Managing Data for Cardiac Outcomes Reporting

Abstractor Training
January 24, 2018

CA.GOV

OSHPD Office of Statewide Health Planning and Development

Office of Statewide Health Planning and Development (OSHPD) and California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program (CCORP)

OSHPD Office of Statewide Health Planning and Development

Office of Statewide Health Planning and Development (OSHPD)

- OSHPD
  - Leader in collecting data and disseminating information about California's healthcare infrastructure
  - Promotes an equitably distributed healthcare workforce
  - Publishes valuable information about healthcare outcomes
  - Monitors construction, renovation, and seismic safety of hospitals and skilled nursing facilities
  - Provides loan insurance to assist the capital needs of California's not-for-profit healthcare facilities
  - New Headquarters - 2020 West El Camino Ave, Sacramento
  - Free Parking
  - Conference Center
- New Division - Information Services Division combines
  - Former IT Division
  - Healthcare Information Division
- New Branch - Healthcare Analytics Branch

History of California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program (CCORP)

- From 1996-2002, there was a voluntary CABG reporting program. Over 75 hospitals participated. Reported on mortality only.
- In 2001 Senate Bill 680 passed. Mandated public reporting of risk-adjusted outcomes for all California non-federal hospitals that perform CABG surgery.
- OSHPD began collecting data with 2003 discharges.
- The first public hospitals report was released in February 2006. Subsequently, hospital reports are released yearly and surgeons reports every other year.

History of CCORP (continued)

- *Milestones*
  - 2003-2004 Report included findings for Internal Mammary Usage
  - 2007 Report included hospital-level, risk-adjusted outcomes for post-operative stroke (2006-2007 combined)
  - 2009 Report included hospital-level, risk-adjusted outcomes for readmissions
  - 2009 was the first year of on-line data submission
  - 2011 Report results available in on-line query system
  - Report data included on the California Health and Human Services Agency Open Data Portal
  - 2012 moved to a simplified summary report
- *Successes*
  - Operative mortality rate has dropped from 3.91% in 2003 to 2.5% in 2015 (note: new mortality definition in 2015).
  - IMA utilization has increased from 89.6% in 2003 to 97.5% in 2015 (note: this increase is partially due to exclusions that have been added over time)
  - Six successful surgeon statement (appeals) processes
  - Bi-monthly conference calls
  - Abstractor trainings

Clinical Advisory Panel

Senate Bill 680 also established a Clinical Advisory Panel

The panel's role is to:

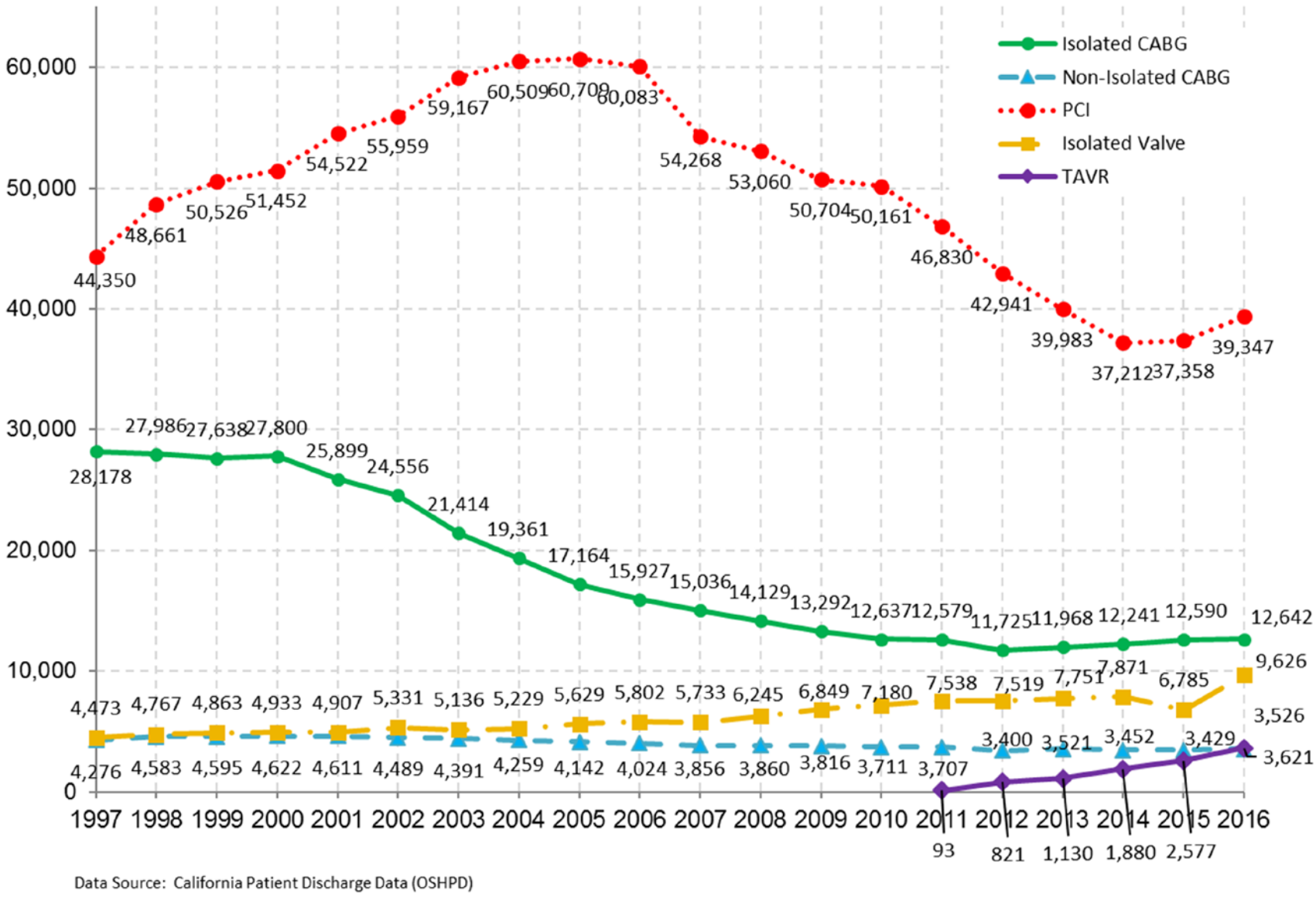
- Recommend data elements
- Review and approve risk-adjustment models
- Review physician statements
- Consult on report materials

Public meetings are held once to twice per year

Last meeting: October 17, 2017

Next meeting: February 23, 2017 – multiple locations

Volume of Cardiac Surgeries in California 1997-2016



Data Source: California Patient Discharge Data (OSHPD)

