The California Report on

Coronary Artery

Bypass Graft Surgery

2009-2010 Hospital and Surgeon Data

April 2013

Edmund G. Brown Jr., Governor
State of California

Diana S. Dooley, Secretary
Health and Human Services Agency

Robert P. David, Director
Office of Statewide Health Planning and Development

PREFACE

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We are pleased to share with you the eighth public release of data from the State's mandatory heart bypass surgery reporting program, the California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program (CCORP). This report provides quality ratings for 120 state-licensed hospitals and 271 surgeons performing isolated CABG surgery during 2009 and 2010. The hospital performance ratings are based on three risk-adjusted health outcomes: operative mortality, post-operative stroke, and hospital readmission. The surgeon performance ratings are based on risk-adjusted operative mortality for 2009 and 2010 combined. This is our second report that rates hospitals on their unplanned readmissions, a problem that has received considerable national attention because it contributes to increased costs to the healthcare system. In addition, we report an important process measure of surgical quality: the use of the internal mammary artery during CABG surgery.

Isolated CABG surgery means that no other major procedure, such as valve repair or carotid endarterectomy, was performed at the same time as the bypass surgery. In 2010, the statewide operative mortality rate for isolated CABG surgery was 2.00%. This is a slight increase from the 1.90% rate in 2009, but a 31% reduction from the 2.91% rate in 2003, which was the first year of mandatory reporting.

This information is intended for cardiac patients and their families who are developing treatment plans with their doctors. It is also intended for hospitals and surgeons who are developing quality improvement activities and for organizations that purchase healthcare coverage for their members. The 2009-2010 report provides accurate and valid findings; however, cardiac surgeon or hospital practices may have changed since the 2010 data were collected by the Office of Statewide Health Planning and Development.

We commend the hospitals and cardiac surgeons in California and the CCORP Clinical Advisory Panel, which oversees this program, for their hard work and support of this public reporting program. OSHPD continues to work with hospitals, physicians, and professional surgical societies to ensure that these reports are accurate and fair, and that they contribute to improved cardiac surgical care for all residents of the Golden State.

Robert P. David
Director
California Office of Statewide Health Planning and Development

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The California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program (CCORP) is funded by the Office of Statewide Health Planning and Development's California Health Data and Planning Fund.

This report represents the contributions of many individuals. Hospital staff dedicated time and resources to collect, report, and review the data for analysis. Hospitals provided ongoing feedback on the design of the program, which is vital to its success, and members of the CCORP Clinical Advisory Panel provided oversight and policy guidance for data collection and analysis. The Healthcare Information Division and the Healthcare Information Resource Center within the division provided expertise in report concept, editing, and design. The California Department of Public Health provided Vital Statistics files needed for identifying post-surgery deaths after discharge. CCORP also benefited from collaboration with the Society of Thoracic Surgeons and its California Chapter to coordinate and improve data quality.

CCORP reflects the efforts and significant contributions of the following individuals:

Office of Statewide Health Planning and Development

Ronald A. Spingarn, M.S.
Deputy Director, Healthcare Information Division

Joseph P. Parker, Ph.D.
Manager, Healthcare Outcomes Center

Holly Hoegh, Ph.D.
Manager, Clinical Data Programs

Denise O'Neill
Clinical Data Manager

Robert Springborn, Ph.D.
Research Scientist

Mary Moseley, M.A.
Contracts Manager

University of California, Davis Study Consultants

Zhongmin Li, Ph.D.
Principal Investigator

Beate Danielsen, Ph.D.
Co-investigator

James P. Marcin, M.D., M.P.H.
Co-investigator

Geeta Mahendra, M.A., M.S.
Senior Programmer

Dominique Ritley, M.P.H.
Project Assistant

Garrett Wong, M.D.
Clinical Consultant

Project Advisors

Ezra Amsterdam, M.D.
Richard White, M.D.
Patrick Romano, M.D., M.P.H.
University of California, Davis

Anthony E. Steimle, M.D., F.A.C.C.
Kaiser Foundation Hospital – Santa Clara

Student Assistants

Joi Calonge
Justin Reyna

Daniel Kassis
Anna Le

California CABG Outcomes Reporting Program (CCORP) Clinical Advisory Panel

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Additional copies of this report can be obtained through the OSHPD Web site (www.oshpd.ca.gov).

TABLE OF CONTENTS

APPENDICES

TABLES AND FIGURES

Tables

Figures

Executive Summary

The California Coronary Artery Bypass Graft (CABG) Outcomes Reporting Program (CCORP) is the largest public reporting program on CABG surgery outcomes in the United States.

The *California Report on Coronary Artery Bypass Graft Surgery, 2009-2010: A Measurement of Hospital and Surgeon Performance* presents findings from analyses of data collected from 120 California-licensed hospitals where 271 surgeons performed adult isolated CABG[1] surgery during 2009 and 2010. Surgeon results for risk-adjusted mortality and hospital results for risk-adjusted post-operative stroke are based on combined 2009 and 2010 data. The hospital results for risk-adjusted mortality, risk-adjusted readmissions and internal mammary artery utilization are based only on 2010 data.

The three outcome measures (operative mortality, post-operative stroke, and readmission) help hospitals, physicians, patients, and payers evaluate hospital performance. These measures are risk-adjusted, which is a statistical technique that enables fair comparison of hospital and surgeon outcomes even though some hospitals and surgeons treat sicker patients. In this report, operative mortality includes all deaths that occurred during the hospitalization in which the CABG surgery was performed (regardless of length of stay) and any deaths within 30 days after the surgery (no matter where they occurred). Post-operative stroke is defined as a post-operative, central neurologic deficit that did not resolve within 24 hours. A readmission was counted only if the patient, within 30 days of being discharged from the hospital where the CABG was performed, was readmitted with a condition that was likely related to the CABG surgery. Readmissions for other reasons were excluded.

Additionally, this report provides 2010 hospital-level data on internal mammary artery (IMA)[2] usage, which is an important process measure of surgical quality. This report also contrasts statewide volume and mortality outcomes for two types of cardiac revascularization procedures: percutaneous coronary interventions (PCI) and CABG surgery. PCI is also known as angioplasty or balloon catheterization.

Key Findings

2010 Hospital Operative Mortality Findings:

- There were 251 operative deaths among 12,548 isolated CABG surgeries performed in 2010.
- The operative mortality rate for isolated CABG surgery in California was 2.00% in 2010 compared to 1.90% in 2009 and 2.24% in 2008. This represents a 31% reduction in the operative mortality rate since 2003 (2.91%), the first year of mandated public reporting.

[1] Isolated CABG surgery refers to heart bypass surgery without other major surgery, such as heart or lung transplantation, valve repair, etc., performed concurrently with the bypass procedure.

[2] The internal mammary artery (IMA) supplies blood to the front chest wall and the breasts. It is a paired artery, with one running on each side of the inner chest. Evidence shows that the IMA, when grafted to a coronary artery, is less susceptible to obstruction over time and remains fully open longer than vein grafts.

- There was significant variation, from 0% to 32.65%, in hospital operative mortality rates after adjusting for patients' pre-operative health. Despite such variation, 115 of 120 hospitals (96%) performed at a rate that did not differ significantly from the statewide average.

