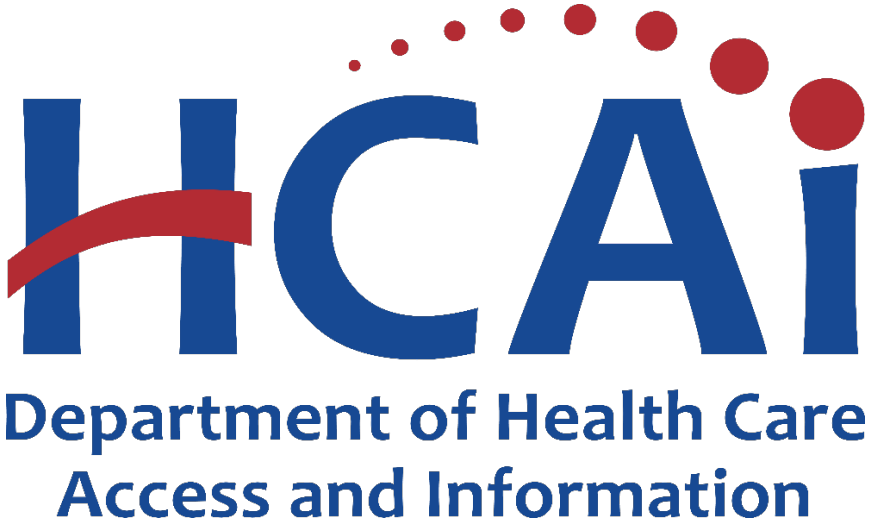


California Cardiovascular Outcomes Reporting Program

Data Abstractor Training Manual

Version 8.4

Document Revision History

Date	Version	Description
3/2/2020	8.1	Training Manual Release
4/8/2020	8.2	Added COVID-19 Data Element and valid values for Country.
5/11/2020	8.3	Removed Patient address data elements.
6/9/2020	8.4	Updated definitions to be in synch with the STS Training Manual release. https://www.sts.org/sites/default/files/Training%20Manual%20V4_20_2%20July%202020.pdf
7/28/2020	8.4	Finalized.
1/6/2021	8.4	Added STS clarifications from their July 2020, August 2020, September 2020, October 2020, November 2020, December 2020, and January 2021 training manual updates: https://www.sts.org/sites/default/files/ACSD_Training%20Manual_V4.20_2_September2020_0.pdf https://www.sts.org/sites/default/files/documents/Training%20Manual%20V4_20_2%20October%202020.pdf https://www.sts.org/sites/default/files/ACSD_Training%20Manual%20_V4_20_2%20Nov2020.pdf https://www.sts.org/sites/default/files/Training%20Manual%20ACSD%20V4_20_2%20December%202020.pdf https://www.sts.org/sites/default/files/Training%20Manual%20V4_20_2%20January%202021.pdf
3/8/2021	8.4	Added STS Clarifications for March 2021. There were no February 2021 STS clarifications that impacted CCORP. https://www.sts.org/sites/default/files/ACSD%20Training%20Manual%20V4_20_2%20March%202021.pdf Documentation on p.4 that report periods are by hospital discharge date.
4/14/2021	8.4	Added STS clarifications for April 2021. https://www.sts.org/sites/default/files/ACSD%20Training%20Manual%20V4_20_2%20April%202021.pdf
6/4/2021	8.4	Added STS clarifications for June 2021. There were no May 2021 STS clarifications that impacted CCORP. https://www.sts.org/sites/default/files/ACSD%20Training%20Manual%20V4_20_2%20June2021.pdf

Date	Version	Description
7/19/2021	8.4	Added STS clarifications for July 2021 https://www.sts.org/sites/default/files/Training%20Manual%20V4_20_2%20July2021%20(4).pdf
8/5/2021	8.4	Added STS clarifications for August 2021 https://www.sts.org/sites/default/files/ACSD%20Training%20Manual%20V4_20_2%20Aug2021.pdf
10/5/2021	8.4	Added STS clarifications for September and October 2021 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Sept2021.pdf https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Oct2021.pdf Updated the department name and logo from OSHPD to Department of Health Care Access & Information (HCAI)
11/1/2021	8.4	Added STS clarifications for November 2021 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Nov2021).pdf
12/2/2021	8.4	Added STS Clarifications for December 2021 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Dec2021.pdf
2/2/2022	8.4	Added STS Clarifications for January and February 2022 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Feb%202022.pdf
3/3/2022	8.4	Added STS Clarifications for March 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20March%202022.pdf
4/6/2022	8.4	Added STS Clarifications for April 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20April%202022.pdf
5/2/2022	8.4	Added STS Clarifications for May 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20May%202022.pdf
6/3/2022	8.4	Added STS Clarifications for June 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20June%202022.pdf.
7/7/2022	8.4	Added STS Clarifications for July 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20July%202022.pdf
8/3/2022	8.4	Added STS clarifications for August 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20Aug%202022.pdf

Date	Version	Description
9/6/2022	8.4	Added STS clarifications for September 2022 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Sept%202022%20.pdf
10/4/2022	8.4	Added STS clarifications for October 2022 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD%20Training%20Manual%20V4_20_2%20Oct%202022%20.pdf
11/1/2022	8.4	Added STS clarifications for November 2022 https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20Nov2022%20.pdf
1/6/2023	8.4	Added STS clarifications for January 2023. There were no STS clarifications that applied to CCORP data elements in Dec 2022. https://www.sts.org/sites/default/files/Database%20Manuals/Training%20Manual%20V4_20_2%20Jan2023%20.pdf
3/3/2023	8.4	No STS clarifications for February or March 2023. However, added a Chronic Lung Disease clarification not listed in the STS training manual, but emailed to CCORP from STS. The clarification is in purple.
4/13/2023	8.4	Added STS clarifications for April 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_TrainingManual_V4_20_2%20April2023%20.pdf
5/9/2023	8.4	Added STS clarifications for May 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_May2023.pdf
6/2/2023	8.4	Added STS clarifications for June 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_June2023.pdf
7/7/2023	8.4	Added STS clarifications for July 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_July2023.pdf
8/1/2023	8.4	Added STS clarifications for August 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Aug2023.pdf
9/5/2023	8.4	Added STS clarifications for September 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Sept2023.pdf
10/2/2023	8.4	Added STS clarifications for October 2023. https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Oct2023%20.pdf

Date	Version	Description
11/1/2023	8.4	Added STS clarifications for November 2023 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Nov2023.pdf
12/4/2023	8.4	Added STS clarifications for December 2023 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Dec2023%20.pdf
1/5/2024	8.4	Added STS Clarifications for January 2024 https://www.sts.org/sites/default/files/Database%20Manuals/ACSD_v4.20.2_TrainingManual_Jan2024.pdf New clarifications are displayed in green.

CCORP

Department of Health Care Access & Information

CORC Hotline: (916) 326-3865

CCORP@hcai.ca.gov

Data Elements in Export Order

Effective with July 1, 2020 Discharges

CCORP Data Submission Report Periods are by Hospital Discharge Date

Example- Surgery Date 6/29/2020

Hospital Discharge Date 7/10/2020

would be reported in the July-Dec 2020 report period.

This is not a new instruction, but rather a clarification.

Overview: DATA ELEMENT EXPORT ORDER

Data Element	Classification	Origin
1. Medical Record Number	Demographics	STS
2. Type of CABG	Operative	Non-STS
3. Date of Surgery	Hospitalization	STS
4. Date of Birth	Demographics	STS
5. Patient Age	Demographics	STS
6. Sex	Demographics	STS
7. Primary Payor	Hospitalization	STS
8. Secondary (Supplemental) Payor	Hospitalization	STS
9. Race Documented	Demographics	STS
10. Race – White	Demographics	STS
11. Race – Black/African American	Demographics	STS
12. Race – Asian	Demographics	STS
13. Race – American Indian/ Alaskan Native	Demographics	STS
14. Race – Native Hawaiian/ Pacific Islander	Demographics	STS
15. Race – Other	Demographics	STS
16. Hispanic or Latino or Spanish Ethnicity	Demographics	STS
17. Hospital Discharge Date	Discharge/ Mortality	STS
18. Status at Hospital Discharge	Discharge/ Mortality	STS
19. Patient Transfer to Another Acute Care Hospital	Discharge/ Mortality	STS
20. Patient Transfer to Acute Care Hospital-Date	Discharge/ Mortality	STS
21. Mortality Date	Discharge/ Mortality	STS
22. Mort – Status at 30 Days After Surgery (either discharged or in-hospital)	Discharge/ Mortality	STS
Responsible Surgeon Name (3 separate fields)	Operative	Non-STS
23a. Surgeon Last Name 23b. Surgeon First Name 23c. Surgeon Middle Initial	Operative Operative Operative	Non-STS Non-STS Non-STS
24.Responsible Surgeon CA License Number	Operative	Non-STS
25. Height (cm)	Risk Factors	STS
26. Weight (kg)	Risk Factors	STS
27. Diabetes	Risk Factors	STS
28. Diabetes Control	Risk Factors	STS
29. Dialysis	Risk Factors	STS

Data Element	Classification	Origin
30. Hypertension	Risk Factors	STS
31. Endocarditis	Risk Factors	STS
32. Infectious Endocarditis Type	Risk Factors	STS
33. Chronic Lung Disease	Risk Factors	STS
34. Pneumonia	Risk Factors	STS
35. Liver Disease	Risk Factors	STS
36. Immunocompromised Present	Risk Factors	STS
37. COVID-19	Risk Factors	STS
38. Cancer within 5 Years	Risk Factors	STS
39. Peripheral Artery Disease	Risk Factors	STS
40. Cerebrovascular Disease	Risk Factors	STS
41. Prior CVA	Risk Factors	STS
42. Prior CVA When	Risk Factors	STS
43. CVD TIA	Risk Factors	STS
44. CVD – Carotid Stenosis	Risk Factors	STS
45. CVD Carotid Stenosis – Right	Risk Factors	STS
46. CVD Carotid Stenosis – Left	Risk Factors	STS
47. CVD Prior Carotid Surgery	Risk Factors	STS
48. Last Creatinine Level	Risk Factors	STS
49. Total Albumin	Risk Factors	STS
50. Total Bilirubin	Risk Factors	STS
51. INR	Risk Factors	STS
52. Sodium	Risk Factors	STS
53. Previous CABG	Previous Cardiac Interventions	STS
54. Previous Valve	Previous Cardiac Interventions	STS
55. Previous PCI	Previous Cardiac Interventions	STS
56. Previous PCI – Interval	Previous Cardiac Interventions	STS
57. Prior MI	Preoperative Cardiac Status	STS
58. MI - When	Preoperative Cardiac Status	STS
59. Heart Failure	Preoperative Cardiac Status	STS
60. Heart Failure Timing	Preoperative Cardiac Status	STS
61. Classification – NYHA	Preoperative Cardiac Status	STS
62. Cardiogenic Shock	Preoperative Cardiac Status	STS
63. Resuscitation	Preoperative Cardiac Status	STS
64. Cardiac Arrhythmia	Preoperative Cardiac Status	STS

Data Element	Classification	Origin
65. Cardiac Arrhythmia – Vtach/VFib	Preoperative Cardiac Status	STS
66. Cardiac Arrhythmia - AFlutter	Preoperative Cardiac Status	STS
67. Cardiac Arrhythmia – Third Degree Heart Block	Preoperative Cardiac Status	STS
68. Cardiac Arrhythmia – Atrial Fibrillation	Preoperative Cardiac Status	STS
69. Atrial Fibrillation- Type	Preoperative Cardiac Status	STS
70. Warfarin Use (within 5 days)	Preoperative Medications	STS
71. Coronary Anatomy/Disease Known	Hemodynamics / Cath / Echo	STS
72. Number Diseased Vessels	Hemodynamics / Cath / Echo	STS
73. Left Main Stenosis>= 50% Known	Hemodynamics / Cath / Echo	STS
74. Hemo Data EF Done	Hemodynamics / Cath / Echo	STS
75. Hemo Data EF	Hemodynamics / Cath / Echo	STS
76. PA Systolic Pressure Measured	Hemodynamics / Cath / Echo	STS
77. PA Systolic Pressure	Hemodynamics / Cath / Echo	STS
78. Mitral Valve Regurgitation	Hemodynamics / Cath / Echo	STS
79. Mitral Regurgitation	Hemodynamics / Cath / Echo	STS
80. Incidence	Operative	STS
81. Status	Operative	STS
82. Urgent/ Emergent/ Emergent Salvage Reason	Operative	STS
83. Perfusion Strategy	Operative	STS
84. CPB Utilization Combination Plan	Operative	STS
85. Internal Mammary Artery Used	Coronary Bypass	STS
86. Reason for No IMA	Coronary Bypass	STS
87. Valve	Operative	STS
88. Aortic Valve	Operative	STS
89. Aortic Valve Procedure	Valve Surgery	STS
90. Mitral Valve	Operative	STS
91. Mitral Valve Procedure	Valve Surgery	STS
92. Tricuspid Valve	Operative	STS
93. Pulmonic Valve	Operative	STS
94. Reoperation for Bleed/Tamponade	Postoperative Events	STS
95. Unplanned Coronary Artery Intervention	Postoperative Events	STS
96. Unplanned Coronary Artery Intervention-Vessel	Postoperative Events	STS
97. Deep Sternal	Postoperative Events	STS

Data Element	Classification	Origin
98. Neuro - Stroke Permanent	Postoperative Events	STS
99. Pulm – Ventilation Prolonged	Postoperative Events	STS
100. Renal – Renal Failure	Postoperative Events	STS
101. Renal – Dialysis Requirement	Postoperative Events	STS
102. Other – A Fib	Postoperative Events	STS
103. Facility Identification Number	Hospitalization	Non-STS

Data Element	Valid Values	Definition
1. Medical Record Number **STS Sequence #: 85**	Alphanumeric	Indicate the patient's medical record number at the hospital where surgery occurred. This field should be collected in compliance with state/local privacy laws.
2. Type of CABG **CCORP-specific variable**	1 = Isolated 3 = CABG + Valve 4= Other Non-isolated CABG	Indicate whether the surgery was considered an isolated CABG, CABG + Valve, or all other CABG. Other Non-isolated must include a CABG (not isolated valve). **CCORP Clarification/Comments:** *See reference on pages 75-77 .
3. Date of Surgery **STS Sequence #: 310**	Numeric: mmddyyyy	Indicate the date of coronary artery bypass graft procedure **CCORP Clarification/Comments:** The date the patient enters the operating room for surgery.
4. Date of Birth **STS Sequence #: 65**	Numeric: mmddyyyy	Indicate the patient's date of birth using 4-digit format for year. This field should be collected in compliance with state/local privacy laws.
5. Patient Age **STS Sequence #: 70**	Numeric	Indicate the patient's age in years, at time of surgery. This should be calculated from the date of birth and the date of surgery, according to the convention used in the USA (the number of birthdate anniversaries reached by the date of surgery). Do not submit CABG for patients <18 years old.
6. Sex **STS Sequence #: 75**	1 = Male 2 = Female	Indicate the patient's sex at birth as either male or female. **CCORP Clarification/Comments:** Patients who have undergone gender reassignment surgery maintain the risk associated with their chromosomal gender. Code gender at birth.
7. Primary Payor **STS Sequence #: 291**	1 = None/Self 2 = Medicare (includes commercially managed options) 3 = Medicaid (includes commercially managed options) 9 = Commercial Health Insurance 10 = Health Maintenance Organization 4 = Military 11 = Non-U.S. Plan 13 = Other	Indicate the primary insurance payor at time of arrival. **STS Intent/Clarification:** When there is more than one payor, the primary payor pays first. The patient admitted after a car accident may have the primary insurance listed as the auto insurance policy with his health care policy as his secondary insurance. In this scenario, the intent is to capture the patient's normal health care policy, do not capture the auto insurance policy as primary payor. **General Information: Payor Description** **None / Self –** the patient has no insurance, or the patient is self pay. Code Christian Healthcare Ministries and Medi-Share Christian Health Care in this selection. **Medicare – Includes commercially managed options** **Medicare Part A** – is hospital insurance and covers inpatient hospital stays, skilled nursing facility, hospice care and some home health care. Some patients may only have Medicare A and this is not included in Fee-for-Service. **Medicare Part B** – is medical insurance; payment for Pro-fee or the coverage for physician services (therefore it is coded as Fee-for-Service), outpatient care, medical supplies, and preventive services.