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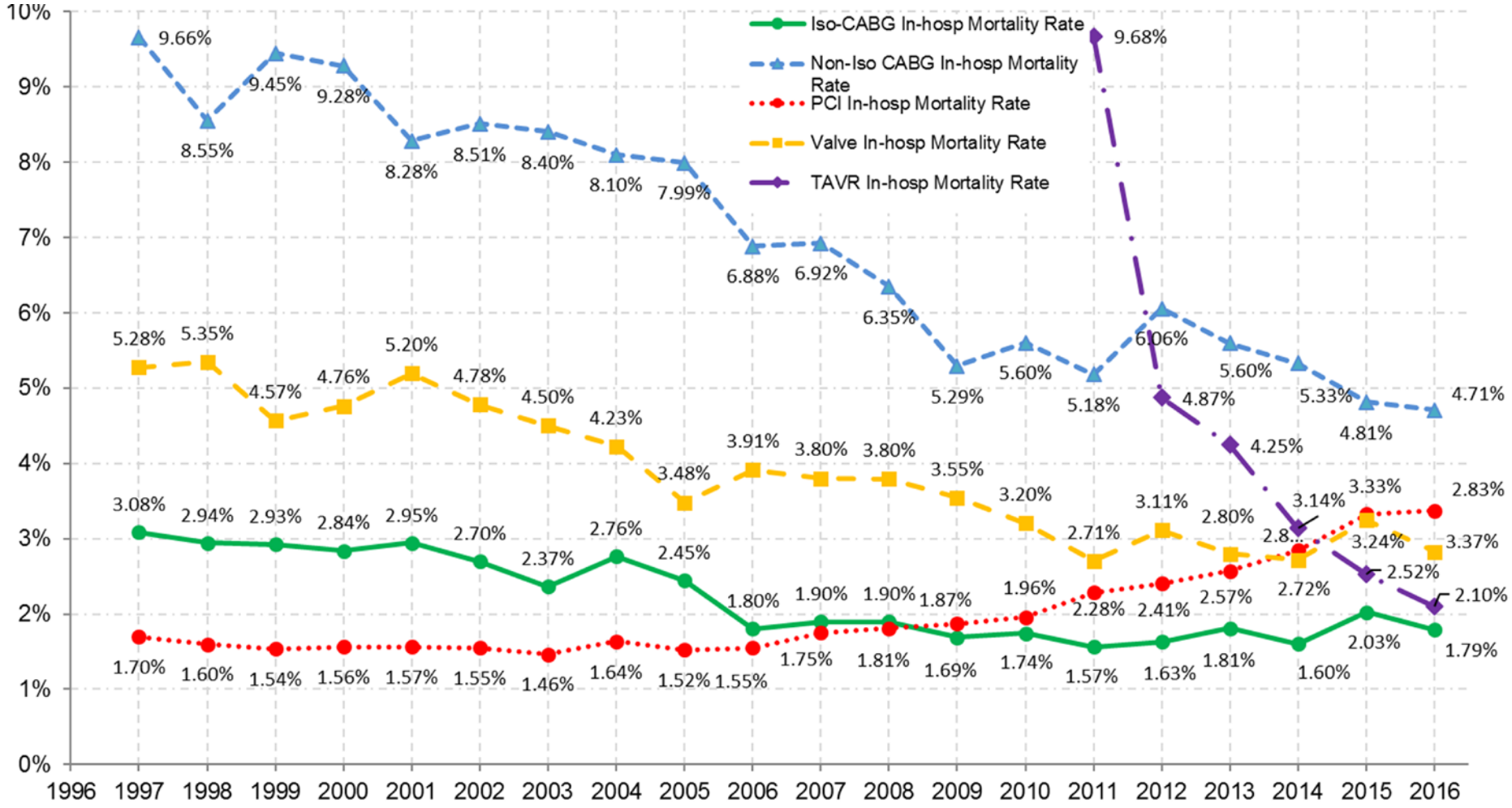
In-hospital Mortality Rates for Cardiac Surgeries in California 1997-2016



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CCORP Hospital Volume and Related Statistics 2003-2016

	YEAR													
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total # CABG performing hospitals	121	120	120	121	121	120	119	120	122	124	125	126	126	126
Mean isolated CABG volume	176	159	141	129	122	117	112	103	102	94	94	96	99	102
Mean non-isolated CABG volume	37	38	37	36	35	34	33	33	32	27	30	29	29	27
# hospitals performing only isolated CABG	5	3	2	2	4	3	1	3	2	4	5	2	3	4
# hospitals < 100 total CABGs	31	32	36	44	51	50	54	60	62	67	68	64	64	59
# hospitals < 30 total CABGs	3	5	6	9	8	7	7	6	8	12	9	9	11	7
Total CABG count at lowest volume hospital	25	5	7	2	1	6	8	4	1	4	1	8	8	4

CCORP Surgeon Volume 2003-2016

	YEAR													
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total # CABG performing surgeons	284	287	267	270	262	264	259	258	259	260	254	257	259	259
Mean isolated CABG volume	74.9	66.7	63.5	57.9	56.4	52.9	51.3	48.7	47.9	45.1	47.1	47.1	48	49.7
Mean non-isolated CABG volume	15.8	15.8	16.5	15.8	15.7	15.4	15.2	14.7	15.0	13.3	14.1	14.1	13.9	12.5