- One hospital performed statistically significantly **"Better"** than the state average in terms of risk-adjusted operative mortality (Table 1), and four hospitals performed **"Worse"** than the state average (Table 2).

2009-2010 Hospital Post-Operative Stroke Findings:

- 337 of the 25,808 patients (1.31%) who underwent isolated CABG surgery in 2009-2010 experienced a post-operative stroke; this is slightly below the national rate of 1.4% reported by the Society of Thoracic Surgeons.[3] This is a slight reduction since 2006-2007 (1.33%).

- There was wide variation in post-operative stroke rates among hospitals after adjusting for patients' pre-operative health. Hospital risk-adjusted post-operative stroke rates ranged from 0% to 6.29% and 116 of 120 hospitals (97%) performed at a rate that did not differ significantly from the statewide average.

- No hospital performed **"Better"** than the state average, but four hospitals performed **"Worse"** than the state average (Table 2).

2010 Hospital Readmission Findings:

- 1,487 of the 11,304 patients (13.15%) who underwent isolated CABG surgery in 2010 and were discharged alive experienced a hospital readmission within 30 days of the surgery. This is a slight reduction from the 2009 rate of 13.24%.

- There was wide variation in the readmission rates among hospitals performing CABG surgery after adjusting for patients' pre-operative conditions. Hospital risk-adjusted readmission rates ranged from 0% to 29.95% and 116 of 120 hospitals (97%) performed at a rate that did not differ significantly from the statewide average.

- Two hospitals performed **"Better"** than the state average on hospital readmissions (Table 1), and two hospitals performed **"Worse"** than the state average (Table 2).

2010 Hospital Internal Mammary Artery (IMA) Usage Findings:

- The IMA is the preferred conduit for CABG surgery of the left anterior descending (LAD) artery. Hospitals with high rates of IMA use are providing high quality care to their patients. California hospitals had a 96.0% IMA usage rate in 2010 compared to 89.6% in 2003.[4] Five California hospitals had IMA usage rates that were significantly lower than the state average and were given **"Low"** performance ratings (Table 2). There is no consensus on what

[3] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 1—coronary artery bypass grafting surgery. *Ann Thorac Surg* 2009; 88:S2-22.

[4] The increase in the statewide IMA usage rate from 93.7% in 2007 to 95.9% in 2008, 96.2% in 2009, and 96.0% in 2010 is partly due to a change in the IMA measure. Beginning in 2008, patients who did not have LAD bypassed were excluded from the denominator. If this exclusion were not used, the statewide IMA usage rate would be 94.4% for 2008, 94.8% for 2009, and 94.7% for 2010.

an optimal usage rate should be, so **"Better"** performance ratings were not given for very high rates of IMA usage. Those hospitals with **"Low"** performance ratings are listed in Table 2.

Table 1: Hospitals with **"Better"** Performance Ratings

Hospitals with "Better" Risk-Adjusted Operative Mortality Rates, 2010	
Mercy General Hospital	Sacramento Valley & Northern California Region
Hospitals with "Better" Risk-Adjusted 30-Day Readmission Rates, 2010	
Doctors Medical Center – Modesto Campus	Central California
Mercy General Hospital	Sacramento Valley & Northern California Region

Table 2: Hospitals with **"Worse"** or **"Low"** Performance Ratings

Hospital	Region
Hospitals with "Worse" Risk-Adjusted Operative Mortality Rates, 2010	
Antelope Valley Hospital Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Bakersfield Heart Hospital	Central California
Kaweah Delta Hospital	Central California
Palomar Health Downtown Campus	Greater San Diego
Hospitals with "Worse" Risk-Adjusted Post-Operative Stroke Rates, 2009-2010	
Hoag Memorial Hospital Presbyterian	Orange County
Providence Tarzana Regional Medical Center – Tarzana	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Grossmont Hospital	Greater San Diego
Sharp Memorial Hospital	Greater San Diego
Hospitals with "Worse" Risk-Adjusted 30-Day Readmission Rates, 2010	
Long Beach Memorial Medical Center	Greater Los Angeles
St. Helena Hospital	San Francisco Bay Area & San Jose
Hospitals with "Low" Internal Mammary Artery (IMA) Use Rates, 2010	
Antelope Valley Hospital Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Shasta Regional Medical Center	Sacramento Valley & Northern California Region
Sutter Medical Center of Santa Rosa	San Francisco Bay Area & San Jose
St. John's Regional Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
West Anaheim Medical Center	Orange County

2009-2010 Surgeon Operative Mortality Findings:

- There were 502 operative deaths among 25,808 isolated CABG surgeries in 2009-2010.
- There was significant variation, from 0% to 16.98%, in surgeon operative mortality rates after adjusting for patients' pre-operative health. Despite such variation, 264 of 271 surgeons (97%) performed at a rate that did not differ significantly from the statewide average. No surgeon performed **"Better"** than the state average and seven surgeons performed **"Worse"** than the state average (Table 3).

Table 3: Surgeon Performance Ratings

Surgeon	Region
Surgeons with "Worse" Risk-Adjusted Operative Mortality Rates Overall, 2009-2010	
Chaudhry, Pervaiz	Central California
Freyaldenhoven, Stephen J	Central California and San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Mahendra, Tom	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Petrik, Pavel	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Purewal, Sarabjit S	Central California
Reichman, Robert T	Greater San Diego
Salem, Fakhri M	Greater San Diego

Percutaneous Coronary Intervention (PCI) vs. CABG Utilization and Outcomes Findings:

- **Volume**: Between 1997 and 2011, PCI (angioplasty/balloon catheterization) volume *increased* by 6% (from 44,350 to 46,830) while isolated CABG surgeries decreased by 55% (from 28,178 to 12,579) and non-isolated CABG surgery decreased by 13% (from 4,276 to 3,707). For the same time period, valve-only procedures increased by 69% (from 4,473 to 7,538).
- **Mortality**: Between 1997 and 2011, observed in-hospital mortality rates for isolated and non-isolated CABG surgeries decreased from 3.08% to 1.57% and from 9.66% to 5.18%, respectively. The observed in-hospital mortality for valve-only procedures decreased from 5.28% to 2.71%. However, the observed in-hospital mortality rate for PCIs increased from 1.70% to 2.28%, surpassing the in-hospital mortality rate for isolated CABG surgeries. The increase in the PCI mortality rate may be due, in part, to changes in selection criteria for certain high-risk patients getting PCIs.

Introduction

This report is a public disclosure of the quality of care provided by hospitals and surgeons performing coronary artery bypass graft (CABG) surgery in California in 2009-2010. It is the eighth heart bypass surgery report developed by the California CABG Outcomes Reporting Program (CCORP) of the Office of Statewide Health Planning and Development (OSHPD) in compliance with California Health and Safety Code Sections 128745-128750. This report includes all 120 California state-licensed hospitals and 271 surgeons that performed this procedure in 2009 and 2010.

What is CABG surgery?

