OSHPD

Office of Statewide Health Planning and Development

California CABG Outcomes Reporting Program

Data Abstractor Training Manual

Version 7.1

Updated 10/17/2018

Document Revision History

Date	Version	Description
5/31/2017	7.0	Training Manual Release
7/11/2017	7.1	Updated with STS V 2.9 training manual.
12/6/2017	7.1	Added STS clarifications from their August- December 2017 training manual updates http://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_September2017.pdf http://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_October2017.pdf http://www.sts.org/sites/default/files/documents/ACSDTrainingManualV2-9_November2017.pdf http://www.sts.org/sites/default/files/documents/ACSD_TrainingManual_V2-9_December2017.pdf
2/28/2018	7.1	Added STS clarifications from their January and February 2018 training manual updates. http://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_January2018.pdf http://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_February2018.pdf Clarified Ejection Fraction (%), exclusions to Isolated CABG and CABG + Valve.
5/7/18	7.1	Added STS clarifications from their March, April, and May 2018 training manual updates https://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_March2018.pdf https://www.sts.org/sites/default/files/documents/ACSDTrainingManual_V2-9_April2018-3.pdf https://www.sts.org/sites/default/files/documents/ACSD_TrainingManual_V2-9_May018-3.pdf
7/1/2018	7.1	Percent Stenosis Left Main descriptive terms updated to be in synch with STS.
7/20/2018	7.1	Added STS clarifications from their July 2018 training manual updates https://www.sts.org/sites/default/files/documents/ACSD_TrainingManual_V2-9_July2018.pdf

10/17/2018	7.1	Added STS clarifications from their August, September, October 2018 training manual updates. Updates are in green. https://www.sts.org/sites/default/files/documents/ACSD_TrainingManual_V2-9_Aug2018.pdf https://www.sts.org/sites/default/files/content/ACSD_TrainingManual_V2-9_September2018.pdf https://www.sts.org/sites/default/files/content/ACSDTrainingManual_V2-9_October2018.pdf

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Data Elements in Export Order

Effective with July 1, 2017 Discharges

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. Race Documented	Demographics	STS
8. Race – White	Demographics	STS
9. Race – Black/African American	Demographics	STS
10. Race – Asian	Demographics	STS
11. Race – American Indian/ Alaskan Native	Demographics	STS
12. Race – Native Hawaiian/ Pacific Islander	Demographics	STS
13. Race – Other	Demographics	STS
14. Hispanic or Latino or Spanish Ethnicity	Demographics	STS
15. Date of Discharge	Discharge/ Mortality	STS
16. Discharge/Mortality Status	Discharge/ Mortality	STS
17. Mortality Date	Discharge/ Mortality	STS
18. Responsible Surgeon Name (3 separate fields)	Operative	Non-STS
18a. Surgeon Last Name 18b. Surgeon First Name 18c. Surgeon Middle Initial	Operative Operative Operative	Non-STS Non-STS Non-STS
19. Responsible Surgeon CA License Number	Operative	Non-STS
20. Height (cm)	Risk Factors	STS
21. Weight (kg)	Risk Factors	STS
22. Diabetes	Risk Factors	STS
23. Diabetes Control	Risk Factors	STS
24. Dialysis	Risk Factors	STS
25. Hypertension	Risk Factors	STS
26. Endocarditis	Risk Factors	STS
27. Infectious Endocarditis Type	Risk Factors	STS
28. Chronic Lung Disease	Risk Factors	STS
29. Liver Disease	Risk Factors	STS

30. Immunocompromise	Risk Factors	STS
31. Peripheral Arterial Disease (PVD)	Risk Factors	STS
32. CVD	Risk Factors	STS
33. Prior CVA	Risk Factors	STS
34. Prior CVA When	Risk Factors	STS
35. CVD TIA	Risk Factors	STS
36. CVD – Carotid Stenosis	Risk Factors	STS
37. CVD Carotid Stenosis – Right	Risk Factors	STS
38. CVD Carotid Stenosis – Left	Risk Factors	STS
39. CVD Prior Carotid Surgery	Risk Factors	STS
40. Last Creatinine Level	Risk Factors	STS
41. Total Albumin	Risk Factors	STS
42. Total Bilirubin	Risk Factors	STS
43. INR	Risk Factors	STS
44. Previous CABG	Previous Cardiac Interventions	STS
45. Previous Valve	Previous Cardiac Interventions	STS
46. Previous PCI	Previous Cardiac Interventions	STS
47. Previous PCI – Interval	Previous Cardiac Interventions	STS
48. Prior MI	Preoperative Cardiac Status	STS
49. MI When	Preoperative Cardiac Status	STS
50. Heart Failure	Preoperative Cardiac Status	STS
51. Heart Failure Timing	Preoperative Cardiac Status	STS
52. Classification – NYHA	Preoperative Cardiac Status	STS
53. Cardiogenic Shock	Preoperative Cardiac Status	STS
54. Resuscitation	Preoperative Cardiac Status	STS
55. Cardiac Arrhythmia	Preoperative Cardiac Status	STS
56. Cardiac Arrhythmia – Vtach/VFib	Preoperative Cardiac Status	STS
57. Cardiac Arrhythmia - AFlutter	Preoperative Cardiac Status	STS
58. Cardiac Arrhythmia – Third Degree Heart Block	Preoperative Cardiac Status	STS
59. Cardiac Arrhythmia – Atrial Fibrillation	Preoperative Cardiac Status	STS
60. Cardiac Arrhythmia – Atrial Fibrillation-Type	Preoperative Cardiac Status	STS
61. Warfarin Use (within 5 days)	Preoperative Medications	STS
62. Coronary Anatomy/Disease Known	Hemodynamics / Cath / Echo	STS
63. Number of Diseased Vessels	Hemodynamics / Cath / Echo	STS

64. Percent Native Artery Stenosis Known	Hemodynamics / Cath / Echo	STS
65. Percent Stenosis Left Main	Hemodynamics / Cath / Echo	STS
66. Ejection Fraction Done	Hemodynamics / Cath / Echo	STS
67. Ejection Fraction (%)	Hemodynamics / Cath / Echo	STS
68. PA Systolic Pressure Measured	Hemodynamics / Cath / Echo	STS
69. PA Systolic Pressure	Hemodynamics / Cath / Echo	STS
70. Insufficiency – Mitral	Hemodynamics / Cath / Echo	STS
71. Incidence	Operative	STS
72. Status	Operative	STS
73. Urgent of Emergent Reason	Operative	STS
74. CPB Utilization	Operative	STS
75. CPB Utilization – Combination Plan	Operative	STS
76. IMA Used	Coronary Bypass	STS
77. Reason for No IMA	Coronary Bypass	STS
78. Valve	Operative	STS
79. Aortic Valve	Valve Surgery	STS
80. Aortic Valve Procedure	Valve Surgery	STS
81. Mitral Valve	Valve Surgery	STS
82. Mitral Valve Procedure	Valve Surgery	STS
83. Tricuspid Valve	Valve Surgery	STS
84. Pulmonic Valve	Valve Surgery	STS
85. Reoperation for Bleed	Postoperative Events	STS
86. Reintervention – Myocardial Ischemia	Postoperative Events	STS
87. Reintervention – Myocardial Ischemia Vessel	Postoperative Events	STS
88. Deep Sternal Infection/ Mediastinitis	Postoperative Events	STS
89. Neuro – Stroke Permanent	Postoperative Events	STS
90. Pulm – Ventilation Prolonged	Postoperative Events	STS
91. Renal – Renal Failure	Postoperative Events	STS
92. Renal – Dialysis Requirement	Postoperative Events	STS
93. Other – A Fib	Postoperative Events	STS
94. 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 56 -58.
3. Date of Surgery **STS Sequence #: 310**	Numeric: mmddyyyy	Indicate the date of index cardiac surgical procedure. Index cardiac surgical procedure is defined as the initial major cardiac surgical procedure of the hospitalization. **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. **STS Intent/Clarification:** Required date format: mm/dd/yyyy
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. Race Documented **STS Sequence #: 150**	1 = Yes 2 = No 3 = Patient Declined to Disclose	Indicate whether race is documented. **STS Clarification:** Race should be self-reported by the patient/family. Do not assign race or make assumptions if race is not documented.

8. Race – White **STS Sequence #: 155**	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. **STS Clarification:** You may choose more than one race category. The Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget and these data are based on **self-identification.** The racial categories included in the census form generally reflect a social definition of race recognized in this country, and are not an attempt to define race biologically, anthropologically or genetically. In addition, it is recognized that the categories of the race item include racial and national origin or socio-cultural groups. People may choose to report more than one race to indicate their racial mixture, such as "American Indian and White." People who identify their origin (ETHNICITY) as Hispanic, Latino or Spanish may be of any race. In addition, it is recognized that the categories of the race item include both racial and national origin and socio-cultural groups.
9. Race – Black/African American **STS Sequence #: 160**	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 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. **STS Clarification:** This includes a person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."
10. Race – Asian **STS Sequence #: 165**	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.