STS Isolated CABG Volume 2008-2017

Adult Cardiac Surgery Database
Executive Summary
10 Years

STS Period Ending 06/30/2017

Duke Clinical Research Institute

6 months only

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Yearly Number of Sites in Analysis	949	982	1,014	1,032	1,041	1,053	1,056	1,065	1,078	1,021
Yearly Overall Procedure Count	287,964	295,774	291,410	279,007	275,243	283,061	284,904	294,479	297,710	144,313
Major Procedures										
Isolated CABG	168,027	167,329	160,819	149,649	146,520	147,894	148,184	155,526	159,869	78,642
Isolated Aortic Valve Replacement	21,376	24,501	25,620	27,257	28,807	30,681	29,829	30,265	28,493	12,790
Isolated Mitral Valve Replacement	4,845	5,336	5,496	5,877	6,301	6,642	6,999	7,260	7,706	3,645
Aortic Valve Replacement + CABG	17,536	18,823	18,344	18,214	18,389	18,584	18,384	18,090	17,507	7,955
Mitral Valve Replacement + CABG	2,576	2,589	2,446	2,322	2,385	2,434	2,640	2,778	2,935	1,431
Aortic + Mitral Valve Replacements	1,317	1,503	1,468	1,609	1,665	1,777	1,911	1,875	2,011	932
Mitral Valve Repair	6,155	6,817	7,300	7,835	8,402	8,821	8,875	9,037	8,732	4,330
Mitral Valve Repair + CABG	5,177	4,898	4,759	4,596	4,710	4,797	4,294	3,999	3,526	1,860
Not Classified Above	60,955	63,978	65,158	61,648	58,064	61,431	63,788	65,649	66,931	32,728
Incidence of Other Procedures										
Pulmonic Valve	505	543	543	472	548	537	560	604	594	285
Tricuspid Valve	6,903	7,369	7,625	8,203	8,663	9,329	10,024	10,539	10,998	5,421
Ventricular Assist Device	1,512	1,863	2,434	3,202	3,572	4,165	4,748	5,596	5,524	2,751
LVA - Left Ventricular Aneurysm Repair	1,041	925	831	790	781	703	677	627	586	244
VSD - Ventricular Septal Defect Repair	634	625	637	672	701	652	752	767	842	401
ASD - Atrial Septal Defect Repair	3,940	4,285	4,230	4,687	5,214	5,424	5,900	6,000	6,163	3,057
Batista	47	34	42	17	-	-	-	-	-	-
Surgical Ventricular Restoration	404	303	193	208	198	210	220	219	201	117
Congenital Defect Repair	1,821	1,579	1,544	1,564	1,703	1,668	1,301	1,019	1,066	492
Transmyocardial Laser Revascularization	2,387	2,033	2,011	1,755	1,726	1,494	1,465	1,399	1,216	517
Cardiac Trauma	335	297	287	280	289	267	269	279	249	98
Cardiac Transplant	1,121	1,226	1,367	1,356	1,410	1,589	1,723	1,829	2,152	1,009
Arrhythmia Correction Surgery	1,370	1,211	1,159	1,039	924	941	851	808	780	374
Atrial Fibrillation Correction Surgery	16,013	16,593	16,825	17,568	21,188	24,666	23,748	21,147	21,410	10,823
Aortic Aneurysm	11,734	13,127	13,947	12,882	11,772	12,514	12,660	13,698	14,976	7,455
Ascending Aorta	10,024	11,431	12,140	10,633	9,170	9,784	10,058	11,269	12,350	6,174
Aortic Arch	2,762	3,183	3,501	3,155	2,859	3,103	3,292	3,912	4,429	2,245
Descending Aorta	1,122	1,154	1,281	1,047	755	769	874	1,086	1,232	647
Thoracoabdominal Aorta	670	631	708	660	654	740	661	603	738	311
Carotid Endarterectomy	2,081	1,884	1,775	1,581	1,396	1,388	1,317	1,265	1,153	553
Other Vascular	1,470	1,566	1,500	1,383	1,261	1,304	1,375	1,484	1,400	668
Other Thoracic	1,795	1,663	1,663	1,556	1,605	1,684	1,740	1,687	1,807	849

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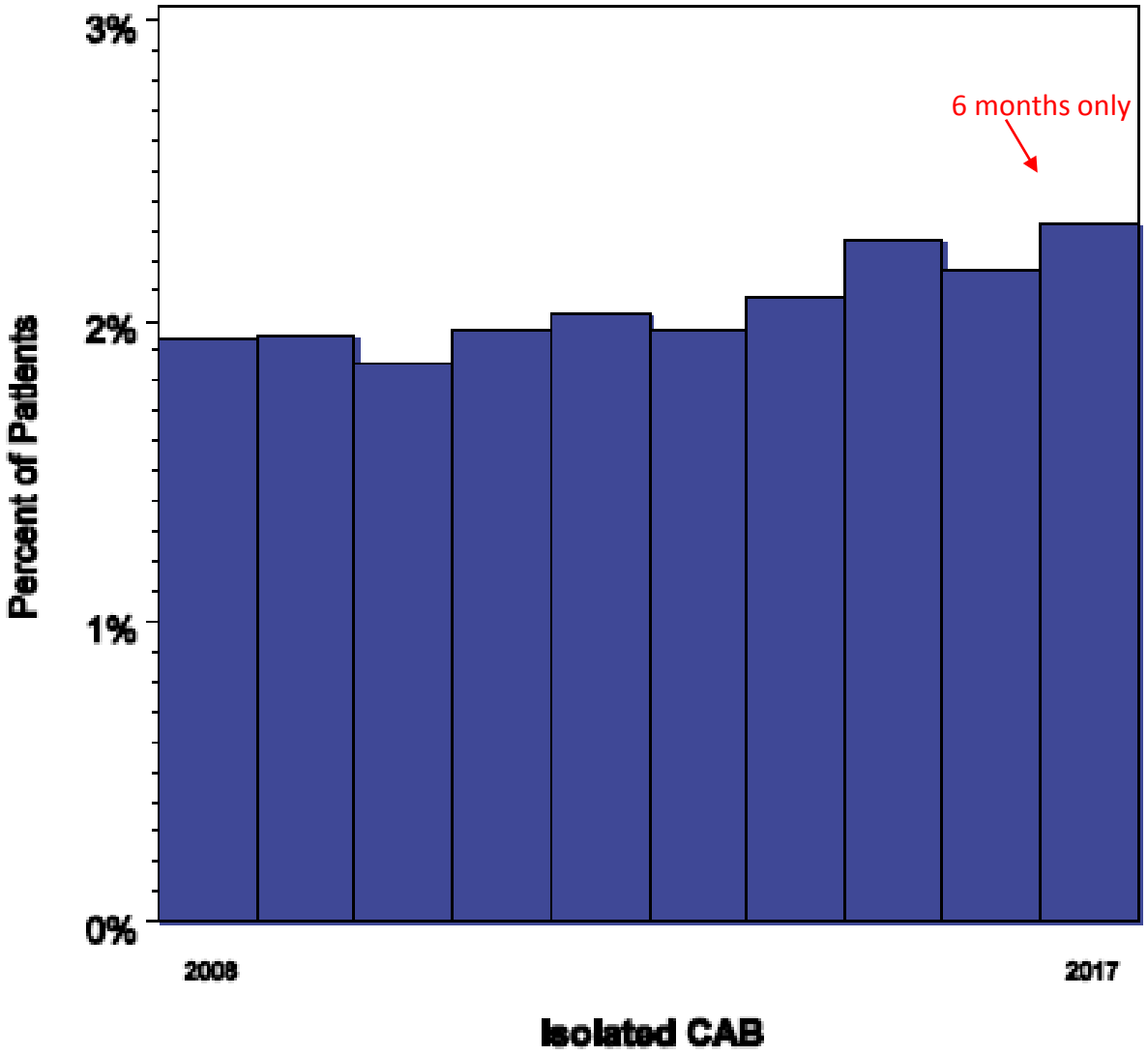
STS Isolated CABG Operative Mortality Rates 2008-2017



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CCORP Overview

- Approximately 124 hospitals in California perform CABG surgery.
- Hospital data submissions include ALL CABGs - both isolated and non-isolated (even if CABG is a complication of a previous surgery).
- Starting with 2013 data, public reports include hospital risk-adjusted mortality rates for CABG + Valve cases.
- Submissions DO NOT include non-CABG open heart cases.

Data Submission and Correction Process

- Each six months of data (Jan- Jun/Jul-Dec) is due 90 days after report period (Stage 1).
- Cardiac Online Reporting for California (CORC) is used for file upload or online data entry.
- Hospitals are encouraged to use TEST submission function.
- Data passes or fails submission and immediate feedback is displayed.
- A notice is sent to the primary data contact if documentation is needed for cardiogenic shock and/or salvage cases (acceptance pending review).
- A Data Quality Report is automatically created when data are accepted.
- Extensions (up to 28 days) can be requested/approved by OSHPD for valid reasons.