Data Element	Valid Values	Definition
		Medicare Part C / Medicare Advantage Plan – is still a Medicare program which is managed by an insurance company, most have additional benefits – vision, and/or dental. Medicare Advantage Plan covers most Medicare benefits and usually require patients to see specific providers in their network. **All Medicare Advantage/ Managed Care plans (ie. Humana HMO Medicare) are captured in the payor category as Medicare only.** For example, if the patient has Medicare HMO, code as primary payor Medicare, there is no secondary payor in this scenario. Medicare Part D is prescription drug coverage. Medicare Part D is optional, and it's available only through private insurance companies that contract with Medicare (Medicare Advantage or Managed Care plans). Medicare Supplement plans are not part of Medicare – this is a separate private health insurance plan. Medicare Advantage Plan Types: HMO PPO Private Fee-for-Service Special needs plan Medicare Medical Savings Account plan **Medicaid -** Medicaid [Medi-Cal in California] in the United States is a federal and state program that helps with medical costs for some people with limited income and resources. Medicaid also offers benefits not normally covered by Medicare, including nursing home care and personal care services. **All Medicaid Commercial / Managed Care plans (ie. Humana Medicare, Star Molina Medicaid) are captured in the payor category as Medicaid only.** **Commercial Health Insurance -** Commercial health insurance is health insurance provided and administered by non-governmental entities. It covers medical expenses and disability income for the insured. Commercial insurance includes Medicare Supplement plans such as Medigap or AARP etc. It is a private insurance policy that can help pay for some of the health care cost Medicare doesn't cover, such as co-payments, coinsurance, and deductibles. **This is not part of Medicare** – this is a separate private health insurance plan. Point-of-service plan (POS) and Preferred Provider Organization (PPO) plans not associated with Medicare Advantage plans will be captured here. **Health Maintenance Organization (HMO) -** An HMO gives you access to certain doctors and hospitals within its network. A network is made up of providers that have agreed to lower their rates for plan members and meet quality standards. But unlike PPO plans, care under an HMO plan is covered only if you see a provider within that HMO's network. There are few opportunities to see a non-network

Data Element	Valid Values	Definition
		provider. There are also typically more restrictions for coverage than other plans, such as allowing only a certain number of visits, tests or treatments. **STS Update** – Capture EPO insurance as HMO. **Military –** US Military provides insurance. Typically reported as VA insurance or Tricare. **Non-U.S. Plan** – Insurance covered by a non-U.S. source. **Other –** All other insurance not listed in the above selections such as Indian Health Services, Correctional Facility, State Specific plans, other government insurance, charitable care or foundation funding.
8. Secondary (Supplemental) Payor **STS Sequence #: 298**	1 = None/Self 2 = Medicare (includes commercially managed options) 3 = Medicaid (includes commercially managed options) 9 = Commercial Health Insurance 10 = Health Maintenance Organization 4 = Military 11 = Non-U.S. Plan 13 = Other	Indicate which if any secondary insurance payor the patient had at time of arrival. **Intent/Clarification:** When there is more than one payor, the secondary payor pays after the primary payor.
9. Race Documented **STS Sequence # 150**	1 = Yes; 2 = No; 3 = Patient Declined to Disclose	Indicate whether the race is documented. **Intent/Clarification:** Race should be self-reported by the patient/family. Do not assign race or make assumptions if race is not documented. Yes No Patient Declined to Disclose- Indicate if the patient declined to provide race or if race was not documented.
10. Race – White **STS Sequence #: 151**	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes White. **"White"** refers to a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicated their race(s) as "White" or reported entries such as Irish, German, Italian, Lebanese, Arab, Moroccan, or Caucasian.
11. Race – Black/African American	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes Black/African-American. **"Black or African-American"** refers to a person having origins in any of the black racial groups

Data Element	Valid Values	Definition
STS Sequence #: 151		of Africa. It includes people who indicated their race(s) as "Black, African Am., or Negro" or reported entries such as African American, Kenyan, Nigerian, or Haitian.
12. Race – Asian **STS Sequence #: 151**	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes Asian. **"Asian"** refers to a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. It includes people who indicated their race(s) as "Asian" or reported entries such as "Asian Indian", "Chinese", "Filipino", "Korean", "Japanese", "Vietnamese", and "Other Asian" or provided other detailed Asian responses.
13. Race – American Indian/ Alaskan Native **STS Sequence #:151**	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes American Indian/Alaskan Native. **"American Indian or Alaska Native"** refers to a person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment. This category includes people who indicated their race(s) as "American Indian or Alaska Native" or reported their enrolled or principal tribe, such as Navajo, Blackfeet, Inupiat, Yup'ik, or Central American Indian groups or South American Indian groups. This includes all in North American native peoples such as American Indian/Alaskan Native, Inuit.
14. Race – Native Hawaiian/ Pacific Islander **STS Sequence #: 151**	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes Native Hawaiian / Pacific Islander. **"Native Hawaiian or Other Pacific Islander"** refers to a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. It includes people who indicated their race(s) as "Pacific Islander" or reported entries such as "Native Hawaiian", "Guamanian or Chamorro", "Samoan", and "Other Pacific Islander" or provided other detailed Pacific Islander responses.
15. Race – Other **STS Sequence #: 151**	1 = Yes 2 = No	Indicate whether the patient's race, as determined by the patient or family, includes any other race. **"Some Other Race"** includes all other responses not included in the White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander race categories described above.
16. Hispanic or Latino or Spanish Ethnicity **STS Sequence #: 185**	1 = Yes 2 = No 3 = Not Documented	Indicate if the patient is of Hispanic, Latino or Spanish ethnicity as reported by the patient/family. **"Hispanic, Latino or Spanish"** refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. **CCORP Clarification/Comments:** People who identify their origin as Hispanic, Latino or Spanish may be of any race.
17. Hospital Discharge Date **STS Sequence #: 7006**	Numeric: mmddyyyy	Indicate the date the patient was discharged from the hospital (acute care facility) If the patient died in the hospital, the hospital discharge date is the date of death.

Data Element	Valid Values	Definition
18. Status at Hospital Discharge **STS Sequence #: 7007**	3 = Discharged Alive, last known status alive (other than Hospice) 4 = Discharged Alive, died after discharge 5 = Discharged to Hospice 2 = Died in hospital	Indicate the patient's status at hospital discharge. **Intent/Clarification:** • Discharged Alive, last known status alive (other than Hospice) – Includes patients who are discharged alive. Does not include hospice discharge – see choice below for discharged to hospice. • Discharged Alive, died after discharge - Includes patients who are discharged alive and expire after discharge. • Discharged to Hospice – Includes patients who are discharged to inpatient or outpatient hospice and home hospice. • Died in hospital - Includes patients that remain in acute care hospital where the index surgical procedure was performed and die, even if after 30 days following the index surgery. Includes any patient that dies at another acute care hospital after transfer even if after 30 days following the index surgery.
19. Patient Transfer to Another Acute Hospital **STS Sequence #: 7003**	1 = Yes; 2 = No	Indicate if the patient was transferred to another acute care hospital. **STS Update** – Acute Care Rehabilitation is not considered an acute care inpatient hospital. Patients discharged to Acute Care Rehabilitation are considered to be discharged from the acute care inpatient hospital setting, even if the Acute Care Rehabiliation occurs at the same hospital as the acute care inpatient hospital stay.
20. Patient Transfer to Acute Care Hospital-Date **STS Sequence #:7004**	Numeric: mmddyyyy	Indicate the date the patient was transferred to another acute care hospital.
21. Mortality Date **STS Sequence #: 7121**	Numeric: mmddyyyy	Indicate the date the patient was declared dead.
22. Mort – Status at 30 Days After Surgery (either discharged or in-hospital) **STS Sequence #:7001**	1 = Alive; 2 = Dead 3 = Unknown	Indicate if the patient was alive or dead at 30 days post- surgery (whether in hospital or not).
23. Responsible Surgeon Name	Surgeon Last Name Surgeon First Name	Indicate the Surgeon's name.

Data Element	Valid Values	Definition
CCORP-specific variable	Surgeon Middle Initial	**CCORP Clarification/Comments:** Hospitals are encouraged to look up their surgeon names and licensing information DIRECTLY from the California Medical Board. https://www.mbc.ca.gov/License-Verification/default.aspx and Osteopaths directly from Dept of Consumer Affairs https://search.dca.ca.gov/ **See reference on page 77.
24. Responsible Surgeon CA License Number CCORP-specific variable		California physician license number of responsible surgeon assigned by the Medical Board of California of the Department of Consumer affairs. See page 75 of this training manual for more information criteria. **CCORP Clarification/Comments:** Hospitals are encouraged to look up their surgeon names and licensing information DIRECTLY from the California Medical Board. https://www.mbc.ca.gov/License-Verification/default.aspx and Osteopaths directly from Dept of Consumer Affairs https://search.dca.ca.gov/ When entering Osteopath license numbers, please include the leading 20A. Call or email the hotline if you receive errors.
25. Height (cm) STS Sequence #: 330	Usual Range: 122.0 – 213.0 Low/High: 20.0 – 251.0	Indicate the height of the patient in centimeters closest to time of OR entry. **CCORP Clarification/Comments:** Used to calculate BSA (body surface area), a field for risk calculation. To convert Inches to centimeters, multiply # of inches by 2.54. **1 inch = 2.54 centimeters.**
26. Weight (kg) STS Sequence #: 335	Usual Range: 30.0 – 181.8 Low/High: 10.0 – 250.0	Indicate the weight of the patient in kilograms closest to time of OR entry. **Intent/Clarification:** Used to calculate BSA (body surface area) and is a field for risk calculation. Record in kilograms. 1 Kg = 2.2 pounds. Time frame – capture weight closest to time of OR for index procedure. Use the Anesthesia Record as priority source, followed by the Perfusion record. If weight is not available from the above sources, use the weight recorded in other documents closest to entry to OR for index procedure.
27. Diabetes STS Sequence #: 360	1 = Yes 2 = No 3 = Unknown	History of diabetes diagnosed and/or treated by a healthcare provider. Hemoglobin A1c >=6.5% is indicative of diabetes. Please refer your healthcare providers to the 2017 ADA Standards of Medical Care in Diabetes. 2017 American Diabetes Association Standards of Medicare Care in Diabetes - 2017. Diabetes Care. 40 (Suppl.1) :S13. https://professional.diabetes.org/sites/professional.diabetes.org/files/media/dc_40_s1_final.pdf. **Intent/Clarification:** Indicate if the patient has a history of diabetes mellitus regardless of duration of disease or need for anti-diabetic agents. Code no for patients with steroid induced hyperglycemia and

Data Element	Valid Values	Definition
		gestational (transient) diabetes if there is no supportive documentation of diabetes such as a HbA1c and/or treatment. Not all patients receiving diabetic medications are considered diabetic. It is important to remember that some medications used to treat diabetes may be used to treat other conditions. Time frame – capture any occurrence between birth and entry to OR for index procedure. A HbA1c value **>** 6.5, collected within 3 months prior to surgery, is acceptable for documentation of diabetes = "yes". Patients with a history of diabetes who have had a pancreatic transplant are coded as Yes to Diabetes. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.
28. Diabetes Control **STS Sequence #: 365**	1 = None 2 = Diet only 3 = Oral 4 = Insulin 5 = Other 6 = Other subcutaneous medication 7 = Unknown	Indicate the patient's diabetes control method at home. Choose the most aggressive therapy from the order below •Insulin: insulin treatment (includes any combination with insulin) •Other subcutaneous medications (e.g., GLP-1 agonist) •Oral: treatment with oral agent (includes oral agent with or without diet treatment) •Diet only: Treatment with diet only •None: no treatment for diabetes •Other: other adjunctive treatment, non-oral/insulin/diet •Unknown 2017 American Diabetes Association Standards of Medicare Care in Diabetes - 2017. Diabetes Care. 40 (Suppl.1): S13. https://professional.diabetes.org/sites/professional.diabetes.org/files/media/dc_40_s1_final.pdf **Intent/Clarification:** There must be documentation in chart to code treatment type. For patients who have had pancreatic transplant, code "other" since the insulin from the new pancreas is not exogenous insulin.
29. Dialysis **STS Sequence #: 375**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient is currently (prior to surgery) undergoing dialysis on a routine basis. **Intent/Clarification:** Includes any form of peritoneal or hemodialysis the patient is currently receiving routinely prior to surgery with the intent to resume post -op. Also, may include Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D), and Continuous Renal Replacement Therapy (CRRT) as dialysis. **STS Update** - PIRRT can include dialysis. If dialysate was used, then code Yes to dialysis. Code '" No" for renal dialysis if ultrafiltration is the only documentation found in the record since this is for volume management. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.
30. Hypertension	1 = Yes	Indicate if the patient has a current diagnosis of hypertension defined by any 1 of the following:

Data Element	Valid Values	Definition
STS Sequence #: 380	2 = No 3 = Unknown	● History of hypertension diagnosed and treated with medication, diet, and/or exercise ● Currently undergoing pharmacological therapy for treatment of hypertension 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol 2018;71:e127-e248. **Intent/Clarification: -** Time frame – capture any occurrence between birth and entry to OR for index procedure. Capturing of HTN as a risk factor must be based on Provider diagnosis of HTN in the medical record. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.
31. Endocarditis **STS Sequence #: 385**	1 = Yes 2 = No	Indicate whether the patient has a history of endocarditis. Endocarditis must meet the current CDC definition (See Training manual). Intent/Clarification: Indicate whether the patient has a history of endocarditis documented and diagnosed by a Provider. The below CDC link is provided as a resource. Time frame – capture any occurrence between birth and entry to OR for index procedure. https://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf Choose "Yes" for patients with pre-operative endocarditis who begin antibiotics post-op. Code "Yes" for patients who are diagnosed intraoperatively. Marantic Endocarditis (Nonbacterial Thrombotic Endocarditis) (Lupus) should not be coded as infectious endocarditis.
32. Infectious Endocarditis Type **STS Sequence #: 390**	1 = Treated 2 = Active	Indicate the type of endocarditis the patient has. If the patient is currently being treated for endocarditis, the disease is considered active. If no antibiotic medication (other than prophylactic medication) is being given at the time of surgery and the cultures are negative, then the infection is considered treated. **CCORP Clarification/Comments:** If the patient is currently being treated with antimicrobials for endocarditis, the disease is considered active. STS Intent/Clarification: Active - currently being treated; also include patients who were diagnosed in the OR but began treatment postop. Treated - no antibiotic medication at time of surgery (other than prophylactic medication).
33. Chronic Lung Disease **STS Sequence #: 405**	1 = No 2 = Mild 3 = Moderate	Indicate whether the patient has chronic lung disease, and the severity level according to the following classification: No;

Data Element	Valid Values	Definition
	4 = Severe 5 = Lung disease documented; severity unknown 6 = Unknown	Mild: FEV1 60% to 75% of predicted, or on chronic inhaled or oral bronchodilator therapy. Moderate: FEV1 50% to 59% of predicted, or on chronic oral/systemic steroid therapy aimed at lung disease. Severe: FEV1 < 50% or Room Air pO2 < 60 or pCO2 > 50. CLD present, severity not documented. Unknown **CCORP Clarification/Comments:** 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 findings alone are not included in the data specs for inclusion as chronic lung disease and should not be coded as "**Yes**" **Time Frame:** Do not use values obtained more than 12 months prior to the date of surgery. **Intent/Clarification:** **STS Update** – Addition of the below Chronic Lung Disease Table to assist Data Managers with determination of Chronic Lung Disease Severity based on the above definition and information existing in the Training Manual. Code the most severe category if there is a discordance between the FEV1, DLCO, ABG, and medication/inhaler criteria.

Data Element	Valid Values	Definition

Chronic Lung Disease (405)	FEV1 % Predicted	DLCO % Predicted (DLCO or DLCO/VA)	Room Air ABG	Medication/ Inhaler
No	No FEV1 done or FEV1 >=76%	No DLCO done or DLCO > your site's lower limit for DLCO		No prescribed chronic inhaler / oral bronchodilator for lung disease.
Mild	60-75%	61 to < your site's lower limit for DLCO		Chronic inhaled/oral bronchodilators. This includes prescribed home inhalers that are regularly scheduled and prn. This includes steroid inhalers. Inhaler is a non-systemic delivery mode.
Moderate	50-59%	40-60%		Chronic oral/systemic steroids aimed at lung disease.
Severe	<50%	<40%	pO2 <60 or pCO2 >50	
Documented, Unknown Severity	Documented lung disease by Provider, but No PFT or Room Air ABG or prescribed medications / inhaler for lung disease.			
Unknown	Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.			
Notes for Coding and Timeframe of studies	**PFTs must be done within 1 year of surgery. Code the study closest and prior to OR Entry.** **Room Air Arterial blood gas value use the ABG closest to and prior to OR entry within 30 days of surgery.**			

~~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~~

Data Element	Valid Values	Definition
		~~also qualifies as chronic lung disease. (if above criteria are met) A history of atelectasis is a transient condition and does not qualify.~~ **STS Update** Chronic lung disease can include patients with chronic obstructive pulmonary disease, chronic bronchitis, or emphysema. It can also include a patient who is currently being chronically treated with inhaled or oral pharmacological therapy (e.g., beta-adrenergic agonist, anti-inflammatory agent, leukotriene receptor antagonist, or steroid). Spirometry results that have not been interpreted by a pulmonologist may be used to quantify chronic lung disease. Asthma can be considered a chronic lung disease if the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs. Sarcoidosis can be considered a chronic lung disease if the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs. These patients will have restrictive physiology Patients who have had previous lung transplant due to severe CLD no longer have chronic lung disease unless the patient meets the criteria based on pulmonary function studies, use of inhaled medications or steroids aimed at the lungs. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history. **Chronic lung disease, and the severity level is determined by the highlighted above criteria per the data definition for example:** **STS Update** - If DLCO is used to determine the severity of lung disease, the DCLO values must be obtained through formal PFT testing. **STS Update** Grading the Severity of Chronic Lung Disease: It is important to understand that the criteria used to grade the severity of lung disease have evolved over time, but all grading schema incorporate the results of pulmonary function testing. The ACSD uses the FEV1 criteria noted above. We do so because it is a reasonable framework, and it has been a stable format over the years both for the purposes of risk model development and consistency in reporting over time. However, other grading systems, such as the Global Initiative for Chronic Obstructive Lung

Data Element	Valid Values	Definition
		Disease or GOLD criteria for FEV1 grading have changed over the years. GOLD uses slightly different cutoffs in FEV1 for grading the severity of disease. Additionally, GOLD currently uses a severity schema that incorporates both PFTs and clinical symptoms and response to treatment. So, when you see a difference between the surgical team and the pulmonologist, it may be the results of using different grading systems. Please use only the ACSD criteria listed above. Bedside spirometry results have an FEV1 of 57% but the pulmonologist states the patient has mild chronic lung disease. Code as moderate based on the FEV1 of 57%. Patient had PFT with FEV1 of 48%. I have not seen any documented diagnosis of chronic lung disease in the chart. Code as severe per FEV1. **CCORP Clarification:** In discussions with STS, they strongly suggest that data managers work with the surgeon and pulmonologist (assuming one is consulted with a low FEV1) to reconcile any charting discrepancies or to provide a physician diagnosis during bedside PFTs. Patient had PFT with FEV1 of 78% and a room air ABG with a PCO2 of 36.5 and a PO2 of 56. Code as severe per the room air ABG. Patient had PFT with FEV1 of 79% and is on Spiriva inhaler and albuterol inhalers at home. Pulmonary physician cleared patient for surgery documenting the patient had stable COPD and normal PFTs. Code as mild per the use of chronic inhalers at home. **STS Update** The intent of this field is to capture those diseases that have produced a chronic change in lung function, typically manifested by the symptoms of chronic cough, wheezing, sputum production and/or dyspnea. The degree of functional impairment may vary by patient, by disease and over the span of time. The degree of impairment can be judged subjectively by symptomatic status or more quantitatively by pulmonary function testing and the frequency of symptomatic exacerbations requiring escalation of treatment. The ACSD is concerned about chronic changes in lung function and so transient conditions such as atelectasis, pneumonia, mild/transient or childhood asthma and isolated prior pneumothorax will not typically qualify as a chronic condition. **STS Update** - The typical cardiac surgery patient has a history of cigarette smoking and so the most common type of chronic lung disease in the ACSD population is Chronic Obstructive Pulmonary Disease,