The two most common cardiac revascularization procedures for treating coronary artery disease are percutaneous coronary intervention (PCI), which includes angioplasty and insertion of stents, and CABG surgery. CABG surgery is more frequently recommended for patients with extensive coronary disease, reduced left ventricular function, and/or disease involving the left main coronary artery.

During CABG surgery, the surgeon uses arteries or veins from another part of the body (e.g., the internal mammary artery or the saphenous vein from the leg) to serve as a conduit for coronary bypass grafts and reroute blood around a blockage in the coronary arteries. This allows oxygen-rich blood to flow freely to nourish the heart muscle. Surgeons may create single or multiple grafts for patients, depending on how many blood vessels and main branches are blocked. In most patients, the preferred initial graft for CABG surgery is the internal mammary artery because it maintains better blood flow over time and is associated with better long-term patient survival.

What is Coronary Artery Disease?

Coronary artery disease is a chronic condition in which cholesterol and fat solidify, forming plaque along the linings of the coronary arteries. This process is called atherosclerosis or "hardening of the arteries." If plaque continues to accumulate, blood vessels may become partially or completely blocked, preventing the heart from receiving enough oxygen and leading to angina (chest pain) or myocardial infarction (heart attack).

In 2010, 110,963 Californians were admitted to hospitals for treatment of coronary artery disease.[5] This represents approximately 4.4% of all adult non-maternal admissions.

What does this report measure?

This report provides hospital performance data on four key measures of CABG surgery for the 120 hospitals in California that performed this procedure: risk-adjusted CABG surgery **operative mortality**, **post-operative stroke**, and **30-day hospital readmission** (outcome measures) and **use of internal mammary artery** (process measure). It also provides data on **surgeons' risk-adjusted operative mortality**. The outcome measures are adjusted statistically to account for variation in the health status of patients prior to CABG surgery.

Measure Definitions:

Operative mortality is defined as patient death occurring in the hospital after CABG surgery, regardless of the length of stay or death occurring anywhere after hospital

[5] OSHPD, Patient Discharge Data, 2010. Patients were identified with coronary artery disease if the principal diagnosis was coded as ICD-9-CM 410.0-414.9.

discharge but within 30 days of the CABG surgery. Use of operative mortality instead of in-hospital mortality avoids potential manipulation of outcomes through discharge practices and holds hospitals accountable for patients who died at home or in other facilities shortly after discharge. The National Quality Forum (NQF), which serves as the national body for vetting quality measures, has endorsed the national Society of Thoracic Surgeons (STS) operative mortality measure for CABG surgery.[6] CCORP uses the STS definition of operative mortality, but also verifies deaths following patient discharge using death records from the California Department of Public Health.

Post-operative stroke is defined as a post-operative central neurologic deficit that did not resolve within 24 hours after surgery.

Hospital readmission counts only if the patient, within 30 days of being discharged after CABG surgery, was readmitted to any hospital with a principal diagnosis indicating a heart-related condition or an infection or a complication that was likely related to the CABG surgery. Readmissions for other reasons are excluded in the analysis. California adopted the diagnosis categories and associated ICD-9-CM codes used by the Pennsylvania Healthcare Cost Containment Council for readmissions. OSHPD extends its thanks to the Council for making these available (Appendix F).

Use of the internal mammary artery (IMA) is the preferred method for CABG surgery of the left anterior descending artery. Research shows that high rates of IMA use result in long-term graft patency and improved patient survival.

Additionally, this report describes the longitudinal change in statewide volume of CABG surgeries and PCI (angioplasty) procedures and their related in-hospital mortality rates. These data provide some context when considering California's overall performance of cardiac revascularization procedures.

Why are these outcomes important to measure?

CABG surgery is one of the most common major cardiac surgeries and one of the most expensive surgeries performed in California. It has a declining mortality rate, but major complications (e.g., stroke, surgical site infections) can occur. Reporting surgical outcomes makes the healthcare system more accountable to consumers, payers, and employers, and assists providers with improving their quality of care.

Who is the intended audience for this report?

OSHPD aims to make the healthcare system more accountable to consumers, purchasers, and providers. These reports may help patients and their families make more informed decisions about their health care. Healthcare purchasers may use this information to allocate their dollars more effectively. Finally, these data provide benchmarks against which hospitals and surgeons may measure their own performance, review patient care practices, and improve their outcomes related to CABG surgery.

OSHPD provided all hospitals and surgeons listed in this report an opportunity to review their results prior to publication. Two hospitals submitted comment letters, which are included in

[6] National Quality Forum. National voluntary consensus standards for cardiac surgery, Washington, DC: National Quality Forum, January 2005.

Appendix G. These statements may help readers understand the concerns of some healthcare providers regarding the information released about them.

Surgeons who felt their risk-adjusted mortality results did not reflect the quality of care provided submitted statements to OSHPD. Surgeons who did not agree with OSHPD's determination appealed their statements to the CCORP Clinical Advisory Panel (CAP)[7] for review.

Who is included in this report (study population)?

Under state law, California-licensed hospitals are required to report all isolated and non-isolated CABG surgeries to OSHPD. Isolated CABG surgery is defined as CABG surgery performed without other major procedures, such as valve repair or carotid endarterectomy, during the same surgery. CCORP's detailed definition of isolated CABG surgery can be found on page 39 of the training manual: http://oshpd.ca.gov/HID/SubmitData/CCORP_CABG/TrainingManual_2008_Final.pdf.

In 2010, there were 16,346 adult CABG surgeries performed in California. Of these, 12,548 (77%) were isolated CABG surgeries and 3,798 (23%) were non-isolated CABG surgeries. Isolated CABG surgery cases are used as the study population because uniformity of the surgical process allows adequate pre-operative risk adjustment for patient conditions. Non-isolated CABG cases are not used to determine hospital or surgeon performance ratings in this report. The study population for this report consists of all adult patients who underwent isolated CABG surgery and were discharged in 2010. However, for operative mortality by surgeon and post-operative stroke by hospital, the study population included those patients who were discharged in 2009 *and* 2010.

What data are used in this report?

The primary data source for this report is the 2009 and 2010 clinical data registry collected by CCORP from 120 reporting hospitals. These data are linked to death records from the California Department of Public Health to identify patients who died at home or at facilities other than the operating hospital within 30 days following CABG surgery. These data are also linked to OSHPD's Patient Discharge Data (PDD) to identify patients who were discharged alive, and were readmitted to a hospital within 30 days of CABG surgery.

The CCORP clinical data registry primarily relies on a subset of data elements which are also collected by the Society of Thoracic Surgeons (STS) for their Adult Cardiac Surgery Database. However, a few data elements are exclusive to CCORP. Although STS and CCORP data definitions are generally identical, CCORP provides additional clarifications to assist hospitals with coding. All data elements collected by CCORP in 2009 and 2010 and their definitions can be found at http://www.oshpd.ca.gov/HID/SubmitData/CCORP_CABG/TrainingManual_2008_Final.pdf. For more details regarding the data collection, quality review, and verification methods, see Appendix A.

[7] The CCORP Clinical Advisory Panel (CAP) is established in California Health and Safety Code Section 128748. Its members are appointed by the OSHPD director with nomination from various professional groups.