Data Submission and Correction Process (continued)

- After clean data are received from all hospitals, CORC is opened for a 21-day data correction period (Stage 2).
- After CCORP has reviewed all data, CORC is open for the final 30-day data correction period. Hospitals receive a Data Discrepancy Report. After hospitals finalize data, surgeon certification forms are generated (Stage 3).
- Each surgeon must attest to the accuracy of the data for his or her CABG surgeries and hospitals should fax all completed and signed Surgeon Certificate Forms within the final 30- day correction period.

Producing the Public Reports

- CCORP data are linked to state death records to identify deaths that occurred after discharge, but within 30 days of surgery and are linked to administrative inpatient data to determine readmissions.
- Subset of hospitals audited each year.
- The Clinical Advisory Panel approves risk-adjustment models and makes recommendations on report content.
- Preliminary results are sent to hospitals (every year) and surgeons (every other year).
- The mortality, post-op stroke, and readmission cases are sent to each hospital for review.

Producing the Public Reports (continued)

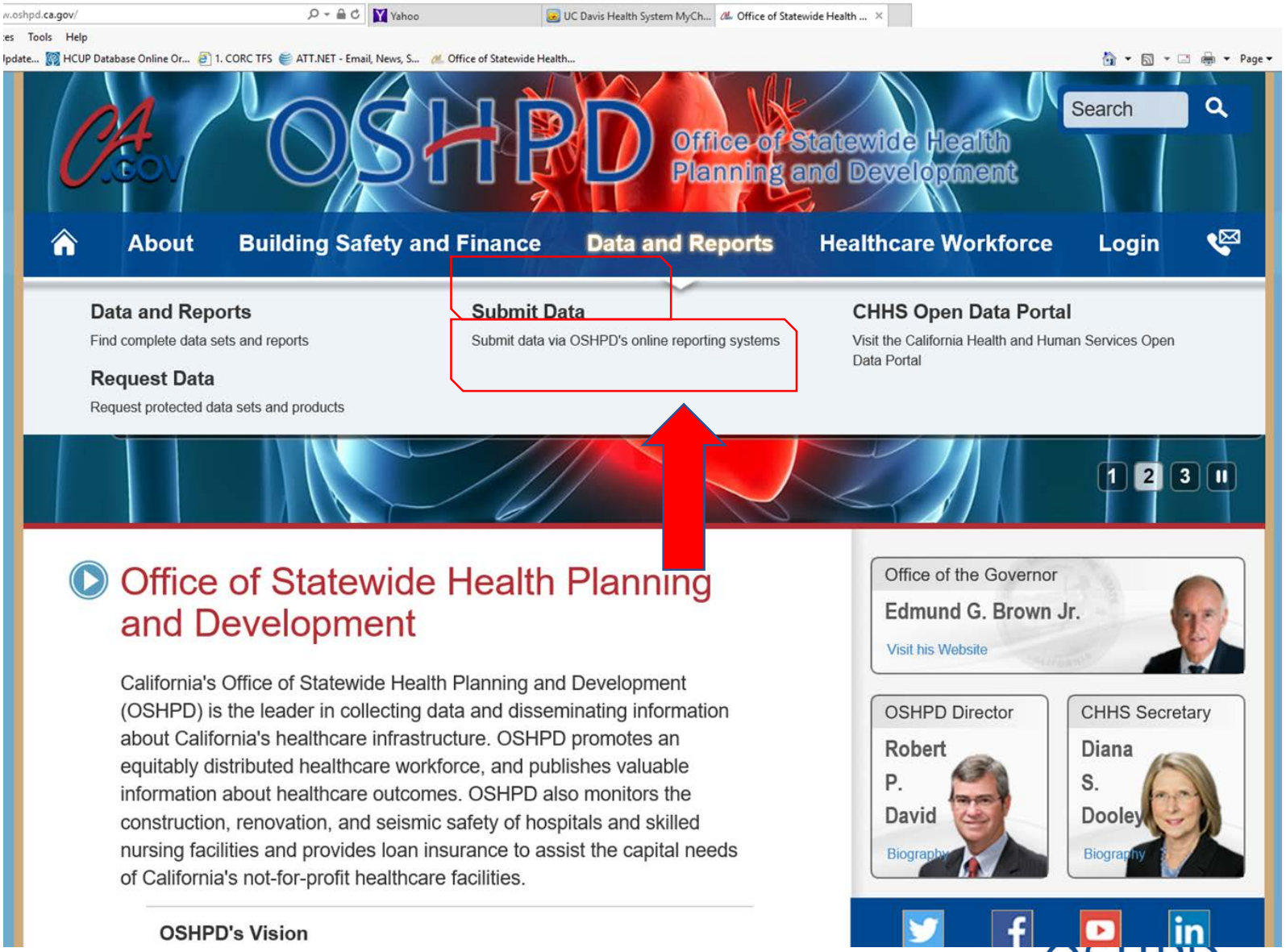
- Hospitals have 60 days to submit a statement if they believe the risk-adjusted outcomes do not accurately reflect the quality of care provided. Statement will be included in the public report.
- Surgeons have 30 days to submit a statement if they believe the risk-adjusted outcomes do not accurately reflect the quality of care provided.
  - OSHPD reviews statements and makes determinations
  - If a surgeon is not satisfied with the OSHPD determination, they may forward the statement to the Clinical Advisory Panel (CAP) for review.
  - The CAP's determination is considered final.
- CCORP prepares public report.
- Report approved at the OSHPD and Health and Human Services Agency levels.

Producing the Public Reports (continued)

- Final public reports
  - Allow consumers to make informed healthcare decisions for themselves, family or friends.
  - Empowers payers and employers with information to help them spend their healthcare dollars more effectively.
  - Provides benchmarks so hospitals and surgeons can:
    - measure their own performance,
    - review patient care practices, and
    - improve their outcomes.

