoses done using radial artery grafts.

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

Coding Note: *DIST_RA* definition is aligned with STS v2.81 data element 2680. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

II. Procedural Information (continued)

Number of Distal Anastomoses using Other Arterial Conduits

Variable Name: DIST_OA

Indicate the number distal anastomoses that used arterial conduits, other than radial or IMA.

Example: Inferior epigastric artery

Coding Note: *DIST_OA* definition is aligned with STS v2.81 data element 2705. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

Internal Mammary Artery Used as Conduit

Variable Name: IMA_USED

Use the following codes to indicate which, if any, Internal Mammary Arteries were used for grafts.

- 1 Left
- 2 Right
- 3 Both
- 4 None

Clarification: 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 v2.81 data element 2655. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

Primary Reason IMA Not Used

Variable Name: NOT_IMA

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 v2.81 data element 2660. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission*

II. Procedural Information (continued)

Number of Radial Arteries Used for Grafts

Variable Name: NUM_RA

Indicate the number of radial arteries that were used for grafts.

Coding Note: *NUM_RA* definition is aligned with STS v2.81 data element 2675.
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Minimally Invasive

Variable Name: MINI_INV

Check this box 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.

Converted to Standard Incision

Variable Name: STND_INC

Check this box to indicate that the minimally invasive procedure was modified to a standard incision.

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

Converted from Off Pump to On Pump

Variable Name: CONVERT

Check this box 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.

Entire Procedure Off Pump

Variable Name: ALL_OFF

Check this box if the cardiac procedure was performed entirely without the use of cardiopulmonary bypass.

Ila. Peri-Operative Information

Skin Incision Time

Variable Name: SURG HOUR, SURG MIN

Indicate the time, to the nearest minute (using 24-hour clock), that the first skin incision, or its equivalent, was made.

Interpretation: 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.

Coding Note: *SURG HOUR and SURG MIN* definition is aligned with the time portion of STS V2.81 data element 2265.

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Skin Closure Time

Variable Name: CLOSE HOUR, CLOSE MIN

Capture the time (using 24 hour clock) to the nearest minute, that the skin incision was closed, or its equivalent.

Note: 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 expires in the OR prior to skin closure, time of death should be reported in place of skin closure time.

Coding Note: *CLOSE HOUR and CLOSE MIN* definition is aligned with the time portion of STS v2.81 data element 2270.

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Pre-Induction Blood Pressure

Variable Name: BP_SYS, BP_DIA

Enter the patient's blood pressure just prior to the induction of anesthesia as measured by any means.

Ila. Peri-Operative Information (continued)

Post-Op Temperature

Variable Name: POST_TEMP

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).

Temperature Route

Variable Name: TEMP_RT

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."

Hematocrit

Variable Name: CRIT_OR, CRIT_LOW, CRIT_LST, CRIT

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.

Ila. Peri-Operative Information (continued)

Hematocrit (continued)

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.”

In the event that 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.”

Pre-Op Beta Blocker Use

Variable Name: PRE_BETA

Use the following codes to indicate pre-op beta blocker use or contraindication.

- 1 Yes - The patient received beta blockers within 24 hours preceding surgery.
- 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 preceding surgery and there is no documented contraindication for beta blockers.

Coding Note: *PRE_BETA* definition is aligned with STS v2.81 data element 1060, however the response values must be mapped. CSRS response 1 = STS response 1; CSRS 2 = STS 3; CSRS 3 = STS 2.

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Ila. Peri-Operative Information (continued)

Extubation at 24 Hours – Report Only for CABG Patients

Variable Name: EXTUBATE

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.

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

Post-Op Beta Blocker Use - Report Only for CABG Patients

Variable Name: PO_BETA

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.

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

Ila. Peri-Operative Information (continued)

Intra-Operative Blood Transfusion

Variable Name: TRANSFUS

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 ≥ 1 then TRANSFUS should be “checked” (i.e. reported as 1 for text file upload).

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Glucose Control Protocol

Variable Name: GLUCOSE

Check this box 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

Surgical Priority

Variable Name: PRIORITY

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 or prior to anesthesia induction or has ongoing ECMO to maintain life.

Coding Note: *PRIORITY* is aligned with STS v2.81 element 1975.

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Height

Variable Name: HEIGHT

Enter the patient's height in centimeters (cm).

Coding Note: *HEIGHT* definition is consistent with STS v2.81 data element 330.

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Weight

Variable Name: WEIGHT

Indicate the weight of the patient, in kilograms (kg), closest to the date of the procedure.

Coding Note: *WEIGHT* definition is consistent with STS v2.81 element 335.

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III. Pre-Op Surgical Risk Factors (continued)

Stress Test / Imaging Study Done

Variable Name: STRS_DONE

Use the codes below to indicate if a stress test was performed prior to this procedure but within 6 months.

- 1 Yes
- 2 No
- 9 Unknown

Stress Test / Imaging Study Type

Variable Name: STRS_TYP

Use the codes below to indicate the type of stress test performed

- 1 Standard Exercise Stress Test – without imaging
- 2 Stress Echocardiogram
- 3 Stress Testing with single photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI)
- 4 Stress Testing with cardiac magnetic resonance (CMR)
- 9 Not Done / Unknown

If more than one type of stress test was performed within the past 6 months, report on the most recent test.

Stress Test / Imaging Study Results

Variable Name: STRS_RES

Use the codes below to indicate the stress test results. Definitions and clarification can be found in Attachment F: Stress Test Results.

- 1 Negative
- 2 Positive, Low Risk
- 3 Positive, Intermediate Risk
- 4 Positive, High Risk
- 5 Positive, Risk Unavailable
- 6 Indeterminate
- 7 Unavailable
- 9 Not Done/ Unknown

Note: Inclusion of stress test reports in the medical record is encouraged to allow for accurate and complete reporting of these data elements.

III. Pre-Op Surgical Risk Factors (continued)

Ejection Fraction and Measure

Variable Names: EJEC_FRA, MEASURE

Record the pre-operative ejection fraction taken closest to, but before, the start of the cardiac procedure.

If an ejection fraction is unavailable, enter "0" and then enter "9 – Unknown" for the measure.

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

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

Interpretation:

Intra-operative TEE is acceptable, if no pre-operative ejection fraction is available. Any ejection fraction that is described as "Normal" in the medical record should be considered 55%.

Any cases with a missing or unusual ejection fraction will be sent back during quarterly and annual data validation to verify accuracy of this data element.

Anginal Classification Within 2 Weeks

Variable Name: CCS_CLAS

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.

III. Pre-Op Surgical Risk Factors (continued)

Anginal Classification Within 2 Weeks (continued)

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.

Notes: 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

Coding Note: CCS_CLAS definition is aligned with STS v2.81 data element 905. CSRS Response 1 = STS Response 2; CSRS Response 2 = STS Response 3; CSRS Response 3 = STS Response 4; CSRS Response 4 = STS Response 5; CSRS Response 8 = STS Response 1.

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Cardiac Symptoms at Time of Admission

Variable Name: SYMP_ADM

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).

III. Pre-Op Surgical Risk Factors (continued)

Cardiac Symptoms at Time of Admission (cont'd.)

- 4 Non-ST Elevation MI (Non- STEMI) - The patient was hospitalized for a non-ST elevation myocardial infarction (STEMI) as documented in the medical record. Non-STEMIs 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. STEMI's 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 ≥ 0.15 mV 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 Angina equivalent
- 7 Other - Presentation/symptom not listed above (e.g., aortic dissections, sudden death, heart block, arrhythmia, syncope or heart failure).

Coding Note: *SYMP_ADM* definition is aligned with STS v2.81 data element 895. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.*

III. Pre-Op Surgical Risk Factors (continued)

Cardiac Symptoms at Time of Surgery

Variable Name: SYMP_SURG

Indicate the patient's cardiac symptoms at the time of surgery using the codes as defined above for "Cardiac Symptoms at Time of Admission."

Clarification: This element captures changes between admission and surgery; whether a patient improves or deteriorates. If the patient did not improve or deteriorate between admission and surgery, the code will be the same.