Risk-Adjusted Isolated CABG Surgery Outcomes: Hospital Performance Ratings

Table 4 presents the performance ratings for each hospital's risk-adjusted outcomes and one process of care measure:

- Operative mortality (2010)
- Post-operative stroke (2009-2010)
- 30-day readmission (2010)
- Use of the internal mammary artery (2010)

The table is sorted by geographic region. Detailed statistical results for the four measures are located in Appendices B, C, D, and E.

2010 Hospital Risk-Adjusted Operative Mortality Results

The risk-adjusted operative mortality results represent the best estimate of what a healthcare provider's mortality rate would have been if the provider had a patient case mix identical to the statewide average. OSHPD defines operative mortality as a patient death occurring in the hospital after CABG surgery regardless of length of stay, or death occurring anywhere after hospital discharge but within 30 days after the CABG surgery. Hospital ratings are risk-adjusted, which allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average.

Of the 120 reporting hospitals, 115 hospitals (96%) performed within the expected range (**"Average"**) when compared to the state's overall mortality rate of 2.00%. One hospital performed significantly **"Better"** than the state average, and four hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table 4 submitted statements regarding this report (Appendix G).

2009-2010 Hospital Risk-Adjusted Post-Operative Stroke Results

Table 4 also presents the risk-adjusted post-operative stroke results for each hospital for 2009-2010, or the best estimate of what a hospital's rate would have been if the hospital's patient population was identical to the statewide average. OSHPD defines this measure as a post-operative central neurologic deficit persisting for more than 24 hours after CABG surgery (while in the operating hospital).

Of the 120 reporting hospitals, 116 hospitals (97%) performed within the expected range (**"Average"**) compared to the state's average stroke rate of 1.31%. Four hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table 4 submitted statements regarding this report (Appendix G).

2010 Hospital Risk-Adjusted 30-Day Readmission Results

Table 4 presents the risk-adjusted 30-day readmission results for each hospital for 2010. Readmission is defined as a CABG surgery patient being readmitted to an acute care hospital within 30 days of being discharged to home or a non-acute care setting with a principal diagnosis indicating a heart-related condition, or an infection or a complication that was likely related to the CABG surgery. Hospital ratings are based on risk-adjusted readmission rates, which allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average.

Of the 120 reporting hospitals, 116 hospitals (97%) performed within the expected range compared to the state's overall readmission rate (denoted as **"Average"**). Two hospitals performed significantly **"Better"** than the state average, and two hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table 4 submitted statements regarding this report (Appendix G).

2010 Internal Mammary Artery Usage by Hospital: A Process Measure of Quality

In addition to publishing hospital outcomes (risk-adjusted operative mortality rates, risk-adjusted post-operative stroke rates, and risk-adjusted readmission rates), this report also provides a process of care[8] measure: use of the internal mammary artery (IMA) in surgery. Both types of measures are valuable to assessing quality of care. Outcome measurement permits a more comprehensive comparison of provider performance over the long term and can be used for investigating internal processes and structures. Measuring the process of care provides a more immediate path to improving a particular aspect of patient care. If particular processes with clear links to health outcomes are monitored, some healthcare quality problems can be detected long before demonstrable health outcome differences occur.

In most cases of first-time isolated CABG surgery where the operative status is elective or urgent, the surgeon has the option of using the IMA (also known as the internal thoracic artery). Clinical research shows that IMA grafts used in CABG surgery stay open longer and increase patient survival.

Research also suggests a reduction in immediate operative mortality associated with use of the internal mammary artery rather than saphenous (leg) vein revascularization.[9] The IMA, and especially the left IMA, is considered the preferred conduit for CABG surgery of the left anterior descending (LAD) coronary artery. Very low hospital utilization rates may be associated with poorer care.

Table 4 presents hospital results for usage of the IMA by hospitals for 2010. Only first-time isolated CABG surgeries where the operative status is elective or urgent and the LAD was bypassed are included in calculating IMA usage rates. The statewide IMA usage rate remained nearly the same between 2009 and 2010 (96.2% and 96.0% respectively). Five hospitals received a **"Low"** rating for 2010. Hospital IMA usage rates above the statewide average rate were not evaluated because there is no consensus on what constitutes an optimal IMA usage rate. Hospitals marked with † in Table 4 submitted statements regarding this report. Their statements are presented in Appendix G.

[8] Donabedian A. Evaluating the Quality of Medical Care. *The Milbank Quarterly*, 2005; 83(4):691-729.

[9] Ferguson TB Jr., Coombs LP, Peterson ED. Internal thoracic artery grafting in the elderly patient undergoing coronary artery bypass grafting: room for process improvement? *Journal of Thoracic and Cardiovascular Surgery*, 2002; 123(5):869-80.

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
Sacramento Valley & Northern California Region	Enloe Medical Center – Esplanade Campus	Average	Average	Average	
	Mercy General Hospital	**Better**	Average	**Better**	
	Mercy Medical Center – Redding	Average	Average	Average	
	Mercy San Juan Hospital	Average	Average	Average	
	Rideout Memorial Hospital	Average	Average	Average	
	Shasta Regional Medical Center	Average	Average	Average	**Low**
	St. Joseph Hospital – Eureka	Average	Average	Average	
	Sutter Memorial Hospital	Average	Average	Average	
	UC Davis Medical Center	Average	Average	Average	
San Francisco Bay Area & San Jose	Alta Bates Summit Medical Center - Summit Campus	Average	Average	Average	
	California Pacific Medical Center – Pacific Campus	Average	Average	Average	
	Community Hospital Monterey Peninsula	Average	Average	Average	
	Dominican Hospital	Average	Average	Average	
	El Camino Hospital	Average	Average	Average	
	Good Samaritan Hospital – San Jose	Average	Average	Average	
	John Muir Medical Center – Concord Campus	Average	Average	Average	
	Kaiser Foundation Hospital – San Francisco	Average	Average	Average	
	Kaiser Foundation Hospital – Santa Clara	Average	Average	Average	
	Marin General Hospital	Average	Average	Average	
	North Bay Medical Center	Average	Average	Average	
	O'Connor Hospital – San Jose	Average	Average	Average	
	Peninsula Medical Center	Average	Average	Average	

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
San Francisco Bay Area & San Jose (continued)	Queen of the Valley Hospital – Napa	Average	Average	Average	
	Regional Medical of San Jose	Average	Average	Average	
	Salinas Valley Memorial Hospital	Average	Average	Average	
	San Ramon Regional Medical Center	Average	Average	Average	
	Santa Clara Valley Medical Center	Average	Average	Average	
	Santa Rosa Memorial Hospital – Montgomery	Average	Average	Average	
	Sequoia Hospital	Average	Average	Average	
	Seton Medical Center	Average	Average	Average	
	St. Helena Hospital	Average	Average	**Worse**	
	St. Mary's Medical Center, San Francisco	Average	Average	Average	
	Stanford University Hospital	Average	Average	Average	
	Sutter Medical Center of Santa Rosa	Average	Average	Average	**Low**
	UCSF Medical Center	Average	Average	Average	
	Valleycare Medical Center	Average	Average	Average	
	Washington Hospital – Fremont	Average	Average	Average	
Central California	Bakersfield Heart Hospital	**Worse**	Average	Average	
	Bakersfield Memorial Hospital	Average	Average	Average	
	Community Medical Center – Fresno	Average	Average	Average	
	Dameron Hospital	Average	Average	Average	
	Doctors Medical Center – Modesto Campus	Average	Average	**Better**	
	Fresno Heart Hospital	Average	Average	Average	
	Kaweah Delta Hospital†	**Worse**	Average	Average	
	Marian Medical Center	Average	Average	Average	
	Memorial Medical Center of Modesto	Average	Average	Average	