OSHPD and CCORP Websites

WWW. OSHPD.CA.GOV



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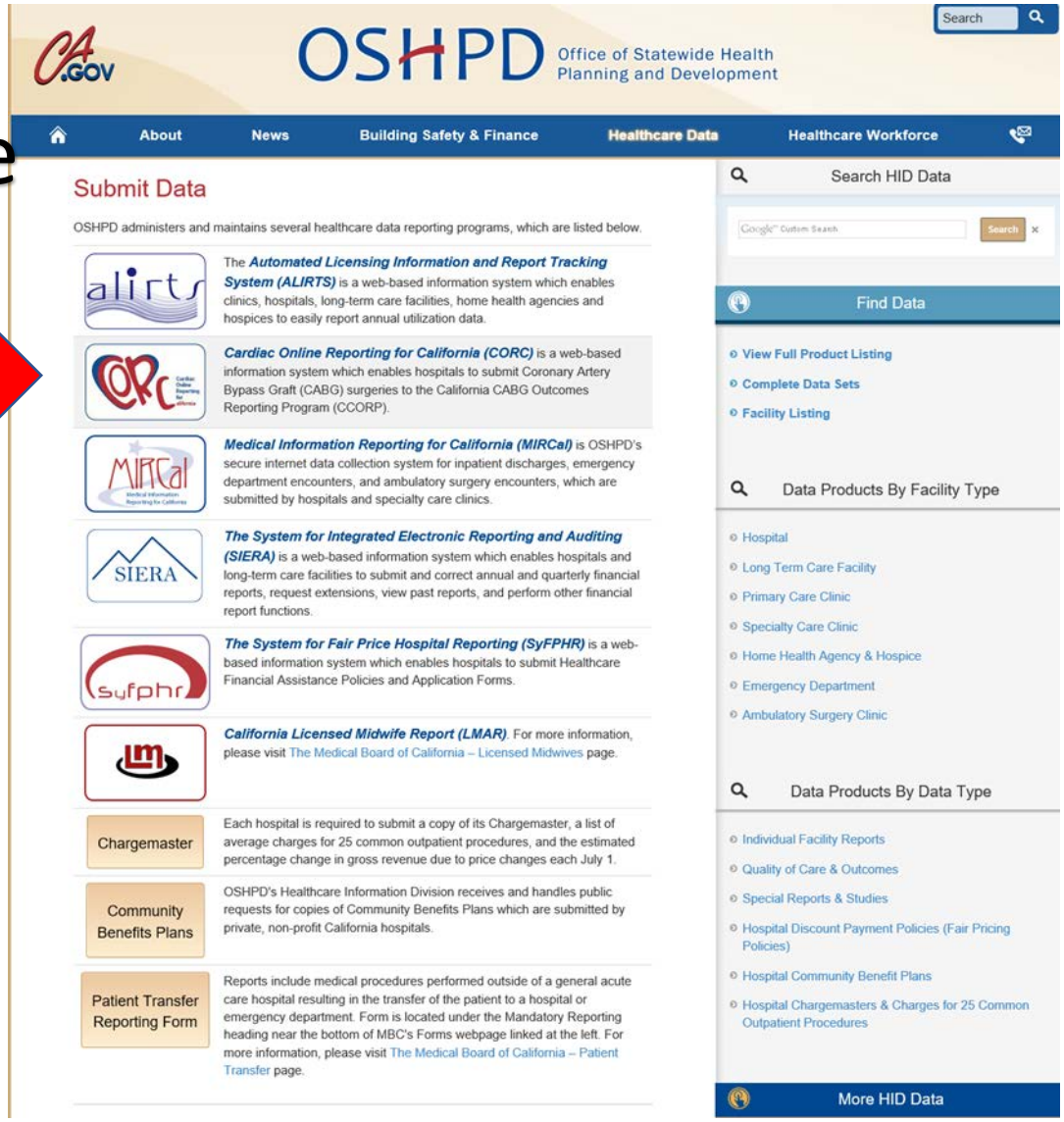
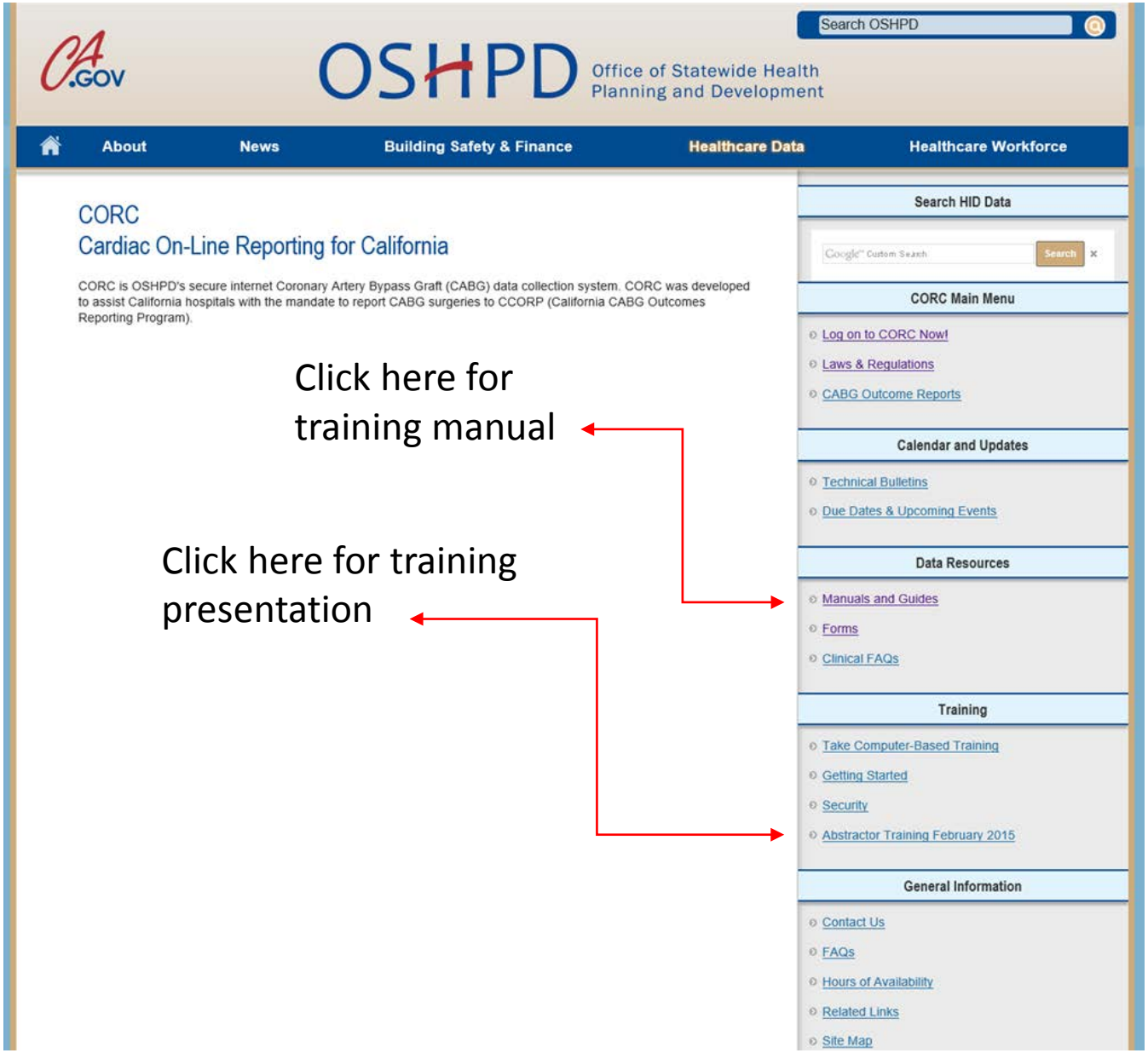
Click here to get to CCORP info