Patients admitted with MI, who are in the hospital for more than 7 days before surgery should report most recent symptoms for Symptoms at Time of Surgery.

Coding Note: *SYMP_SURG* definition is aligned with STS v2.81 data element 900. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.*

Creatinine

Variable Name: CREATININE

Indicate the creatinine level closest to the date and time of surgery but prior to anesthetic management (induction area or operating room).

Interpretation: For the purposes of this data element, anesthetic management begins when a member of the anesthesiology team initiates care. The administration of IV fluids in the holding area can cause dilution of blood. Do not capture labs drawn after the patient receives fluids in the holding area or OR.

Acceptable documentation may include that from an out-patient record.

Coding Note: *CREATININE* definition is aligned with STS v2.81 data element 585. *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.*

III. Pre-Op Surgical Risk Factors (continued)

Vessels Diseased

Variable Name: LMT, PROX_LAD, MID_LAD, RCA, LCX

For each diseased vessel, check the appropriate box to indicate the percent diameter stenosis. Include all vessels diseased, even branches.

Interpretation: This section must be completed for all CABG cases. If this information is available for other procedures, please indicate the vessels diseased, 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.

Use the ranges listed below when the medical record describes the percent stenosis in the following ways:

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 we only code 50-100% 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%.

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

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 then code the Mid LAD and not the Proximal LAD.

III. Pre-Op Surgical Risk Factors (continued)

Valve Disease

Variable Names: STEN_AOR, STEN_MIT, STEN_TRI, INCO_AOR, INCO_MIT, INCO_TRI

This section is required for valve patients, if the information is available for other patients, please report it.

Enter an assessment of the degree of stenosis or incompetence (acute or chronic) for each valve (Aortic, Mitral, Tricuspid). Both lines should be completed for all valve patients.

Enter the following values for each valve to indicate the degree of stenosis or incompetence:

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

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.

Note: If a patient is not having a valve procedure, but disease (stenosis or incompetence) is indicated, please code.

III. Pre-Op Surgical Risk Factors (continued)

Anti-Anginal Medication Within 2 Weeks

Variable names: MED_BB, MED_CA, MED_NIT, MED_RAN, MED_OTH

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.

Other Patient Characteristics

Variable Names: FFR_IVUS, CTO, GRFTFAIL, LIMA_FAIL, LIMA_PAT

Indicate which, if any, of the following characteristics apply to this patient. Check all that apply.

- 50-69% stenosis with significant findings on Fractional Flow Reserve (<0.75) and/or IVUS with significant reduction in cross sectional area.
Note: Significant reduction in cross sectional area by IVUS is defined as 6mm² for the left main and 4mm² for major epicardial vessels other than the left main.

III. Pre-Op Surgical Risk Factors (continued)

Other Patient Characteristics (continued)

- Chronic Total Occlusion (CTO) is the only stenosis – Indicate if patient has a CTO and no other lesion in that vessel or any other vessel. CTO is defined as a vessel with 100% pre-procedure stenosis presumed to be 100% occluded for at least 3 months previous to this procedure.

Note: If timeframe of 3 months is not specified, but lesion is described as “CTO,” this is acceptable.

- Prior CABG with native 3 vessel disease and failure of multiple bypass grafts.
- LIMA was used as a graft but is no longer functional.
- LIMA was used as a graft and remains patent to a native coronary artery.

Interpretation: For the items regarding LIMA patency, the graft would be considered “no longer functional” if there is angiographic stenosis of 70% or more or there is evidence of significant flow restriction documented by FFR or by stress test (with echo or nuclear) to localize the ischemia.

0. None

Variable Name: NORISK

Report if none of the pre-operative risk factors listed below are present.

1. Previous CABG - Patent Grafts

Variable Name: PAT_GRAFT

Indicate if, prior to this cardiac surgery, the patient has undergone CABG and currently has one or more patent grafts.

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

Note: 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.

III. Pre-Op Surgical Risk Factors (continued)

1a. Previous CABG – No Patent Grafts

Variable Name: OTH_CABG

Indicate if, prior to this cardiac surgery, the patient has previously undergone CABG and has no patent grafts.

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

Note: 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.

2a. Previous Valve Surgery / Intervention

Variable Name: PRE_VALV

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.

2. Any Other Previous Cardiac Surgery

Variable Name: OTH_SURG

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.

III. Pre-Op Surgical Risk Factors (continued)

4. - 6. Previous MI (Most Recent)

Variable Names: PREMILT6, PREMI623, PREMIDAY

If the patient had one or more myocardial infarctions before surgery, report the length of time since the most recent MI. 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 myocardial infarction.

If less than 6 hours, check box 4.

If 6-23 hours, check box 5.

If 24 hours or more, enter the number of days in the space provided next to 6.

If 21 days or more, enter 21.

64. Neurological Event

Variable Name: CVD_EVENT

Use the following codes to indicate if the patient has a history of a neurological event:

- 1 Stroke
- 2 TIA, without history of stroke

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

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.

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

65. Arterial Imaging Test

Variable Name: CVD_IMG

Use the codes below to indicate if a noninvasive or invasive arterial imaging test demonstrated $\geq 50\%$ stenosis of any of the major extracranial or intracranial vessels to the brain.

- 1 50-79% occlusion
- 2 $>79\%$ occlusion

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

III. Pre-Op Surgical Risk Factors (continued)

66. Cervical or Cerebrovascular Revascularization Procedure

Variable Name: CVD_PROC

Check the box to indicate if the patient has previous cervical or cerebral artery revascularization surgery or percutaneous intervention

Note: Definitions for risk factors *CVD_EVENT*, *CVD_IMG* and *CVD_PROC* correspond to STS v2.81 data element 525. Used with permission.

67. Cardiogenic Shock

Variable Name: SHOCK_COND

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 /m² 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.

Please see clarification presented under “Refractory Cardiogenic Shock.”

68. Refractory Cardiogenic Shock

Variable Name: SHOCK_REFR

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 /m² 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.

III. Pre-Op Surgical Risk Factors (continued)

68. Refractory Cardiogenic Shock (cont'd.)

Clarification: 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 resuscitation warrants the coding of Refractory Cardiogenic Shock.
- If the patient has an IABP, the indication for IABP must be clearly indicated as hemodynamic support for coding Cardiogenic Shock. Pain control, anatomy, or undocumented indication do not support coding 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 code Refractory Cardiogenic Shock. VAD type may include RVAD, LVAD, BiVAD or ECMO. Use of Impella will require documentation of blood pressure or cardiac index to support coding Refractory Cardiogenic Shock.

10. Peripheral Vascular Disease

Variable Name: PERIPH

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	

III. Pre-Op Surgical Risk Factors (continued)

18. Congestive Heart Failure, Current

Variable Name: CHF_CUR

Within 2 weeks prior to the procedure, the patient has a clinical diagnosis of CHF, and symptoms requiring treatment for CHF.

Note: Physician diagnosis of CHF 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 CHF, evidence of symptoms, and treatment for CHF.

19. Congestive Heart Failure, Past

Variable Name: CHF_PAST

Between 2 weeks and 6 months prior to the procedure, the patient has a clinical diagnosis/ past medical history of CHF and ongoing treatment for CHF.

Note: Physician diagnosis of CHF 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 CHF and evidence of treatment for CHF. Patient's clinical status may be compensated.

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

63. BNP, Three Times Normal

Variable name: BNP3X

Report if prior to surgery but within this admission, the BNP was at least three times the lab's upper limit of normal value.

For transfer patients, BNP from a transferring institution is acceptable.

III. Pre-Op Surgical Risk Factors (continued)

20. Malignant Ventricular Arrhythmia

Variable Name: MAL_VENT

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.

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

If a patient is experiencing V-Tach or V-Fib that otherwise meets the above criteria, but is within 6 hours of an MI, 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 has had an MI within the last 6 hours.