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
Central California (continued)	San Joaquin Community Hospital	Average	Average	Average	
	St. Agnes Medical Center	Average	Average	Average	
	St. Joseph's Medical Center of Stockton	Average	Average	Average	
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara	Antelope Valley Hospital Medical Center	**Worse**	Average	Average	**Low**
	Community Memorial Hospital of San Buenaventura	Average	Average	Average	
	French Hospital Medical Center	Average	Average	Average	
	Glendale Adventist Medical Center – Wilson Terrace	Average	Average	Average	
	Glendale Memorial Hospital and Health Center	Average	Average	Average	
	Lancaster Community Hospital	Average	Average	Average	
	Los Robles Regional Medical Center	Average	Average	Average	
	Northridge Hospital Medical Center	Average	Average	Average	
	Providence Holy Cross Medical Center	Average	Average	Average	
	Providence St. Joseph Medical Center	Average	Average	Average	
	Providence Tarzana Regional Medical Center – Tarzana	Average	**Worse**	Average	
	Santa Barbara Cottage Hospital	Average	Average	Average	
	St. John's Regional Medical Center	Average	Average	Average	**Low**
	Valley Presbyterian Hospital	Average	Average	Average	
	West Hills Regional Medical Center	Average	Average	Average	
Greater Los Angeles	Beverly Hospital	Average	Average	Average	
	Cedars Sinai Medical Center	Average	Average	Average	
	Centinela Hospital Medical Center	Average	Average	Average	
	Citrus Valley Medical Center – IC Campus	Average	Average	Average	

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
Greater Los Angeles (continued)	Downey Regional Medical Center	Average	Average	Average	
	Garfield Medical Center	Average	Average	Average	
	Good Samaritan Hospital – Los Angeles	Average	Average	Average	
	Huntington Memorial Hospital	Average	Average	Average	
	Kaiser Foundation Hospital – Sunset	Average	Average	Average	
	Lakewood Regional Medical Center	Average	Average	Average	
	Providence Little Company of Mary Medical Center	Average	Average	Average	
	Long Beach Memorial Medical Center	Average	Average	**Worse**	
	Los Angeles Co. Harbor – UCLA Medical Center	Average	Average	Average	
	Los Angeles Co. USC Medical Center	Average	Average	Average	
	Methodist Hospital of Southern California	Average	Average	Average	
	Presbyterian Intercommunity Hospital	Average	Average	Average	
	Ronald Reagan UCLA Medical Center	Average	Average	Average	
	Santa Monica - UCLA Medical Center and Orthopaedic Hospital	Average	Average	Average	
	St. Francis Medical Center	Average	Average	Average	
	St. John's Hospital and Health Center	Average	Average	Average	
	St. Mary Medical Center	Average	Average	Average	
	St. Vincent Medical Center	Average	Average	Average	
	Torrance Memorial Medical Center	Average	Average	Average	
	Keck Hospital of USC	Average	Average	Average	
	White Memorial Medical Center	Average	Average	Average	

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
Inland Empire, Riverside &	Desert Regional Medical Center	Average	Average	Average	
	Eisenhower Memorial Hospital	Average	Average	Average	
	Loma Linda University Medical Center	Average	Average	Average	
	Pomona Valley Hospital Medical Center	Average	Average	Average	
	Riverside Community Hospital	Average	Average	Average	
	San Antonio Community Hospital	Average	Average	Average	
	St. Bernardine Medical Center	Average	Average	Average	
	St. Mary Regional Medical Center	Average	Average	Average	
Orange County	AHMC Anaheim Regional Medical Center	Average	Average	Average	
	Fountain Valley Regional Hospital and Medical Center – Euclid	Average	Average	Average	
	Hoag Memorial Hospital Presbyterian	Average	**Worse**	Average	
	Mission Hospital Regional Medical Center	Average	Average	Average	
	Orange Coast Memorial Medical Center	Average	Average	Average	
	Saddleback Memorial Medical Center	Average	Average	Average	
	St. Joseph Hospital – Orange	Average	Average	Average	
	St. Jude Medical Center	Average	Average	Average	
	UC Irvine Medical Center	Average	Average	Average	
	West Anaheim Medical Center	Average	Average	Average	**Low**
	Western Medical Center – Santa Ana†	Average	Average	Average	
	Western Medical Center Hospital – Anaheim	Average	Average	Average	
Greater San Diego	Alvarado Hospital Medical Center	Average	Average	Average	
	Palomar Health Downtown Campus	**Worse**	Average	Average	

Table 4: California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region as Compared to the Statewide Average, 2009-2010

Region	Hospital Name	Operative Mortality 2010[1]	Post-Operative Stroke 2009-2010[2]	30-Day Readmission 2010[3]	Internal Mammary Artery Use 2010[4]
Greater San Diego (continued)	Scripps Green Hospital	Average	Average	Average	
	Scripps Memorial Hospital – La Jolla	Average	Average	Average	
	Scripps Mercy Hospital	Average	Average	Average	
	Sharp Chula Vista Medical Center	Average	Average	Average	
	Grossmont Hospital	Average	**Worse**	Average	
	Sharp Memorial Hospital	Average	**Worse**	Average	
	Tri-City Medical Center	Average	Average	Average	
	UCSD Medical Center	Average	Average	Average	
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	Average	Average	Average	

[1] **Operative Mortality** is defined as patient death occurring in the hospital after CABG surgery, regardless of length of stay, or death occurring anywhere after hospital discharge but within 30 days after the CABG surgery. Hospital ratings are risk-adjusted using a statistical technique that allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average.

[2] **Post-Operative Stroke** is defined as a post-operative, central neurologic deficit persisting for more than 24 hours after CABG surgery while in the operating hospital. Hospital ratings are risk-adjusted using a statistical technique that allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average.

[3] **Readmission** is defined as a CABG surgery patient being readmitted to an acute care hospital within 30 days of being discharged to home or a non-acute care setting with a principal diagnosis indicating a heart-related condition, or an infection or a complication that was likely related to the CABG surgery. Hospital ratings are risk-adjusted using a statistical technique that allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average.

[4] **Internal Mammary Artery (IMA) Usage** in CABG surgery is an evidence-based indicator of surgery quality. Clinical research shows that IMA grafts used in CABG surgery stay open longer and increase patients' survival. Very low hospital utilization rates may be associated with poorer care. Hospitals are not assessed for very high IMA usage rates because there is no consensus on what constitutes an optimal rate. Most first-time CABG surgery patients are eligible to receive an IMA bypass.