OSHPD and CCORP website



Recent Updates to CORC

- Added upload function
  - Hospitals can now upload documents instead of faxing
- Changed time-out function from 10 minutes to 30 minutes
- Added function for abstractors who work at more than one hospitals so they can use the same login
- Internet search capability added to log on page

We welcome suggestions for additional updates

CCORP Data Elements Version 7

OSHPD Office of Statewide Health Planning and Development

Welcome Dr. Steimle and Dr. Matchison

- Dr. Steimle
  - MD from the UCSF
  - Residency, cardiology and heart failure fellowships at UCLA
  - Robert Wood Johnson Clinical Scholar - health services research related to cardiovascular disease
  - Joined Kaiser in 1996 – specializes in heart failure
  - OSHPD's consulting cardiologist for 20 years
  - This training is his last project with OSHPD
- Dr. Matchison
  - MD from The Ohio State University
  - Residency at Harbor UCLA Medical Center
  - General cardiology and interventional cardiology fellowships at Kaiser LA
  - Board certified in Interventional Cardiology, Adult Cardiovascular Disease, Adult Comprehensive Echocardiography and Internal Medicine
  - Torrance Memorial MC - Specializes in management of advanced cardiac disease, cardiac catheterization, coronary stent placement, TAVR, echo, and stress echo
  - CCORP "apprentice" for the last year and will be our consulting cardiologist moving forward

Medical chart sources to abstract

- History and physical
- Discharge summary
- Cardiac catheterization report
- Echocardiogram report
- CABG operative report
- Pre- op consult notes- especially cards/ cv surgery

Things To Remember When Abstracting

- Confirm, but do not make diagnoses
- Rely on official reports
- CCORP uses STS definitions. When needed, we clarify to:
  - Predict risk
  - Allow consistent coding
  - Resolve contradictions
- Capture risk *prior* to surgery
- Abstractor's clinical judgement is required at times

Data Elements Not Covered in Training

(Definitions are in the training manual)

- Medical Record Number
- Date of Birth
- Patient Age
- Sex
- Race Documented
- Race
  - White
  - Black/African American
  - Asian
  - Native American/ Alaskan Native/ Hawaiian Native
  - Other
- Hispanic or Latino or Spanish ethnicity
- Date of Surgery
- Weight
- Height

Type of CABG (CCORP- Specific Variable) (pp. 51- 53)

- 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).
- Valid Values
  - 1=Isolated CABG
  - 3= CABG + Valve
  - 4=Other Non-Isolated CABG
- Exclusions to Isolated CABG and CABG + Valve - It is not possible to list all exclusions because cases can be complex and clinical definitions are not always precise. When in doubt, the data abstractor should first seek an opinion from the responsible surgeon and then consult CCORP.

Type of CABG (cont.)

- Exclusions from Isolated CABG:
  - Valve repair or replacement
  - 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.
    - Excludes
      1) sites intra-operatively diagnosed
      2) patch applications for site oozing discovered during surgery
      3) prophylactic patch applications to reduce chances of future rupture
  - Repair of atrial and ventricular septa, excluding closure of patent foramen ovale
  - Excision of aneurysm of heart
  - Head and neck, intracranial endarterectomy

Type of CABG (cont.)

- 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, excluding 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

Type of CABG (cont.)

- 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). Does not include 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

Type of CABG (cont.)

- CABG + Valve incudes:
  - CABG + Aortic Valve replacement (AVR)
    - Replacements ONLY, DO NOT include root replacements (Bentall)
  - CABG + Mitral Valve replacement (MVR)
  - CABG+ Mitral Valve repair (MVRepair)
  - CABG + AVR with MVR or MVRepair

Type of CABG (cont.)

- Exclusions from CABG +Valve:
  - Pulmonic Valve Procedure
  - Tricuspid Valve Procedure
  - Ventriculectomy when diagnosed preoperatively as a rupture, aneurysm or remodeling procedure. Excludes 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, excluding 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
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Type of CABG (cont.)

- 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
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Type of CABG (cont.)

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- 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

Date of Discharge (p. 10)

- 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.
- Valid Values
  - mmddyyyy
- Do not include transfers to other service units, 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.

Discharge Status/ Mortality Status (p. 11)

- Indicate whether the patient was alive or dead at discharge from the hospitalization in which surgery occurred. Include patients who died after transfer to another acute care hospital.
- Valid Values
  2 = Died in Hospital;
  3 = Discharged alive, last known status alive;
  4 = Discharged alive, died after discharge
- 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.

Mortality Date (pg. 11)

- Indicate the date the patient was declared dead.
- Valid Values
  - mmddyyyy

Responsible Surgeon Name (CCORP-Specific Variable) (p. 11)

- Valid Values
  - Surgeon Last Name
  - Surgeon First Name
  - Surgeon Middle Initial

Responsible Surgeon CA License Number (CCORP-Specific Variable) (p. 11)

- California physician license number of responsible surgeon assigned by the Medical Board of California of the Department of Consumer affairs (see page 53 of the training manual for more information criteria).
- Hospitals are encouraged to look up their surgeon names and licensing information DIRECTLY from the California Medical Board at: http://www.mbc.ca.gov/Breeze/License_Verification.aspx

Diabetes (p. 12)

- History of diabetes diagnosed and/or treated by a healthcare provider. The American Diabetes Association criteria include documentation of the following:
  - A1c >=6.5%; or
  - Fasting plasma glucose >=126 mg/dl (7.0 mmol/l); or
  - 2-hr plasma glucose >=200 mg/dl (11.1 mmol/l) during an oral glucose tolerance test; or
  - 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.
- Valid Values:
  - 1 = Yes
  - 2 = No
  - 3 = Unknown

Diabetes (cont.)

- STS Clarification: Indicate if the patient has a history of diabetes mellitus, regardless of duration or need for anti-diabetic agents.
  - Exclusions are steroid induced hyperglycemia and gestational (transient), without elevated HbA1c and/or treatment code “NO”.
- If a patient had a pancreatic transplant, code “OTHER”, since the insulin from the new pancreas is not exogenous insulin.
- 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”.

Diabetes Control (p. 13)

- Indicate the patient's diabetes control method as presented on admission. Patients placed on a pre-procedure diabetic pathway of insulin drip at admission but whose diabetes was controlled by diet or oral methods are not coded as being treated with insulin. Choose the most aggressive therapy from the order below:
- 4 = Insulin: insulin treatment (includes any combination with insulin)
- 6 = Other subcutaneous medications (e.g., GLP-1 agonist)
- 3 = Oral: treatment with oral agent (includes oral agent with or without diet treatment)
- 2 = Diet only: Treatment with diet only
- 1 = None: no treatment for diabetes
- 5 = Other: other adjunctive treatment, non-oral/insulin/diet
- 7 = Unknown

Dialysis (p. 13)

- Indicate whether the patient is currently (prior to surgery) undergoing dialysis. Refers to whether the patient is currently on dialysis, not distant past history.
- Valid Values
  - 1 = Yes
  - 2 = No
  - 3 = Unknown
- Includes any form of dialysis, including peritoneal or hemodialysis, that the patient is receiving at the time of admission. 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.