Data Element	Valid Values	Definition
		which includes chronic bronchitis and/or emphysema A number of these patients will require inhaled or oral pharmacological therapy (e.g., beta-adrenergic agonist, anti-inflammatory agent, leukotriene receptor antagonist, or steroid) and some will require supplemental oxygen. Pulmonary function testing is used to establish a diagnosis and to help assess its severity. Chronic lung disease can include patients with chronic obstructive pulmonary disease, chronic bronchitis, or emphysema. It can also include a patient who is currently being chronically treated with inhaled or oral pharmacological therapy (e.g., beta-adrenergic agonist, anti-inflammatory agent, leukotriene receptor antagonist, or steroid). **STS Update** Patients with chronic or extensive exposure to environmental dusts/chemicals (asbestosis, black lung disease or pneumoconiosis, etc) may qualify as having chronic lung disease based on an established diagnosis resulting from formal pulmonary evaluation. Similarly, prior lung radiation therapy typically results in radiation pneumonitis (acutely) and radiation fibrosis (chronically) and also qualifies as chronic lung disease, provided pulmonary function testing is not normal. **STS Update** 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. **STS Update** - Patient on steroid inhaler at home. No PFT or ABG performed. Code as mild per the use of chronic inhalers at home. This does not qualify for moderate lung disease since the patient is not on chronic oral/systemic steroid therapy aimed at lung disease. Inhaler is a non - systemic delivery mode.
34. Pneumonia **STS Sequence #: 465**	1 = No 2 = Recent 3 = Remote 4 = Unknown	Indicate whether patient has a recent (within 30 days) or remote (more than 30 days) history of pneumonia. **Intent/Clarification:** Pneumonia is an infection of one or both lungs caused by bacteria, viruses, fungi, chemicals, or aspiration. It can be community acquired or acquired in a health care setting. Typical symptoms associated with pneumonia include cough, chest pain, fever, and difficulty in breathing. Diagnostic tools include x-rays and examination of the sputum. Treatment depends on the cause of pneumonia; bacterial pneumonia is treated with antibiotics. Code as: Recent- pneumonia diagnosis within 30 days of procedure or Remote - pneumonia diagnosis more than 30 days prior to the procedure. No - meaning no history of pneumonia

Data Element	Valid Values	Definition
		Unknown - Code “Unknown” when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history. There must be documentation of pneumonia to code "Yes". "**Possible** pneumonia" with antibiotic treatment should be coded "Unknown". Pneumonitis, inflammation of the lung tissue, without infection is not considered pneumonia and should be coded as "no". **STS Update** - Chronic eosinophilic pneumonia is not captured in this field.
35. Liver Disease **STS Sequence #: 485**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of hepatitis B, hepatitis C, drug induced hepatitis, auto-immune hepatitis, cirrhosis, portal hypertension, esophageal varices, liver transplant, or congestive hepatopathy. Exclude NASH in the absence of cirrhosis. **Intent/Clarification:** LFTs or a MELD score alone **cannot** be used to code "Yes" to liver disease since other conditions impact these lab values. Liver fibrosis with recurrent ascites, supported by the MELD can be coded as liver disease. Time frame – capture any occurrence between birth and entry to OR for index procedure. The following are not coded as liver disease: Hepatitis A / Hepatitis E Gilberts syndrome Fatty liver Liver Cancer **STS Update** transient elevation of liver enzymes Hepatic Sarcoidosis should not be coded alone as liver disease. To code liver disease other qualifying disease criteria must be met (cirrhosis, hepatitis, MELD score). Code “Unknown” when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history **STS Update** - Polycystic Liver Disease should not be coded alone as liver disease. To code as liver disease other qualifying disease criteria must be met (cirrhosis, hepatitis etc. as per the definition.)

Data Element	Valid Values	Definition
		STS FAQ - Would ischemic hepatitis be coded as liver disease? Patient initially presented with septic shock and endocarditis with no documented prior liver history. Answer - No, ischemic hepatitis or shock liver is a result of the sepsis and is not liver disease as defined in SEQ 485. **STS Update** Hemochromoatosis can lead to liver disease but is not considered liver disease by itself.
36. Immunocompromised Present **STS Sequence #: 492**	1 = Yes 2 = No 3= Unknown	Indicate whether immunocompromise is present due to immunosuppressive medication therapy within 30 days preceding the operative procedure or existing medical condition. **Intent/Clarification: STS Update -** The intent is to capture patients who are on chronic immunosuppressive medications for the treatment of a chronic underlying condition not a short-term treatment of an acute condition. For example, a steroid dose pack for acute bronchitis would not be captured. This includes, but is not limited to systemic steroid therapy, anti-rejection medications and chemotherapy. This does not include topical steroid applications, **STS Update** one-time short-term treatment for an acute condition with systemic therapy, inhaled steroid therapy or pre-procedure protocol **STS Update** steroidal back or knee injections for chronic pain or **STS Update** anabolic steroids. STS Update– It is difficult to maintain a comprehensive list of immunosuppressive medications in the Training Manual. Medications include but are not limited to patients being treated with IVIG, Methotrexate, AntiTNF, Azasan, Imuran, and Hydroxurea. **STS Update** Interleukin-17 inhibitors to include Secukinumab Ixekizumab and Brodalumab and Interleukin-23 inhibitors to include ustekinumab, guselkumab, tildrakizumab, and Risankizumab. **STS Update** patients taking Ocrelizumab (IV every 6 months) can be coded as YES to immunocompromised since Ocrelizumab significantly depletes B Cells for 6-12 months. **STS Update** - Include patients being treated with Humira (adalimumab) and Benlysta (belimumab). Patients who have had splenectomy are considered immunocompromised. Examples of conditions causing immunocompromise include Hypogammaglobulinemia, HIV infection, HGB H disease Thalassemia, and patients with systemic lupus **STS Update** or rheumatoid arthritis taking Plaquenil QD. Examples of patients who are not considered immunocompromised include: • Splenic sequestration • Partial Splenectomy - partial splenectomy may reduce both short and long-term mortality by preserving immune system functioning. • Patient with IgG4 related sclerosing disease

Data Element	Valid Values	Definition
		• STS Update– Patients receiving only radiation therapy. For example, patient receiving radiation for prostate cancer. The patient is on no other treatment. Do not code as immunosuppressed. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history. Code unknown if the patient has used immunosuppressive medication therapy, but you do not know if it was within 30 days of surgery. **STS FAQ** - We would like clarification on the question of immunosuppression. Uncontrolled diabetes is classified as a secondary immunodeficiency. Since uncontrolled diabetes fits this classification should we code this condition (if explicitly documented in the patient record) as immunocompromised? Answer – No, do not capture as immunosuppressed. There is a separate field SEQ 360 to capture Diabetes and that is where the Diabetes Risk Factor will be captured. **STS FAQ** – My patient takes sulfasalazine for Guillain Barre. Should we code "Yes" for Immunosuppression? Answer – No, do not capture as immunosuppressed. Although sulfasalazine has immunomodulatory effects, it is not classified as an immunosuppressive medication. **STS FAQ** - Would Immuno Complex from endocarditis be captured as "yes" to SEQ 492? The patient is on no immunosuppresent medications. Patient has active strep species endocarditis. Answer - Do not code this patient as immunosuppressed in SEQ 492. Capture endocarditis as a pre-op risk factor in SEQ 385.
37. COVID-19 **STS TempCode Sequence#: 7230**	10 = No 11 = Yes, prior to hospitalization for this surgery 12 = Yes, in hospital prior to surgery 13 = Yes, in hospital after surgery 14 = Yes, after discharge within 30 days of surgery	Did the patient have a laboratory confirmed diagnosis of COVID-19? No (Harvest Code 10) Yes, prior to hospitalization for this surgery (Harvest Code 11) Yes, in hospital prior to surgery (Harvest Code 12) Yes, in hospital after surgery (Harvest Code 13) Yes, after discharge within 30 days of surgery (Harvest Code 14) **Positive antibody testing is not captured.** There are many tests for different types of coronavirus. The one that causes COVID 19 is SARS-CoV-2. Human Coronaviruses types: 229E (alpha coronavirus) NL63 (alpha coronavirus) OC43 (beta coronavirus) HKU1 (beta coronavirus)

Data Element	Valid Values	Definition
		MERS-CoV (the beta coronavirus that causes Middle East Respiratory Syndrome, or MERS) SARS-CoV (the beta coronavirus that causes severe acute respiratory syndrome, or SARS) SARS-CoV-2 (the novel coronavirus that causes coronavirus disease 2019, or COVID19) Note: During a follow up phone call, a patient says that they tested positive for COVID-19. In this scenario, code Yes, after discharge within 30 days of surgery for patients who self report testing positive for COVID-19 within 30 days of surgery. **STS Update** This includes self-reported positive home testing kits. Note: For Temporary Code 11 Yes, prior to hospitalization for this surgery. There is no timeframe for Temporary Code 11. Capture any COVID 19 positive test pre-op. Note: Temporary Code 10 NO applies to any of the above timeframe's pre-op, during hospitalization, and post-op. For example, if the patient tested negative or was not tested pre-op, then code as NO. If the patient is then tested and is negative or not tested during the hospitalization, code NO. If the patient is discharged and is found to be COVID 19 positive within 30 days of surgery, remove code 10 and code Yes to Code 14. **STS Update** - The nasal swab/OP swab, lower resp (RNA) test is the test that we are looking for. The IgG is the antibody test, this is not the test we are looking for. **STS Update**– Patient says that they tested positive for COVID-19 during the pre-op assessment. In this scenario, code Yes, prior to hospitalization for this surgery (Harvest Code 11) for patients who self-report testing positive for COVID-19.
38. Cancer within 5 Years **STS Sequence #: 500**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of cancer diagnosed within 5 years of procedure. Do not capture low grade skin cancers such as basal cell or squamous cell carcinoma. **Intent/Clarification:** **STS Update**– The intent is to capture if the patient has cancer within 5 years of the procedure. Capture cancers **(STS Update clarification Jan 2024 excluding low grade skin cancers such as basal cell or squamous cell carcinoma)** that ~~have~~ or **STS Update may** require surgical intervention, chemotherapy and or radiation therapy. STS **Update** Capture patients with chronic lymphocytic leukemia and

Data Element	Valid Values	Definition
		Myleodysplastic Syndrome. If the date of diagnosis is not known, then the date of the last treatment may be used to determine the 5-year interval. **STS Update** - Code "Yes" for patients who are diagnosed intraoperatively. For example, during CABG a biopsy of an enlarged parasternal lymph node was positive for metastatic poorly differentiated carcinoma. **Yes -** within 5 years **No -** patient has never had cancer or has had cancer but not within 5 years **Unknown** - Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history. Code unknown if patient has a history of cancer but you do not know if the cancer occurred within 5 years. **STS FAQ** - I have a patient with melanoma skin cancer. The doctor excises the melanoma in his office in April of 2019. Do I capture melanoma as cancer in SEQ 500? Answer – Yes, capture SEQ 500 in this scenario. Melanoma is not considered a 'lowgrade' skin cancer.
39. Peripheral Artery Disease **STS Sequence #: 505**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of peripheral arterial disease (includes upper and lower extremity, renal, mesenteric, and abdominal aortic systems). This can include: 1. Claudication, either with exertion or at rest, 2. Amputation for arterial vascular insufficiency, 3. Vascular reconstruction, vascular bypass surgery, or percutaneous intervention to the extremities (excluding dialysis fistulas and vein stripping), 4. Documented abdominal aortic aneurysm with or without repair. 5. Documented subclavian artery stenosis. Peripheral arterial disease excludes disease in the carotid, cerebrovascular arteries or thoracic aorta. PVD does not include DVT, pulmonary artery aneurysm, Raynaud's Disease AVM, or **STS Update 2022** May Thurner syndrome or **STS Update** Buerger's disease. **Intent/Clarification:** PAD (Peripheral Arterial Disease) is sometimes called PVD (Peripheral Vascular Disease), which can include disease of either peripheral vein or peripheral artery. Code only arterial disease, not venous disease. **STS Update** – Occlusion from dissection malperfusion is not coded as PAD. For example, patient has a Type A aortic dissection with right upper extremity malperfusion, and no pulse at wrist. Do not code as PAD since this is an acute potentially reversible stenosis or occlusion due to malperfusion. **STS Update** - All peripheral artery aneurysms (upper and lower extremity, renal,

Data Element	Valid Values	Definition
		mesenteric, and abdominal aortic systems) are coded as PAD. Time frame – capture any occurrence between birth and entry to OR for index procedure. **STS Update** ~~Documentation from a healthcare provider is required to code this field. If documentation is vague or further clarification is needed to abstract correctly then a data manager may use diagnostic results to confirm abstraction. Positive testing, invasive or non-invasive, showing a >50% diameter stenosis in any peripheral artery is a possible indicator of PVD. You must have supporting documentation from the healthcare provider.~~ Documentation of a diagnosis of PAD from a healthcare provider is required to code this field UNLESS the following conditions are documented: Claudication, either with exertion or at rest Amputation for arterial vascular insufficiency Vascular reconstruction, vascular bypass surgery, or percutaneous intervention to the extremities (excluding dialysis fistulas and vein stripping) Documented abdominal aortic aneurysm with or without repair Documented chronic stable abdominal aortic dissection Documented peripheral artery aneurysms (upper and lower extremity, renal, mesenteric, and abdominal aortic systems) Documented subclavian artery stenosis. Data Managers are not to interpret diagnostic tests and make a diagnosis based on the testing. If there is conflicting information, then please clarify with patients HCP. For example, a CT Angiogram shows 80% stenosis in the iliac artery but there is no documentation from the patient's healthcare provider to clarify that this is PAD. Clarification and documentation from the Provider is needed to abstract PAD. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history **STS Update** chronic stable abdominal aortic dissection can be coded as SEQ 505.
40. Cerebrovascular Disease	1 = Yes 2 = No	Indicate whether the patient has a current or previous history of any of the following:

Data Element	Valid Values	Definition
STS Sequence #: 525	3 = Unknown	A. 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. B. 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. C. Noninvasive or invasive arterial imaging test demonstrating >=50% stenosis of any of the major extracranial or intracranial vessels to the brain D. Vertebral artery and internal carotid and intercranial consistent with atherosclerotic disease with document presence as CVD. External carotid disease is excluded. E. Previous cervical or cerebral artery revascularization surgery or percutaneous intervention F. Brain/cerebral aneurysm. G. Occlusion of vertebral artery, internal carotid artery, and intercranial due to dissection. This does not include chronic (nonvascular) neurological diseases or other acute neurological insults such as metabolic and anoxic ischemic encephalopathy. Subdural hematoma or AVM is not cerebral vascular disease. **Intent/Clarification:** Internal carotid and common carotid disease are captured. External carotid disease is not captured. **STS Update** – Clarification of above bullet point #4 - Vertebral artery disease and/or internal carotid disease and/or intracranial disease => 50% stenosis, code Yes to Cerebrovascular Disease. A positive CT scan, even in the patient with no symptoms, should be coded as cerebral vascular disease. A CT scan following surgery with evidence of old infarct or chronic should be coded yes. Code “Unknown” when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history. **STS Update** disease at the carotid bifurcation can be captured. **STS Update** - Vertebral artery imaging test demonstrating >=50% stenosis can be captured. **STS Update** - Patient with prior left vertebral occlusions with distal reconstruction can be coded in SEQ 525 [Cerebrovascular Disease]. Do not code in SEQ 560 [CVD Prior Carotid Surgery].
41. Prior CVA **STS Sequence #: 530**	1 = Yes 2 = No	Indicate whether the patient has a history of stroke. Stroke is an acute episode of focal or global neurological dysfunction caused by brain, spinal cord, or retinal vascular injury as a result of

Data Element	Valid Values	Definition
	3 = Unknown	hemorrhage or infarction, where the neurological dysfunction lasts for greater than 24 hours **Intent/Clarification:** Include any confirmed neurological deficit of abrupt onset caused by a disturbance in cerebral blood supply that did not resolve within 24 hours of the event. The physical deficit can be in the form of extremity weakness, facial asymmetry, language (speech and/or cognitive thinking) impairment. The intent is to differentiate between neurological events that resolve within 24 hours and those that don't. Time frame – capture any occurrence between birth and entry to OR for index procedure Code "yes" to prior CVA if the patient has no history of stroke and no symptoms but imaging study results show an infarct (old/chronic or new) or cerebral septic emboli. Not all subarachnoid hemorrhages will create a stroke. There must be some form of deficit (symptoms lasting > 24 hr) documented in the chart to code SAH as a CVA. Unknown should be selected if any neurologic dysfunction occurred or was suspected, did not resolve in 24 hours, and could not be confirmed or when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.
42. Prior CVA When **STS Sequence #: 535**	3 = Recent <= 30 days 4 = Remote > 30 days	Indicate when the CVA events occurred. Those events occurring within 30 days prior to the surgical procedure are considered recent, while all others are considered remote. **STS Update** chronic old infarct is to be coded as remote
43. CVD TIA **STS Sequence #: 540**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of a Transient Ischemic Attack (TIA). 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. **Intent/Clarification:** Time frame – capture any occurrence between birth and entry to OR for index procedure.
44. CVD – Carotid Stenosis **STS Sequence #: 545**	1 = None 2 = Right 3 = Left 4 = Both 5 = Not Documented	Indicate which carotid artery was determined from any diagnostic test to be >= 50% stenotic. **Intent/Clarification:** Code what is found on the study closest to entry into OR for index procedure even if a prior stent / CEA is in place. Internal carotid and common carotid disease are captured. External carotid disease is not captured. If the results are reported in a range, such as "40-50%", choose the highest level in the range. If dissection occluded the artery, then code as 100%. A dissection because the blood flow is null acts like an occlusion.