11. Race – American Indian/ Alaskan Native **STS Sequence #:170**	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.
12. Race – Native Hawaiian/ Pacific Islander **STS Sequence #: 175**	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.
13. Race – Other **STS Sequence #: 180**	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.
14. 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.
15. Date of Discharge **STS Sequence #: 7008**	Numeric: mmddyyyy	Indicate the date the patient was discharged from the hospital (acute care) even if the patient is going to a rehab or hospice or similar extended care unit within the same physical facility. If the patient died in the hospital, the discharge date is the date of death. **CCORP Clarification/Comments:** Do not include transfers to other services, such as renal care unit. If the patient is discharged (given a new account number) to hospice care but remains in the same bed/unit, the discharge date is that date. If the patient is discharged (given a new account number) to a psychiatric or rehab unit, even if located in the same building, the discharge date is that date.

		STS FAQ: If we transfer a patient on ECMO to another hospital, is that transfer date considered the discharge date from our hospital? I understand that it is coded as a transfer to a higher level of care and that any mortality should be coded in my hospital. Answer: Discharge date should be captured from the final disposition from the second hospital.
16. Discharge/ Mortality Status **STS Sequence #: 7005**	2 = Died in Hospital; 3 = Discharged alive, last known status alive; 4 = Discharged alive, died after discharge	Indicate the discharge and current vital status of the patient. **CCORP Clarifications/Comments:** It is not necessary to report operative mortalities. CCORP uses the death file from the state's Vital Statistics program to verify deaths after discharge. 1 = In hospital alive is not valid for CCORP. Only records discharged during report period should be entered in CCORP. **STS Clarification**: GENERAL INFORMATION: Accurate coding mortality is very important to the integrity of the database. All patients discharged alive should be followed for 30 days after the date of surgery to capture whether the patient is alive or dead at the end of the 30th day after the day of index surgery. Any patient that dies within 30 days should be coded as a mortality regardless of the cause of death. Patients that remain in the hospital and die, even if after 30 days following the index surgery are coded as "Died in Hospital". Patients that are transferred to another acute care hospital should be followed [up to 90 days for CCORP]. Any patient that dies at another acute care hospital after transfer [up to 90 days for CCORP] should be coded as a mortality in the database.
17. Mortality Date **STS Sequence #: 7121**	Numeric: mmddyyyy	Indicate the date the patient was declared dead. **STS Clarification:** Provide the date the patient died in hospital or was discharged alive, died after discharge within 30 days. **STS Clarification**: GENERAL INFORMATION: Accurate coding mortality is very important to the integrity of the database. All patients discharged alive should be followed for 30 days after the date of surgery to capture whether the patient is alive or dead at the end of the 30th day after the day of index surgery. Any patient that dies within 30 days should be coded as a mortality regardless of the cause of death. Patients that remain in the hospital and die, even if after 30 days following the index surgery are coded as "Died in Hospital".

		Patients that are transferred to another acute care hospital should be followed [up to 90 days for CCORP]. Any patient that dies at another acute care hospital after transfer [up to 90 days for CCORP] should be coded as a mortality in the database.
18. Responsible Surgeon Name **CCORP-specific variable**	**18a. Surgeon Last Name** **18b. Surgeon First Name** **18c. Surgeon Middle Initial**	Indicate the Surgeon's name. **CCORP Clarification/Comments:** Hospitals are encouraged to look up their surgeon names and licensing information DIRECTLY from the California Medical Board. http://www.mbc.ca.gov/Breeze/License_Verification.aspx **See reference on page 58.
19. 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 58 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. http://www.mbc.ca.gov/Breeze/License_Verification.aspx
20. 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 **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.** **STS Clarification:** For patients who have had lower extremity amputations, code the patient's original height.
21. Weight (kg) **STS Sequence #: 335**	Usual Range: 30.0 – 181.0 Low/High: 10.0 – 250.0	Indicate the weight of the patient in kilograms closest to the date of surgery. **CCORP Clarification/Comments:** Used to calculate BSA (body surface area), a field for risk calculation. To convert pounds to kilograms, divide # of lbs by 2.2 **1 kg = 2.2 pounds.**

22. Diabetes **STS Sequence #: 360**	1 = Yes 2 = No 3 = Unknown	History of diabetes diagnosed and/or treated by a healthcare provider. The American Diabetes Association criteria include documentation of the following: **i**. Hemoglobin A1c >=6.5%; or **ii**. Fasting plasma glucose >=126 mg/dL (7.0 mmol/l); or **iii**. 2-hour plasma glucose >=200 mg/dL (11.1 mmol/l) during an oral glucose tolerance test; or **iv**. In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose >=200 mg/dL (11.1 mmol/l) This does not include gestational diabetes. 2013 ACCF/AHA Data Standards Cannon et al. JACC Vol. 61, No. 9, 2013 **CCORP Clarification/Comments:** Diabetes = yes only if the diagnosis is documented and/or treated by a physician in the medical record. ADA criteria are informational only and data managers should not diagnose diabetes themselves. In particular, glucose may be elevated transiently in the absence of diabetes. The STS and CCORP make an exception for Hgb A1C >=6.5% which is sufficient to codes diabetes = yes because it reflects chronic elevation of glucose over 2-3 months. **STS 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 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, some medications used to treat diabetes may be used to treat other conditions. A hemoglobin A1C value of >= 6.5%, collected within 3 months prior to surgery, is acceptable to use for documentation of diabetes = "**Yes**".
23. 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 as presented on admission. Patients placed on a preprocedure diabetic pathway of insulin drip at admission but whose diabetes was controlled by diet or oral methods are not coded as being treated with insulin. Choose the most aggressive therapy from the order below •Insulin: insulin treatment (includes any combination with insulin) •Other subcutaneous medications (e.g., GLP-1 agonist) •Oral: treatment with oral agent (includes oral agent with or without diet treatment) •Diet only: Treatment with diet only •None: no treatment for diabetes •Other: other adjunctive treatment, non-oral/insulin/diet •Unknown

		2013 ACCF/AHA Data Standards Cannon et al. JACC Vol. 61, No. 9, 2013 **STS Clarification:** "Control type is the long term management therapy used." **Other subcutaneous medications may include:** exenatide (Byetta, Bydureon), liraglutide, (Victoza), Pramlintide (Symlin). **Oral treatments may include:** **Sulfonylureas** - Diabinese, glipizide (Glucotrol, Glucotrol XL), glyburide (Micronase, DiaBeta, Glynase), and glimepiride (Amaryl). **Meglitinides** - Repaglinide (Prandin) and nateglinide (Starlix). **Biguanides** - metformin (Glucophage). **Thiazolidinediones** - rosiglitazone (Avandia) and pioglitazone (Actos). **Alpha-glucosidase inhibitors** - acarbose (Precose) and meglitol (Glyset). **DPP-4 inhibitor** - sitagliptin (Januvia). Code diet only for patients who have had a history of diabetes that is resolved and not taking medication. For patients who have had pancreatic transplant, code other adjunctive treatment.
24. Dialysis **STS Sequence #: 375**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient is currently (prior to surgery) undergoing dialysis. **STS Clarification/Comments:** Includes any form of dialysis including peritoneal or hemodialysis, which the patient is receiving prior to surgery. Also, may include Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D), and Continuous Renal Replacement Therapy (CRRT) as dialysis. Code **"No"** for renal dialysis if ultra-filtration is the only documentation found in the record since this is for volume management.
25. Hypertension **STS Sequence #: 380**	1 = Yes 2 = No 3 = Unknown	Indicate if the patient has a current diagnosis of hypertension defined by any 1 of the following: **i.** History of hypertension diagnosed and treated with medication, diet, and/or exercise; **ii.** Prior documentation of blood pressure >140 mmHg systolic and/or 90 mmHg diastolic for patients without diabetes or chronic kidney disease, or prior documentation of blood pressure >130 mmHg systolic or 80 mmHg diastolic on at least 2 occasions for patients with diabetes or chronic kidney disease; **iii.** Currently undergoing pharmacological therapy for treatment of hypertension.

		CCORP Clarification/Comments: A clinician has to state in the medical record that the patient has hypertension. Hypertensive medications are used for other symptoms besides hypertension. Do not code "Yes" based on medications alone. Code "Yes" for hypertension if patient has normal blood pressure readings but has a documented history of hypertension.
26. Endocarditis **STS Sequence #: 385**	1 = Yes 2 = No	Indicate whether the patient has a history of endocarditis. Endocarditis must meet the current CDC definition). Choose "Yes" for patients with pre-operative endocarditis who begin antibiotics post-op. Code "Yes" for patients who are diagnosed intraoperatively. **STS Clarification:** This applies to any history of endocarditis; even remote history can result in valve damage. According to the CDC: Endocarditis of a natural or prosthetic heart valve must meet at least 1 of the following criteria: i. Patient has organisms cultured from valve or vegetation. ii. Patient has 2 or more of the following signs or symptoms with no other recognized cause: fever (>38°C), new or changing murmur*, embolic phenomena*, skin manifestations* (i.e., petechiae, splinter hemorrhages, painful subcutaneous nodules), congestive heart failure*, or cardiac conduction abnormality* (*With no other recognized cause) **AND at least 1 of the following:** a). Organisms cultured from 2 or more blood cultures b). Organisms seen on Gram's stain of valve when culture is negative or not done c). Valvular vegetation seen during an invasive procedure or autopsy d). Positive antigen test on blood or urine (e.g., H influenzae, S pneumoniae, N meningitides, or Group B Streptococcus) e). Evidence of new vegetation seen on echocardiogram and if diagnosis is made antemortem, physician institutes appropriate antimicrobial therapy Choose "Yes" for patients with pre-operative endocarditis who begin antibiotics post-op. Code yes for patients who are diagnosed intraoperatively. This is a case where operative or autopsy findings can change a pre-operative risk factor. Marantic Endocarditis (Nonbacterial Thrombotic Endocarditis) (Lupus) should not be coded as infectious endocarditis.