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

III. Pre-Op Surgical Risk Factors (continued)

21. Chronic Lung Disease

Variable name: COPD

Indicate whether the patient has chronic lung disease, and the severity level according to the following classification:

- 1 No
- 2 Mild - FEV₁ 60% to 75% of predicted, and/or on chronic inhaled or oral bronchodilator therapy.
- 3 Moderate - FEV₁ 50% to 59% of predicted, and/or on chronic steroid therapy aimed at lung disease.
- 4 Severe - FEV₁ < 50% predicted, and/or Room Air pO₂ < 60 or Room Air pCO₂ > 50.

Interpretation: The diagnosis of chronic lung disease is not based solely on the fact that a person has or currently is smoking, or is on home oxygen. Diagnostic testing and/or pharmacological criteria must be met. Chest x-ray is not included in the data specs for inclusion as chronic lung disease and should not be coded as “Yes.”

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 pO₂ < 60 or pCO₂ > 50 on supplemental oxygen as well as on room air.

DLCO values should not be used for determining Chronic Lung Disease

Do not use values obtained more than 12 months prior to the date of surgery. Patients on home oxygen without documentation of chronic lung disease or PFT testing are coded as No Chronic Lung Disease.

Asthma is not considered chronic lung disease; therefore, do not code chronic lung disease for those patients who are treated with steroids for their asthma.

ONLY systemic steroids qualify for chronic lung disease.

Documentation Note: 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.

Coding Note: COPD definition is aligned with STS v2.81 data element 405. STS responses of 5 (severity not documented) and 6 (unknown) are not accepted in CSRS. These responses should be reported as 1 (No) in CSRS.

Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

III. Pre-Op Surgical Risk Factors (continued)

23. Extensive Aortic Atherosclerosis

Variable Name: CALCAORT

Ascending, transverse, and/or descending aortic atherosclerosis marked by either extensive calcification or luminal atheroma such that the intended surgical procedure is altered.

Interpretation: 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. Changes to the intended surgical procedure may also include documentation that more extensive evaluation/exploration of the aorta, for example epi aortic scanning, was performed.

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.

24. Diabetes

Variable Name: DIABETES

Indicate whether patient has a history of diabetes diagnosed and/or treated by a healthcare provider.

Interpretation: The definition below is informational and data coordinator is not expected to diagnose diabetes.

The American Diabetes Association criteria include documentation of the following:

- 1 A1c $\geq 6.5\%$; or
- 2 Fasting plasma glucose ≥ 126 mg/dl (7.0 mmol/l); or
- 3 Two-hour plasma glucose ≥ 200 mg/dl (11.1 mmol/l) during an oral glucose tolerance test; or
- 4 In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥ 200 mg/dl (11.1 mmol/l)

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

III. Pre-Op Surgical Risk Factors (continued)

24. Diabetes (cont'd.)

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 $\geq 6.5\%$, collected within 3 months prior to surgery, is acceptable to use for documentation of diabetes.

Coding Note: *DIABETES* definition is aligned with STS V2.81 data element 360. Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2. 81, used with permission.

24a. Diabetes Therapy

Variable Name: DM_TRT

Indicate the patient's diabetes control method 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.

Choose the most aggressive therapy from the order below

- Insulin: insulin treatment (includes any combination with insulin)
- Other subcutaneous medications (e.g., GLP-1 agonist)
- Oral: treatment with oral agent (includes oral agent with or without diet treatment)
- Diet only: Treatment with diet only
- None: no treatment for diabetes
- Other: other adjunctive treatment, non-oral/insulin/diet
- Unknown

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; Byetta, Bydureon, Victoza, Symlin)

5 Other - Other adjunctive treatment, non-oral/insulin/diet

7 Unknown

Clarification: Report this element for all cases where "Risk Factor #24 - Diabetes" is also reported. If the patient does not qualify for "Risk Factor #24 - Diabetes," then leave the field blank or enter 0.

Control type is the long term management therapy used.

III. Pre-Op Surgical Risk Factors (continued)

24a. Diabetes Therapy (cont'd.)

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 v2.81 data element 365. Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

25. Hepatic Failure

Variable Name: HEPATICF

The patient has cirrhosis or other liver disease and has a bilirubin > 2 mg/dL and a serum albumin < 3.5 g/dL.

27. Renal Failure, Dialysis

Variable Name: REN_DIAL

Indicate whether the patient is currently (prior to surgery) undergoing dialysis.

Interpretation: Includes any form of peritoneal or hemodialysis patient is receiving prior to surgery. 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 v2.81 data element 375 Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

30. Emergency Transfer to OR After Dx Cath

Variable Name: EME_CATH

The patient requires immediate surgery following a diagnostic catheterization.

III. Pre-Op Surgical Risk Factors (continued)

31. Surgery For PCI Complication

Variable Name: EME_PCI

Indicate if there was a complication during PCI necessitating surgical intervention such as dissection or acute occlusion.

Coding Note: EME_PCI should be reported (file upload value of 1) when STS 785 POCPCIndSurg = 1.

Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

32. Previous PCI, This Episode of Care

Variable Name: PCITHIS

Indicate whether there was a previous PCI performed within this episode of care. Include those at this facility and at some other acute care facility.

Clarification: 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 780 POCPCIWhen = 1 or 2.

Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

33. PCI Before This Episode of Care

Variable Name: PCIBEFO

The patient has had a PCI before this episode of care.

38. Stent Thrombosis

Variable Name: THROMBOS

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.

Interpretation: 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 coded.

III. Pre-Op Surgical Risk Factors (continued)

39. Any Previous Organ Transplant

Variable Name: ORGAN

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.

Interpretation: 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.

40. Heart Transplant Candidate

Variable Name: HT_TRANS

This risk factor should be coded when the patient is an approved heart transplant candidate before the start of the procedure.

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.

62. Active Endocarditis

Variable Name: ENDOCARD

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.

IV. Major Events Following Operation

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.

0. None

Variable Name: NOCOMPS

Check if none of the major events listed below occurred following the operation.

1. Stroke

Variable Name: STROKE

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 did not resolve within 24 hours.

Coding Note: *STROKE* definition is aligned with STS v2.81 data element 4810. Report "Yes" (value of 1) to *STROKE* when STS data element 4810 has a response of 3, 4, or 5.

Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

2. Q-Wave MI

Variable Name: POSTMI

New Q waves occurring within 48 hours after surgery.

4. Deep Sternal Wound Infection

Variable Name: STERNINF

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:

IV. Major Events Following Operation (continued)

4. Deep Sternal Wound Infection (continued)

- 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 ($>38^{\circ}\text{C}$), 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.

5. Bleeding Requiring Reoperation

Variable Name: BLEDREOP

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 hypoperfused 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 v2.81 data element 4760 *Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.*

IV. Major Events Following Operation (continued)

8. Sepsis

Variable Name: SEPSIS

Sepsis is defined as evidence of serious infection accompanied by a deleterious systemic response.

In the time period of the first 48 postoperative or postprocedural hours, the diagnosis of sepsis requires the presence of a Systemic Inflammatory Response Syndrome (SIRS) resulting from a proven infection (such as bacteremia, fungemia or urinary tract infection). 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.

9. G-I Event

Variable Name: GIBLEED

Indicate whether the patient had a postoperative occurrence of any GI event, including but not limited to:

- a. GI bleeding requiring transfusion;
- b. Pancreatitis with abnormal amylase/lipase requiring nasogastric (NG) suction therapy;
- c. Cholecystitis requiring cholecystectomy or drainage;
- d. Mesenteric ischemia requiring exploration;
- e. Hepatic failure;
- f. Prolonged ileus;
- g. Clostridium difficile

CLARIFICATION: 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.

IV. Major Events Following Operation (continued)

9. G-I Event (continued)

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.

Coding Note: *GIBLEED* definition is aligned with STS v2.81 data element 4920. Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

10. Renal Failure

Variable Name: RENAL_FAI

Indicate whether the patient had a new requirement for dialysis postoperatively, which may include hemodialysis or peritoneal dialysis.