Data Element	Valid Values	Definition
		When a carotid duplex reports stenosis as 0-59% but states "no evidence of hemodynamic significance," code No for CVD given the range of 0-59% and documentation of no hemodynamic significance. **STS Update** – Timeframe code the study closest and prior to OR Entry, done within 1 year of OR date. **STS Update** – If Carotid Ultrasound results are reported in both Velocity and Ratio measurements on the study closest to entry into OR, code the measurement that has the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, <50% by ratio. Code as 50-69% stenosis.
45. CVD Carotid Stenosis – Right **STS Sequence #: 550**	1 = 80-99% 2 = 100% 3 = 50-79% 4 = Not Documented	Indicate the severity of stenosis reported on the right carotid artery. **Intent/Clarification:** Indicate % stenosis: 50 - 79% or “moderate” 80 - 99% or “critical”, “severe”, or “subtotal”. 100% or “total” or “occluded” Not documented If the results are reported in a range, such as “40-50%”, choose the highest level in the range. **STS FAQ** - I have encountered several carotid ultrasound reports that describe the percent stenosis as >70%. Should this be coded as moderate or severe? Answer - Consider this 71% and code as moderate. **STS Update** – If Carotid Ultrasound results are reported in both Velocity and Ratio measurements on the study closest to entry into OR, code the measurement that has the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, <50% by ratio. Code as 50-69% stenosis.
46. CVD Carotid Stenosis – Left **STS Sequence #: 555**	1 = 80-99% 2 = 100% 3 = 50-79% 4 = Not Documented	Indicate the severity of stenosis reported on the left carotid artery. **Intent/Clarification:** Indicate % stenosis: 50 - 79% or “moderate” 80 - 99% or “critical”, “severe”, or “subtotal”. 100% or “total” or “occluded” Not documented

Data Element	Valid Values	Definition
		If the results are reported in a range, such as "40-50%", choose the highest level in the range. **STS FAQ** - I have encountered several carotid ultrasound reports that describe the percent stenosis as >70%. Should this be coded as moderate or severe? Answer - Consider this 71% and code as moderate. **STS Update** – If Carotid Ultrasound results are reported in both Velocity and Ratio measurements on the study closest to entry into OR, code the measurement that has the highest degree of stenosis. For example, bilateral internal carotid arteries with 50-69% stenosis by velocity criteria, <50% by ratio. Code as 50-69% stenosis.
47. CVD Prior Carotid Surgery **STS Sequence #: 560**	1 = Yes 2 = No	Indicate whether the patient has a history of previous carotid artery surgery and/or stenting. **Intent/Clarification:** Time frame – capture any occurrence between birth and entry to OR for index procedure. Carotid endarterectomy is a surgical procedure during which a surgeon removes atherosclerotic plaque or other material obstructing the flow of blood from the artery. This procedure eliminates a substance called plaque from the artery and can restore blood flow. Carotid artery stenting is a procedure in which a slender, metal-mesh tube, called a stent, is inserted and expands inside the carotid artery to increase blood flow in areas blocked by plaque. Also includes internal carotid artery aneurysm coils and a history of carotid angioplasty. **STS Update** - Patient with prior left vertebral occlusions with distal reconstruction can be coded in SEQ 525 [Cerebrovascular Disease]. Do not code in SEQ 560 [CVD Prior Carotid Surgery].
48. Last Creatinine Level **STS Sequence #: 605**	Usual Range: 0.10 – 12.00 Low/ High: 0.10 – 30.00	Indicate the creatinine level closest to the date and time prior surgery but prior to anesthetic management (induction area or operating room). A creatinine level should be collected on all patients, even if they have no prior history of renal disease. A creatinine value is a high predictor of a patient's outcome and is used in the predicted risk models. **Intent/Clarification:** Creatinine (Cr) is a chemical waste molecule excreted by the kidneys that is generated from muscle metabolism. If the kidneys become impaired for any reason, the creatinine level in the blood will rise due to poor clearance by the kidneys. Abnormally high levels of creatinine thus warn of possible malfunction or failure of the kidneys. The unit of measurement for Creatinine is mg/dl or mg/100ml or mg%

Data Element	Valid Values	Definition
		STS Update – For lab values that are documented as more or less than a value (< or >), code as the next decimal point below or above the value. For example, if the total bilirubin closest to entry into the OR is documented as "<0.2". Code as 0.19 **STS Update** - Use results closest to surgery, Use results closest to the date and time prior to OR entry, prior to anesthesia provider initiating care. **STS Update** - Arterial or venous lab results are acceptable.
49. Total Albumin **STS Sequence #: 585**	Usual range: 3.50 - 5.00 Low/High: 1.00 - 10.00 (mg/dL)	Indicate the total albumin closest to the date and time prior to surgery but prior to anesthetic management (induction area or operating room). **Intent/Clarification:** Albumin (alb), produced only in the liver, is the major plasma protein that circulates in the bloodstream. Albumin is essential for maintaining the oncotic pressure in the vascular system. A decrease in oncotic pressure due to a low albumin level allows fluid to leak out from the interstitial spaces into the peritoneal cavity, producing ascites. Albumin is also especially important in the transportation of many substances such as drugs, lipids, hormones, and toxins that are bound to albumin in the bloodstream. A low serum albumin indicates poor liver function. Decreased serum albumin levels are not seen in acute liver failure because it takes several weeks of impaired albumin production before the serum albumin level drops. The most common reason for a low albumin is chronic liver failure caused by cirrhosis. The serum albumin concentration is usually normal in chronic liver disease until cirrhosis and significant liver damage has occurred. The unit of measurement for Albumin is g/dl or g/100 ml or g%. **Timeframe** - **Capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process.** **STS Update** – For lab values that are documented as more or less than a value (< or >), code as the next decimal point below or above the value. For example, if the total bilirubin closest to entry into the OR is documented as "<0.2". Code as 0.19 **STS Update** - Use results closest to surgery, Use results closest to the date and time prior to OR entry, prior to anesthesia provider initiating care. **STS Update**- Arterial or venous lab results are acceptable.

Data Element	Valid Values	Definition
50. Total Bilirubin **STS Sequence #: 610**	Usual range: 0.20 - 1.30 Low/High: 0.10 - 50.00 (mg/dL)	Indicate the total Bilirubin closest to the date and time prior to surgery but prior to anesthetic management (induction area or operating room). **Intent/Clarification:** Bilirubin (Tbili) testing checks for levels of bilirubin, an orange-yellow pigment, in blood. Bilirubin is a natural byproduct that results from the normal breakdown of red blood cells. As a normal process, bilirubin is carried in the blood and passes through the liver. Too much bilirubin may indicate liver damage or disease. The unit of measurement for Bilirubin is mg/dl or mg/100 ml or mg%. **Timeframe** - **Capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process** **STS Update** – For lab values that are documented as more or less than a value (< or >), code as the next decimal point below or above the value. For example, if the total bilirubin closest to entry into the OR is documented as "<0.2". Code as 0.19 **STS Update** - Use results closest to surgery, Use results closest to the date and time prior to OR entry, prior to anesthesia provider initiating care. **STS Update**- Arterial or venous lab results are acceptable.
51. INR **STS Sequence #: 615**	Usual range 0.90 - 1.30 Low/High: 0.50 - 30.00	Indicate the International Normalized Ratio (INR) closest to the date and time prior to surgery but prior to anesthetic management (induction area or operating room). **Intent/Clarification:** INR is the standard unit used to report the result of a prothrombin (PT) test. An individual whose blood clots normally and who is not on anticoagulation should have an INR of approximately 1. The higher the INR, the longer it takes blood to clot. As the INR increases above a given level, the risk of bleeding and bleeding-related events increases. As the INR decreases below a given level, the risk of clotting events increases. **STS Update** – For lab values that are documented as more or less than a value (< or >), code as the next decimal point below or above the value. For example, if the total bilirubin closest to entry into the OR is documented as "<0.2". Code as 0.19

Data Element	Valid Values	Definition
		STS Update - Use results closest to surgery, Use results closest to the date and time prior to OR entry, prior to anesthesia provider initiating care. **STS Update**- Arterial or venous lab results are acceptable.
52. Sodium **STS Sequence #: 600**	Usual range 130.0 – 145.0 Low/High: 30.0 - 200.00	Indicate the Sodium level closest to the date and time prior to surgery but prior to anesthetic management (induction area or operating room). **STS Update** – For lab values that are documented as more or less than a value (< or >), code as the next decimal point below or above the value. For example, if the total bilirubin closest to entry into the OR is documented as "<0.2". Code as 0.19 **STS Update**- Use results closest to surgery, Use results closest to the date and time prior to OR entry, prior to anesthesia provider initiating care. **STS Update**- Arterial or venous lab results are acceptable.
53. Previous CABG **STS Sequence #: 670**	1 = Yes 2 = No	Indicate whether the patient had a previous Coronary Bypass Graft prior to the current admission. **Intent/Clarification:** This applies only to surgical approach to revascularization. Angioplasty or other catheter based coronary artery occlusion treatment does not apply.
54. Previous Valve **STS Sequence #: 675**	1 = Yes 2 = No	Indicate whether the patient had a previous surgical replacement and/or surgical repair of a cardiac valve. This may also include percutaneous valve procedures or transcatheter valve procedures. **Intent/Clarification:** This may include percutaneous valve procedures such as percutaneous valvotomy or valvuloplasty, as well as surgical or transcatheter valve repair or replacement. Capture all procedures that apply. **STS FAQ** - If the patient had a failed Mitral Clip procedure on 2/16/2021 and then had a Mitral Valve Replacement on 2/19/21. Do I capture previous transcatheter Mitral Valve repair in SEQ 675? No clips were deployed. It is noted as a failed procedure. Answer – In this scenario, do not code as prior MV intervention since no devices were deployed.
55. Previous PCI **STS Sequence #: 775**	1 = Yes 2 = No	Indicate whether a previous Percutaneous Coronary Intervention (PCI) was performed any time prior to this surgical procedure. PCI is the placement of an angioplasty guide wire, balloon, or other device (e.g. stent, atherectomy, brachytherapy, or thrombectomy catheter) into a native coronary artery or coronary artery bypass graft for the purpose of mechanical coronary revascularization.

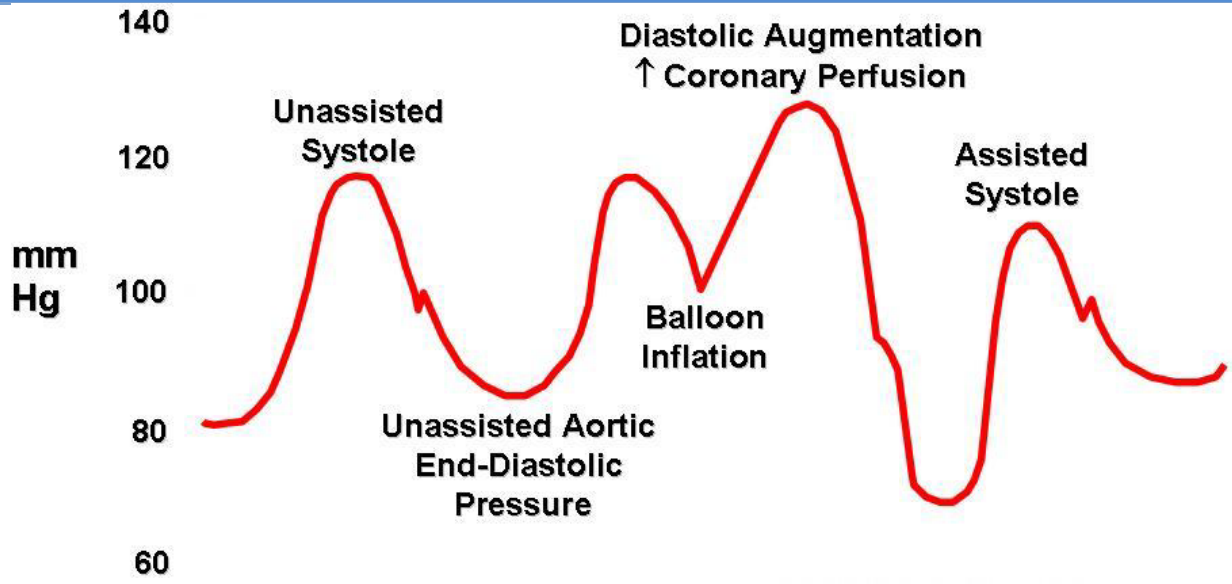
Data Element	Valid Values	Definition
		Intent/Clarification: An **attempted**, even if unsuccessful, PCI should be coded as a Previous CV intervention-PCI. This is to harmonize with ACC-NCDR.
56. Previous PCI – Interval **STS Sequence #: 800**	1 = ≤ 6 Hours 2 = > 6 Hours	Indicate the interval of time between the most recent PCI procedure and the current surgical procedure. **Intent/Clarification:** The choices are ≤ 6 hours or > 6 hours prior to OR entry. The timing of surgery after PCI may influence outcomes such as renal failure due to contrast given during PCI.
57. Prior MI **STS Sequence #: 885**	1 = Yes 2 = No 3 = Unknown	Indicate if the patient has had at least one documented previous myocardial infarction at any time prior to this surgery. **Intent/Clarification:** Indicate if the patient has a history of MI. Provider documentation should indicate MI. Do not code slight troponin increase and no EKG changes alone as MI without confirmation in the medical record by a physician or physician extender. Do not use phrases such as "cannot rule out", "suggestive", "probable", "cannot exclude", etc. to code MI. **STS Update** - A formally read and signed EKG by a Provider is acceptable documentation for history of prior MI.
58. MI - When **STS Sequence #: 890**	1 = ≤ 6 Hrs 2 = > 6 Hrs but < 24 Hrs 3 = 1 to 7 Days 4 = 8 to 21 Days 5 = > 21 Days	Indicate the time period between the last documented myocardial infarction and surgery. **Intent/Clarification:** Time of surgery is documented as the hour the patient entered the operating room. Select the time-interval category based on information available on when the MI occurred. MI occurrence is the time of diagnosis and/or when confirmation of the last MI is documented prior to surgery. **STS Update** – If documentation indicates a prior MI of undetermined age code as >21 days if the patient has no recently reported or documented symptoms. **STS Update** – MI When is counted by days, not hours as follows: Day of MI = Day 0 First day after MI = Day 1 Second day after MI = Day 2
59. Heart Failure **STS Sequence #: 911**	1 = Yes 2 = No	Indicate whether there is physician documentation or report that the patient has a history of heart failure. Capture either right or left heart failure.

Data Element	Valid Values	Definition
	3 = Unknown	**Intent/Clarification:** Heart failure is described as unusual dyspnea on light exertion, recurrent dyspnea occurring in the supine position, fluid retention; or the description of rales, jugular venous distension, pulmonary edema on physical exam, or pulmonary edema on chest x-ray presumed to be cardiac dysfunction. A low ejection fraction alone, without clinical evidence of heart failure does not qualify as heart failure. An elevated BNP without other supporting documentation should not be coded as CHF. Time frame – capture any occurrence between birth and entry to OR for index procedure. NYHA Class documentation alone cannot be used for diagnosis for heart failure, you must have physician documentation that states heart failure. There needs to be documentation in the chart that the patient has been in or was in a state of heart failure. Do not code heart failure for a diagnosis of Cardiomyopathy. A diagnosis of heart failure must be documented in the medical record to code heart failure. Cardiomyopathy may or may not be associated with a heart failure diagnosis. **STS Clarification:** – Provider diagnosis of HFpEF (diastolic HF), HFrEF (systolic HF), HFmrEF (mid-range HF) can be used to code heart failure. Code "Unknown" when there is conflicting information in the medical record and/or with the patient/family and/or patient/family unable to provide history.
60. Heart Failure Timing **STS Sequence #: 912**	1 = Acute 2 = Chronic 3 =Both	Indicate whether heart failure is acute, chronic or both (acute on chronic). Acute is new onset/ worsening heart failure within 2 weeks prior to this procedure. Chronic is greater than 2 weeks prior to this procedure. Both are worsening heart failure within 2 weeks in a patient with a known history of heart failure.
61. Classification – NYHA **STS Sequence #: 915**	1 = Class I 2 = Class II 3 = Class III 4 = Class IV 5 = Not Documented	Indicate the patient's worst dyspnea or functional class, coded as the New York Heart Association (NYHA) classification documented by a MD/Provider within the past 2 weeks. Select the **highest level** of heart failure within the two weeks leading up to episode of hospitalization or at the time of the procedure. The intent is to capture the highest level of failure. Physician documentation should be in the medical record. **Class I**: Patient has cardiac disease but without resulting limitations of ordinary physical activity. Ordinary physical activity (e.g., walking several blocks or climbing stairs) does not cause undue fatigue, palpitation, or dyspnea. Limiting symptoms may occur with marked exertion.

Data Element	Valid Values	Definition
		Class II: Patient has cardiac disease resulting in slight limitation of ordinary physical activity. Patient is comfortable at rest. Ordinary physical activity such as walking more than two blocks or climbing more than one flight of stairs results in limiting symptoms (e.g., fatigue, palpitation, or dyspnea, or anginal pain) **Class III**: Patient has cardiac disease resulting in marked limitation of physical activity. Patient is comfortable at rest. Less than ordinary physical activity (e.g., walking one to two level blocks or climbing one flight of stairs) causes fatigue, palpitation, dyspnea, or anginal pain). **Class IV**: Patient has dyspnea at rest that increases with any physical activity. Patient has cardiac disease resulting in inability to perform any physical activity without discomfort. Symptoms may be present even at rest. If any physical activity is undertaken, discomfort is increased. **STS FAQ** - What do I code when the NYHA is documented as NO or Class 0? Answer - NYHA Class 0 will be coded as NYHA Class 1. NYHA Class NO will be coded as not documented.
62. Cardiogenic Shock **STS Sequence #: 930**	2 = No 3 = Yes, at the time of procedure 4 = Yes, not at the time of procedure, but within prior 24 hours	Indicate if the patient developed cardiogenic shock. Cardiogenic shock is defined as a sustained (>30 min) episode of hypoperfusion evidenced by systolic blood pressure <90 mm Hg and/or, if available, cardiac index <2.2 L/min per square meter determined to be secondary to cardiac dysfunction and/or the requirement for parenteral inotropic or vasopressor agents or mechanical support (e.g., IABP, extracorporeal circulation, VADs) to maintain blood pressure and cardiac index above those specified levels. Note: Transient episodes of hypotension reversed with IV fluid or atropine do not constitute cardiogenic shock. The hemodynamic compromise (with or without extraordinary supportive therapy) must persist for at least 30 min. ACCF/AHA 2013 At the time of the procedure is defined as entry into OR for index procedure and prior to induction of anesthesia. Do not code cardiogenic shock after induction. This includes patients with cardiogenic shock who have been stabilized on IABP/inotropes at the time of the procedure. • Do not code yes to cardiogenic shock for patients with a low cardiac index who are asymptomatic and do not require mechanical or inotropic support.