27. 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 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).
28. Chronic Lung Disease **STS Sequence #: 405**	1 = No 2 = Mild 3 = Moderate 4 = Severe 5 = Lung disease documented, severity unknown 6 = Unknown	Indicate whether the patient has chronic lung disease, and the severity level according to the following classification: No; Mild: FEV1 60% to 75% of predicted, and/or on chronic inhaled or oral bronchodilator therapy. Moderate: FEV1 50% to 59% of predicted, and/or on chronic oral/systemic steroid therapy aimed at lung disease. Severe: FEV1 < 50% and/or Room Air pO2 < 60 or pCO2 > 50. CLD present, severity not documented. Unknown 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 is met) A history of atelectasis is a transient condition and does not qualify. Chronic lung disease can include patients with chronic obstructive pulmonary disease, chronic bronchitis, or emphysema. 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). Patients with asthma or seasonal allergies are not considered to have chronic lung disease. **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**".

		STS Clarification: DLCO values should not be used for determining chronic lung disease Time Frame: Do not use values obtained more than 12 months prior to the date of surgery Patients on home oxygen without documentation of COPD or PFT testing are coded as Unknown [note: this supersedes earlier CCORP clarification to code home oxygen as severe lung disease.] Asthma is not considered chronic lung disease; therefore, do not code chronic lung disease for those patients who are treated with steroids for their asthma. ONLY systemic steroids qualify for chronic lung disease (not inhaled steroids). **STS Clarification:** Pts on home oxygen without documentation of COPD or PFT/ABG testing are coded as "Unknown." **STS Clarification:** If a patient is on NO medication, has no O2 need, no PFT/ABG, no notation of prior history of COPD, yet the H&P states the pt has "severe COPD", do we code as "severe"? Answer: Lung disease documented, severity unknown. **STS Intent/Clarification:** Bedside spirometry can be used to quantify chronic lung disease ONLY if the study is interpreted by a pulmonologist. **STS FAQ:** The patient has sarcoidosis, should this be coded as chronic lung disease? Answer: 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. **STS FAQ:** If the patient had a bilateral lung transplant due to severe CLD two years prior to a MVR, should chronic lung disease be coded as severe and the type be coded obstructive for this patient? Answer: No, the patient no longer has chronic lung disease.
29. Liver Disease **STS Sequence #: 485**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of hepatitis B, hepatitis C, cirrhosis, portal hypertension, esophageal varices, chronic alcohol abuse or congestive hepatopathy. Exclude NASH in the absence of cirrhosis. if Liver disease is present, Creatinine, Bilirubin and INR are expected.

		STS 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. The following are not coded as liver disease: • Hepatitis A • Gilberts syndrome • Fatty liver • Liver Cancer **STS FAQ:** Patient had a liver transplant 11 years ago and is here for convergent A-Fib ablation. His MELD score this admission was 10.69, bilirubin was 1.8, and there was no GI/Hepatology consult. How should I code liver disease? I wouldn't be able to show that he has history of liver transplant if I key no. Answer: Capture yes to liver disease and yes to liver transplant. It is important to capture the history of liver disease. **STS FAQ:** The patient has a history of drug induces vs. autoimmune hepatitis, is this coded as liver disease. Answer: Yes, code as liver disease. Active or history of hepatitis can leave chronic sequelae that could impact the patient.
30. Immunocompromise **STS Sequence #: 490**	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. This includes, but is not limited to systemic steroid therapy, anti-rejection medications and chemotherapy. This does not include topical steroid applications, one time systemic therapy, inhaled steroid therapy or preprocedure steroid protocol. **CCORP Clarification/Comments: DO NOT** include topical creams or inhalers that are steroidal in form. **DO NOT** include patients who receive a one or two time dose of systemic treatment, or a pre-operative/pre-cath protocol. Patients post organ transplant or with rheumatologic conditions may be on immunosuppressive therapy other than corticosteroids such as: Cyclosporine (Gengraf, Neoral, Sandimmune), Azathioprine (Imuran), Cyclophosamide (Cytoxan), Methotrexate, Tacrolimus (Prograf), Sirolimus (Rapamune, Mycophenolate-Mofetil-MMF (Cellcept).

		STS Clarification: There are multiple classes of drugs considered to be immunosuppressive. Corticosteroids (only if taken systemically). Cytotoxic drugs, Antimetabolites, Cyclosporine, and Biologics (biologic response modifiers ex: (Actemra, Cimzia, Enbrel, Humira, Kineret, Orencia, Remicade, Rituxan, Simponi). Biologics are genetically engineered proteins derived from human genes. They are designed to inhibit specific components of the immune system that play pivotal roles in fueling inflammation. Immunosuppression can result from radiation therapy, malnutrition, or removal of the spleen. Immunodeficiency can be inherited or acquired. Examples of conditions causing immunocompromise include Hypogammaglobulinemia and HIV infection. If patient has had a previous splenectomy code **"Yes"** to immunocompromised. Patients with a history of receiving chemotherapeutic medications greater than 30 days prior to surgery should be coded as **"No".** Positive Coombs test alone is not indicative of immunocompromised. If a patient has receive a short treatment of prednisone (5 days) for respiratory problems within 30 days of CABG, do I code yes or no in this category? Answer: No **STS Intent/Clarification:** Include patients being treated with IVIG. Patients who have had splenectomy are considered immunocompromised. Examples of conditions causing immunocompromise include Hypogammaglobulinemia and HIV infection. **STS FAQ September 2018:** Should HGB H disease, Thalassemie, be coded as immunocompromised? Answer: Yes, code patients with Thalassemia as immunocompromised**.** **STS FAQ October 2018:** Is Avastin eye injection immunosuppressive medication? Answer: No, do not code Avastin administered via eye injection as an immunisuppressive medication.
31. Peripheral Arterial Disease (PVD) **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, bypass surgery, or percutaneous intervention to the extremities (excluding dialysis fistulas and vein stripping), 4. Documented abdominal aortic aneurysm with or without repair,

		5. Positive noninvasive test (e.g., ankle brachial index =< 0.9, ultrasound, magnetic resonance or computed tomography imaging of > 50% diameter stenosis in any peripheral artery, i.e., renal, subclavian, femoral, iliac) or angiographic imaging. Peripheral arterial disease excludes disease in the carotid, cerebrovascular arteries or thoracic aorta. PVD does not include DVT. **CCORP Clarification/Comments:** Peripheral arterial disease excludes disease in the carotid or cerebrovascular arteries. **STS Clarification:** PAD is sometimes called PVD, code only arterial disease. PAD includes subclavian artery stenosis.
32. CVD **STS Sequence #: 525**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a current or previous history of any of the following: **i**. 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. **ii**. 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. **iii**. Noninvasive or invasive arterial imaging test demonstrating >=50% stenosis of any of the major extracranial or intracranial vessels to the brain **iv**. Previous cervical or cerebral artery revascularization surgery or percutaneous intervention. This does not include chronic (nonvascular) neurological diseases or other acute neurological insults such as metabolic and anoxic ischemic encephalopathy. **CCORP Clarification/Comments: DO NOT** include any of the peripheral arterial disease processes. **STS Clarification:** Subdural hematoma is not cerebrovascular disease. **STS Intent/Clarification:** A positive CT scan, even in the patient with no symptoms, should be coded as cerebral vascular disease. **STS FAQ October 2018**: Is a totally occluded vertebrak aterty coded as cerecral vascular disease? Answer: Do not code cerebral vascular disease in version 2.9. This will be reviewed with the next version upgrade.