Hypertension (p. 14)

- Indicate if the patient has a diagnosis of Hypertension, documented by one of the following:
  - History of hypertension diagnosed and treated with medication, diet, and/or exercise.
  - Prior documentation of
    - BP >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.
- Currently undergoing pharmacological therapy for treatment of hypertension.

Hypertension (cont.)

- 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.

Endocarditis (p. 14)

- Indicate whether the patient has a history of endocarditis:
  - Endocarditis must meet at least one of the following criteria:
    - 1. Patient has organisms cultured from valve or vegetation
    - 2. Patient has two or more of the following signs or symptoms with no other recognized cause:
      - fever (>38c)
      - new or changing murmur
      - embolic phenomena
      - skin manifestations (i.e., petechiae, splinter hemorrhages, painful subcutaneous nodules)
      - congestive heart failure
      - cardiac conduction abnormality

<u>AND at least one of the following</u>:

a. Organisms cultured from two or more blood cultures
b. Gram's stain of valve
c. Valvular vegetation seen during a surgical operation 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.

- Marantic Endocarditis (non-bacterial thrombotic endocardities) (Lupes) should not be coded as infectious endocarditis.
- Valid Values
  - 1 = Yes
  - 2 = No

Endocarditis (cont.)

BOTTOM LINE CLARIFICATION:

- The chart has to document endocarditis. CDC criteria may be used by clinicians to make the diagnosis for “active episodes,” but not by a data manager.
- Choose “Yes” for patients with pre-operative endocarditis who begin antibiotics post-op.
- Positive blood cultures alone are not sufficient to code “Yes”.
- Code “Yes” for patients who are diagnosed intra-operatively.

Infectious Endocarditis Type (p. 15)

- 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, then the infection is considered treated.
- Valid Values
  1 = Treated
  2 = Active
- Active: currently being treated; also include patients who were diagnosed in the OR but began treatment post-op.
- Treated: no antibiotic medication at time of surgery (other than prophylactic medication).

Chronic Lung Disease (p. 15)

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

- Valid Values
  - 1 = No
  - 2 = Mild
    - FEV1 60% to 75% of predicted, and/or chronic inhaled or oral bronchodilator therapy.
  - 3 = Moderate
    - FEV1 50% to 59% of predicted, and/or on chronic oral/ systemic steroid therapy aimed at lung disease.
  - 4 = Severe
    - FEV1 <50% predicted, and/or Room Air pO2 < 60 or pCO2 > 50.
  - 5 = Lung disease documented, severity unknown
    - Chronic lung disease present, severity not documented (lung disease documented but severity unknown).
  - 6 = Unknown

Chronic Lung disease (cont.)

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

Chronic Lung Disease (cont.)

- 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.
- 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. 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.

Chronic Lung Disease (cont.)

BOTTOM LINE: The definition requires:

1) documentation of a diagnosis of chronic pulmonary disability

2) confirmation based on either pulmonary function test (PFT) data or chronic therapy. Patients do NOT have COPD merely on the basis of a heavy smoking history or being labeled “COPD” in the chart without PFTs or history of prior therapy for COPD. Severity is determined by severity of PFT abnormality or type of chronic therapy.

Liver Disease (p. 17)

- 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.
- Valid Values
  1 = Yes
  2 = No
  3 = Unknown

- Liver diseases such as hepatitis B, hepatitis C, cirrhosis, portal hypertension, esophageal varices, chronic alcohol abuse and congestive hepatopathy affect the cells, tissues, structures, or functions of the liver. Severity can range from mild to severe and will be quantified by the MELD score.

Liver Disease (cont.)

- Hepatitis A is a transient condition – do not code as liver disease. Liver fibrosis with recurrent ascites should be coded as “yes” if documented appropriately and is supported by the MELD score.
- Do not code liver disease for the liver transplant patient, if the patient has no residual anatomic or system issue OR if the Meld score does not quantify liver disease.
- LFTs or a MELD score alone cannot be used to code “yes” to liver disease since other conditions impact these lab values.

Immunocompromise (p. 17)

- 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 pre-operative protocol.
- Valid Values

  1 = Yes

  2 = No

  3 = Unknown

Immunocompromise (cont.)

STS Clarifies:

- There are multiple classes of drugs considered to be immunosuppressive. Corticosteroids (only if taken systemically), Cytotoxic drugs, Antimetabolites and Cyclosporine, and Biologics.
- Biologics are genetically engineered proteins derived from human genes and are designed to inhibit specific components of the immune system.
- Immunosuppression can result from radiation therapy, malnutrition, or removal of spleen. Examples of conditions causing Immunocompromise include Hypogammaglobulinemia and HIV infection.
- If a 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.

Immunocompromise (cont.)

- **<u>CCORP Clarifies</u>**
  - DO NOT include topical creams or steroid inhalers.
  - DO NOT include patients who receive only one or two doses, or a pre-op/pre-cath protocol.
- Patients post-organ transplant or with rheumatologic conditions may be on immunosuppressive therapy other than corticosteriods such as Cyclosporine (Gengraf, Neoral, Sandimmune), Azathioprine (Imuran), Cyclophosamide (Cytoxan), Methotrexate, Tacrolimus (Prograf), Sirolimus (Rapamune) Mycophenolate mofetil – MMF (Cellcept).

Peripheral Arterial Disease (p. 18)

- 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:

  i. Claudication, either with exertion or at rest.

  ii. Amputation for arterial vascular insufficiency.

  iii. Vascular reconstruction, bypass surgery, or percutaneous intervention to the extremities (excluding dialysis fistulas and vein stripping).

  iv. Documented aortic aneurysm with or without repair.

  v. 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.

- Valid Values

  1 = Yes

  2 = No

  3 = Unknown

- Peripheral arterial disease excludes disease in the carotid, cerebrovascular arteries, or thoracic aorta. PVD does not include DVT.