Data Element	Valid Values	Definition
		• Hemodynamic issues that could be contributed to anesthesia induction problems should not count in the preoperative status of the patient. • Elective procedures should not be coded as cardiogenic shock. • Do not code yes to cardiogenic shock just because the patient has a LVAD; the patient must meet the blood pressure and/or cardiac index parameters of the definition of cardiogenic shock. **STS FAQ** - Sometimes an IABP is inserted prior to a procedure but it is not due to cardiogenic shock, it is placed for Unstable Angina (USA) or prophylaxyis. Should I capture cardiogenic shock at time of procedure since the patient has an IABP in place? Answer – No, do not capture cardiogenic shock for IABP placed for USA or prophylaxyis. **CCORP Clarification/Comments: "Shock" = Yes if the patient:** 1) ***currently*** SBP <90 mmHg or cardiac index <2.2 or 2) ***previously*** had a SBP < 90 or CI <2.2 but **now are on inotropes/ IABP to maintain higher #s**. **NOTE: sustained (>30 min) episode** ***STS: "or requirement for … vasopressor agents ….to maintain blood pressure and cardiac index"*** Patients left on inotropes/pressors/IABP whose BP/CI has improved so that it is probable BP/CI would be above criteria off therapy should be coded "No." This is more often the case the longer the patient has received these therapies prior to surgery. 1) CI < 2.2 or unassisted/unaugmented SBP < 90 → shock 2) CI>=2.8 or unassisted/unaugmented SBP >=130 → not shock 3) CI 2.2-2.39, unassisted/unaugmented SBP 90-99 on <u>any</u> active inotrope/vasopressor/IABP or impella → shock 4) CI 2.4-2.79, unassisted/unaugmented SBP 100-129 on <u>high dose</u> inotrope/ vasopressor/ impella → shock 5) CI 2.4-2.79, unassisted/unaugmented SBP 100-129 on <u>low dose</u> inotrope/ vasopressor/ IABP → not shock High Dose Inotropes/Vasopressor dosage **<u>High dosage is greater than dosages below:</u>** a. Dopamine < 5 mcg/kg/min b. Dobutamine < 5 mcg/kg/min

Data Element	Valid Values	Definition
		c. Milrinone < 0.375 mcg/kg/min d. Norepinephrine (Levophed) < 0.3 mcg/kg/min e. Epinephrine < 0.3 mcg/kg/min f. Phenylephrine < 0.5 mcg/kg/min g. Vasopressin < 0.03 units per min 6) VAD, ECMO → shock 7) Chart label "shock," inotrope/pressor/IABP, but no CI/BP criteria → not shock IABPs are often used to treat coronary ischemia in absence of shock and their use alone does not meet shock criteria (eg, IABP put in for severe left main disease and ACS to stabilize ischemia while waiting for surgery). Some patients have mild cardiogenic shock which does not meet STS criteria even if treated with IABP, inotropes, or pressors. Inotropes may be used or continued to augment diuresis in patients not meeting shock criteria. Note IABPs usually lower systolic BP (assisted SBP < unassisted SBP) therefore assisted SBP should not be used as evidence for shock. **Note:** "At the time of the procedure" is defined as prior to induction. This includes patients with CS who have been stabilized on IABP/inotropes at the time of surgery **See following diagram.**

Data Element	Valid Values	Definition
		
63. Resuscitation **STS Sequence #: 935**	2 = No 3 = Yes, within 1 hour of start of the procedure 4 = Yes, > 1 hour before, but < 24 hours of the start of the procedure	Indicate whether the patient required cardiopulmonary resuscitation before induction of anesthesia. Capture resuscitation timeframe: within 1 hour or 1-24 hours pre-op. **Intent/Clarification:** Indicate whether the patient required cardiopulmonary resuscitation within 24 hours of the start of the operative procedure. The start of the procedure begins with the induction of anesthesia. Capture resuscitation timeframe: within 1 hour of surgery or 1-24 hours pre-operatively. • Resuscitation may include **complete** circulatory support such as ECMO/other mechanical assist devices (ex. Impella 5.0/LP, LVAD) initiated emergently prior to surgery. Intra-aortic balloon counterpulsation (IABP) by itself does not qualify as complete circulatory support. • Do not code yes for resuscitation started after induction of anesthesia. The goal is to identify patients who require CPR and/or mechanical circulatory support to maintain life in the 24-hour period preceding surgery. ECMO: ECMO is to be captured as a status of 'Salvage' and as 'Resuscitation – Yes' . ECMO is a supportive modality and not a procedural type. The risk of the patient on ECMO is accounted for when 'Status = salvage'.

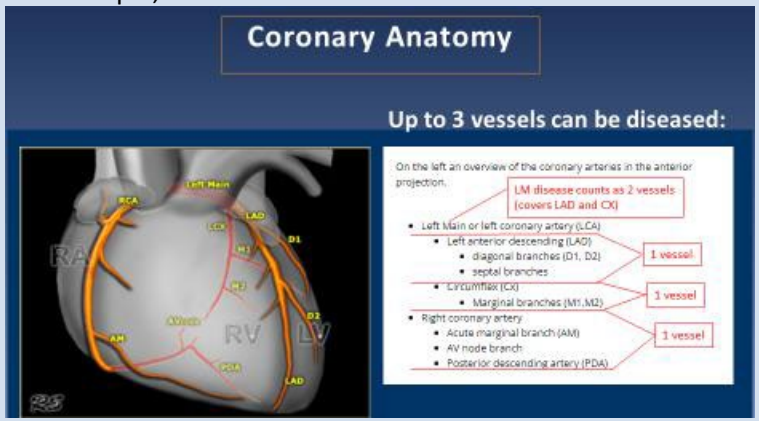
Data Element	Valid Values	Definition
		CCORP Clarification/Comments: Impella (other than Impella 5.0/LP) is NOT complete circulatory support and does not qualify as ongoing resuscitation (trumps STS). Impella 5.0/LP is complete circulatory support and qualifies as ongoing resuscitation.
64. Cardiac Arrhythmia **STS Sequence #: 945**	1 = Yes 2 = No	Indicate whether the patient has a history of a cardiac rhythm disturbance prior to the induction of anesthesia. **STS Update -** If a pacemaker device was placed more than 30 days prior to procedure, code the arrhythmia as remote.
65. Cardiac Arrhythmia – Vtach/VFib **STS Sequence #: 950**	1 = None 2 = Remote (> 30 days) 3 = Recent (≤ 30 days)	Indicate whether arrhythmia was VTach or VFib. **Intent/Clarification:** V-tach rhythm must be sustained/persistent or paroxysmal and require some type of intervention (pharmacological and/or electrical shock) to interrupt and cease the arrhythmia. Do not include short runs of VT. None Remote - more than 30 days prior to procedure Recent - within 30 days of this procedure **STS Clarification** Remote means that the patient has a history of cardiac arrhythmia more than 30 days prior to induction of anesthesia. No cardiac arrhythmia within 30 days prior to the induction of anesthesia. Recent means that the patient has a history of cardiac arrhythmia within 30 days prior to induction of anesthesia. The patient has experienced cardiac arrhythmia within 30 days prior to the induction of anesthesia. **STS Update** - A patient with a witnessed or **STS Update** unwitnessed cardiac arrest with AED shock can be coded as VTach/VFib
66. Cardiac Arrhythmia – Aflutter **STS Sequence #: 960**	1 = None 2 = Remote (> 30 days) 3 = Recent (≤ 30 days)	Indicate whether arrhythmia was atrial flutter. **Intent/Clarification:** Atrial flutter (AFL) is an abnormal heart rhythm that occurs in the atria of the heart. When it first occurs, it is usually associated with a fast heart rate or tachycardia (beats over 100 per minute) which falls into the category of supra-ventricular tachycardias. While this rhythm occurs most often in individuals with cardiovascular disease (e.g. hypertension, coronary artery disease, and cardiomyopathy) and diabetes, it may occur spontaneously in people with otherwise normal hearts. It is typically not a stable rhythm, and frequently degenerates into atrial fibrillation (AF). However, it does rarely persist for months to years. If rhythm is described as fib/flutter, code fibrillation.

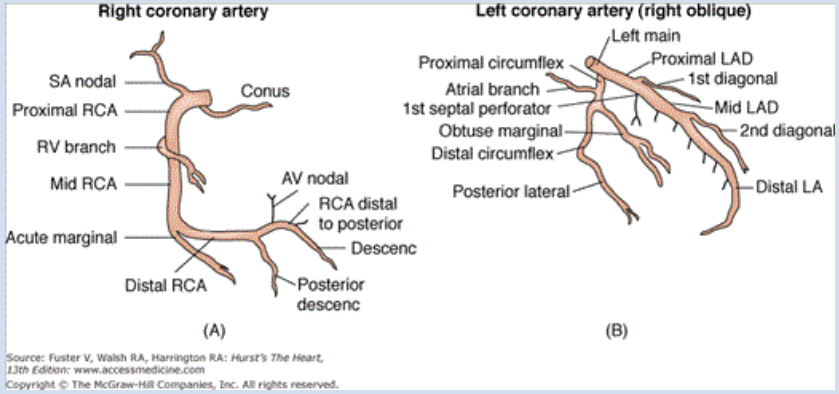
Data Element	Valid Values	Definition
		None Remote - more than 30 days prior to procedure Recent - within 30 days of this procedure **STS Clarification** Remote means that the patient has a history of cardiac arrhythmia more than 30 days prior to induction of anesthesia. No cardiac arrhythmia within 30 days prior to the induction of anesthesia. Recent means that the patient has a history of cardiac arrhythmia within 30 days prior to induction of anesthesia. The patient has experienced cardiac arrhythmia within 30 days prior to the induction of anesthesia.
67. Cardiac Arrhythmia – Third Degree Heart Block **STS Sequence #: 970**	1 = None 2 = Remote (> 30 days) 3 = Recent (≤ 30 days)	Indicate whether arrhythmia was third degree heart block. **Intent/Clarification:** Heart block is applicable only if the patient has or did have 3rd degree heart block (complete heart block). Complete heart block, also referred to as third-degree heart block, or third-degree atrioventricular (AV) block, is a disorder of the cardiac conduction system where there is no conduction through the AV node. Therefore, complete dissociation of the atrial and ventricular activity exists. **STS Clarification** Remote means that the patient has a history of cardiac arrhythmia more than 30 days prior to induction of anesthesia. No cardiac arrhythmia within 30 days prior to the induction of anesthesia. Recent means that the patient has a history of cardiac arrhythmia within 30 days prior to induction of anesthesia. The patient has experienced cardiac arrhythmia within 30 days prior to the induction of anesthesia.
68. Cardiac Arrhythmia – Atrial Fibrillation **STS Sequence #: 961**	1 = None 2 = Remote (> 30 days) 3 = Recent (<=30 days)	Indicate whether arrhythmia was atrial fibrillation. **STS Clarification** Remote means that the patient has a history of cardiac arrhythmia more than 30 days prior to induction of anesthesia. No cardiac arrhythmia within 30 days prior to the induction of anesthesia. Recent means that the patient has a history of cardiac arrhythmia within 30 days prior to induction of anesthesia. The patient has experienced cardiac arrhythmia within 30 days prior to the induction of anesthesia.
69. Atrial Fibrillation-Type **STS Sequence # 971**	2 = Paroxysmal 4 = Persistent	Indicate whether arrhythmia was atrial fibrillation and if so, which type. **Intent/Clarification:** If the diagnosis of atrial fibrillation is present code the type:

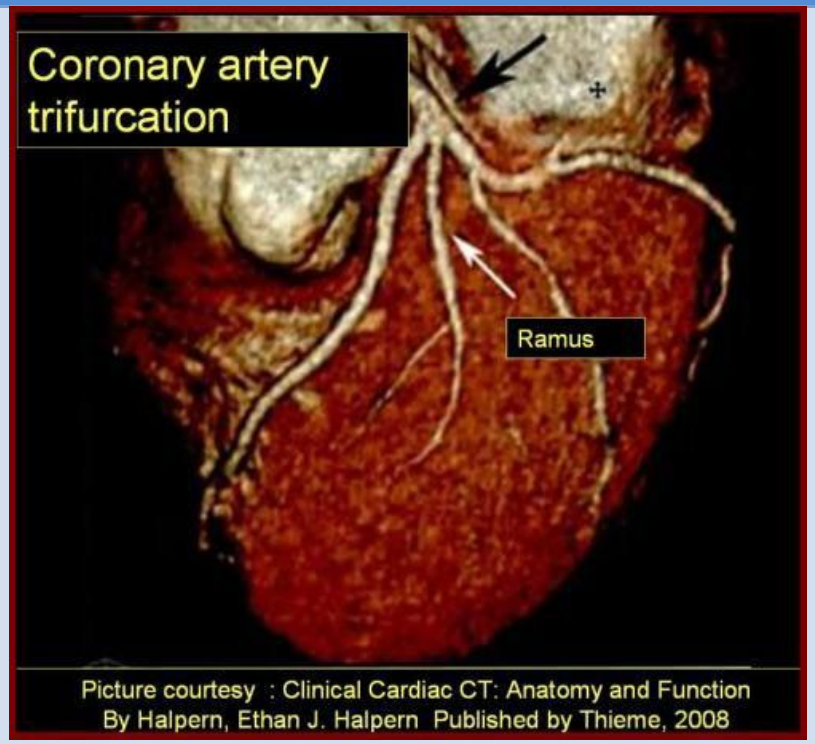
Data Element	Valid Values	Definition
		Paroxysmal: Paroxysmal AF is defined as AF that terminates spontaneously or with intervention within seven days of onset. Episodes may recur with variable frequency. Persistent: - **STS Update** - Persistent AF is defined as any documented episode of AF that fails to terminate, with or without intervention, within seven days of onset of atrial fibrillation. ~~Persistent AF is defined as AF that fails to self-terminate within seven days. Episodes often require pharmacologic or electrical cardioversion to restore sinus rhythm.~~ Included in this category are Persistent Afib, Early Persistent Afib, Long-Standing Persistent Afib, Permanent Afib, and Chronic Afib. Data Source: Heart Rhythm. 2017;S1547
70. Warfarin Use (within 5 days) **STS Sequence # 1091**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient received Warfarin (Coumadin) within 5 days preceding surgery. **Intent/Clarification:** This is collected to capture the risk of bleeding related to anticoagulation therapy. **Yes** - Capture those who took Coumadin within 5 days preceding surgery. **No** – Patient did not receive Coumadin within 5 days prior to OR entry date and time. **Unknown** – Conflicting information in the medical record and/or with the patient/family or no information is available

CCORP Clarification: Hemodynamics/Cath/Echo
****General Information: All Hemodynamic values for ejection fraction, valve insufficiency and stenosis etc. should be captured from studies done as described below. Any test that provides hemodynamic measurements may be used. Capturing of Hemodynamic/Cath/ECHO results: Source Document Priority for Coding:**
• Pre-op results captured from objective studies (Cath, echo, nuclear study, cardiac MRI, etc.) closest and prior to OR Entry, within 6 months of OR date (while it is preferred that the Cath and echo be done within 6 months, they can be used for up to one year).
• Use the OR pre-incision results if pre-incision results change the planned surgery. For example, if pre-op MV regurgitation was mild and pre-incision MV regurgitation is severe, and the surgeon decides to do a MV Repair – code severe for MV regurgitation.
• Use the OR pre-incision results if no other values are available or if the valves were not visualized on any of the pre- operative exams regardless if planned surgery was changed or not.
• If no other results are available, then Surgeon documentation should be used. Example: Echo from 9/21 has all needed results – abstract these results. Echo from 9/30 has updated EF but no other results – change EF result to match update result. 10/1 Pre incision TEE has updated MV degree of insufficiency and planned surgery was changed related to findings on the TEE – Abstract ONLY the MV degree of insufficiency from these results since the planned surgery was changed as a result of this finding. For Hemodynamic/Cath/ECHO values that are recorded as greater than or less than a value, code the value just below or above the reported value. For example, if echo reports a RVSP of < 35, code as 34, in addition if it is documented as > 35, then code 36. For Cath reports that have

Data Element	Valid Values	Definition
a descriptive term such as normal documented in the impression / conclusion / summary and the detail portion of the report says 70%, use the numerical values first and capture as 70%. Use descriptive terms when you have no numerical values. If audited be sure to include all the Cath, Echo, TEE, and TTE results from 6 months pre procedure.		
71. Coronary Anatomy/Disease Known **STS Sequence #: 1155**	1 = Yes 2 = No	Indicate whether coronary artery anatomy and/or disease is documented and available prior to surgery. **Intent/Clarification:** Indicate if coronary artery anatomy and/or disease is documented or confirmed by testing **prior** to surgery**.** Code Yes for patients who have no coronary artery disease if this has been confirmed by testing. Sometimes the results are known and verbally communicated to the surgeon, but the Cath Lab Report is not documented in the medical record until after surgery has started; this is particularly true for emergent cases. This can be captured even if dictation was not completed until after the surgery. Results dictated following the procedure may be used. **STS FAQ** - The patient is going in for isolated CAB after a STEMI treated with PCI approx 13 months prior. There were additional blockages not amenable to PCI that surgery was consulted to re-vascularize. There was no cath done in between STEMI/PCI and CAB. I coded SEQ 1145(Cardiac Catheterization Performed) as "no" because the cath wasn't within one year. Can I still populate SEQ 1155 and child fields with the cath report data, or does this data have to be within one year also? Answer – Yes, you can populate those fields since that is the only data that you have in this scenario.
72. Number of Diseased Vessels **STS Sequence #: 1170**	1 = None 2 = One 3 = Two 4 = Three	Indicate the number of diseased major native coronary vessel systems. A vessel that has ever been considered diseased, should always be considered diseased **Intent/Clarification:** Indicate the number of diseased major native coronary vessel systems: LAD system, Circumflex system, and/or Right system with ≥ 50% narrowing of any vessel preoperatively. **STS Update** - There are 3 major native coronary vessel systems: LAD system, Circumflex system, and the RCA system. To have 3 vessel disease, you must have disease in all 3 systems. The Left Main bifurcates into the LAD and Circumflex systems so disease in the Left Main is coded as disease in the LAD and Circumflex systems. The Ramus when present is a trifurcation of the Left Main. The Ramus Intermedius is a vessel that can function as part of the LAD system or as part of the Circumflex system depending on its course. Left main disease (≥ 50%) is counted as TWO vessels (LAD and Circumflex, which may include a Ramus Intermedius). For example

Data Element	Valid Values	Definition
		• 80% left main and 80% RCA is three vessel disease. (Left main >50% = 2 vessels: RCA = 1 vessel) • 100% LAD, 70% OM1, and 60% RCA is three vessel disease. (LAD = 1 vessel; OM1 (Circumflex system) = 1 vessel; RCA = 1 vessel) • 50% Left Main, 100% LAD, 70% OM1 is two vessel disease. (LM =>50% = 2 vessels since it supplies the LAD and Circumflex; additional disease in the LAD or Circumflex systems do not get counted separately) • 50% Left Main, 100% LAD, 70% OM1, and 80% Ramus is two vessel disease. (LM=>50% = 2 vessels since it supplies the LAD and Circumflex; additional disease in the LAD or Circumflex systems do not get counted separately. The Ramus is part of either the LAD or Circumflex systems and does not get counted separately). Note: If there is ONLY ramus disease, the Ramus should count as a single vessel disease. ~~For example, left main and RCA would count as three vessel disease.~~  -A patient may never have more than three vessel disease. Once a coronary artery is found to be diseased, for the purposes of the STS, the vessel is considered diseased for the remainder of the patient's life and all subsequent reoperations regardless of previous interventions. The number of diseased vessels may not necessarily match the number of bypass grafts performed. -If bypass is performed for an anomalous, kinked, or damaged vessel, or myocardial bridging or **STS Update** an aneurysmal vessel this vessel is counted as one diseased or abnormal vessel.