33. Prior CVA **STS Sequence #: 530**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of stroke. Stroke is an acute episode of focal or global neurological dysfunction caused by brain, spinal cord, or retinal vascular injury as a result of hemorrhage or infarction, where the neurological dysfunction lasts for greater than 24 hours **STS Clarification/Comments:** 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. 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)
34. 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.
35. CVD TIA **STS Sequence #: 540**	1 = Yes 2 = No 3 = Unknown	Indicate whether the patient has a history of a Transient Ischemic Attack (TIA). Transient ischemic attack (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. **STS Clarification:** **Unknown** should be selected if some neurologic dysfunction occurred or was suspected, was resolved in 24 hours, and could not be confirmed or if patient/family unable to provide history.
36. 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. **CCORP Clarification/Comments:** Diagnostic studies may include ultrasound, Doppler, angiography, CT, MRI or MRA. If more than one test was performed with different results, choose the highest level of stenosis reported. **STS Clarification:** Code what is found at the time of surgery (even if prior stent is in place) If the results are reported in a range, such as "40-50%", choose the highest level in the range.
37. 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. **STS Clarification:** -Choose 100% for stenosis labeled as "total". -Choose 80-99% for stenosis labeled as "critical" or "severe" or "subtotal". -Choose 50 - 79% for stenosis labeled as "moderate". If the results are reported in a range, such as "40-50%", choose the highest level in the range.

38. 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. **STS Clarification:** -Choose 100% for stenosis labeled as "total". -Choose 80-99% for stenosis labeled as “critical” or “severe” or “subtotal”. -Choose 50 - 79% for stenosis labeled as "moderate". If the results are reported in a range, such as “40-50%”, choose the highest level in the range.
39. 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. **STS Clarification:** 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.
40. Last Creatinine Level **STS Sequence #: 585**	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. if Liver disease is present, Creatinine, Bilirubin and INR are expected. **STS Clarification:** General Information for Labs: Use results closest to surgery, prior to anesthesia provider initiating care. STS recommends values within 30 days, unless otherwise stated. Capture lab values if available. Not all patients will have, or need to have, all of the following labs drawn. Do not use labs drawn after IV fluids are hung in holding area or OR. Include POC (point of care) results.
41. Total Albumin **STS Sequence #: 590**	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). **STS Clarification/Comments:** You can capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process.

		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 very 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. **You can capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process.** **STS Clarification:** General Information for Labs: Use results closest to surgery, prior to anesthesia provider initiating care. STS recommends values within 30 days, unless otherwise stated. Capture lab values if available. Not all patients will have, or need to have, all of the following labs drawn. Do not use labs drawn after IV fluids are hung in holding area or OR. Include POC (point of care) results.

42. Total Bilirubin **STS Sequence #: 595**	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). if Liver disease is present, Creatinine, Bilirubin and INR are expected. **STS Clarification/Comments:** You can capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process 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. **STS Clarification:** General Information for Labs: Use results closest to surgery, prior to anesthesia provider initiating care. STS recommends values within 30 days, unless otherwise stated. Capture lab values if available. Not all patients will have, or need to have, all of the following labs drawn. Do not use labs drawn after IV fluids are hung in holding area or OR. Include POC (point of care) results. **You can capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process.**
43. INR **STS Sequence #: 610**	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). if Liver disease is present, Creatinine, Bilirubin and INR are expected. **STS Clarification/Comments:** 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 Clarification:** General Information for Labs: Use results closest to surgery, prior to anesthesia provider initiating care. STS recommends values within 30 days, unless otherwise stated. Capture lab values if available. Not all patients will have, or need to have, all of the following labs drawn. Do not use labs drawn after IV fluids are hung in holding area or OR. Include POC (point of care) results.

44. Previous CABG **STS Sequence #: 670**	1 = Yes 2 = No	Indicate whether the patient had a previous Coronary Bypass Graft prior to the current admission. **STS Clarification/Comments:** This applies only to surgical approach to revascularization. Angioplasty or other catheter based coronary artery occlusion treatment does not apply.
45. 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. **STS Clarification/Comments:** This may include percutaneous valve procedures such as percutaneous valvotomy or valvuloplasty, as well as surgical or transcatheter valve repair or replacement. These do not have to be in order of chronology. **STS FAQ:** Should we collect previous percutaneous Mitral Valve if they were unable to deploy the clip? Unable to grasp the leaflets so the procedure was aborted and the pt underwent surgical MVR (same episode of care). **Answer:** No, this is not captured as a previous CV intervention as the clip was not deployed. **STS FAQ:** A 35 year old male underwent a percutaneous aortic valvuloplasty at age 12. He now enters the OR for a surgical AVR. How is previous CV intervention coded? **Answer:** Code Previous valve procedure.
46. 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. 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 or coronary artery bypass graft for the purpose of mechanical coronary revascularization. **CCORP Clarification/Comments:** There is no time limit on its historical occurrence. PCI refers to those **non-surgical** methods that unblock narrowed coronary arteries. A PCI may have been performed during this same admission, BUT prior to the surgical procedure. **STS Clarification:** An attempted, even if unsuccessful, PCI should be coded as a Previous CV intervention-PCI. This is in an effort to harmonize with ACC-NCDR.

47. Previous PCI – Interval **STS Sequence #: 800**	1 = ≤ 6 Hours 2 = > 6 Hours	Indicate the interval of time between the previous PCI procedure and the current surgical procedure. **CCORP Clarification/Comments:** Intervals are calculated from the time of the conclusion of the PCI procedure (removal of the coronary dilation catheter) and surgical skin incision cut time. This field is intended to capture PCIs done during the same episode of care prior to the surgical procedure. Include patients who were transferred for surgery from another facility following PCI. Include patients who had PCI prior to surgery as part of a planned, staged hybrid procedure. Do not code PCIs done after the surgical procedure. **STS 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.
48. 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. **CCORP Clarification/Comments:** Medical record documentation of prior myocardial infarction is sufficient. ECG or enzyme documentation in the current chart is not required. Data abstractors should not diagnose MI; the medical record should document that a clinician made the diagnosis. **STS Clarification:** Indicate if the patient has a history of MI. A myocardial infarction is evidenced by **any of the following** in addition to a rise and fall of cardiac biomarkers (preferably troponin) with at least one of the values in the abnormal range for that laboratory [typically above the 99th percentile of the upper reference limit (URL) for normal subjects] **together with at least one of the following** manifestations of myocardial ischemia: 1). Ischemic symptoms; a). ECG changes indicative of new ischemia (new ST-T changes, new left bundle branch block, or loss of R- wave voltage); b). Development of pathological Q- waves in 2 or more contiguous leads in the ECG (or equivalent findings for posterior MI); c). Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality; d). Documentation in the medical record of the diagnosis of acute myocardial infarction based on the cardiac biomarker pattern in the absence of any items enumerated in and due to conditions that may mask their appearance (e.g., peri-operative infarct when the patient cannot report ischemic symptoms; baseline left bundle branch block or ventricular pacing)

		2). ECG changes associated with prior myocardial infarction can include the following (with or without prior symptoms): a). Any Q-wave in leads V2-V3 >=0.02 seconds or QS complex in leads V2 and V3. b). Q-wave >=0.03 seconds and >=0.1 mV deep or QS complex in leads I, II, aVL, aVF, or V4-V6 in any two leads of a contiguous lead grouping (I, aVL, V6; V4-V6; II, III, and aVF). c). R-wave >=0.04 seconds in V1-V2 and R/S >=1 with a concordant positive T-wave in the absence of a conduction defect. 3). Imaging evidence of a region with new loss of viable myocardium at rest in the absence of a non-ischemic cause. This can be manifested as: a). Echocardiographic, CT, MR, ventriculographic or nuclear imaging evidence of left ventricular thinning or scarring and failure to contract appropriately (i.e., hypokinesis, akinesis, or dyskinesis) b). Fixed (non-reversible) perfusion defects on nuclear radioisotope imaging (e.g., MIBI, thallium) 4). Medical records documentation of prior myocardial infarction. Do not use phrases such as "cannot rule out", "suggestive", "probable", "cannot exclude", etc. to code MI. **STS FAQ:** I know AMI and other registries are differentiating between real NSTEMIs and Type 2 Demand NSTEMIs, not calling the second one an MI. How do you want us to capture these Demand Type 2 NSTEMIs that only have troponin slightly increased with no EKG changes? They are generally related to CHF or endocarditis. Do they count as an MI or not? **Answer:** Physician documentation should indicate MI; do not code slight troponin increases and no EKG changes alone as MI without confirmation in the medical record by a physician or physician extender.
49. 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. **STS Clarification/Comments:** 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. **Note**: If the EKG indicates a prior MI of undetermined age Code as >21 days if the patient has no recently reported or documented symptoms. More recent infarctions would likely be described as "evolving" on the EKG.

50. Heart Failure **STS Sequence #: 911**	1 = Yes 2 = No 3 = Unknown	Indicate whether there is physician documentation or report that the patient has been in a state of heart failure. **STS 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. Heart failure is a complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood. The cardinal manifestations of HF are dyspnea and fatigue, which may limit exercise tolerance, and fluid retention, which may lead to pulmonary and/or splanchnic congestion and/or peripheral edema. Some patients have exercise intolerance but little evidence of fluid retention, whereas others complain primarily of edema, dyspnea, or fatigue. Because some patients present without signs or symptoms of volume overload, the term "heart failure" is preferred over "congestive heart failure." There is no single diagnostic test for HF because it is largely a clinical diagnosis based on a careful history and physical examination.
51. 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 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. **STS Intent/Clarification:** • Acute heart failure is the rapid onset of symptoms and signs of heart failure and may occur with or without previous cardiac disease. Acute decompensated heart failure is a sudden worsening of the signs and symptoms of heart failure, which typically includes difficulty breathing (dyspnea), leg or feet swelling, and fatigue. • Chronic heart failure develops gradually over time with symptoms of shortness of breath, lower extremity swelling and fatigue without an acute exacerbation. • Both involves patients with chronic heart failure who presents with acute symptoms.