Interpretation: May include either hemo or peritoneal dialysis. This includes a onetime need for dialysis as well as implementation of longer term therapy. 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) and Continuous Renal Replacement Therapy (CRRT) should be coded here as "Yes."

Coding Note: *RENAL_FAI* definition is aligned with STS v2.81 data element 4875. Society of Thoracic Surgeons, Adult Cardiac Surgery Database, Version 2.81, used with permission.

IV. Major Events Following Operation (continued)

13. Prolonged Ventilator Dependence

Variable Name: RESP_FAI

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.

Interpretation: 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.

14. Unplanned Cardiac Reoperation or Interventional Procedure

Variable Name: UNPLANREOP

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.

Interpretation: 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

Discharge Status

Variable Name: STATUS, DISWHERE

Check the appropriate code.

11- Home

12- Hospice

13- Acute Care Facility

14- Skilled Nursing Facility

15- Inpatient Physical Medicine and Rehab

19- Other(specify)

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)

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.

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.

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

If “8 – Elsewhere in Hospital (specify)” is checked, specify where the patient died.

Any status code 8 or 19 that is reported without an indication of where the patient expired will be reviewed during data validation.

Hospital Discharge Date

Variable Name: DISDATE

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.

V. Discharge Information (continued)

30 Day Status

Variable Name: THIRTYDAY

Report the patient's status at 30 days post-procedure using the appropriate code.

VI. Person Completing Report

Name

This space is provided as an aid to the hospital. 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 cardiac services program.

Referring Physician

Variable Name: REF_PHYS

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
0829 Ellis Hospital
1005 Glens Falls Hospital
0746 Mary Imogene Bassett 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
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 Unity Hospital of Rochester

SYRACUSE AREA

0977 Cayuga Medical Center at Ithaca
0636 Crouse Hospital
0599 Faxton-St. Luke's Healthcare, St. Luke's Division
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

0989 Benedictine Hospital
0885 Brookhaven Memorial Hospital Medical Center
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
0513 Mercy Medical Center
0528 Nassau University Medical Center
0541 North Shore University Hospital
0699 Orange Regional Medical Center
1072 Montefiore New Rochelle Hospital
0527 South Nassau Communities Hospital
0924 Southside Hospital
0943 St. Catherine of Siena Medical Center
0563 St. Francis Hospital (aka St. Francis Hospital The Heart Center, Roslyn)
0180 MidHudson Regional Hospital of Westchester Medical Center
1097 SJRH – St. John’s Division
0694 St. Luke’s Cornwall Hospital/Newburgh
0245 University Hospital - Stony Brook
0181 Vassar Brothers Medical Center
1139 Westchester Medical Center
1045 White Plains Hospital Center
0511 Winthrop University Hospital

NY CITY AREA

1438 Bellevue Hospital Center
1439 -Mount Sinai Beth Israel
1178 Bronx-Lebanon Hospital Center-Concourse Division
1286 Brookdale 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
1630 Long Island Jewish Medical Center
1304 Lutheran Medical Center

PFI Facility

NY CITY AREA (CONT.)

- 1305 Maimonides Medical Center
- 3058 Montefiore Medical Center-Jack D. Weiler Hospital of
A. Einstein College Division
- 1169 Montefiore Medical Center-Henry and Lucy Moses Division
- 1456 Mount Sinai Hospital
- 1637 NY Hospital Medical Center of Queens
- 1306 NY Methodist Hospital
- 1464 NY Presbyterian-Columbia Presbyterian Center
- 1458 NY Presbyterian-NY Weill Cornell Center
- 1463 NYU Medical Center
- 1176 St. Barnabas Hospital
- 1466 Mount Sinai Roosevelt
- 1469 Mount Sinai St. Luke's
- 1302 SUNY Downstate Medical Center @ Long Island College 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://hospitals.nyhealth.gov/> .

Attachment B

Residence Codes

The county codes shown below are also used in the SPARCS Discharge Data Abstract:

01 Albany	35 Oswego
02 Allegany	36 Otsego
03 Broome	37 Putnam
04 Cattaraugus	38 Rensselaer
05 Cayuga	39 Rockland
06 Chautauqua	40 St. Lawrence
07 Chemung	41 Saratoga
08 Chenango	42 Schenectady
09 Clinton	43 Schoharie
10 Columbia	44 Schuyler
11 Cortland	45 Seneca
12 Delaware	46 Steuben
13 Dutchess	47 Suffolk
14 Erie	48 Sullivan
15 Essex	49 Tioga
16 Franklin	50 Tompkins
17 Fulton	51 Ulster
18 Genesee	52 Warren
19 Greene	53 Washington
20 Hamilton	54 Wayne
21 Herkimer	55 Westchester
22 Jefferson	56 Wyoming
23 Lewis	57 Yates
24 Livingston	58 Bronx
25 Madison	59 Kings
26 Monroe	60 Manhattan
27 Montgomery	61 Queens
28 Nassau	62 Richmond
29 Niagara	
30 Oneida	
31 Onondaga	88 Unknown
32 Ontario	
33 Orange	99 Outside NYS
34 Orleans	

Attachment C Payer Codes

- 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

Attachment D

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 supra-ventricular 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 Supra-ventricular 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
 - Non-Valved
 - 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

- 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 (with extracorporeal circulation)
- 403 Stab Wound of Heart or Great Vessel Repair (without extracorporeal
circulation)
- 404 Saccular Aortic Aneurysm

Repair Of Aortic Deceleration Injury

- 420 With Shunt
- 421 Without Shunt

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 Replacement
3 Prosthetic Malfunction	
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
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Note: Record aortic valve and ascending aorta replacement under aneurysms.

Coronary Artery Bypass Grafts

670 Coronary Artery Bypass Graft

Please Note: If you code a 670 then you must complete the CABG Information under the Procedural Information section of the form.

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

Aortic Aneurysm Repair/Aortic Root Replacement

780 Ascending Aorta, With Graft, With Coronary Reimplantation

781 Ascending Aorta, Replacement or Repair, Without Coronary Reimplantation

782 Transverse Aorta

783 Descending Thoracic Aorta (Excluding Acute Deceleration Injury)

784 Thoracoabdominal

785 Aortic Root Replacement or Repair, With Graft, With Coronary Reimplantation

Dissecting Aneurysm Surgery

800 Intraluminal Graft

801 Intraluminal Graft with Aortic Valve Suspension

802 Tube Graft with Aortic Valve Suspension

803 Tube Graft with Aortic Valve Replacement

818 Other Dissecting Aneurysm Surgery

Transplant Procedures

- 820 Heart Transplant
- 821 Heart and Lung Transplant
- 822 Lung Transplant
- 830 Left Ventricular Assist Device (LVAD) – Extracorporeal
- 831 Left Ventricular Assist Device (LVAD) – Implantable
- 832 Right Ventricular Assist Device (RVAD)
- 833 Bi-Ventricular Assist Device (BIVAD)
- 834 Extracorporeal Membrane Oxygenation (ECMO)
- 840 Ventricular Assist Device as a Destination Therapy (must also code either 830 or 831)
- 901 Artificial Heart

Other

- 902 Pulmonary Embolectomy
- 903 Stab Wound of Heart or Great Vessel Repair (with extracorporeal circulation)
- 904 Removal of Intracardiac Tumor
- 905 Removal of Intracardiac Catheter (surgical)
- 906 Repair of Aortic Deceleration Injury (With Aortofemoral Bypass)
- 907 Repair of a Cardiac Laceration due to Trauma
- 915 Septal Myomectomy
- 916 Ventricular Myomectomy
- 920 Ventricular Free Wall Rupture
- 930 Attempted Transcatheter Valve Replacement
- 931 Aborted Transcatheter Valve Replacement
- 998 Other Operation for Acquired Heart Disease (with extracorporeal circulation)

Attachment E

Congenital Cardiac Diagnosis Codes¹

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
- 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 TRIARIATUM

- 250 Cor triatriatum

PULMONARY VENOUS STENOSIS

- 260 Pulmonary venous stenosis

¹Society of Thoracic Surgeons, Adult Cardiac Surgery Database, used with permission.