Data Element	Valid Values	Definition
		There are three (3) major coronary systems; Left Anterior Descending (LAD), Circumflex and Right Coronary System (RCA). Each system has "branches" that are considered part of their corresponding system. Vessel stenosis or narrowing is measured in percentages (%), most often expressed as a range of "stenosis".  The Ramus Intermedius is a vessel that can function as part of the LAD system or as part of the Circumflex system depending on its course. If the Ramus is part of the LAD system and functions much like a diagonal, code 1 vessel disease. If the Ramus is part of the Circumflex system and functions much like an obtuse marginal AND the patient has LAD disease, code 2 vessel disease. If there is any confusion about the distribution of the Ramus as it relates to the LAD or Circumflex coronary artery, consult with your surgeon.

Data Element	Valid Values	Definition
		 Patient had prior CAB x 2 most recent Cath shows 90% stenosis in native Mid LAD, 80% stenosis in native OM 1 and 95% stenosis in native distal RCA. Bypass grafts to mid LAD and right PDA are patent and the Provider is planning on performing a bypass of the native OM1, code the LAD and RCA distribution as NO to stenosis 50% or > and the CX distribution as >70%.
73. Left Main Stenosis >= 50% Known **STS Sequence #: 1174**	1 = Yes 2 = No 3 = N/A	Indicate if main stenosis greater or equal to 50% is known. Stenosis at the ostia of the LAD and circumflex is not considered left main disease for the purpose of Society of Thoracic Surgeons (STS). **Stenosis needs to be in the left main artery.** **General Information Coronary Artery Stenosis** For Cath reports that have a descriptive term such as normal documented in the impression / conclusion / summary and the detail portion of the report says 70%, use the numerical values first and capture as 70%. Use descriptive terms when you have no

Data Element	Valid Values	Definition
		numerical values. The following descriptive terms and associated percentages can be used to quantify the % stenosis in any coronary artery. **STS Update** Code the highest descriptive term if a range is documented. For example, if the Cath report for the RCA describes mild to moderate distal stenosis, code as moderate since that is the highest descriptive term noted. Please refer to the General Statement regarding time frame of hemodynamic results. **Stenosis ≥50%** ▪ Borderline obstructive/obstruction ▪ Borderline disease ▪ Moderate disease ▪ Intermediate disease 50% **Stenosis ≥70%** ▪ Significant ▪ Obstructive disease ▪ Flow-limiting 70% **Stenosis ≥ 90%** ▪ Critical ▪ Subtotaled ▪ Severe ▪ Tight ▪ Occlusive 90% **Stenosis 100%** ▪ Total occlusion ▪ Chronic Total Occlusion (CTO) ▪ Occluded 100% In instances where multiple lesions are present, capture the highest percent stenosis noted in that vessel. When ranges are reported, such as 45- 50% for stenosis, report as the highest percent in range, in this case 50%. Stenosis at the ostia of the LAD and circumflex is not considered left main disease for the purpose of Society of Thoracic Surgeons (STS). Stenosis needs to be in the left main artery. If the Cath report states 40% disease, but the Intravascular Ultrasound (IVUS) shows 70%, code 70%. STS Update – If an IFR, FFR, or IVUS is performed and demonstrates a higher degree of stenosis than the diagnostic cath, code the highest stenosis. For example, Cardiac Cath states LAD with 60% stenosis in the mid segment. IFR performed showing "severe" stenosis in mid LAD, use the descriptive term "severe" and code as 90%. Capture atretic vessels as 100%.

Data Element	Valid Values	Definition
		Coronary dissections without documented stenosis in Cath report will be coded as 100%. **STS Update** – Coding of Native Vessel Stenosis in Patients who have had prior CAB Surgery. If all grafts are patent bypassing stenosis in the native vessels then capture RCA, LAD, CX, LM distribution 50% or > as NO. The goal is to capture new disease of the vessel supplying blood to the myocardium. We are specifically looking for stenosis of vessels that are not bypassed, or stenosis in the bypass graft, or stenosis in a native artery with a graft that may be obstructing flow to the myocardium. See examples below: • Patient had prior CAB x 3 most recent Cath shows 90% stenosis in native mid-Left Anterior Descending (mLAD), 80% stenosis in native Circumflex (CM), and 95% stenosis in native distal RCA. The Posterior Descending Artery (PDA) originate from the RCA. Bypass grafts to mLAD, OM1, and right PDA are patent and the Provider documents that there is no obstructive disease, and no bypass grafts are performed, code the LAD, CX, and RCA distribution as NO to stenosis 50% or greater.
74. Hemo Data EF Done STS Sequence #: 1540	1 = Yes 2 = No	Indicate whether the Ejection Fraction was measured prior induction of anesthesia. **Intent/Clarification:** Some patients may not have had an LV Gram performed during cardiac catheterization due to existing clinical conditions. Ejection fraction (EF) and hemodynamic pressures may be obtained from other sources other than coronary angiogram, such as echo, or MUGA. Because anesthesia can alter the values to be collected, do not collect data from intra-operative transesophageal echo (TEE) after the induction of anesthesia, unless you have no other source to collect the information. Note: If the patient has an echo and a Cath done on the same day and you are not able to determine which study was performed closest to surgery, use the EF from the LHC. **STS Update** – In the absence of documentation of EF in a report, other words that equate to EF are "Biventricular function" or "LV function" or "LV Systolic function". For examples, see below:

Data Element	Valid Values	Definition
		Left Ventricle: LV Size: **normal Internal Dimension**: End-diastolic: **4.4** End- systolic: **3.1** FS: **29.55** Volume by biplane disk summation: LVOT Diameter (cm): **2.1** SWT (mm): **7** LV Mass/Hypertrophy: **no LVH** LV Systolic Function Global: **normal (>/=55%)** RWMA: **absent** Global Hypokinesis: **absent** **Post-op** Chamber Size and Function: **Normal biventricular function.** Valve Morphology and Function: **Mild TR. Trace MR. Trace PI. No AI.** Other Findings: **Aorta intact. No pericardial effusion.**
75. Hemo Data EF STS Sequence #: 1545	Usual Range: 5.0 – 90.0 Low/ High: 1.0 – 99.0	Indicate the percentage of the blood emptied from the left ventricle at the end of the contraction. ● Hyperdynamic: >70% ● Normal: 50%–70% (midpoint 60%) ● Mild dysfunction: 40%–49% (midpoint 45%) ● Moderate dysfunction: 30%–39% (midpoint 35%) ● Severe dysfunction: <30% Note: If no diagnostic report is in the medical record, a value documented in the medical record is acceptable. ACCF/AHA 2013 **STS Update** - Ejection Fraction (EF) that is recorded as greater than or less than a value, code the value just below or above the reported value. For example, if echo reports an EF of < 35, code as 34, in addition if it is documented as > 60, then code 61.
76. PA Systolic Pressure	1 = Yes	Indicate whether the PA systolic pressure was measured.

Data Element	Valid Values	Definition
Measured **STS Sequence #:** **1570**	2 = No	**Intent/Clarification:** Elevated pulmonary artery pressures are indicative of pulmonary hypertension, mitral valve disease and other pulmonary/cardiac diseases. Normal systolic pulmonary artery pressure readings are between 15-30 mm of pressure. If there are no PA pressures recorded or available pre-op from heart cath or echo –one may use PA pressure values from Swan Ganz Catheter inserted for surgery **prior to induction of anesthesia.** If PA systolic pressure is not available, it is acceptable to code the peak RV systolic pressure (RVSP). RVSP and PA systolic pressures will be the same if there is no pulmonary valve disease or outflow obstruction**.** **STS Update - Do not use the RSVP when the pulmonary regurgitation is mild, moderate, or severe as this will affect the RSVP.** Note a RVSP cannot be obtained if there is no tricuspid regurgitation present. **STS FAQ** - For PA Systolic pressure, the instructions specify not to take a value from in intra-op measurement after induction of anesthesia. However, the general statement for the hemodynamics section #3 states that you can obtain values that were not available anywhere else from any intra-op measurement prior to incision time. Which of these instructions are we to follow? **Answer** - For SEQ 1570, it is specific that if there are no PA pressures recorded or available pre-op from heart cath or echo, that you can only obtain pre-induction values. Do not use pre-incision values.
77. PA Systolic Pressure **STS Sequence #:** **1575**	Usual Range: 15.0 – 40.0 Low/High: 10.0 – 150.0	Capture PA systolic pressure recorded. **Intent/Clarification:** For a PA pressure that is documented as a range value, for example, "30-35 mmHg", capture the highest value in the range **STS Update –** If the Heart Cath or other diagnostic study has 2 values available for PA systolic pressure - one at rest 45 and one noted to be "immediately post exercise" which was 58, capture the resting PA systolic pressure. **STS Update** – In addition, if the PA systolic pressure is calculated using various methods such as air rest, oxygen, and inhaled nitric oxide, capture the air rest value.
78. Mitral Valve Regurgitation **STS Sequence #:**	1 = Yes; 2 = No	Indicate whether there is evidence of Mitral valve insufficiency/regurgitation prior to surgery.

Data Element	Valid Values	Definition
1679		**Intent/Clarification:** Mitral regurgitation/insufficiency may be an acute or chronic condition manifesting itself as increased left heart filling pressures which increase the left ventricular stroke volume (amount of blood ejected from the Left Vent. with each heartbeat). Over time, and depending upon the severity, MR can result in pulmonary edema and systemic volume overload. In chronic MR, Left Ventricular Hypertrophy may result. Mitral prolapse and rheumatic fever are the most common cause of MR.
79. Mitral Regurgitation STS Sequence # 1680	1 = Trivial/Trace; 2 = Mild; 3 = Moderate; 4 = Severe; 5 = Not documented	Indicate whether there is evidence of Mitral valve insufficiency/regurgitation. **Intent/Clarification:** Indicate the degree of mitral valve insufficiency/regurgitation. Code the **highest** level of valve dysfunction for example mild – moderate will be coded as moderate. **STS Update** overall regurgitation is assessed by a combination of paravalvular regurgitation, central regurgitation (transvalvular / intravalvular) or valvular regurgitation. Code the highest value of regurgitation. For example, TEE documents mild paravalvular regurgitation present, and trace intravalvular regurgitation present, code regurgitation as mild.
80. Incidence STS Sequence #: 1970	1 = First cardiovascular surgery 2 = First re-op cardiovascular surgery 3 = Second re-op cardiovascular surgery 4 = Third re-op cardiovascular surgery 5 = Fourth or more re-op cardiovascular surgery	Indicate if this is the patient's: -First surgery -First re-op surgery -Second re-op surgery -Third re-op surgery -Fourth or more re-op surgery **Intent/Clarification:** Incidence will be defined by the number of times of entry into the space for a specific procedure. Please see this resource for an overview of anatomical spaces: https://en.wikipedia.org/wiki/Pleural_cavity#/media/File:Body_Cavities_Frontal_view_labeled.jpg A CABG/AVR/ MVR would be in pericardial space. A root/ascending/arch would be the pericardial space. An open distal arch/descending would be the pleural space. An open thoracoabdominal would involve the pleural and abdominal space. See examples below: Previous descending with a current AVR/Root/CAB. This would be first incidence into the pericardial space. Previous AVR/Root/hemiarch with a current CAB. This would be first re-op into the pericardial space. Previous CAB/AVR with a current open descending. This would be first incidence for pleural space

Data Element	Valid Values	Definition
		For the purposes of this field surgery is defined as cardiothoracic surgical procedures performed on the heart, great vessels or major pericardial procedures, with or without cardiopulmonary bypass (CPB). Ascending aortic and arch procedures also qualify. Similarly, catheter-based procedures such as TAVR, TEVAR, mitral-clip, are endovascular procedures and are not classified as prior surgery. Also include lung procedures utilizing CPB or tracheal procedures utilizing CPB. Reoperation increases risk due to presence of scar tissue or adhesions. Great vessels are vessels that are directly attached to the heart - Superior vena cava; Inferior vena cava; Pulmonary arteries**;** Pulmonary veins; Aorta. The intent of this field is to capture the incidence of the procedure that the patient is about to go through during the current hospitalization, as compared to those procedures prior to this hospitalization. First operative means the patient has never had any surgical procedure on the heart and/or great vessels. Note: previous surgical intervention increases risk for morbidity and mortality and severity of disease process. Choosing N/A does not automatically exclude the patient from analysis. Other Examples of Incidence: o Patient has a history of a CABG, then later a VAD, then a heart transplant. The patient is now having a CABG on his transplanted heart. Code incidence as third reoperation since the pericardial space has been entered 3 times. o Patient underwent a percutaneous aortic valvuloplasty at age 12. He now enters the OR for a surgical AVR. Code incidence as first cardiovascular surgery since the first procedure was percutaneously and this will be the first time the pericardial space is entered. o Prior TAVR case that needs a redo-AVR should be coded as first reoperation. o Prior TAVR case that needs another cardiac procedure such as a CAB or MVR should be code as incidence as first CV surgery. o Prior Mitral Clip Procedure that needs an MVR should be coded as the first operation. o Prior TMVR case that needs a redo-MVR should be coded as first reoperation.

Data Element	Valid Values	Definition
		o Prior TMVR case that needs another cardiac procedure such as a CAB or AVR should be code as incidence as first CV surgery. **CCORP Clarification/Comments:** -CV surgeries **INCLUDE**: CABG, valve replacement/repair, intracardiac repairs (ASD, VSD), ventricular aneurysmectomy, or surgery on the aortic arch. Use of CPB is not required. -CV surgeries **DO NOT INCLUDE**: PCI's and non-cardiac vascular surgeries such as abdominal aortic aneurism repairs or fem-pop bypasses, percutaneous aortic stent grafts, percutaneous valves or pacemaker/ICD implantations. The intent of this field is to capture the incidence of the procedure that the patient is about to go through during the current hospitalization, as compared to those procedures prior to this hospitalization. **STS Update** - Prior thoracic endovascular aneurysm repair that needs another thoracic endovascular aneurysm repair should be coded as first reoperation. **STS Update** - ANY Endovascular explant is counted as a previous incidence. For example, if a patient had a TEVAR in the past and is now having another aorta procedure where a prior endovascular stent or graft is explanted during procedure, code as first re-op. Previous Left Mini Thoractomy for MIDCAB that needs Sternotomy AVR, code as first re-op. Previous Left Mini Thoractomy for MIDCAB that needs Open Thoracoabdominal aortic aneurysm (TAAA) repair via left Thoracotomy, code as first CV surgery. Previous sternotomy CABG that needs Mini Rt thoracotomy Mitral Repair, code as first re-op. **STS Update** – Previous TAVR that needs TAVR valve-in-valve procedure, code as NA not a CV surgery. Prior pericardial window that needs a CABG, code as first CV surgery since in a pericardial window, even though you enter the pericardial space, you do not operate on the heart. Prior ICD or pacemaker implant that needs a CABG, code as first CV surgery. Stand-alone lead extraction can be coded as first re-op to identify the risk associated with these stand-alone lead extraction cases. Patient with prior pericardectomy that needs a CABG, code as first re-op. Prior epicardial ablation procedure that needs a CABG, code as first re-op since an ablation enters the pericardial space and involves operating on the heart tissue. Pt had a failed attempt at repairing ASDsecundum in cathlab, that needs open surgical repair of ASD, code as first CV surgery.