52. 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 within the past 2 weeks. This is to be used for heart failure only, is not intended to classify angina. **STS Clarification: NYHA classification is used for congestive heart failure (CHF).** 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, dyspnea, or anginal pain. Limiting symptoms may occur with marked exertion. **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, 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. The physician documents new onset CHF with an EF of 25% and SOB. There is no indication of what level of activity causes the SOB.
53. 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.

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 any active inotrope/vasopressor/IABP or impella → shock
4) CI 2.4-2.79, unassisted/unaugmented SBP 100-129 on high dose inotrope/ vasopressor/ impella → shock
5) CI 2.4-2.79, unassisted/unaugmented SBP 100-129 on low dose inotrope/ vasopressor/ IABP → not shock

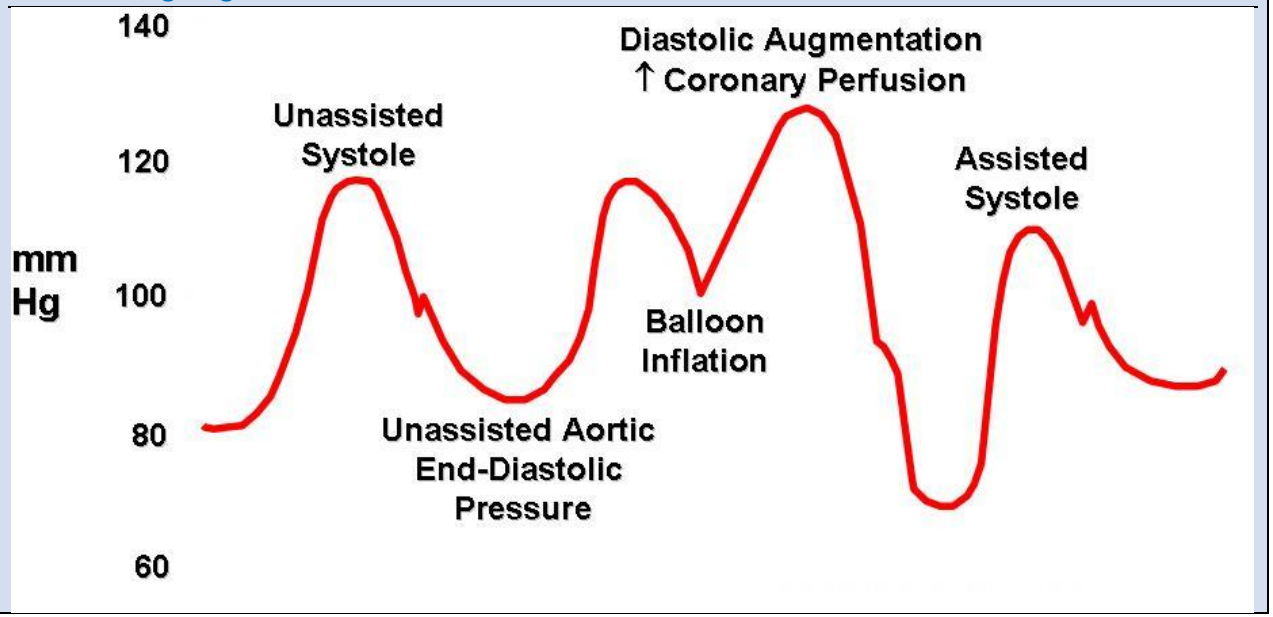
   High Dose Inotropes/Vasopressor dosage

   a. Dopamine < 5 mcg/kg/min
   b. Dobutamine < 5 mcg/kg/min
   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 incision time. This includes patients with CS who have been stabilized on IABP/inotropes at the time of surgery

		Intent/Clarification: At the time of the procedure. • This includes patients with cardiogenic shock who have been stabilized on IABP/inotropes at the time of surgery. • 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. • 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 Clarification:** 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. **See following diagram.** 

54. 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 the start of the operative procedure which includes the institution of anesthetic management. Capture resuscitation timeframe: within 1 hour or 1-24 hours pre-op. **CCORP Clarification/Comments:** Impella is NOT complete circulatory support and does not qualify as ongoing resuscitation (trumps STS). **STS Clarification:** This may include complete circulatory support such as ECMO/other mechanical assist devices (ex. LVAD) initiated emergently prior to surgery. **Do not code** yes for resuscitation started after induction of anesthesia, the goal is to capture patients who required CPR prior to entering the OR. **STS 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. The additional time options were added to harmonize with NCDR, looking at 24 hours pre-procedure yet still mapping to previous STS versions and risk models. • Resuscitation may include **complete** circulatory support such as ECMO/other mechanical assist devices (ex. Impella, 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. **STS FAQ ECMO:** ECMO is to be captured as a status of 'Salvage' in sequence 1975 and as 'Resuscitation – Yes' in sequence 935. ECMO is a supportive modality and not a procedural type. The risk of the patient on ECMO is accounted for when 'Status = salvage' and should be left in the intended procedural category.
55. Cardiac Arrhythmia **STS Sequence #: 945**	1 = Yes 2 = No	Indicate whether the patient has a history of a cardiac rhythm disturbance before the start of the operative procedure which includes the institution of anesthetic management. **STS FAQ:** I have a patient who has Wolff-Parkinson-White Syndrome. She had an ablation and cardioversion because of this arrhythmia. I am not sure where to capture this for sequence #945. Would I say yes to #945 and code it as Sick Sinus Syndrome? Or does this arrhythmia not get captured? Answer: Do not code Wolff-Parkinson-White syndrome as an arrhythmia.

56. Cardiac Arrhythmia – Vtach/VFib **STS Sequence #: 950**	1 = None 2 = Remote (> 30 days) 3 = Recent (≤ 30 days)	Indicate whether arrhythmia was VTach or VFib. **CCORP Clarification/Comments: CCORP suggests the rhythm be sustained for 30 seconds or longer, or require cardioversion. Treatment not a criteria.** **STS Clarification:** V-tach rhythm must be sustained/persistent or paroxysmal sufficient to require some type of intervention (pharmacological and/or electrical) 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
57. Cardiac Arrhythmia – Aflutter **STS Sequence #: 960**	1 = None 2 = Remote (> 30 days) 3 = Recent (≤ 30 days)	Indicate whether arrhythmia was atrial flutter. **STS Clarification:** Atrial flutter is an abnormal heart rhythm that occurs in the atria of the heart. When it first occurs, it is usually associated with a fast heart rate or tachycardia (beats over 100 per minute), and falls into the category of supraventricular 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. However, it does rarely persist for months to years. If rhythm is described as fib/flutter, code fibrillation. • None • Remote - more than 30 days prior to procedure • Recent - within 30 days of this procedure
58. 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. **STS 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. • None • Remote- more than 30 days prior to procedure • Recent - within 30 days of this procedure

59. Cardiac Arrhythmia – Atrial Fibrillation **STS Sequence #: 961**	1 = None 2 = Remote (> 30 days) 3 = Recent (<=30 days)	Indicate whether arrhythmia was atrial fibrillation. **STS Intent/Clarification:** • None • Remote - more than 30 days prior to procedure • Recent - within 30 days of this procedure
60. Cardiac Arrhythmia-Atrial Fibrillation-Type **STS Sequence # 962**	2 = Paroxysmal 4 = Persistent 5 = Longstanding Persistent 6 = Permanent	Indicate whether arrhythmia was atrial fibrillation and if so, which type. **STS Intent/Clarification:** If the diagnosis of atrial fibrillation is present code the type: • Paroxysmal: Recurrent AF (> 2 episodes). Terminates spontaneously within 7 days. • Persistent: Sustained episode > 7 days, or lasting < 7 days, but necessitating pharmacologic or electrical cardioversion. • Long-Standing Persistent: Continuous episode of > 1 year duration. • Permanent: Continuous episode of > 1 year duration. **STS FAQ:** The definition of longstanding persistent and permanent are the same, can you clarify the difference? Answer: Longstanding persistent atrial fibrillation lasts longer than 1 year but still responds to treatment ie. cardioversion or ablation therapy. Permanent atrial fibrillation lasts longer than 1 year but no longer responds to any form of treatment. These patients are treated for rate control and prevention of stroke only.
61. 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. **STS 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 and are presumed to be at a therapeutic level within 24 hours prior to OR entry date and time. • **No** – Patient did not receive a 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/Comments: The purpose of this data element is to determine whether the reported INR value was influenced by the patient taking Warfarin within 5 days of surgery, which may raise the INR independently and lead to false indications of liver disease. **Note:** patients on chronic Warfarin therapy who have stopped or been switched to an alternative anticoagulant 5-7 days prior to surgery should be coded as "**No**". Notes in the admission H&P or Nurse's assessment (e.g., "stopped 1 week ago", "switched to Lovenox", "held x 1 week") may help in making this determination.
62. 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. **STS Clarification:** Indicated if coronary artery anatomy and/or disease is documented **prior** to surgery**.** 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.
63. 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: LAD system, Circumflex system, and/or Right system with >= 50% narrowing of any vessel preoperatively. NOTE: Left main disease (>=50%) is counted as TWO vessels (LAD and Circumflex, which may include a Ramus Intermedius). For example, left main and RCA would count as three total. A vessel that has ever been considered diseased, should always be considered diseased. **CCORP Clarification/Comments:** The number of diseased vessels may not necessarily match the number of bypass grafts performed. The number of vessels refers to the number of major coronary arteries which are diseased. Consider a major coronary artery as diseased if it or one of its first order branches has a greater than or equal to 50% stenosis. The three major coronary arteries and their first order branches are: a) the left anterior descending (LAD) with its branches the diagonals; b) the circumflex (Cx) with its branches the obtuse marginals (OM's) or circumflex marginals; and c) the right coronary artery (RCA) with its branch the posterior descending artery (PDA).