Risk-Adjusted Isolated CABG Surgery Outcomes: Surgeon Performance Ratings

2009-2010 Surgeon Risk-Adjusted Operative Mortality Results

The risk-adjusted operative mortality results represent the best estimate of what a surgeon's mortality rate would have been if the surgeon had a patient case mix identical to the statewide average. Thus, this rate is comparable among providers because it accounts for the differences in patient severity-of-illness.

Table 5 presents the CABG surgery volume and performance rating for each surgeon's risk-adjusted operative mortality rate for 2009-2010. The table is sorted alphabetically by surgeon's last name. Detailed statistical results are located in Appendix B.

Many surgeons perform surgery at multiple hospital sites, therefore surgeon performance may be measured from two perspectives: overall performance of *all* CABG surgeries performed by a surgeon regardless of hospital location or surgeon performance at a particular hospital. For *overall* surgeon performance (i.e., all), 264 of 271 surgeons (97%) performed within the expected range (**"Average"**) when compared to the state's overall surgeon mortality rate of 1.95%. No surgeon performed significantly **"Better"** than the state average, and seven surgeons performed significantly **"Worse"** than the state average.

An analysis of surgeon performance at the individual hospital-level shows that 98% performed within the expected range (**"Average"**), no surgeon performed significantly **"Better"** than the state average, and 11 surgeons performed **"Worse"** than the state average. Those surgeons performing only non-isolated CABG surgeries are included in Table 5, but no rates are calculated and their performance rating is noted as **"Not Applicable."**