Data Element	Valid Values	Definition
		Failed TAVR followed by emergent SAVR on the same day in the same setting, code SAVR as first CV surgery. **STS Update** – Prior thymectomy performed through a median sternotomy who needs a CABG. If the pericardial space was previously entered, then this would be first re-op. Not all thymectomy procedures enter the pericardial space. Review the thymectomy op note or clarify with surgeon if the pericardial space had been entered previously or not. **STS Update** - Re-op in the same episode of care does not count towards incidence. For example, a patient had CABG in 2005 which was complicated by reoperation in the early postoperative period for bleeding. Patient is now having an AVR. Code AVR as first CV re-operation.
81. Status **STS Sequence #: 1975**	1 = Elective 2 = Urgent 3 = Emergent 4 = Emergent Salvage	Indicate the clinical status of the patient prior to entering the operating room. **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. **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 (AMI), anatomy, IABP, unstable angina (USA) with intravenous (IV) nitroglycerin (NTG) or rest angina. Any of the conditions that require that the patient remain in the hospital until surgery can take place, but the patient is able to wait for surgery until the next available OR schedule time. Delay in the operation may be necessitated by attempts to improve the patient's condition, availability of a spouse or parent for informed consent, availability of blood products, or the availability of results of essential laboratory procedures or tests. For example, if a patient is brought in for an elective cardiac cath and kept in the hospital for surgery, select urgent. **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. Patients requiring emergency operations will have ongoing, refractory (difficult, complicated, and/or unmanageable) cardiac compromise, with or without hemodynamic instability, and not responsive to any form of therapy except cardiac surgery. Hemodynamic picture of shock that is being chemically or mechanically supported. (IV inotrope or IABP to maintain cardiac output [CO]. Requires intubation and ventilation for pulmonary edema. The patient is

Data Element	Valid Values	Definition
		extending an MI and requires immediate surgery. The patient continues to show signs of ongoing ischemia, i.e. EKG changes. Acute native valve dysfunction i.e. as acute papillary muscle rupture or torn leaflet. Prosthetic valve dysfunction is defined as a structural failure with that valve-fractured or torn leaflet, thrombus formation, pannus development which impedes flow through the valve orifice, or valvular dehiscence (coming loose or disconnected at the suture line). Acute dissection secondary to trauma or dissection secondary to progression of disease. Rupture or dissection during cardiac cath; perforation, tamponade following cardiac cath. If a patient presents with a scenario that does not fit into a definite category; it is reasonable to code the reason that most closely matches the patient's presentation. **Emergent Savage**- The patient is undergoing CPR en route to the OR prior to anesthesia induction or has ongoing ECMO to maintain life. **CCORP Clarification/Comments:** Status refers to the patient's condition immediately ***before surgery***; **it should not reflect instability which occurs after the induction of anesthesia** or the operative risk but rather how expediently surgery must be performed. Thus, some elective patients may be at higher risk than urgent patients; for example, an elderly patient with an ejection fraction of 20% and COPD operated on electively compared to a young patient with a normal ejection fraction that has ongoing unstable angina. **RULE OF THUMB**: **Elective** – waits at home. **Urgent** – waits in hospital. **Emergent** – cannot wait or is not safe to wait. **Emergent Salvage** – no pulse. **-Elective** surgeries are performed on patients whose cardiac function has been stable. They are usually scheduled at least one day prior to surgery, and the clinical picture allows discharge from the hospital with readmission for surgery later. **-Urgent** surgeries are performed on patients whose medical condition requires continuous hospitalization prior to CABG. A critical feature that distinguishes urgent from elective patients is that urgent patients ***cannot be safely discharged*** prior to their CABG, but they can safely await CABG in the hospital. An intra-aortic balloon pump or IV nitroglycerin may be part of treatment. **-Emergent** surgeries are performed on patients whose condition dictates that the surgery be performed within several hours to prevent morbidity or death. These cases should take precedence over an elective case, cause a new operating room to be opened, or be done at night or on a weekend if necessary. A critical feature which distinguishes emergent from urgent patients is that emergent patients ***cannot safely delay CABG even while they are in the hospital.*** Emergent cases are rare. Examples include CABG

Data Element	Valid Values	Definition
		performed as primary revascularization during an acute MI, immediately (within minutes to a few hours) after angioplasty disaster, or while the patient is *still in Cardiogenic shock.* **-Emergent Salvage** surgeries are performed on a patient ***undergoing CPR en route*** to operating room or in the operating room prior to induction of anesthesia. Patient is pulse less within hour prior to surgery.
82. Urgent / Emergent /Emergent Salvage Reason **STS Sequence #: 1990**	1 = AMI 2 = Anatomy 3 = Aortic Aneurysm 4 = Aortic Dissection 5 = CHF 6 = Device Failure 7=Diagnostic/Intervention al Procedure Complication 8 = Endocarditis 10 = IABP 11 = Infected Device 12 = Intracardiac mass or thrombus 13 = Ongoing Ischemia 14 = PCI Incomplete without clinical deterioration 15 = PCI or attempted PCI with Clinical Deterioration 16 = Pulmonary Edema 17 = Pulmonary Embolus 18 = Rest Angina 19 = Shock Circulatory Support 20 = Shock No Circulatory Support 21 = Syncope 22 = Transplant 23 = Trauma	Choose one reason from the list below that best describes why this operation was considered urgent emergent, or emergent/salvage. **Intent/Clarification:** See list for options. **There is no hierarchy - choose the primary reason the procedure is urgent or emergent.** There may be multiple reasons, choose one that best describes this patient's clinical state. The reason is patient specific and needs to be taken from the surgeon's notes. For example: Unstable angina at the time of admission would be coded unstable angina at the time of surgery. If a patient has severe aortic and mitral valve stenosis, but also has symptoms such as dyspnea on exertion (DOE), paroxysmal nocturnal dyspnea (PND), congestion on x-ray or pedal edema that has been treated as CHF, code "CHF" as the most appropriate choice. Valve dysfunction is defined as a structural failure with that valve. For prosthetic valves – fractured leaflet, thrombus formation, pannus development which impedes flow through the valve orifice, or valvular dehiscence (coming loose or disconnected at the suture line). Native valve dysfunction includes papillary rupture or torn leaflet. Rupture or dissection during cardiac cath; Perforation, tamponade following cardiac cath-does not include stent closure. **STS Update** Endocarditis – This choice is for patients with infectious endocarditis. Patients with Marantic Endocarditis or Libman – Sacks Endocarditis (Nonbacterial Thrombotic Endocarditis) (Lupus) reason for surgery should not be captured as endocarditis. For those patients, capture Valve dysfunction as the reason for surgery. **STS Update** Shock, Circulatory Support - Shock can be chemically or mechanically supported with IV inotrope or vasopressor medications or mechanical assist device to maintain cardiac output [CO].

Data Element	Valid Values	Definition
	24 = USA 25 = Valve Dysfunction 26 = Worsening CP 27 = Other 28 = Failed Transcatheter Valve Therapy- Acute Annular Disruption 29 = Failed Transcatheter Valve Therapy- Acute Device Malposition 30 = Failed Transcatheter Valve Therapy – Subacute Device Dysfunction	
83. Perfusion Strategy STS Sequence #: 2325	1 = None 2 = Combination 3 = Full 4 = Left Heart Bypass	Indicate the level of CPB or coronary perfusion used during the procedure. **Intent/Clarification:** **None**: No CPB (cardiopulmonary bypass) or coronary perfusion used during the procedure. **Left Heart Bypass:** Left heart bypass is utilized to remove oxygenated blood from the left atrium and return it to the distal descending aorta or femoral artery. This procedure allows repair or replacement of the descending thoracic aorta while regulating blood flow, minimizing surface area contact activation, and reducing heparin requirements. **Combination**: With or without CPB and/or with or without coronary perfusion at any time during the procedure (capture conversions from off-pump to on-pump only): At start of procedure: No CPB/No Coronary Perfusion -> conversion to -> CPB At start of procedure: No CPB/No Coronary Perfusion -> conversion to -> Coronary perfusion At start of procedure: No CPB/No Coronary Perfusion -> conversion to -> Coronary perfusion -> conversion to -> CPB **Full CPB** or coronary perfusion was used for the entire procedure
84. CPB Utilization – Combination Plan STS Sequence #: 2330	1 = Planned 2 = Unplanned	Indicate whether the combination procedure from off-pump to on-pump was a planned or an unplanned conversion.

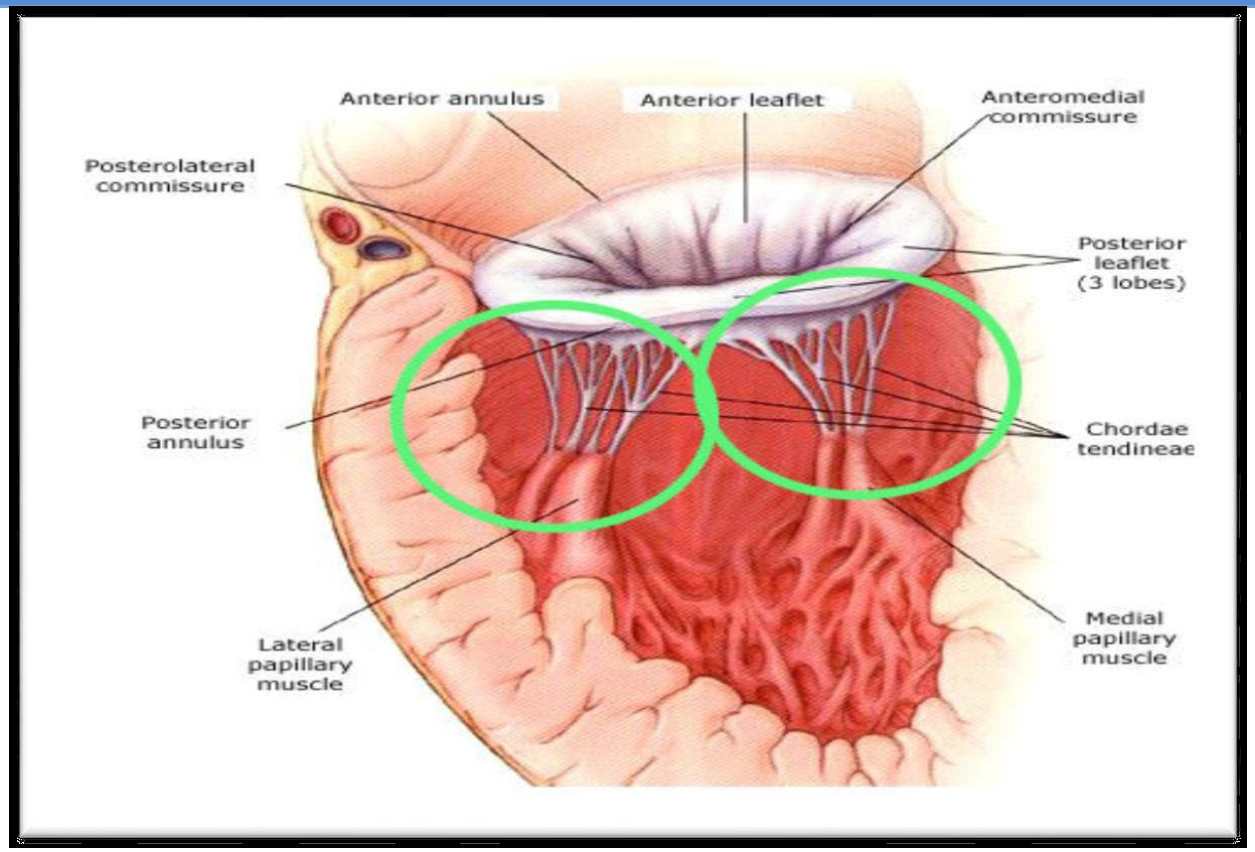
Data Element	Valid Values	Definition
		Intent/Clarification: To capture if the operation was intended to be an off-pump case and, for some clinical reason, required cardiopulmonary bypass to complete the operation. -Planned: The surgeon intended to treat with any of the combination options described in "CPB utilization". -Unplanned: The surgeon did not intend to treat with any of the combination options described in "CPB utilization".
85. Internal Mammary Artery Used **STS Sequence #: 2626**	1 = Yes 2 = No	Indicate whether an internal mammary artery conduit was used. **Intent/Clarification:** To capture the use of an internal mammary artery (**also known as the internal thoracic artery**) to construct one or more distal anastomoses: LIMA, RIMA, both or none. IMA may be used as a free or in-situ graft; pedicle, skeletonized. The patient must leave the OR with an IMA graft in place, in order to code Yes to IMA used. For example, the flow via the IMA graft was poor so the surgeon removed the IMA graft and used a venous graft to the LAD. In this scenario, the IMA was not used.
86. Reason for No IMA **STS Sequence #: 2629**	2 = Subclavian stenosis 3 = Previous cardiac or thoracic surgery 4 = Previous mediastinal radiation 5 = Emergent or salvage procedure 6 = No (bypassable) LAD disease 7 = Other Not Acceptable STS Provided Exclusion 8 = Other-Acceptable STS Provided Exclusion	Indicate PRIMARY reason Internal Mammary artery was not used as documented in medical record. **STS Update** Intent/Clarification: Choose from the following reasons: Subclavian stenosis ‑the presence of an untreated significant subclavian stenosis is considered a contraindication to pedicled IMA use. The IMA is a branch of the subclavian artery and a luminal stenosis in that vessel produces reduced flow through the IMA. The surgeon has the option of using the LIMA as a free (nonpedicled) graft, but due to the additional technical demands and reported lower patency rates for IMA free grafts, STS considers subclavian stenosis an acceptable exclusion to IMA use. **STS Update –** If the Heart Cath or other diagnostic study has 2 values available for PA systolic pressure - one at rest 45 and one noted to be "immediately post exercise" which was 58, capture the resting PA systolic pressure. • Previous cardiac or thoracic surgery ‑ Update Dec 2020 a prior cardiac procedure may have involved harvesting of the IMA. Additionally, the greater technical complexity of reoperative surgery may mitigate against IMA use. Therefore, STS considers prior cardiac surgery to be an acceptable exclusion to IMA use. Prior thoracic surgery, if it is ipsilateral to the IMA being considered for use, is also an acceptable exclusion due to the development of pleural adhesions secondary to prior surgery.

Data Element	Valid Values	Definition
		• Previous mediastinal radiation – due to both the short and long term damaging effects of radiation on blood vessels, STS considers previous mediastinal radiation to be an acceptable reason for not using the IMA. • Emergent or salvage procedure - the nature of such procedures, with the attendant potential need for rapid anticoagulation and institution of cardiopulmonary bypass, often shifts the risk/benefit balance away from the extra time needed for IMA harvest. These situations are acceptable exclusions. • No (BYPASSABLE) LAD disease – ~~This can include a non-stenosed or patent LAD, diffusely diseased LAD or other condition resulting in the LAD not being bypassed~~. **STS Update** No (bypassable) Left Main or LAD disease: 1) There is no hemodynamically significant Left Main (<50%) or LAD (<70%) stenosis necessitating a bypass to the LAD or 2) The LAD system is not graftable due to diffuse disease or calcification that cannot be addressed surgically. • Other - acceptable STS provided exclusion – This category is to be chosen rarely. Generally speaking, it is for those anatomic and/or clinical situations that would be considered contraindications to IMA use by the vast majority of surgeons. To be clear: there will be select clinical situations where the surgeon opts not to use the IMA because of concern about IMA quality but the reason will not be an STS acceptable exclusion. It is and has been the position of STS leadership that such situations are 1) uncommon; 2) should be uniformly distributed across the spectrum of patients, surgeons and/or participant groups; 3) can fall into a gray area and be managed differently by surgeons; and 4) no one surgeon or participant group should encounter these random situations with any particular increased frequency such that it would unduly impact the NQF measure for IMA use and consequently, star rating. Additionally, STS wishes to minimize the potential for gaming. As an example of gaming: small vessel caliber or inadequate flows are judgments that differ among surgeons. If accepted as exclusion, virtually any IMA could be coded in this manner as exclusion, and the IMA measure would become meaningless. With careful harvest and use of vasodilators like papaverine, almost all IMA's have adequate size and flow. STS understands that surgeons must always proceed in what they believe to be the best interests of their patient. If a surgeon selects this exclusionary category, the situation must be adjudicated by Surgeon Leadership of STS and deemed to be acceptable. If you have a documented reason for not using the IMA that does not fall into one of the above approved reasons and it not addressed below, please send in a question to the [STS] FAQ Mailbox Ask an Abstraction Question . It is important for sites to keep a copy of the FAQ email documenting the exclusion in the event of an audit.

Data Element	Valid Values	Definition
		• Other - not acceptable STS exclusion. The National Quality Forum (NQF) does not consider this exclusion for measure purposes and this choice will have a negative impact on the star rating. **STS Update** unless there are specific instructions in the TM [STS Training Manual] that relate to the situation, in that case, use the instructions in the TM which have been approved by Surgeon Leadership. **Examples of Acceptable Reasons:** The IMA was not harvested because the patient had a left upper extremity fistula for hemodialysis and the surgeon was concerned about coronary steal syndrome. Code this as 'Other – acceptable STS provided exclusion' The patient has a history of severe PVD. The aortogram at the time of the cardiac catheterization showed an occluded distal aorta. The lower extremities perfusion was supplied by the mammary arteries. It was felt that the lower extremities would be in jeopardy if the mammary is used. Code this as an exclusion due to Other - acceptable STS provided exclusion. A patient had a bilateral mastectomy and immediate reconstruction with flap. During that procedure both the RIMA and LIMA were harvested. 7 months later the patient required a CABG and no IMA could be used as they were not present. Code this as an exclusion due to previous thoracic surgery. The patient has pectus carinatum and it is documented "We attempted to harvest the left internal mammary artery however due to the patient's severe pectus, it was impossible to visualize the mammary artery. Code this as an exclusion due to Other - acceptable STS provided exclusion. **Examples of Unacceptable Reasons:** I have had multiple cases where the IMA is not used but the physician places an SVG to the LAD. The cardiac cath shows no LAD disease but does have LM disease. The surgeon documents "I elected not to use IMA since the patient does not have any specific LAD disease". No LAD disease is not an acceptable exclusion in this situation. Left main is functionally 2 VD LAD and CX disease. Code OTHER not acceptable STS exclusion as reason for no IMA. The patient has severe COPD and emphysema with hyperinflated lungs. He had a CABx1 with MVR. The surgeon chooses to use a vein instead of an IMA. This was his documentation in his consult note: "Has single-vessel coronary artery disease and I believe that he should have a vein graft to his LAD as given his large lungs a LIMA would be too hazardous. It simply will not reach." Code OTHER not acceptable STS exclusion as reason for no IMA. IMA is not used related to poor or low blood flow. Code OTHER not acceptable STS exclusion as reason for no IMA.

Data Element	Valid Values	Definition
		STS Update - When an IMA is harvested and there is poor flow or possible trauma to the vessel during the harvest, code OTHER not acceptable STS exclusion as reason for no IMA **STS Update I**MA is not used related to small size. Code OTHER not acceptable STS exclusion as reason for no IMA**.** **STS Update** IMA is not used related to length. For example, the IMA was not long enough to reach the distal LAD site. Code OTHER not acceptable STS exclusion as reason for no IMA.
87. Valve **STS Sequence #: 2129**	1 = Yes 2 = No	Indicate whether a surgical procedure was done on the Aortic, Mitral, Tricuspid or Pulmonic valves
88. Aortic Valve **STS Sequence #: 2131**	2 = No 3 = Yes, planned 4 = Yes, unplanned due to surgical complication 5 = Yes, unplanned due to unsuspected disease or anatomy	Indicate whether an aortic valve procedure was performed.
89. Aortic Valve Procedure **STS Sequence #: 3395**	1 = Replacement 2 = Repair/Reconstruction 3 = Surgical Prosthetic Valve Intervention (not explant of valve)	Indicate the type of procedure that was performed on the aortic valve. Anterior mitral leaflet endarterectomy/decalcification is considered part of the AVR and should not be coded as a mitral valve procedure. An aortic endarterectomy is considered part of the AVR procedure and should not be coded elsewhere. Aortoplasty done in conjunction with AVR to reduce the size of the ascending aorta is considered part of the closure and is not coded as an additional procedure. Aortic resection to merely remove excessive aortic tissue prior to aortoplasty is considered part of the closure and is not coded as an additional procedure. Wrapping the dilated portion of the aorta to reinforce it does not constitute an "other or aorta" procedure when done in conjunction with an AVR.