		STS Clarification: 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. The number of diseased vessels may not necessarily match the number of bypass grafts performed. **Notes**: Left main disease (≥ 50%) is counted as TWO vessels (LAD and Circumflex). For example, left main ≥50% and RCA would count as a total of three. If bypass is performed for an anomalous, kinked or damaged vessel, this vessel is counted as one diseased or abnormal vessel. Code the number of vessels diseased only for those vessels that have a stenosis greater than or equal to 50%.
64. Percent Native Artery Stenosis Known **STS Sequence #: 1175**	1 = Yes 2 = No	Indicate whether the percent stenosis of native coronary stenosis is known **STS Clarification:** 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.
65. Percent Stenosis Left Main **STS Sequence #: 1195**	Usual Range: 0 – 100 Low/ High: 0 – 100	Indicate the highest percent stenosis in this vessel at the time of this surgery. **CCORP Clarification/Comments: Updated to be in synch with STS** "Subtotal" = ~~99%~~ 90%, "Critical" = 90%, "Severe" = ~~80%~~ 90%, "Tight" = ~~80%~~ 90%, "Significant" = 70%, "Borderline" = 50%, "Moderate" = 35%, "Mild" = 20% Terms such as 'plaquing' or 'luminal irregularity' should be considered mild.

		STS Clarification: The intent is to capture % stenosis for vessels with documented stenosis >=50% If 'Native Artery % Stenosis Known' (field 1175) is marked yes, at least one vessel must have a percent stenosis marked. If there is no stenosis or no documentation or mention of a vessel, leave the selection blank. In instances where multiple lesions are present, enter the single 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%.If multiple sources are available, select surgeon's documentation degree of stenosis. This is the degree of stenosis (s)he used to develop the operative plan. **STS FAQ:** When coding the % stenosis in a native coronary artery, code all the known percentages even if they are less than 50%. Understand that these fields will only be open to be completed when at least one vessel has a stenosis greater than or equal to 50%. **STS FAQ:** How would bilateral spontaneous coronary dissections from the ostium of both the Left and Right main coronary arteries to the distal end of the coronary tree be coded. Answer: Code 100% for both LM and RCA.
66. Ejection Fraction Done **STS Sequence #: 1540**	1 = Yes 2 = No	Indicate whether the Ejection Fraction was measured prior to the induction of anesthesia. **CCORP Clarification/Comments:** Collect data from the most recent source before surgery, even it is several months (less than 6). **STS 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. Do not use results more than 6 months prior to this operation.

67. Ejection Fraction (%) **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. Use the most recent determination prior to the surgical intervention documented on a diagnostic report. Enter a percentage in the range of 1 - 99. If a percentage range is reported, report a whole number using the "mean" (i.e., 50-55% is reported as 53%). ● Hyperdynamic: >70% **(code 71%)** ● Normal: 50%–70% (midpoint 60%) ● Mild dysfunction: 40%–49% (midpoint 45%) ● Moderate dysfunction: 30%–39% (midpoint 35%) ● Severe dysfunction: <30% **(code 29%)** Note: If no diagnostic report is in the medical record, a value documented in the medical record is acceptable. ACCF/AHA 2013 **CCORP Clarification/Comments:** Ejection fraction (EF) is an important predictor of risk. Make every effort to obtain it when available. **The official number on a report (documented source) outweighs a surgeon's estimate!** If a range of EF's are given, enter the mean value (e.g. for "30 to 35%", enter "33" - the system has no space for 32.5). **STS Clarification:** Use the most recent determination **prior to the induction of anesthesia** documented on a diagnostic report, regardless of the diagnostic procedure to obtain it. If no diagnostic procedural report specifying an EF is in the medical record, a value documented in the progress record is acceptable. If there is no documentation of a pre-op EF, then it is acceptable to code the EF from the intra-op TEE prior to **incision**. **Time Frame**: Collect the last value closest to incision, not greater than **6 months**.
68. PA Systolic Pressure Measured **STS Sequence #: 1570**	1 = Yes 2 = No	Indicate whether the PA systolic pressure was measured prior to **induction**. **STS Intent/Clarification:** Elevated pulmonary artery pressures are indicative of pulmonary hypertension, mitral valve disease and other pulmonary/cardiac diseases. Normal mean pulmonary artery pressure readings are between 9-17mm of pressure. If there are no PA pressures recorded or available from heart Cath –one may use PA pressure values from Swan Ganz Catheter inserted for surgery prior to induction of anesthesia.

		CCORP Clarification/Comments: PA systolic pressure, measured pre-op is preferable but values obtained in O.R. (awake or after induction) prior to incision can be reported if no other results are available. If more than one preoperative measurement is available, choose the HIGHEST PA systolic pressure recorded before the incision.
69. PA Systolic Pressure **STS Sequence #: 1575**	Usual Range: 15.0 – 40.0 Low/High: 10.0 – 150.0	Capture highest PA systolic pressure recorded prior to **induction** . **STS Clarification:** Elevated pulmonary artery pressures are indicative of pulmonary hypertension, mitral valve disease and other pulmonary/cardiac diseases. Normal mean pulmonary artery pressure readings are between 9-17mm of pressure. If there are no PA pressures recorded or available from heart cath – one may use PA pressure values from Swan Ganz Catheter inserted for surgery prior to induction. -If more than one preoperative measurement is available, choose the **HIGHEST** PA systolic pressure recorded before induction. -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 as long as there is no pulmonary valve disease or outflow obstruction. -If more than one preoperative measurement is available, choose the **HIGHEST** PA systolic recorded before induction. If there is a preoperative echo, use those values UNLESS the diagnostic information from the TEE changes the procedure performed. If there is no preop information, you may use the pre-incision intraoperative TEE. **STS FAQ:** Please clarify, should the value be taken prior to induction or prior to incision? Answer: The PA systolic value should be taken prior to induction of anesthesia.
70. Insufficiency – Mitral **STS Sequence #: 1680**	0 = None 1 = Trivial/Trace 2 = Mild 3 = Moderate 4 = Severe 5 = Not Documented	Indicate whether there is evidence of Mitral valve insufficiency/regurgitation. Enter the degree of insufficiency reported closest to incision and no more than 6 months prior to surgery. **CCORP Clarification/Comments:** Enter the highest level recorded in the chart, i.e., worst performance level. "Moderately severe" should be coded as "severe". If a range of mitral valve regurgitation is given, enter the higher value (e.g. for "2 (mild) to 3 (moderate)" enter "3" or moderate). Since operative conditions may artificially alter ejection fraction and mitral regurgitation, readings from preoperative trans-thoracic echocardiograms are generally more accurate than those from trans-esophageal echocardiograms (TEE's) done during surgery. Mitral prolapse and rheumatic fever are the most common cause of mitral valve regurgitation. Capture even if patient is not scheduled for valve repair and/or replacement when available.

		STS 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 heart beat). 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. Collect the last value closest to incision, not greater than **6 months**. • None • Trivial/Trace • Mild • Moderate • Severe Not documented
71. 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 **STS Intent/Clarification:** 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). The key distinction is surgical entry into the pericardial space. A pericardiectormy or pericardial window would qualify as surgery. Ascending aortic and arch procedures also qualify. A surgical descending thoracic aortic aneurysmectomy does not involve entry into the pericardial space and does not 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. 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.