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Abolhoda, Amir M.	*Surgeon Overall*	34	30	Average
	UC Irvine Medical Center	34	30	Average
Abraham, Reginald G.	*Surgeon Overall*	58	54	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	58	54	Average
Adams, Carl W.	*Surgeon Overall*	5	5	Average
	St. Joseph Hospital – Eureka	5	5	Average
Adamson, Robert M.	*Surgeon Overall*	72	35	Average
	Sharp Memorial Hospital	72	35	Average
Afifi, Alaa Y.	*Surgeon Overall*	73	66	Average
	AHMC Anaheim Regional Medical Center	18	15	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	17	15	Average
	West Anaheim Medical Center	3	3	Average
	Western Medical Center – Santa Ana	8	8	Average
	Western Medical Center Hospital – Anaheim	27	25	Average
Afifi, Hazem Y.	*Surgeon Overall*	16	15	Average
	AHMC Anaheim Regional Medical Center	1	1	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	5	5	Average
	Western Medical Center – Santa Ana	2	2	Average
	Western Medical Center Hospital – Anaheim	8	7	Average
Alyono, David	*Surgeon Overall*	175	120	Average
	Alta Bates Summit Medical Center – Summit Campus	103	69	Average
	Kaiser Foundation Hospital – Santa Clara	72	51	Average
Anastassiou, Peter T.	*Surgeon Overall*	7	7	Average
	Seton Medical Center	7	7	Average
Araim, Leheb H.	*Surgeon Overall*	26	24	Average
	Kaweah Delta Hospital	26	24	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Ardehali, Abbas	*Surgeon Overall*	99	65	Average
	Ronald Reagan UCLA Medical Center	98	65	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	0	Not Applicable
Atiya, Azmi	*Surgeon Overall*	126	100	Average
	Northridge Hospital Medical Center	77	66	Average
	Providence Holy Cross Medical Center	45	31	Average
	Providence Tarzana Regional Medical Center – Tarzana	1	1	Average
	West Hills Regional Medical Center	3	2	Average
Baker, Craig J.	*Surgeon Overall*	86	52	Average
	Huntington Memorial Hospital	6	3	Average
	Los Angeles Co. USC Medical Center	8	5	Average
	Keck Hospital of USC	72	44	Average
Baladi, Naoum	*Surgeon Overall*	124	104	Average
	Seton Medical Center	120	100	Average
	St. Mary's Medical Center, San Francisco	4	4	Average
Baradarian, Sam	*Surgeon Overall*	87	53	Average
	Sharp Memorial Hospital	87	53	Average
Baumgartner, Fritz J.	*Surgeon Overall*	12	10	Average
	Long Beach Memorial Medical Center	1	1	Average
	Mercy Medical Center – Redding	11	9	Average
Benharash, Peyman	*Surgeon Overall*	1	1	Average
	Ronald Reagan UCLA Medical Center	1	1	Average
Bethencourt, Daniel M.	*Surgeon Overall*	183	138	Average
	Lakewood Regional Medical Center	24	16	Average
	Long Beach Memorial Medical Center	154	117	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Bethencourt, Daniel M. (continued)	Orange Coast Memorial Medical Center	5	5	Average
Beygui, Ramin	*Surgeon Overall*	64	40	Average
	El Camino Hospital	59	37	Average
	Stanford University Hospital	5	3	Average
Birnbaum, Peter	*Surgeon Overall*	178	131	Average
	Community Medical Center – Fresno	43	36	Average
	Dominican Hospital	1	1	Average
	Fresno Heart Hospital	90	59	Average
	St. Agnes Medical Center	44	35	Average
Biswas, Shankha	*Surgeon Overall*	122	106	Average
	Loma Linda University Medical Center	5	5	Average
	Riverside Community Hospital	115	99	**Worse**
	San Antonio Community Hospital	1	1	Average
	St. Bernardine Medical Center	1	1	Average
Bogerty, Sharon	*Surgeon Overall*	1	1	Average
	O'Connor Hospital – San Jose	1	1	Average
Bolton, Joe	*Surgeon Overall*	145	128	Average
	St. Agnes Medical Center	145	128	Average
Bowdish, Michael E.	*Surgeon Overall*	25	12	Average
	Huntington Memorial Hospital	2	1	Average
	Los Angeles Co. USC Medical Center	12	5	Average
	Keck Hospital of USC	11	6	Average
Boyd, Walter D.	*Surgeon Overall*	68	60	Average
	UC Davis Medical Center	68	60	Average
Brandenhoff, Preben	*Surgeon Overall*	1	1	Average
	California Pacific Medical Center – Pacific Campus	1	1	Average
Brewster, Scot A.	*Surgeon Overall*	186	101	Average
	Scripps Memorial Hospital – La Jolla	186	101	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Buehler, Donald L.	*Surgeon Overall*	204	112	Average
	Scripps Memorial Hospital – La Jolla	204	112	Average
Burdon, Thomas A.	*Surgeon Overall*	1	1	Average
	Stanford University Hospital	1	1	Average
Bushnell, Lamar J.	*Surgeon Overall*	76	62	Average
	Community Memorial Hospital of San Buenaventura	76	62	Average
Caffarelli, Anthony	*Surgeon Overall*	20	15	Average
	Hoag Memorial Hospital Presbyterian	20	15	Average
Cain, Brian S.	*Surgeon Overall*	233	187	Average
	Alta Bates Summit Medical Center – Summit Campus	160	128	Average
	Kaiser Foundation Hospital – San Francisco	73	59	Average
Calhoun, Royce F.	*Surgeon Overall*	2	0	Not Applicable
	UC Davis Medical Center	2	0	Not Applicable
Caminha, Sergio D.	*Surgeon Overall*	195	162	Average
	Kaweah Delta Hospital	195	162	Average
Canvasser, David A.	*Surgeon Overall*	168	138	Average
	French Hospital Medical Center	107	84	Average
	Marian Medical Center	61	54	Average
Capouya, Eli R.	*Surgeon Overall*	154	126	Average
	Glendale Adventist Medical Center – Wilson Terrace	65	53	Average
	Good Samaritan Hospital – Los Angeles	41	34	Average
	Huntington Memorial Hospital	13	10	Average
	Methodist Hospital of Southern California	15	11	Average
	Providence St. Joseph Medical Center	17	15	Average
	St. Vincent Medical Center	3	3	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Castro, Luis	*Surgeon Overall*	194	111	Average
	California Pacific Medical Center – Pacific Campus	37	25	Average
	Community Hospital Monterey Peninsula	5	2	Average
	El Camino Hospital	9	6	Average
	Peninsula Medical Center	31	20	Average
	Sequoia Hospital	112	58	Average
Chammas, Joseph H.	*Surgeon Overall*	95	73	Average
	Sharp Memorial Hospital	95	73	Average
Chaudhry, Pervaiz	*Surgeon Overall*	396	345	**Worse**
	Community Medical Center – Fresno	227	197	Average
	Dominican Hospital	16	15	Average
	Fresno Heart Hospital	98	82	Average
	St. Agnes Medical Center	55	51	Average
Chen, Raymond H.	*Surgeon Overall*	227	213	Average
	Kaiser Foundation Hospital – Sunset	221	207	Average
	St. Bernardine Medical Center	6	6	Average
Cheng, Wen	*Surgeon Overall*	30	20	Average
	Cedars Sinai Medical Center	30	20	Average
Cohen, Robbin G.	*Surgeon Overall*	166	128	Average
	Huntington Memorial Hospital	135	109	Average
	Los Angeles Co. USC Medical Center	1	1	Average
	Keck Hospital of USC	29	17	Average
	White Memorial Medical Center	1	1	Average
Coletta, Joelle	*Surgeon Overall*	15	15	Average
	Scripps Green Hospital	1	1	Average
	UCSD Medical Center	9	9	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	5	5	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Concepcion, Noel L.	*Surgeon Overall*	401	313	Average
	Doctors Medical Center – Modesto Campus	381	295	Average
	Memorial Medical Center of Modesto	20	18	Average
Copeland, Jack	*Surgeon Overall*	4	3	Average
	UCSD Medical Center	1	0	Not Applicable
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	3	3	Average
Cunningham, Mark J.	*Surgeon Overall*	114	66	Average
	Huntington Memorial Hospital	9	8	Average
	Los Angeles Co. USC Medical Center	13	8	Average
	Keck Hospital of USC	91	49	Average
	White Memorial Medical Center	1	1	Average
Daniel, Subashini	*Surgeon Overall*	66	57	Average
	Community Medical Center – Fresno	39	31	Average
	Fresno Heart Hospital	11	11	Average
	St. Agnes Medical Center	7	7	Average
	UCSF Medical Center	9	8	Average
Danielson, Daren S.	*Surgeon Overall*	73	59	Average
	UC Davis Medical Center	73	59	Average
Darbinian, Sevak H.	*Surgeon Overall*	237	182	Average
	Mission Hospital Regional Medical Center	223	172	Average
	Saddleback Memorial Medical Center	14	10	Average
Davtyan, Hakob G.	*Surgeon Overall*	291	245	Average
	Riverside Community Hospital	44	30	Average
	St. Bernardine Medical Center	165	144	Average
	St. Mary Regional Medical Center	82	71	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Declusin, Richard J.	*Surgeon Overall*	152	115	Average
	Community Memorial Hospital of San Buenaventura	6	5	Average
	Los Robles Regional Medical Center	37	30	Average
	St. John's Regional Medical Center	109	80	Average
Deeik, Ramzi K.	*Surgeon Overall*	148	108	Average
	North Bay Medical Center	29	29	Average
	Queen of the Valley Hospital – Napa	62	38	Average
	Santa Rosa Memorial Hospital – Montgomery	57	41	Average
Defilippi, Vincent J.	*Surgeon Overall*	163	122	Average