Data Element	Valid Values	Definition
		Note: Patient had an AVR for endocarditis. The surgeon also performed unroofing of the mitral valve sub annular abscess. Don't code the unroofing of the mitral valve sub annular abscess. This is part of the AVR for endocarditis. **STS Update** – Prior to V 2.9, harvest code 3 = Root Replacement. In V 4.2 harvest code 3 = Surgical Prosthetic Valve Intervention (Not explant of valve). This was an error that will be corrected in the next version.
90. Mitral Valve **STS Sequence #: 2133**	2 = No 3 = Yes, planned 4 = Yes, unplanned due to surgical complication 5 = Yes, unplanned due to unsuspected disease or anatomy	Indicate whether a mitral valve procedure was performed.
91. Mitral Valve Procedure **STS Sequence #: 3500**	1 = Repair 2 = Replacement 3 = Surgical Prosthetic Valve Intervention (Not explant of valve)	Indicate the type of procedure that was performed on the mitral valve.

Data Element	Valid Values	Definition
		 **General Information** An anterior mitral leaflet endarterectomy/decalcification done in conjunction with an AVR is considered part of the AVR and should not be coded as a mitral valve procedure. Unroofing of the mitral valve sub annular abscess done in conjunction with an AVR for endocarditis is considered part of the AVR and should not be coded as a mitral valve procedure. **STS Update** ~~An MVR with reconstruction of the atrium with atrioplasty is a technical addition and is coded only as an MVR. A pericardial patch for erosion of an abscess is an inherent part of the procedure for an MVR for endocarditis and is not coded as other cardiac procedure.~~

Data Element	Valid Values	Definition
		STS Update For Endocarditis patients - An aortic or mitral valve replacement which requires the use of patch reconstruction of any part of the aortic and/or mitral valve annulus increases the inherent risk of this procedure, justifying the coding of Seq 4135 "Other Cardiac Other". **[For CCORP- please code Type of CABG = 4 All Other Non-isolated CABG.]** **STS Update** - Aortoplasty done in conjunction with MVR is considered part of the closure and is not coded as an additional procedure. **STS Update** - Septal myomectomy and removal of secondary chords to the mitral valve. This is coded as subaortic stenosis resection SEQ 4051. Do not code MV repair. The cutting of secondary chords is considered part of the septal myomectomy per STS Surgeon Leadership. **STS Update** - Mitral Valve repair with cryoablation of the papillary muscles. This is coded as MV repair. There is nothing additional to code for the cryoablation of the papillary muscles. **STS FAQ** - If a MV repair is attempted and converted to an MVR, do we only code the replacement? Answer – Yes, on the DCF, you can only choose repair or replacement. In this scenario, code as a MV replacement since that was the procedure performed.
92. Tricuspid Valve **STS Sequence #: 2134**	2 = No 3 = Yes, planned 4 = Yes, unplanned due to surgical complication 5 = Yes, unplanned due to unsuspected disease or anatomy	Indicate whether a tricuspid valve procedure was performed.
93. Pulmonic Valve **STS Sequence #: 2135**	2 = No 3 = Yes, planned 4 = Yes, unplanned due to surgical complication 5 = Yes, unplanned due to unsuspected disease or anatomy	Indicate whether a pulmonic valve procedure was performed.

Data Element	Valid Values	Definition
94. Reoperation for Bleed/ Tamponade STS Sequence #: 6755	1 = Yes 2 = No	Indicate whether the patient was re-explored for **bleeding in the mediastinum (thoracic cavity) or the abdominal cavity** mediastinal bleeding with or without tamponade either in the ICU or returned to the operating room. **[STS Clarification July 2021]** **Intent/Clarification:** The intent of this field is to capture patients who are re-explored for bleeding / suspected bleeding**.** Include patients that require surgical re-intervention to investigate or correct bleeding with or without tamponade. Tamponade occurs when there is compression or restriction placed on the heart within the chest that creates hemodynamic instability or a hypo-perfusion state. Do not include medically (non-operatively) treated excessive post-operative bleeding/tamponade events. 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. 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 or correct bleeding with or without tamponade. Include only those interventions that pertain to the mediastinum or thoracic cavity. Note: Pt returns to OR for exploration of bleed without tamponade. The surgeon documents hematoma evacuation with washout no active bleeding. This is a reop bleed. The patient was re-explored for mediastinal bleeding and a hematoma was evacuated.
95. Unplanned Coronary Artery Intervention STS Sequence #: 6771	1 = Yes 2 = No	Indicate if the patient had an unplanned coronary intervention (PCI) or unplanned surgical intervention on a coronary artery. **Intent/Clarification:** Only capture surgical or Cath lab interventions that occur during the hospitalization prior to discharge. Capture an unplanned coronary intervention (PCI) or unplanned surgical intervention on a coronary artery in this field. Yes No Percutaneous coronary intervention (PCI) is the placement of an angioplasty guide wire, balloon, or other device (e.g. stent, atherectomy, brachytherapy, or thrombectomy catheter) into a native coronary artery

Data Element	Valid Values	Definition
		or coronary artery bypass graft for the purpose of mechanical coronary revascularization. An **attempted**, even if unsuccessful, PCI should be coded as a PCI. Note: Patient had CABG, coded in ICU postop and a few days postop had to go to cath lab and near total graft occlusion (RCA) found. The MD attempted to perform a PCI of the RCA and was unable to wire/ cross the lesion. Code this as Post-Op-Unplanned Coronary Artery Intervention since a PCI was attempted. An LHC cath done without an attempted intervention would not be captured. **STS FAQ**- What constitutes an unplanned procedure? **Answer** - Planned procedures are procedures that are planned pre-op or during the index procedure. A procedure done after the index procedure that was not planned pre- or intra-op is unplanned and coded as a post-op event **STS Update:** • An example of a planned procedure is the surgeon is unable to bypass the RCA during the surgical procedure, so he decides prior to coming off bypass to perform a PCI on the RCA after surgery. • An example of an unplanned procedure is a patient who had a CABG that is hypotensive with severe RV dysfunction after coming off CPB. The decision was made prior to leaving the OR to take the patient directly to the Cath lab. In the Cath lab, a stent was placed in the RCA. This is to be coded as SEQ 6771 Post-Op-Unplanned Coronary Artery Intervention since technically the surgical procedure was completed and the patient was off bypass when the decision was made to go to the Cath lab.
96. Unplanned Coronary Artery Intervention-Vessels **STS Sequence# 6772**	1 = Native Coronary 2 = Graft 3 = Both	Indicate the type of vessels that required postoperative reintervention.
97. Deep Sternal **STS Sequence #: 6700**	2 = No; 3= Yes, within 30 days of procedure; 4=Yes> 30 after procedure, but during initial hospitalization	Indicate whether a deep sternal wound infection or mediastinitis was diagnosed within 30 days of the OR date or at any time during the initial hospitalization.
98. Neuro-Stroke Permanent **STS Sequence #:**	1 = Yes 2 = No	Indicate whether the patient has a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that was confirmed on imaging or did not resolve within 24 hours.

Data Element	Valid Values	Definition
6810		**Intent/Clarification:** The intent is to capture whether the patient has a postoperative stroke (i.e. any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that was **confirmed on imaging or did not resolve within 24 hours.** **STS Update** Clarification - Stroke is an acute episode of focal or global neurological dysfunction caused by brain or retinal vascular injury as a result of hemorrhage or infarction, where the neurological dysfunction **STS Update Jan 2024 was confirmed on imaging or** lasts for greater than 24 hours. **STS Update –** The Neurologist is the final arbitrator when there are differences in opinion as to if a stroke occurred. Stroke occurs when the blood supply to part of the brain is suddenly interrupted or when a blood vessel in the brain bursts, spilling blood into the spaces surrounding brain cells. Brain cells die when they no longer receive oxygen and nutrients from the blood or there is sudden bleeding into or around the brain. The symptoms of a stroke include: Sudden numbness or weakness, especially on one side of the body Sudden confusion or trouble speaking or understanding speech Sudden trouble seeing in one or both eyes Sudden trouble with walking, dizziness, or loss of balance or coordination Sudden severe headache with no known cause There are two forms of stroke: Ischemic - Blockage of a blood vessel supplying the brain. Includes embolic. Hemorrhagic - Bleeding into or around the brain Central events are caused by embolic or hemorrhagic events. Neurological deficits such as confusion, delirium and/or encephalopathic (anoxic or metabolic) events are not to be coded in this field. **Note~~:~~ STS Update:** Patient with abrupt onset neurological deficit had an MRI which was positive for acute CVA. The symptoms resolved within 24 hours. How is this coded? ~~Patient had an MRI that was positive for a post-op stroke. In discussion with the cardiac team it was felt that this would not be captured as a post-op stroke because the symptoms resolved within 24 hours.~~ In this scenario, code YES to post-op CVA. The intent is to capture whether the patient has a postoperative stroke (i.e. any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that was confirmed on imaging **or** did not resolve within 24 hours.

Data Element	Valid Values	Definition
		STS FAQ - Patient had a cardiac arrest post-op. The patient is unresponsive to verbal and noxious stimuli and is noted to have myoclonic jerks. Neuro consult was requested. The Neurologist did not provide the diagnosis of "encephalopathy", but instead "anoxic coma". Do I capture this event under encephalopathy or stroke? Answer - Capture the Neurologist's diagnosis of anoxic coma as anoxic encephalopathy in SEQ 6821. **Reference:** https://www.ninds.nih.gov/Disorders/All-Disorders/Stroke-Information-Page
99. Pulm – Ventilation Prolonged **STS Sequence #: 6835**	1 = Yes 2 = No	Indicate whether the patient had prolonged post-operative pulmonary ventilation > 24.0 hours. The hours of postoperative ventilation time include OR exit until extubation, plus any additional hours following reintubation. **Intent/Clarification:** Includes any patient requiring mechanical ventilation > 24 hours postoperatively. To calculate total hours, include initial and additional hours of mechanical ventilation
100. Renal – Renal Failure **STS Sequence #: 6870**	1 = Yes 2 = No	Indicate whether the patient had acute renal failure or worsening renal function resulting in ONE OR BOTH of the following: **A**) Increase in serum creatinine level 3.0 x greater than baseline, or serum creatinine level ≥4 mg/dL, Acute rise must be at least 0.5 mg/dl **B)** A new requirement for dialysis postoperatively. **Intent/Clarification:** Baseline creatinine is the creatinine level closest to the date and time prior to surgery but prior to anesthetic management (induction area or operating room). If the patient was on dialysis pre-op, then do not code **STS Update** post-op renal failure or dialysis as a post-op complication. Please follow the training manual instructions for coding preoperative dialysis (Dialysis – seq 375). **STS Update** If the patient's pre-op creatinine SEQ 605 is > 4.0, then do not code post-op renal failure or dialysis as a post-op complication If pre-op dialysis is equal to "No" and if peak postoperative creatinine level is greater than or equal to 3X last creatinine level pre-op or postoperative creatinine is greater than or equal to 4.0 with a 0.5 mg/dL rise or new postoperative dialysis then, renal failure is equal to "Yes".

Data Element	Valid Values	Definition
		STS FAQ - Can you please explain what an "0.5 Rise" means? Does this mean that if a patient has a preop creatinine of 1.0 prior to surgery and a highest postop creatinine of 1.5 that this patient should be marked as "Renal Failure" in 6870 because he/she had a rise of 0.5? Answer - One of the indicators for renal failure is a serum creatinine level ≥4 mg/dL with at least a 0.5 mg/dL rise. For example, if your pre-op creatinine was 4.0 or greater and your highest post-op creatinine rises 0.5 or greater then that is coded as renal failure. For example, pre-op crt 4.1 and post-op 4.6 = renal failure.
101. Renal – Dialysis Requirement **STS Sequence #: 6875**	1 = Yes 2 = No	Indicate whether the patient had a new requirement for dialysis postoperatively, which may include hemodialysis, peritoneal dialysis.
102. Other – A Fib **STS Sequence #: 6945**	1 = Yes 2 = No	Indicate whether the patient experienced atrial fibrillation/flutter (AF) after OR Exit that a. last longer than one hour, or b. lasts less than one hour but requires medical or procedural intervention. Exclude patients who were in AFib at the start of surgery. **Intent/Clarification:** Capture event(s) in all patients regardless if they have had a history of recent or remote **A-fib, A-fib / flutter, or A-flutter** who were not in A-fib, A-fib / flutter, or A-flutter at the start of surgery. Medical or procedural intervention includes cardioversion for A-fib, A-fib / flutter, or A-flutter, AFib ablation, and medication to treat A-fib, A-fib / flutter, or A-flutter. Use the first rhythm documented on the anesthesia record to determine if the patient is in A-fib, A-fib / flutter, or A-flutter at the time of entry to OR. If there is no documentation on the anesthesia record, then use the rhythm documented closest to OR entry to determine if patient in A-fib, A-fib / flutter, or A-flutter. Example # 1: A patient is on beta blockers post-op and is titrating each day to give higher doses. The second post-op day the patient has a two-hour run of AFib. During this run of AFib, the beta blocker is increased, or an extra dose of beta blocker is given. This is considered a post-op AFib event.

Data Element	Valid Values	Definition
		Example # 2: A patient who has no history of AFib is on an AFib protocol preoperatively to prevent post-op AFib; the patient then goes in to atrial fibrillation (AF) postoperatively and the protocol is not adjusted: this should be coded "Yes" as a post op AFib event.
103. Facility Identification Number CCORP-specific variable		The six-digit facility identification number assigned to a hospital by the Department of Health Care Access & Information, as defined in Section 97170.

Type of CABG (*definitional reference):

Was the surgery an Isolated CABG, CABG + Valve, or Other Non-Isolated CABG?

Valid Values

1=Isolated CABG
3= CABG + Valve
4=Other Non-Isolated CABG

Definition

Type of CABG

Isolated CABG

Exclusions from Isolated CABG:

- Valve repairs or replacements
- Operations on structures adjacent to heart valves (papillary muscle, chordae tendineae, traebeculae carneae cordis, annuloplasty, infundibulectomy)
- Ventriculectomy when diagnosed preoperatively as a rupture, aneurysm or remodeling procedure. But not 1) sites intra-operatively diagnosed, 2) patch applications for site oozing discovered during surgery and 3) prophylactic patch applications to reduce chances of future rupture
- Repair of atrial and ventricular septa, but not closure of patent foramen ovale
- Excision of aneurysm of heart
- Head and neck, intracranial endarterectomy
- Other open heart surgeries, such as aortic arch repair, pulmonary endarterectomy
- Endarterectomy of aorta
- Thoracic endarterectomy (endarterectomy on an artery outside the heart)
- Carotid endarterectomy
- Heart transplantation
- Repair of certain congenital cardiac anomalies, but not closure of patent foramen ovale (e.g., teratology of fallot, atrial septal defect (ASD), ventricular septal defect (VSD), valvular abnormality)
- Any aortic aneurysm repair (abdominal or thoracic)
- Aorta-subclavian-carotid bypass
- Aorta-renal bypass

- Aorta-iliac-femoral bypass
- Caval-pulmonary artery anastomosis
- Extracranial-intracranial (EC-IC) vascular bypass
- Coronary artery fistula
- Resection of a lobe or segment of the lung (e.g., lobectomy or segmental resection of lung). But not simple biopsy of lung nodule in which surrounding lung is not resected, biopsy of a thoracic lymph node or excision or stapling of an emphysematous bleb.
- Pleural decortication
- Mastectomy for breast cancer (not simple breast biopsy)
- Amputation of any extremity (e.g., foot or toe)
- Resection of LV aneurysm
- Planned Ventricular Assist Device (VAD) for long term treatment.
- Septal myectomy with hypertrophic obstructive cardiomyopathy
- Full open mazes
- Repair of aortic dissection

CABG + Valve

CABG + Valve includes all CABG cases with aortic valve replacement (AVR), mitral valve replacement (MVR), mitral valve repair (MVRepair) and AVR +MVR/MVRepair

Exclusions from CABG + Valve:

- Aortic Valve repair
- Aortic Valve root replacement with valved conduit (Bentall)
- Pulmonic Valve Procedure
- Tricuspid Valve Procedure
- Ventriculectomy when diagnosed preoperatively as a rupture, aneurysm or remodeling procedure. But not 1) sites intra-operatively diagnosed, 2) patch applications for site oozing discovered during surgery and 3) prophylactic patch applications to reduce chances of future rupture
- Repair of atrial and ventricular septa, but not closure of patent foramen ovale
- Excision of aneurysm of heart
- Head and neck, intracranial endarterectomy
- Other open heart surgeries, such as aortic arch repair, pulmonary endarterectomy
- Endarterectomy of aorta
- Thoracic endarterectomy (endarterectomy on an artery outside the heart)
- Carotid endarterectomy
- Heart transplantation

- Repair of congenital cardiac anomalies, such as tetralogy of fallot, atrial septal defect (ASD), ventricular septal defect or other complex anomaly
- Any aortic aneurysm repair (abdominal or thoracic)
- Repair of aortic dissection
- Aorta-subclavian-carotid bypass
- Aorta-renal bypass
- Aorta-iliac-femoral bypass
- Caval-pulmonary artery anastomosis
- Extracranial-intracranial (EC-IC) vascular bypass
- Coronary artery fistula
- Resection of a lobe or segment of the lung (e.g., lobectomy or segmental resection of lung). But not simple biopsy of lung nodule in which surrounding lung is not resected, biopsy of a thoracic lymph node or excision or stapling of an emphysematous bleb.
- Pleural decortication
- Mastectomy for breast cancer (not simple breast biopsy)
- Amputation of any extremity (e.g., foot or toe)
- Resection of LV aneurysm
- Planned Ventricular Assist Device (VAD) for long term treatment.
- Infundibulectomy
- Septal myectomy with hypertrophic obstructive cardiomyopathy
- Full Open MAZE for Aortic Valve cases only (epicardial MAZE procedures are coded as CABG + Valve and Full Open MAZE procedures for Mitral Valve are also coded as CABG + Valve).

Other Non-Isolated

All other non-isolated CABGs

Must include a CABG (not isolated Valves)

Responsible Surgeon Name (definitional reference):**

"Responsible surgeon" means the principle surgeon who performs a coronary artery bypass procedure.

The first and last name collected should exactly match the name assigned to the license number issued by the California Medical Board.

The middle initial collected should match the first letter of the middle name assigned to the license number issued by the California Medical Board. Example: if a surgeon's middle name is Harry, the middle initial should be reported as 'H'. NOTE: do not include period (.).

If a trainee performs this procedure, then the responsible surgeon is the physician responsible for supervising this procedure performed by the trainee. In situations in which a responsible surgeon cannot otherwise be determined, the responsible surgeon is the surgeon who bills for the coronary artery bypass procedure.