		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. **First operative** means the patient has never had any procedure on the heart and/or great vessels. **STS FAQ**: 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. For sequence 665 previous cardiac interventions, do we count his prior history of the CABG and VAD on his native heart, or only what has happened since getting his transplant? **Answer:** Code incidence as third reoperation. **STS FAQ:** The patient enters the operating room electively for an AVR. The same procedure was attempted at another hospital 6 months previously but was cancelled after discovering a porcelain aorta as the surgeon attempted to place cannulation sutures. How is incidence coded for this case? **Answer:** Code incidence as first operation. **STS FAQ:** A 35 year old male underwent a percutaneous aortic valvuloplasty at age 12. He now enters the OR for a surgical AVR. How is incidence coded? **Answer:** Code incidence as first cardiovascular surgery. **STS FAQ**: Patient went to OR for AVR and CABG. But only sternotomy andadhesiolysis were done because patient had frozen mediastinum and severe intrapericardial adhesion so surgeon decided to do the operation in stages. The sternum was closed. Next day patient went back to OR and AVR/CABG were done. How would I code this? Will still be first cardiovascular surgery? Reop for cardiac reason? Will I also note as surgery aborted? Answer: Code the case as first CV surgery.

		STS FAQ: How does TAVR affect incidence? Answer: Prior TAVR case that needs a redo-AVR should be coded as first reoperation. Prior TAVR case that needs another cardiac procedure such as a CAB or MVR should be coded as first CV intervention. Sites should ask for clarification.
72. 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. **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 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. **STS Clarification:** **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. **There is no hierarchy - choose the primary reason the procedure is urgent.** • 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. **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 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/Salvage - The patient is undergoing CPR en route to the OR or prior to anesthesia induction or has ongoing ECMO to maintain life. **STS FAQ ECMO:** ECMO is to be captured as a status of 'Salvage' in sequence 1975 and as 'Resuscitation – Yes' in sequence 935. ECMO is a supportive modality and not a procedural type. The risk of the patient on ECMO is accounted for when 'Status = salvage' and should be left in the intended procedural category.
73. Urgent or Emergent Reason **STS Sequence #: 1990**	1 = AMI 2 = Anatomy 3 = Aortic Aneurysm 4 = Aortic Dissection 5 = CHF 6 = Device Failure 7 =Diagnostic/Interventional Procedure Complication 8 = Endocarditis Therapy 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 24 = USA	Choose one reason from the list below that best describes why this operation was considered urgent or emergent. **STS Clarification:** See list for options. There may be multiple reasons, choose the one that best describes this patient's clinical state.

	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	
74. CPB Utilization **STS Sequence #: 2325**	1 = None 2 = Combination 3 = Full	Indicate the level of CPB or coronary perfusion used during the procedure. **STS Intent/Clarification:** **None**: No CPB or coronary perfusion used during the procedure. **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 **CCORP Clarification/Comments:** Coronary perfusion methods are used as an alternative to complete heart and lung bypass. They are often referred to perfusion assisted devices where just the coronary artery that is being grafted is perfused (distal) to the anastomosis site (a method of supplying distal perfusion to isolated coronary arteries while new grafts are constructed). While not as invasive as cardiopulmonary bypass it is still a method of supporting the myocardium during a period of relative ischemia. These devices allow for continued myocardial perfusion to the area of myocardium that is being revascularized therefore reducing any ischemic time to that region. If the patient started as an off pump case (OPCAB) and then moved to a LHA (Left Heart Assist), this would be considered the same as CPB; code as a "Combination". If LHA is used for an entire case code "**Full**".

75. 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. **STS 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".
76. IMA Used **STS Sequence #: 2626**	1 = Yes 2 = No	Indicate whether an internal mammary artery conduit was used **STS Intent/Clarification:** To capture the use of an internal mammary 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. **STS FAQ:** Patient had a non-STEMI with urgent CABG. LIMA and RIMA were initially anastomosed to the LAD and Diagonal but prior to leaving the OR, they had insufficient flow and vein grafts were used. The RIMA was a T-graft to the Diagonal from the free LIMA. The surgeon documented "sluggish flow in the LIMA after harvesting as a pedicle, therefore it was utilized as a free graft. He documented this was probably due to stenosis at the takeoff from the left subclavian artery. The chest was closed and initial vitals were stable. Prior to leaving the OR, EKG and hemodynamic changes were noted. Therefore, the chest was reopened and the patient was placed back on CPB. The flow via the IMA grafts were poor so the surgeon removed them and used venous grafts to the LAD and Diagonal." How do I code IMA used? Answer: Code no, an IMA was not used.
77. Reason for No IMA **STS Sequence #: 2627**	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	Indicate PRIMARY reason Internal Mammary artery was not used as documented in medical record. **STS Clarification/ Comments:** Choose from the following reasons: -Subclavian stenosis -Previous cardiac or thoracic surgery -Previous mediastinal radiation -Emergent or salvage procedure -No (BYPASSABLE) LAD disease - This can include clean LAD, diffusely diseased LAD or other condition resulting in the LAD not being bypassed -Other – The National Quality Forum (NQF) AND CCORP do not consider this exclusion for measure purposes.

		Example: The physician did not use an IMA because of paralysis of the right hemi diaphragm. This does not fit into any of the category choices. – Code as "other" and it is not an acceptable exclusion for IMA usage. **STS FAQ:** Patient had a non-STEMI with urgent CABG. LIMA and RIMA were initially anastomosed to the LAD and Diagonal but prior to leaving the OR, they had insufficient flow and vein grafts were used. The RIMA was a T-graft to the Diagonal from the free LIMA. The surgeon documented sluggish flow in the LIMA after harvesting as a pedicle, therefore it was utilized as a free graft. He documented this was probably due to stenosis at the takeoff from the left subclavian artery. The chest was closed and initial vitals were stable. Prior to leaving the OR, EKG and hemodynamic changes were noted. Therefore, the chest was reopened and the patient was placed back on CPB. The flow via the IMA grafts were poor so the surgeon removed them and used venous grafts to the LAD and Diagonal. If I must code "no" IMA used, what reason for no IMA should I use? Answer: Code 'Other'. Subclavian stenosis cannot be considered an exclusion because the IMA was initially used as a free graft. **STS FAQ:** 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. How should the reason for no IMA be coded? Answer: Code this as an exclusion due to subclavian stenosis. **STS FAQ:** Reason No IMA: Patient has a left lung mass that found to be left internal mammary artery bed; therefore, it was decided not to use the left internal mammary artery aspergillus. In the Op report, the surgeon states "the left apical aspergilloma was directly adjacent to the bypass". Answer: Aspergilloma is a rare finding and seq 2627 should be coded as 'Other'. **STS FAQ**: How would I code a case where the IMA could not be used. The patient has a history of severe PVD. Aortogram at the time of cardiac cath showed an occluded distal aorta with reconstitution. The perfusion supplied by the mammary artery to the lower body was quite significant and confirmed by her chest CT. As such, the surgeon felt that using the mammary would place lower extremities in jeopardy. Answer: Code subclavian stenosis, this is an appropriate exclusion.

		STS FAQ: The patient has a history of severe PVD. The aortogram at the time of the cardiac catheterization showed an occluded distal aorta. The lower extremeties perfusion was supplied by the mammary arteries. It was felt that the lower extremeties would be in jeopardy if the mammary is used. How should the case be coded when no IMA is used? Answer: Code subclavian stenosis for this unique situation.
78. Valve **STS Sequence #: 2125**	1 = Yes 2 = No	Indicate whether a surgical procedure was done on the Aortic, Mitral, Tricuspid or Pulmonic valves **STS Intent/Clarification:** The intent is to capture procedures where valve procedures were performed. • Yes • No **CCORP Clarification/Comments:** includes valve replacements and/or repairs.
79. Aortic Valve **STS Sequence #: 3390**	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. **CCORP Clarification/Comments:** Include **all** AV procedures (aortic valve replacement, resuspension or repair) done during this surgery.
80. Aortic Valve Procedure **STS Sequence #: 3395**	1 = Replacement 2 = Repair/Reconstruction	Indicate the type of procedure that was performed on the aortic valve and/or ascending aorta. **STS FAQ:** Surgeon performed the following mitral valve procedure "anterior mitral leaflet endarterectomy/decalcification" done in conjunction with an Aortic Valve Replacement. How is this documented under the options provided for MV repair? Answer: No, anterior mitral leaflet endarterectomy/decalcification is considered part of the AVR and should not be coded as a mitral valve procedure.
81. Mitral Valve **STS Sequence #: 3495**	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.