Attachment E

Congenital Cardiac Diagnosis Codes¹

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 (~~pseudotruncus~~)
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)
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

¹Society of Thoracic Surgeons, Adult Cardiac Surgery Database, used with permission.

Attachment E

Congenital Cardiac Diagnosis Codes¹

LEFT HEART LESIONS

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

Sinus of Valsalva Fistula/Aneurysm

630	Sinus of Valsalva aneurysm
-----	----------------------------

LV to Aorta Tunnel

640	LV to aorta tunnel
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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

¹Society of Thoracic Surgeons, Adult Cardiac Surgery Database, used with permission.

Attachment E

Congenital Cardiac Diagnosis Codes¹

SINGLE VENTRICLE (CONTINUED)

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 from aorta (AAOCA)
1020	Coronary artery anomaly, Anomalous pulmonary origin (includes ALCAPA)
1030	Coronary artery anomaly, Fistula
1040	Coronary artery anomaly, Aneurysm
1050	Coronary artery anomaly, Other

Interrupted Arch

1070	Interrupted aortic arch
2020	Interrupted aortic arch + VSD

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Attachment E

Congenital Cardiac Diagnosis Codes¹

THORACIC ARTERIES AND VEINS (CONTINUED)

Interrupted Arch (continued)

2000 Interrupted aortic arch + AP window (aortopulmonary window)

Patent Ductus Arteriosus

1080 Patent ductus arteriosus

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

Pectus Excavatum, Carinatum

4450 Pectus

Tracheal Stenosis

1160 Tracheal stenosis

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

¹Society of Thoracic Surgeons, Adult Cardiac Surgery Database, used with permission.

Attachment E

Congenital Cardiac Diagnosis Codes¹

THORACIC AND MEDIASTINAL DISEASE (CONT)

Chest Wall

<u>2160</u>	<u>Rib tumor, Benign</u>
<u>2170</u>	<u>Rib tumor, Malignant</u>
<u>2180</u>	<u>Rib tumor, Metastatic</u>
<u>2190</u>	<u>Sternal tumor, Benign</u>
<u>2200</u>	<u>Sternal tumor, Malignant</u>
<u>2210</u>	<u>Sternal tumor, Metastatic</u>

Pectus Excavatum, Carinatum

<u>2220</u>	<u>Pectus carinatum</u>
<u>2230</u>	<u>Pectus excavatum</u>

Thoracic Outlet

<u>2240</u>	<u>Thoracic outlet syndrome</u>
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ELECTROPHYSIOLOGICAL

1180	Arrhythmia
2040	Arrhythmia, Atrial
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

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

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Attachment E

Congenital Cardiac Diagnosis Codes¹

MISCELLANEOUS, OTHER

1410	Persistent fetal circulation
1420	Meconium aspiration
2250	Kawasaki disease
1560	Cardiac, Other
1570	Thoracic and/or mediastinal, Other
1580	Peripheral vascular, Other
2260	Complication of cardiovascular catheterization procedure
2270	Complication of cardiovascular catheterization procedure, Device embolization
2280	Complication of cardiovascular catheterization procedure, Device malfunction
2290	Complication of cardiovascular catheterization procedure, Perforation
2300	Complication of interventional radiology procedure
2310	Complication of interventional radiology procedure, Device embolization
2320	Complication of interventional radiology procedure, Device malfunction
2330	Complication of interventional radiology procedure, Perforation
2340	Foreign body, Intracardiac foreign body
2350	Foreign body, Intravascular foreign body
2360	Open sternum with closed skin
2370	Open sternum with open skin (includes membrane placed to close skin)
2380	Retained sternal wire causing irritation
2390	Syncope
2400	Trauma, Blunt
2410	Trauma, Penetrating
7000	Normal heart
7777	Miscellaneous, Other

STATUS POST SEPTAL DEFECTS

ASD

4010	Status post - PFO, Primary closure
4020	Status post - ASD repair, Primary closure
4030	Status post - ASD repair, Patch

STATUS POST SEPTAL DEFECTS (CONTINUED)

ASD (continued)

4040	Status post - ASD repair, Device
6110	Status post - ASD repair, Patch + PAPVC repair
4050	Status post - ASD, Common atrium (single atrium), Septation
4060	Status post - ASD creation/enlargement
4070	Status post - ASD partial closure
4080	Status post - Atrial septal fenestration
4085	Status post - Atrial fenestration closure

VSD

4100	Status post - VSD repair, Primary closure
4110	Status post - VSD repair, Patch
4120	Status post - VSD repair, Device
4130	Status post - VSD, Multiple, Repair
4140	Status post - VSD creation/enlargement
4150	Status post - Ventricular septal fenestration

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Attachment E

Congenital Cardiac Diagnosis Codes¹

AV Canal

- 4170 Status post - AVC (AVSD) repair, Complete (CAVSD)
- 4180 Status post - AVC (AVSD) repair, Intermediate (Transitional)
- 4190 Status post - AVC (AVSD) repair, Partial (Incomplete) (PAVSD)
- 6300 Status post - Valvuloplasty, Common atrioventricular valve
- 6250 Status post - Valvuloplasty converted to valve replacement in the same operation, Common atrioventricular valve
- 6230 Status post - Valve replacement, Common atrioventricular valve

AP Window

- 4210 Status post - AP window repair
- 4220 Status post - Pulmonary artery origin from ascending aorta (hemitruncus) repair

Truncus Arteriosus

- 4230 Status post - Truncus arteriosus repair
- 4240 Status post - Valvuloplasty, Truncal valve
- 6290 Status post - Valvuloplasty converted to valve replacement in the same operation, Truncal valve
- 4250 Status post - Valve replacement, Truncal valve
- 6220 Status post - Truncus + Interrupted aortic arch repair (IAA) repair

STATUS POST

PULMONARY VENOUS ANOMALIES

Partial Anomalous Pulmonary Venous Connection

- 4260 Status post - PAPVC repair
- 4270 Status post - PAPVC, Scimitar, Repair
- 6120 Status post - PAPVC repair, Baffle redirection to left atrium with systemic vein translocation (Warden) (SVC sewn to right atrial appendage)

Total Anomalous Pulmonary Venous Connection

- 4280 Status post - TAPVC repair
- 6200 Status post - TAPVC repair + Shunt - systemic-to-pulmonary

STATUS POST

COR TRIARIATUM

- 4290 Status post - Cor triatriatum repair

STATUS POST

PULMONARY VENOUS STENOSIS

- 4300 Status post - Pulmonary venous stenosis repair

STATUS POST

SYSTEMIC VENOUS ANOMALIES

Anomalous Systemic Venous Connection

- 4310 Status post - Atrial baffle procedure (non-Mustard, non-Senning)
- 4330 Status post - Anomalous systemic venous connection repair

Systemic Venous Obstruction

- 4340 Status post - Systemic venous stenosis repair

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST RIGHT HEART LESIONS

Tetralogy of Fallot

- 4350 Status post - TOF repair, No ventriculotomy
- 4360 Status post - TOF repair, Ventriculotomy, Nontransannular patch
- 4370 Status post - TOF repair, Ventriculotomy, Transannular patch
- 4380 Status post - TOF repair, RV-PA conduit
- 4390 Status post - TOF - AVC (AVSD) repair
- 4400 Status post - TOF - Absent pulmonary valve repair

Pulmonary Atresia

- 4420 Status post - Pulmonary atresia - VSD (including TOF, PA) repair
- 6700 Status post - Pulmonary atresia - VSD – MAPCA repair, Complete single stage repair (1-stage that includes bilateral pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
- 6710 Status post - Pulmonary atresia - VSD – MAPCA repair, Status post prior complete unifocalization (includes VSD closure + RV to PA connection [with or without conduit])
- 6720 Status post - Pulmonary atresia - VSD – MAPCA repair, Status post prior incomplete unifocalization (includes completion of pulmonary unifocalization + VSD closure + RV to PA connection [with or without conduit])
- 6730 Status post - Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Complete unifocalization (all usable MAPCA[s] are incorporated)
- 6740 Status post - Unifocalization MAPCA(s), Bilateral pulmonary unifocalization - Incomplete unifocalization (not all usable MAPCA[s] are incorporated)
- 6750 Status post - Unifocalization MAPCA(s), Unilateral pulmonary unifocalization
- 4440 Status post - Unifocalization MAPCA(s)
- 4450 Status post - Occlusion MAPCA(s)