Cerebrovascular Disease (CVD) (p. 19)

- Indicate whether the patient has a current or previous history of any of the following:
  - Stroke: an acute episode of focal or global neurological dysfunction caused by brain, spinal cord, or retinal vascular injury, as a result of hemorrhage or infarction, where the neurological dysfunction lasts for greater than 24 hours.
  - TIA: 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.
  - Non-invasive or invasive arterial imaging test demonstrating >=50% stenosis of any of the major extracranial or intracranial vessels to the brain.
  - Previous cervical or cerebral artery revascularization surgery or percutaneous intervention. Does not include neurological disease processes such as metabolic and/or anoxic ischemic encephalopathy. Subdural hematoma is NOT cerebrovascular disease.
- DO NOT include any other peripheral arterial disease processes.
- Valid Values

  1 = Yes

  2 = No

  3 = Unknown

Prior CVA (p. 19)

- 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
- Valid Values
  1 = Yes
  2 = No
  3 = Unknown

Prior CVA When (p. 19)

- Valid Values
  - 3 = Recent <= 30 days
  - 4 = Remote > 30 days

CVD – Transient Ischemic Attack (TIA) (p. 20)

- 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.
- Valid Values

  1 = Yes

  2 = No

  3 = Unknown

CVD-Carotid Stenosis (p. 20)

- Indicate which carotid artery was determined from any diagnostic test to be >=50% stenotic.
- 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.
- Code what is found at the time of surgery (even if prior stent is in place).
- Valid Values

  1 = None

  2 = Right

  3 = Left

  4 = Both

  5 = Not Documented

CVD Carotid Stenosis - Right (p. 20)

- Indicate the severity of stenosis reported on the right carotid artery
- 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”.

- Valid Values
  1 = 80-99%
  2 = 100%
  3 = 50-79%
  4 = Not Documented

CVD Carotid Stenosis - Left (p. 20)

- Indicate the severity of stenosis reported on the right carotid artery
- 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”.

- Valid Values
  1 = 80-99%
  2 = 100%
  3 = 50-79%
  4 = Not Documented

CVD Prior Carotid Surgery (p. 20)

- Indicate whether the patient has a history of previous carotid artery surgery and/or stenting.
- Valid Values

  1 = Yes

  2 = No
- 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.

Last Creatinine Level (p. 21)

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

- Valid Values
  - Usual Range: 0.10 – 12.00
  - Low/High: 0.10 – 30.00

- Anesthetic management begins when a member of the anesthesiology team initiates care. The administration of IV fluids in the holding area can cause dilution of blood. Do not capture labs drawn after the patient receives fluids in the holding are or O.R.

Total Albumin (p. 21)

- Indicate the total albumin closest to the date and time prior to surgery, but prior to anesthetic management (induction area or operating room).
- Valid Values
  - Usual Range: 3.50 – 5.00
  - Low/High: 1.00 – 10.00
    (mg/dL)
- You can capture results up to 6 weeks prior to surgery provided there is no known acute liver disease process. Anesthetic management begins when a member of the anesthesiology team initiates care. The administration of IV fluids in the holding area can cause dilution of blood. Do not capture labs draw after the patient receives fluids in the holding area or O.R.

Total Bilirubin (p. 21)

- 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.

- Valid Values
  - Usual range: 0.20 - 1.30
  - Low/High: 0.10 - 50.00 (mg/dL)

INR (p. 22)

- Indicate the International Normalized Ration (INR) closest to the date and time prior to surgery, but prior to anesthetic management (induction area or operating room).

- Valid Values
  - Usual Range: 0.90 – 1.30
  - Low/High: 0.50 – 30.00

- Anesthetic management begins when a member of the anesthesiology team initiates care. The administration of IV fluids in the holding area can cause dilution of blood. Do not capture labs drawn after the patient receives fluids in the holding area or O.R.

Previous Coronary Artery Bypass Graft (p. 22)

- Indicate whether the patient had a previous Coronary Bypass Graft prior to the current admission.

- Valid Values
  1 = Yes
  2 = No

- This applies only to surgical approach to revascularization. Angioplasty or other catheter-based coronary artery occlusion treatment does not apply.

Previous Valve (p. 22)

- Indicate whether the patient had a previous surgical replacement and/or surgical repair of a cardiac valve. This may also include percutaneous valve procedures.

- Valid Values

1 = Yes
2 = No

- This may include percutaneous valve procedures such as percutaneous valvotomy or valvuloplasty, as well as surgical or transcatheter valve repair or replacement. Capture all procedures that apply.

Previous PCI (p. 22)

- Indicate whether a previous Percutaneous Cardiac Intervention (PCI) was performed any time prior to this surgical procedure. PCI is the placement of an angioplasty guide wire, balloon, or other device (e.g. stent, atherectomy, brachytherapy, or thrombectomy catheter) into a native coronary artery or coronary artery bypass graft for the purpose of mechanical coronary revascularization.
- An attempted, even if unsuccessful, PCI should be coded as a Previous CV intervention-PCI. This is an effort to harmonize with ACC-NCDR.
- PCIs may include coronary angioplasties, stents and/or atherectomies done by interventional cardiologists.
- Include patients who had PCI prior to surgery as part of a planned, staged hybrid procedure.
- Valid Values

  1 = Yes

  2 = No

Previous PCI – Interval (p. 23)

- Indicate the interval of time between the previous PCI and the current surgical procedure.

- Valid Values
  1 = < or = 6 Hours
  2 = > 6 Hours

- 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.

Prior Myocardial Infarction (MI) (p. 23)

- Indicate if the patient has had at least one documented previous myocardial infarction at any time prior to this surgery.

- Valid Values
  1 = Yes
  2 = No
  3 = Unknown

- Medical record documentation of prior myocardial infarction is sufficient. ECG or enzyme documentation in the current chart is not required.

MI When (p. 24)

- Indicate the time period between the last documented myocardial infarction and surgery.

- Valid Values
  1 = < or = 6 Hrs
  2 = > 6 Hrs but < 24 Hrs
  3 = 1 to 7 Days
  4 = 8 to 21 Days
  5 = >21 Days

- 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.

Heart Failure (pp. 24-25)

- Indicate whether there is physician documentation or report that the patient has been in a state of heart failure.

- Valid Values
  - 1 = Yes
  - 2 = No
  - 3 = Unknown

Heart Failure Timing (p. 25)

- Indicate whether heart failure is acute, chronic or both (acute on chronic).
- Valid Values

  1 = Acute
    - New onset/ worsening heart failure within 2 weeks prior to procedure.

  2 = Chronic
    - >2 weeks prior to this procedure.

  3 = Both
    - 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.

Classification - New York Heart Association (NYHA) (pp. 25-26)

- 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 clarifies: NYHA classification is used for congestive heart failure (CHF).

1 = *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.

2 = *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).

Classification - New York Heart Association (NYHA) (cont.)

- 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.

3 = *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.

4 = *Class IV*: Patient has dyspnea at rest that increases with any physical activity. Class IV Patient has cardiac disease resulting in inability to perform any physical activity without discomfort. Symptoms may be present even at rest or minimal exertion. If any physical activity is undertaken, discomfort is increased.

5 = Not Documented

NYHA (cont.)

SOB/fatigue at rest? Yes → Class IV

↓ No

SOB/fatigue with minimal activity (eating, dressing, walking around house) Yes → Class III

↓ No

SOB/fatigue with ordinary activity (heavy work around the house, moderate recreational activities like golf or bowling) Yes → Class II

↓ No

Class I

OSHPD
Office of Statewide Health Planning and Development

CONTACT CCORP

CCORP EMAIL

CCORP@OSHPD.CA.GOV

CORC HOTLINE

(916) 326-3865