82. Mitral Valve Procedure **STS Sequence #: 3500**	1 = Repair 2 = Replacement	Indicate the type of procedure that was performed on the mitral valve. **STS FAQ:** Surgeon performed the following mitral valve procedure "anterior mitral leaflet endarterectomy/decalcification" done in conjunction with an Aortic Valve Replacement. How is this documented under the options provided for MV repair? Answer: No, anterior mitral leaflet endarterectomy/decalcification is considered part of the AVR and should not be coded as a mitral valve procedure.
83. Tricuspid Valve **STS Sequence #: 3640**	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.
84. Pulmonic Valve **STS Sequence #: 3685**	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.
85. Reoperation for Bleed **STS Sequence #: 6755**	1 = Yes 2 = No	Indicate whether the patient was re-explored for mediastinal bleeding with or without tamponade either in the ICU or returned to the operating room. **CCORP Clarification/Comments:** Requires reopening the chest for bleeding. **STS Intent/Clarification**: Do not capture reopening of the chest or situations of excessive bleeding that occur prior to the patient leaving the operating room at the time of the primary procedure. Tamponade is a situation which occurs when there is compression or restriction placed on the heart within the chest that creates hemodynamic instability or a hypoperfused state. Do not include medically (non-operatively) treated excessive post-operative bleeding/tamponade events

		Include patients that return to an O.R. suite or equivalent O.R. environment (i.e., ICU setting) as identified by your institution, that require surgical re-intervention to investigate/correct bleeding~~/~~ with or without tamponade. Include only those interventions that pertain to the mediastinum or thoracic cavity.
86. Reintervention – Myocardial Ischemia STS Sequence #: 6771	1 = Yes 2 = No	Indicate whether the patient required postoperative reintervention for Myocardial Ischemia. **STS Intent/Clarification:** Only capture surgical or Cath lab interventions that occur during the hospitalization prior to discharge. • Yes, surgical • Yes, PCI • No **STS FAQ:** Patient was 4 days post op CAB and developed chest pain with elevated troponin. Patient was taken to the Cath lab and found to have a freshly occluded graft. After opening the graft with "mechanical thrombolysis" the graft was open, but noticed an AV fistula between the graft and the LV. The physician then ballooned the area to re-occlude the graft and seal the fistula. This was successful. How does this get captured? Answer: Code Yes, PCI. **STS FAQ August 2018**: The patient had no chest pain but had a CAB X 2 for large aneurysm originating from the bifurcation of the LAD and Diagonal. Post operatively, the patient was experiencing angina and was taken to the cardiac cath lab where stenting of the proximal LAD was performed. Should this be coded as reop other cardiac? Answer: No, this is reintervention for myocardial ischemia.
87. Reintervention – Myocardial Ischemia-Vessel STS Sequence# 6772	1 = Native Coronary 2 = Graft 3 = Both	Indicate the type of vessels that required postoperative reintervention for Myocardial Ischemia. **STS Intent/Clarification:** Reintervention may involve native coronary arteries, coronary artery bypass grafts or both. • Native Coronary • Graft • Both **STS FAQ:** Patient was 4 days post op CAB and developed chest pain with elevated troponin. Patient was taken to the Cath lab and found to have a freshly occluded graft. After opening the graft with "mechanical thrombolysis" the graft was open, but noticed an AV fistula between the graft and the LV.

		The physician then ballooned the area to re-occlude the graft and seal the fistula. This was successful. How does this get captured? Answer: Code Graft
88. Deep Sternal Infection/ Mediastinitis **STS Sequence #: 6700**	2 = No 3 = Yes, within 30 days of procedure 4 = Yes, >30 days after procedure, but during hospitalization for surgery	Indicate whether a deep sternal wound infection or mediastinitis was diagnosed within 30 days of the procedure or any time during the hospitalization for surgery. **STS Clarification:** See above definition for Deep Sternal Infection/Mediastinitis. The STS Composite scores weigh deep sternal wound infection and mediastinitis the same.
89. Neuro – Stroke Permanent **STS Sequence #: 6810**	2 = No 3 = Yes, hemorrhagic 4 = Yes, ischemic 5 = Yes, undetermined type	Indicate whether the patient has a postoperative stroke and the type of stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours. **STS Clarification/Comments:** 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 • Hemorrhagic - bleeding into or around the brain Central events are caused by embolic or hemorrhagic events. Neurological deficits such as confusion, delirium and/or encephalopatic (anoxic or metabolic) events are not to be coded in this field. https://www.ninds.nih.gov/Disorders/All-Disorders/Stroke-Information-Page **STS FAQ:** How should embolic stroke be coded? Answer: Embolic strokes should be coded as ischemic.

		STS FAQ: During a CABG procedure an intra-op TEE showed a large thrombus burden the LA. Shortly before weaning from cardiopulmonary bypass and a segment of mobile clot was noted to go thru the mitral valve, thru the LVOT. A Brain Attack was called, the surgery was completed and the patient was transferred to CT scan. The patient was diagnosed with an acute embolic R MCA and R PCA infarcts. Answer: Code stroke permanent.
90. 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. Include (but not limited to) causes such as ARDS, pulmonary edema, and/or any patient requiring mechanical ventilation > 24 hours postoperatively. **CCORP Clarification/Comments:** Postoperative period begins when patient leaves the O.R. A total of 24 hours, include initial and additional hours of mechanical ventilation. **Do not** include the hours ventilated if a patient returns to the operating room suite and requires re intubation as part of general anesthesia. **TIME** is calculated from the point of leaving the O.R. and **NOT** when patient was initially intubated. **STS Clarification:** To calculate total hours, include initial and additional hours of mechanical ventilation. Extended ventilation may include, but is not limited to, the specific definitional reasons. Example: If a major stroke or coma occurred that required ventilation for life support, code as prolonged if greater than 24 hours. Do not include the hours ventilated if a patient returns to the operating room suite and requires re-intubation as part of general anesthesia but does not require ventilation beyond the time in the operating room (i.e. after OR Exit Time).
91. 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. **STS Clarification:** The Acute Dialysis Quality Initiative, a multidisciplinary collaboration, defined a range of acute renal dysfunction called the RIFLE classification system. It is used to define grades of severity based on objective measurements. **See highlighted Renal Failure criteria below. Classifications of Loss and End-stage disease are beyond the current scope of follow-up. Code yes, if the patient meets the highlighted RIFLE Failure criteria or if dialysis was newly required post op.**

		Risk (R) - Increase in serum creatinine level X 1.5 or decrease in GFR by 25%, or UO <0.5 mL/kg/h for 6 hours **Injury (I)** - Increase in serum creatinine level X 2.0 or decrease in GFR by 50%, or UO <0.5 mL/kg/h for 12 hours or decrease in GFR by 75%; UO <0.3 mL/kg/h for 24 hours, or anuria for 12 hours **Failure (F)** - Increase in serum creatinine level X 3.0, or serum creatinine level ≥4 mg/dL with at least a 0.5 mg/dl rise, or decrease in GFR by 75%,; UO <0.3 mL/kg/h for 24 hours, or anuria for 12 hours **Loss (L)** - Persistent ARF, complete loss of kidney function >4 weeks **End-stage kidney disease (E)** - Loss of kidney function >3 months CLARIFICATION: If dialysis (seq# 375) is equal to "No" and if postoperative creatinine level (seq# 6555) is greater than or equal to 3X last creatinine level (seq# 585) or postoperative creatinine (seq# 6555) is greater than or equal to 4.0 with a 0.5 mg/dL rise or new postoperative dialysis (seq# 6875) then, renal failure (seq# 6870) is equal to "Yes". **STS FAQ:** The patient's baseline Cr was 0.62 months before admission. Patient taken for urgent CABG had an abnormally low Cr at baseline of 0.45 after aggressive hydration from heart cath. Her highest post-op creatinine was 1.5. Is this considered renal failure? Answer: Hydration can cause an abnormally low Cr; however, a consistent guideline must be followed to capture worsening renal function as indicated by the RIFLE criteria adapted by the STS. **STS FAQ:** A patient who has undergone a prolonged MV repair encounters rising lactic acid levels and is placed on hemodialysis which results in signs of improvement. The post operative creatinine levels do bump up but do not exceed STS thresholds. Is this coded a renal failure? Answer: The requirement for new dialysis postoperatively fulfills the definition for renal failure.
92. 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.

		STS Clarification/Comments: May include either hemo or peritoneal dialysis. This includes a one-time need for dialysis as well as implementation of longer term therapy. If the patient was on preoperative peritoneal dialysis and moved to hemodialysis postoperatively, this does not constitute a worsening of the condition and should not be coded as an event. Does not include aquapheresis Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D) and Continuous Renal Replacement Therapy (CRRT) should be coded here as "Yes." (Code Ultra filtration as "No", it is captured in a separate field.)
93. Other – A Fib **STS Sequence #: 6930**	1 = Yes 2 = No	Indicate whether the patient experienced atrial fibrillation/flutter (AF) requiring treatment. Exclude patients who were in A Fib at the start of surgery. **STS Clarification:** Include any episode of A Fib lasting longer than one hour and/or requiring treatment. Capture event(s) in all patients who were not in A Fib at the start of surgery. **CCORP Clarification/Comments:** Count as post op A fib any episodes lasting > =1 hour regardless of treatment unless patient was in A fib at time of induction of anesthesia.
94. Facility Identification Number **CCORP-specific variable**		The six-digit facility identification number assigned to a hospital by the Office of Statewide Health Planning and Development (OSHPD), 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
- Ventricular Assist Device (VAD) as bridge to transplant
- 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
- Ventricular Assist Device (VAD) as a bridge to transplant
- Infundibulectomy
- Septal myectomy with hypertrophic obstructive cardiomyopathy
- Full Open MAZE for Aortic Valve cases only (epicardial MAZE procedures are not excluded and Full Open MAZE procedures are not excluded for Mitral 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.