Tricuspid Valve Disease and Ebstein's Anomaly

- 4460 Status post - Valvuloplasty, Tricuspid
- 6280 Status post - Valvuloplasty converted to valve replacement in the same operation, Tricuspid
- 4465 Status post - Ebstein's repair
- 4470 Status post - Valve replacement, Tricuspid (TVR)
- 4480 Status post - Valve closure, Tricuspid (exclusion, univentricular approach)
- 4490 Status post - Valve excision, Tricuspid (without replacement)
- 4500 Status post - Valve surgery, Other, Tricuspid

RVOT Obstruction, IVS Pulmonary Stenosis

- 4510 Status post - RVOT procedure
- 4520 Status post - 1 1/2 ventricular repair
- 4530 Status post - PA, reconstruction (plasty), Main (trunk)
- 4540 Status post - PA, reconstruction (plasty), Branch, Central (within the hilar bifurcation)
- 4550 Status post - PA, reconstruction (plasty), Branch, Peripheral (at or beyond the hilar bifurcation)
- 4570 Status post - DCRV repair

STATUS POST RIGHT HEART LESIONS (CONTINUED)

Pulmonary Valve Disease

- 4590 Status post - Valvuloplasty, Pulmonic
- 6270 Status post - Valvuloplasty converted to valve replacement in the same operation, Pulmonic
- 4600 Status post - Valve replacement, Pulmonic (PVR)
- 4630 Status post - Valve excision, Pulmonary (without replacement)
- 4640 Status post - Valve closure, Semilunar
- 4650 Status post - Valve surgery, Other, Pulmonic

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST CONDUIT OPERATIONS

Conduit Operations

- 4610 Status post - Conduit placement, RV to PA
- 4620 Status post - Conduit placement, LV to PA
- 5774 Status post - Conduit placement, Ventricle to aorta
- 5772 Status post - Conduit placement, Other

Conduit Stenosis/ Insufficiency

- 4580 Status post - Conduit reoperation

STATUS POST LEFT HEART LESIONS

Aortic Valve Disease

- 4660 Status post - Valvuloplasty, Aortic
- 6240 Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic
- 6310 Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross procedure
- 6320 Status post - Valvuloplasty converted to valve replacement in the same operation, Aortic – with Ross-Konno procedure
- 4670 Status post - Valve replacement, Aortic (AVR)
- 4680 Status post - Valve replacement, Aortic (AVR), Mechanical
- 4690 Status post - Valve replacement, Aortic (AVR), Bioprosthetic
- 4700 Status post - Valve replacement, Aortic (AVR), Homograft
- 4715 Status post - Aortic root replacement, Bioprosthetic
- 4720 Status post - Aortic root replacement, Mechanical
- 4730 Status post - Aortic root replacement, Homograft
- 4735 Status post - Aortic root replacement, Valve sparing
- 4740 Status post - Ross procedure
- 4750 Status post - Konno procedure
- 4760 Status post - Ross-Konno procedure
- 4770 Status post - Other annular enlargement procedure
- 4780 Status post - Aortic stenosis, Subvalvar, Repair
- 6100 Status post - Aortic stenosis, Subvalvar, Repair, With myectomy for IHSS
- 4790 Status post - Aortic stenosis, Supravalvar, Repair
- 4800 Status post - Valve surgery, Other, Aortic

Sinus of Valsalva Aneurysm

- 4810 Status post - Sinus of Valsalva, Aneurysm repair

LV to Aorta Tunnel

- 4820 Status post - LV to aorta tunnel repair

Mitral Valve Disease

- 4830 Status post - Valvuloplasty, Mitral
- 6260 Status post - Valvuloplasty converted to valve replacement in the same operation, Mitral
- 4840 Status post - Mitral stenosis, Supravalvar mitral ring repair
- 4850 Status post - Valve replacement, Mitral (MVR)
- 4860 Status post - Valve surgery, Other, Mitral

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST

LEFT HEART LESIONS

Hypoplastic Left Heart

4870	Status post - Norwood procedure
4880	Status post - HLHS biventricular repair
6755	Status post - Conduit insertion right ventricle to pulmonary artery + Intraventricular tunnel left ventricle to neoaorta + Arch reconstruction (Rastelli and Norwood type arch reconstruction) (Yasui)
6160	Status post - Hybrid Approach "Stage 1", Application of RPA & LPA bands
6170	Status post - Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA)
6180	Status post - Hybrid Approach "Stage 1", Stent placement in arterial duct (PDA) + application of RPA & LPA bands
6140	Status post - Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Aortic arch repair (Norwood [Stage 1] + Superior Cavopulmonary anastomosis(es) + PA Debanding)
6150	Status post - Hybrid approach "Stage 2", Aortopulmonary amalgamation + Superior Cavopulmonary anastomosis(es) + PA Debanding + Without aortic arch repair
6760	Status post - Hybrid Approach, Transcardiac balloon dilation
6770	Status post - Hybrid Approach, Transcardiac transcatheter device placement

STATUS POST

CARDIOMYOPATHY

1590	Status post - Transplant, Heart
1610	Status post - Transplant, Heart and lung
4910	Status post - Partial left ventriculectomy (LV volume reduction surgery) (Batista)

STATUS POST

PERICARDIAL DISEASE

4920	Status post - Pericardial drainage procedure
4930	Status post - Pericardiectomy
4940	Status post - Pericardial procedure, Other

STATUS POST

SINGLE VENTRICLE

4950	Status post - Fontan, Atrio-pulmonary connection
4960	Status post - Fontan, Atrio-ventricular connection
4970	Status post - Fontan, TCPC, Lateral tunnel, Fenestrated
4980	Status post - Fontan, TCPC, Lateral tunnel, Nonfenestrated
5000	Status post - Fontan, TCPC, External conduit, Fenestrated
5010	Status post - Fontan, TCPC, External conduit, Nonfenestrated
6780	Status post - Fontan, TCPC, Intra/extracardiac conduit, Fenestrated
6790	Status post - Fontan, TCPC, Intra/extracardiac conduit, Nonfenestrated
5025	Status post - Fontan revision or conversion (Re-do Fontan)
5030	Status post - Fontan, Other
6340	Status post - Fontan + Atrioventricular valvuloplasty
5035	Status post - Ventricular septation

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST

TRANSPOSITION OF THE GREAT ARTERIES

Congenitally Corrected TGA

- 5050 Status post - Congenitally corrected TGA repair, Atrial switch and ASO (double switch)
- 5060 Status post - Congenitally corrected TGA repair, Atrial switch and Rastelli
- 5070 Status post - Congenitally corrected TGA repair, VSD closure
- 5080 Status post - Congenitally corrected TGA repair, VSD closure and LV to PA conduit
- 5090 Status post - Congenitally corrected TGA repair, Other

Transposition of the Great Arteries

- 5110 Status post - Arterial switch operation (ASO)
- 5120 Status post - Arterial switch operation (ASO) and VSD repair
- 5123 Status post - Arterial switch procedure + Aortic arch repair
- 5125 Status post - Arterial switch procedure and VSD repair + Aortic arch repair
- 5130 Status post – Senning
- 5140 Status post – Mustard
- 5145 Status post - Atrial baffle procedure, Mustard or Senning revision
- 5150 Status post – Rastelli
- 5160 Status post – REV
- 6190 Status post - Aortic root translocation over left ventricle (Including Nikaidoh procedure)
- 6210 Status post – TGA, Other procedures (Kawashima, LV-PA conduit, other)

STATUS POST

DORV

- 5180 Status post - DORV, Intraventricular tunnel repair

STATUS POST

DOLV

- 5200 Status post - DOLV repair

STATUS POST

THORACIC ARTERIES AND VEINS

Coarctation of Aorta and Aortic Arch Hypoplasia

- 5210 Status post - Coarctation repair, End to end
- 5220 Status post - Coarctation repair, End to end, Extended
- 5230 Status post - Coarctation repair, Subclavian flap
- 5240 Status post - Coarctation repair, Patch aortoplasty
- 5250 Status post - Coarctation repair, Interposition graft
- 5260 Status post - Coarctation repair, Other
- 5275 Status post - Coarctation repair + VSD repair
- 5280 Status post - Aortic arch repair
- 5285 Status post - Aortic arch repair + VSD repair

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST THORACIC ARTERIES AND VEINS (CONTINUED)

Coronary Artery Anomalies

- 5290 Status post - Coronary artery fistula ligation
- 5291 Status post - Anomalous origin of coronary artery from pulmonary artery repair
- 5300 Status post - Coronary artery bypass
- 5305 Status post - Anomalous aortic origin of coronary artery from aorta (AAOCA) repair
- 5310 Status post - Coronary artery procedure, Other

Interrupted Arch

- 5320 Status post - Interrupted aortic arch repair

Patent Ductus Arteriosus

- 5330 Status post - PDA closure, Surgical
- 5340 Status post - PDA closure, Device

Vascular Rings and Slings

- 5360 Status post - Vascular ring repair
- 5365 Status post - Aortopexy
- 5370 Status post - Pulmonary artery sling repair

Aortic Aneurysm

- 5380 Status post - Aortic aneurysm repair

Aortic Dissection

- 5390 Status post - Aortic dissection repair

STATUS POST THORACIC AND MEDIASTINAL DISEASE

Lung Disease

- 5400 Status post - Lung biopsy
- 1600 Status post - Transplant, Lung(s)
- 5420 Status post - Lung procedure, Other

Tracheal Stenosis

- 5440 Status post - Tracheal procedure

Chest Wall

- 6800 Status post - Muscle flap, Trunk (i.e., intercostal, pectus, or serratus muscle)
- 6810 Status post - Muscle flap, Trunk (i.e. latissimus dorsi)
- 6820 Status post - Removal, Sternal wire
- 6830 Status post - Rib excision, Complete
- 6840 Status post - Rib excision, Partial
- 6850 Status post - Sternal fracture - open treatment
- 6860 Status post - Sternal resection, Radical resection of sternum
- 6870 Status post - Sternal resection, Radical resection of sternum with mediastinal lymphadenectomy
- 6880 Status post - Tumor of chest wall - Excision including ribs
- 6890 Status post - Tumor of chest wall - Excision including ribs, With reconstruction
- 6900 Status post - Tumor of soft tissue of thorax – Excision of deep subfascial or intramuscular tumor
- 6910 Status post - Tumor of soft tissue of thorax – Excision of subcutaneous tumor
- 6920 Status post - Tumor of soft tissue of thorax – Radical resection

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST

THORACIC AND MEDIASTINAL DISEASE (CONT.)

Neck

- 6930 Status post - Hyoid myotomy and suspension
- 6940 Status post - Muscle flap, Neck
- 6950 Status post - Procedure on neck
- 6960 Status post - Tumor of soft tissue of neck - Excision of deep subfascial or intramuscular tumor
- 6970 Status post - Tumor of soft tissue of neck - Excision of subcutaneous tumor
- 6980 Status post - Tumor of soft tissue of neck – Radical resection

Pectus Excavatum, Carinatum

- 6990 Status post - Pectus bar removal
- 7005 Status post - Pectus bar repositioning
- 7010 Status post - Pectus repair, Minimally invasive repair (Nuss), With thoracoscopy
- 7020 Status post - Pectus repair, Minimally invasive repair (Nuss), Without thoracoscopy
- 7030 Status post - Pectus repair, Open repair

Thoracic Outlet

- 7040 Status post - Division of scalenus anticus, With resection of a cervical rib
- 7050 Status post - Division of scalenus anticus, Without resection of a cervical rib
- 7060 Status post - Rib excision, Excision of cervical rib
- 7070 Status post - Rib excision, Excision of cervical rib, With sympathectomy
- 7080 Status post - Rib excision, Excision of first rib
- 7090 Status post - Rib excision, Excision of first rib, With sympathectomy

Thorax

- 7100 Status post - Procedure on thorax

STATUS POST

ELECTROPHYSIOLOGICAL

- 5450 Status post - Pacemaker implantation, Permanent
- 5460 Status post - Pacemaker procedure
- 6350 Status post - Explantation of pacing system
- 5470 Status post - ICD (AICD) implantation
- 5480 Status post - ICD (AICD) ([automatic] implantable cardioverter defibrillator) procedure
- 5490 Status post - Arrhythmia surgery - atrial, Surgical Ablation
- 5500 Status post - Arrhythmia surgery - ventricular, Surgical Ablation

STATUS POST

INTERVENTIONAL CARDIOLOGY PROCEDURES

- 6500 Status post - Cardiovascular catheterization procedure, Diagnostic
- 6520 Status post - Cardiovascular catheterization procedure, Diagnostic, Angiographic data obtained
- 6550 Status post - Cardiovascular catheterization procedure, Diagnostic, Electrophysiology alteration
- 6540 Status post - Cardiovascular catheterization procedure, Diagnostic, Hemodynamic alteration
- 6510 Status post - Cardiovascular catheterization procedure, Diagnostic, Hemodynamic data obtained
- 6530 Status post - Cardiovascular catheterization procedure, Diagnostic, Transluminal test occlusion
- 6410 Status post - Cardiovascular catheterization procedure, Therapeutic
- 6670 Status post - Cardiovascular catheterization procedure, Therapeutic, Adjunctive therapy
- 6570 Status post - Cardiovascular catheterization procedure, Therapeutic, Balloon dilation

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST

INTERVENTIONAL CARDIOLOGY PROCEDURES (CONT)

6590	Status post - Cardiovascular catheterization procedure, Therapeutic, Balloon valvotomy
6600	Status post - Cardiovascular catheterization procedure, Therapeutic, Coil implantation
6610	Status post - Cardiovascular catheterization procedure, Therapeutic, Device implantation
6640	Status post - Cardiovascular catheterization procedure, Therapeutic, Perforation (establishing interchamber and/or intervessel communication)
6580	Status post - Cardiovascular catheterization procedure, Therapeutic, Septostomy
6620	Status post - Cardiovascular catheterization procedure, Therapeutic, Stent insertion
6630	Status post - Cardiovascular catheterization procedure, Therapeutic, Stent re-dilation
6650	Status post - Cardiovascular catheterization procedure, Therapeutic, Transcatheter Fontan completion
6660	Status post - Cardiovascular catheterization procedure, Therapeutic, Transcatheter implantation of valve
6690	Status post - Cardiovascular catheterization procedure, Therapeutic Electrophysiological ablation

STATUS POST

PALLIATIVE PROCEDURES

5590	Status post - Shunt, Systemic to pulmonary, Modified Blalock-Taussig Shunt (MBTS)
5600	Status post - Shunt, Systemic to pulmonary, Central (shunt from aorta)
5610	Status post - Shunt, Systemic to pulmonary, Other
5630	Status post - Shunt, Ligation and takedown
6095	Status post - Shunt, Reoperation
5640	Status post - PA banding (PAB)
5650	Status post - PA debanding
5660	Status post - Damus-Kaye-Stansel procedure (DKS) (creation of AP anastomosis without arch reconstruction)
5670	Status post - Bidirectional cavopulmonary anastomosis (BDCPA) (bidirectional Glenn)
5680	Status post - Glenn (unidirectional cavopulmonary anastomosis) (unidirectional Glenn)
5690	Status post - Bilateral bidirectional cavopulmonary anastomosis (BBDCPA) (bilateral bidirectional Glenn)
5700	Status post - HemiFontan
6330	Status post - Superior cavopulmonary anastomosis(es) (Glenn or HemiFontan) + Atrioventricular valvuloplasty
6130	Status post - Superior Cavopulmonary anastomosis(es) + PA reconstruction
5710	Status post - Palliation, Other

STATUS POST

MECHANICAL SUPPORT

6360	Status post - ECMO cannulation
6370	Status post - ECMO decannulation
5910	Status post - ECMO procedure
5900	Status post - Intraaortic balloon pump (IABP) insertion
5920	Status post - Right/left heart assist device procedure
6390	Status post - VAD explantation
6380	Status post - VAD implantation

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Attachment E

Congenital Cardiac Diagnosis Codes¹

STATUS POST

ANESTHETIC PROCEDURES

- 6420 Status post - Echocardiography procedure, Sedated transesophageal echocardiogram
- 6430 Status post - Echocardiography procedure, Sedated transthoracic echocardiogram
- 6435 Status post - Non-cardiovascular, Non-thoracic procedure on cardiac patient with cardiac anesthesia
- 6440 Status post - Radiology procedure on cardiac patient, Cardiac Computerized Axial Tomography (CT Scan)
- 6450 Status post - Radiology procedure on cardiac patient, Cardiac Magnetic Resonance Imaging (MRI)
- 6460 Status post - Radiology procedure on cardiac patient, Diagnostic radiology
- 6470 Status post - Radiology procedure on cardiac patient, Non-Cardiac Computerized Tomography (CT) on cardiac patient
- 6480 Status post - Radiology procedure on cardiac patient, Non-cardiac Magnetic Resonance Imaging (MRI) on cardiac patient
- 6490 Status post - Radiology procedure on cardiac patient, Therapeutic radiology

STATUS POST

MISCELLANEOUS PROCEDURES

- 5720 Status post - Aneurysm, Ventricular, Right, Repair
- 5730 Status post - Aneurysm, Ventricular, Left, Repair
- 5740 Status post - Aneurysm, Pulmonary artery, Repair
- 5760 Status post - Cardiac tumor resection
- 5780 Status post - Pulmonary AV fistula repair/occlusion
- 5790 Status post - Ligation, Pulmonary artery
- 5802 Status post - Pulmonary embolectomy, Acute pulmonary embolus
- 5804 Status post - Pulmonary embolectomy, Chronic pulmonary embolus
- 5810 Status post - Pleural drainage procedure
- 5820 Status post - Pleural procedure, Other
- 5830 Status post - Ligation, Thoracic duct
- 5840 Status post - Decortication
- 5850 Status post - Esophageal procedure
- 5860 Status post - Mediastinal procedure
- 5870 Status post - Bronchoscopy
- 5880 Status post - Diaphragm plication
- 5890 Status post - Diaphragm procedure, Other
- 5930 Status post - VATS (video-assisted thoracoscopic surgery)
- 5940 Status post - Minimally invasive procedure
- 5950 Status post - Bypass for noncardiac lesion
- 5960 Status post - Delayed sternal closure
- 5970 Status post - Mediastinal exploration
- 5980 Status post - Sternotomy wound drainage
- 5990 Status post - Thoracotomy, Other
- 6000 Status post - Cardiotomy, Other
- 6010 Status post - Cardiac procedure, Other
- 6020 Status post - Thoracic and/or mediastinal procedure, Other
- 6030 Status post - Peripheral vascular procedure, Other
- 6040 Status post - Miscellaneous procedure, Other

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Attachment F – Stress Test Results Definition and Clarification

Use the codes and descriptions below to indicate the stress test results based on the type of performed.

Standard Exercise Stress Test

1. Negative: A stress test is negative when the electrocardiogram (ECG) is normal or not suggestive of ischemia. ECGs are not suggestive of ischemia when there is <1 mm of horizontal or downsloping ST-segment depression or elevation for $\geq 60 - 80$ milliseconds after the end of the QRS complex, either during or after exercise.

Positive: A stress test is positive when the electrocardiogram (ECG) suggests ischemia. ECGs suggestive of ischemia can be described as having ≥ 1 mm of horizontal or downsloping ST-segment depression or elevation for $\geq 60-80$ milliseconds after the end of the QRS complex, either during or after exercise. It is also suggestive of ischemia if the patient had symptoms of ischemia (i.e. chest pain), arrhythmias, and/or a fall in blood pressure during or immediately after the procedure. If more than one study was performed with conflicting results and one study suggested coronary artery disease, code positive.

2. Positive, Low Risk: Low-risk treadmill score (score ≥ 5)

3. Positive Intermediate Risk: Intermediate risk treadmill score ($-11 < \text{score} < 5$).

4. Positive, High Risk: High risk treadmill score (score ≤ -11).

5. Positive, Risk Unknown: Positive as above, but risk is unknown.

Stress Echo Imaging Results

1. Negative: The imaging study was normal. There was no change in wall motion during the procedure.

Positive: The imaging study was abnormal. There were changes that reflected wall motion abnormalities during the procedure.

2. Positive Low Risk: (any of the following)

a. Low-risk treadmill score (score ≥ 5).

b. Normal stress echocardiographic wall motion or no change of limiting resting wall motion abnormalities during stress.*

*Although the published data are limited, patients with these findings will probably not be at low risk in the presence of either a high-risk treadmill score or severe resting left ventricular dysfunction (LVEF $< 35\%$).

Stress Echo Imaging Results (continued)

- 3. Positive Intermediate Risk:** (any of the following)
 - a. Mild/moderate resting left ventricular dysfunction (LVEF =35% to 49%)
 - b. Intermediate-risk treadmill score (-11 <score<5).
 - c. Limited stress echocardiographic ischemia with a wall motion abnormality only at higher doses of dobutamine involving less than or equal to two segments
- 4. Positive, High Risk:** (any of the following)
 - a. Severe resting left ventricular dysfunction (LVEF <35%).
 - b. High-risk treadmill score (score <= -11).
 - c. Severe exercise left ventricular dysfunction (exercise LVEF <35%)
 - d. Echocardiographic wall motion abnormality (involving greater than two segments) developing at low dose of dobutamine (<=10 mg/kg/min) or at a low heart rate (<120 beats/min).
 - e. Stress echocardiographic evidence of extensive ischemia.
- 5. Positive, Risk Unknown:** Positive as above, but risk is unknown.

SPECT MPI Imaging Results and Stress Test With CMR :

1. Negative: The results of the imaging study revealed no myocardial perfusion defects.

Positive: The result of the imaging study revealed one or more stress-induced myocardial perfusion defects.

- 2. Positive, Low Risk:** (any of the following)
 - a. Low-risk treadmill score (score >=5).
 - b. Normal or small myocardial perfusion defect at rest or with stress.*

*Although the published data are limited, patients with these findings will probably not be at low risk in the presence of either a high-risk treadmill score or severe resting left ventricular dysfunction (LVEF <35%).

- 3. Positive, Intermediate Risk:** (any of the following)
 - a. Mild/moderate resting left ventricular dysfunction (LVEF=35% to 49%).
 - b. Intermediate-risk treadmill score (-11 < score <5)
 - c. Stress-induced moderate perfusion defect without LV dilation or increased lung intake (thallium-201)
- 4. Positive, High Risk:** (any of the following)
 - a. Severe resting left ventricular dysfunction (LVEF <35%)
 - b. High-risk treadmill score (score <=-11)
 - c. Severe exercise left ventricular dysfunction (exercise LVEF <35%)
 - d. Stress-induced large perfusion defect (particularly if anterior)
 - e. Stress-induced multiple perfusion defects of moderate size
 - f. Large, fixed perfusion defect with LV dilation or increased lung uptake (thallium-201)
 - g. Stress-induced moderate perfusion defect with LV dilation or increased lung uptake (thallium-201)
- 5. Positive, Risk Unknown:** Positive as above, but risk is unknown.

For All Test Types:

- 6. Indeterminate:** The results of the study were indeterminate or uninterpretable. They cannot be considered positive or negative.
- 7. Unavailable:** The results of the study were 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.