	Salinas Valley Memorial Hospital	163	122	Average
Dein, John R.	*Surgeon Overall*	283	173	Average
	Mercy General Hospital	268	165	Average
	Mercy San Juan Hospital	15	8	Average
Del Campo, Carlos	*Surgeon Overall*	111	82	Average
	St. Jude Medical Center	111	82	Average
Delrio, Michael J.	*Surgeon Overall*	136	99	Average
	Riverside Community Hospital	136	99	Average
Dembitsky, Walter P.	*Surgeon Overall*	103	43	Average
	Sharp Memorial Hospital	103	43	Average
Derenoncourt, Frantz J.	*Surgeon Overall*	19	17	Average
	Alvarado Hospital Medical Center	9	8	Average
	Scripps Mercy Hospital	2	2	Average
	Sharp Chula Vista Medical Center	8	7	Average
Derrick, Marvin J.	*Surgeon Overall*	16	14	Average
	Bakersfield Heart Hospital	1	1	Average
	Bakersfield Memorial Hospital	11	10	Average
	San Joaquin Community Hospital	4	3	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Dhar, Naveen	*Surgeon Overall*	54	50	Average
	AHMC Anaheim Regional Medical Center	4	4	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	29	27	Average
	West Anaheim Medical Center	6	5	Average
	Western Medical Center – Santa Ana	8	8	Average
	Western Medical Center Hospital – Anaheim	7	6	Average
Dharan, Murali	*Surgeon Overall*	180	129	Average
	John Muir Medical Center – Concord Campus	97	68	Average
	San Ramon Regional Medical Center	50	34	Average
	Valleycare Medical Center	33	27	Average
Dhawan, Puneet	*Surgeon Overall*	141	102	Average
	Desert Regional Medical Center	2	1	Average
	Los Angeles Co. Harbor - UCLA Medical Center	90	65	Average
	St. Jude Medical Center	49	36	Average
Dhillon, Jatinder	*Surgeon Overall*	142	117	Average
	John Muir Medical Center – Concord Campus	112	88	Average
	Kaiser Foundation Hospital – San Francisco	18	17	Average
	San Ramon Regional Medical Center	5	5	Average
	Valleycare Medical Center	7	7	Average
Dunnington, Gansevoort	*Surgeon Overall*	8	4	Average
	El Camino Hospital	8	4	Average
Durzinsky, Dennis S.	*Surgeon Overall*	82	65	Average
	Alta Bates Summit Medical Center – Summit Campus	57	43	Average
	Kaiser Foundation Hospital – San Francisco	25	22	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Edwards, Phyllis A.	*Surgeon Overall*	108	96	Average
	Kaweah Delta Hospital	108	96	Average
Egrie, Glenn D.	*Surgeon Overall*	71	64	Average
	California Pacific Medical Center – Pacific Campus	71	64	Average
Ehrman, Walter J.	*Surgeon Overall*	29	24	Average
	Desert Regional Medical Center	29	24	Average
Ellis, Robert J.	*Surgeon Overall*	68	58	Average
	Marin General Hospital	57	48	Average
	St. Mary's Medical Center, San Francisco	11	10	Average
Esmailian, Fardad	*Surgeon Overall*	87	55	Average
	Cedars Sinai Medical Center	14	10	Average
	Ronald Reagan UCLA Medical Center	72	44	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	1	Average
Estioko, Manuel	*Surgeon Overall*	40	26	Average
	St. John's Hospital and Health Center	28	18	Average
	Torrance Memorial Medical Center	12	8	Average
Faber, Luke A.	*Surgeon Overall*	107	80	Average
	French Hospital Medical Center	78	54	Average
	Marian Medical Center	29	26	Average
Faraci, Philip A.	*Surgeon Overall*	127	104	Average
	Enloe Medical Center – Esplanade Campus	2	1	Average
	Lakewood Regional Medical Center	29	22	Average
	Long Beach Memorial Medical Center	81	66	Average
	Orange Coast Memorial Medical Center	10	10	Average
	Shasta Regional Medical Center	5	5	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Fee, Henry J.	*Surgeon Overall*	84	70	Average
	Good Samaritan Hospital – San Jose	37	29	Average
	O'Connor Hospital – San Jose	20	17	Average
	Regional Medical of San Jose	27	24	Average
Felahy, Isam	*Surgeon Overall*	113	101	Average
	Dameron Hospital	18	18	Average
	St. Joseph's Medical Center of Stockton	95	83	Average
Fischbein, Michael P.	*Surgeon Overall*	67	43	Average
	Stanford University Hospital	67	43	Average
Flores, Mona G.	*Surgeon Overall*	2	2	Average
	UC Davis Medical Center	2	2	Average
Floridia, Rosario	*Surgeon Overall*	160	125	Average
	Loma Linda University Medical Center	104	80	Average
	San Antonio Community Hospital	56	45	Average
Folkerth, Theodore	*Surgeon Overall*	169	140	Average
	Tri-City Medical Center	169	140	Average
Fontana, Gregory P.	*Surgeon Overall*	48	30	Average
	Cedars Sinai Medical Center	48	30	Average
Freyaldenhoven, Stephen J.	*Surgeon Overall*	139	114	**Worse**
	French Hospital Medical Center	77	60	**Worse**
	Marian Medical Center	62	54	Average
Fung, Lit K.	*Surgeon Overall*	373	302	Average
	Doctors Medical Center – Modesto Campus	8	5	Average
	Memorial Medical Center of Modesto	365	297	Average
Gates, Richard N.	*Surgeon Overall*	104	89	Average
	Mission Hospital Regional Medical Center	2	1	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Gates, Richard N. (continued)	Saddleback Memorial Medical Center	2	0	Not Applicable
	St. Joseph Hospital – Orange	100	88	Average
Gaudiani, Vincent A.	*Surgeon Overall*	116	40	Average
	California Pacific Medical Center – Pacific Campus	44	16	Average
	Community Hospital Monterey Peninsula	24	5	Average
	El Camino Hospital	1	1	Average
	Sequoia Hospital	47	18	**Worse**
Ghaly, Aziz	*Surgeon Overall*	27	22	Average
	Loma Linda University Medical Center	27	22	Average
Gharavi, Mohammad A.	*Surgeon Overall*	259	192	Average
	Los Robles Regional Medical Center	62	44	Average
	Providence Tarzana Regional Medical Center – Tarzana	128	89	Average
	West Hills Regional Medical Center	69	59	**Worse**
Gheissari, Ali	*Surgeon Overall*	194	147	Average
	Glendale Adventist Medical Center – Wilson Terrace	10	8	Average
	Good Samaritan Hospital – Los Angeles	157	121	Average
	Providence St. Joseph Medical Center	11	6	Average
	St. Vincent Medical Center	16	12	Average
Gibson, Christopher F.	*Surgeon Overall*	300	255	Average
	Riverside Community Hospital	38	33	Average
	St. Bernardine Medical Center	161	131	Average
	St. Mary Regional Medical Center	101	91	Average
Giritsky, Alexander S.	*Surgeon Overall*	177	132	Average
	Scripps Memorial Hospital – La Jolla	177	132	Average
Golts, Eugene	*Surgeon Overall*	80	71	Average
	UCSD Medical Center	23	22	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Golts, Eugene (continued)	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	57	49	Average
Gordon, Robert T.	*Surgeon Overall*	182	122	Average
	Kaiser Foundation Hospital – Santa Clara	182	122	Average
Gottner, Robert J.	*Surgeon Overall*	143	117	Average
	Glendale Adventist Medical Center – Wilson Terrace	10	8	Average
	Good Samaritan Hospital – Los Angeles	24	21	Average
	Huntington Memorial Hospital	1	1	Average
	Methodist Hospital of Southern California	58	49	Average
	Providence St. Joseph Medical Center	49	37	Average
	St. Vincent Medical Center	1	1	Average
Gregory, Richard	*Surgeon Overall*	234	194	Average
	Community Medical Center – Fresno	8	7	Average
	Fresno Heart Hospital	116	93	Average
	St. Agnes Medical Center	110	94	Average
Griffith, Patrick K.	*Surgeon Overall*	159	130	Average
	Rideout Memorial Hospital	159	130	Average
Gulati, Rajeev	*Surgeon Overall*	137	120	Average
	Pomona Valley Hospital Medical Center	127	110	Average
	San Antonio Community Hospital	10	10	Average
Gundry, Steven R.	*Surgeon Overall*	49	31	Average
	Desert Regional Medical Center	49	31	Average
Gunupati, Venkata	*Surgeon Overall*	1	1	Average
	Citrus Valley Medical Center – IC Campus	1	1	Average
Habibipour, Saied	*Surgeon Overall*	222	186	Average
	Desert Regional Medical Center	222	186	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Hall, James D.	*Surgeon Overall*	114	86	Average
	Providence Little Company of Mary Medical Center	77	60	Average
	Torrance Memorial Medical Center	37	26	Average
Harmon, Adam L.	*Surgeon Overall*	29	27	Average
	California Pacific Medical Center – Pacific Campus	4	4	Average
	Peninsula Medical Center	6	6	Average
	Sequoia Hospital	19	17	Average
Harper, Baron	*Surgeon Overall*	147	118	Average
	Rideout Memorial Hospital	147	118	Average
Hasaniya, Nahidh W.	*Surgeon Overall*	56	50	Average
	Loma Linda University Medical Center	54	49	Average
	Riverside Community Hospital	2	1	Average
Hemp, James	*Surgeon Overall*	186	136	Average
	Scripps Green Hospital	40	25	Average
	Scripps Mercy Hospital	146	111	Average
Hill, Arthur C.	*Surgeon Overall*	59	51	Average
	UCSF Medical Center	59	51	Average
Hom, Sophia S.	*Surgeon Overall*	71	55	Average
	Garfield Medical Center	71	55	Average
Hood, James S.	*Surgeon Overall*	114	86	Average
	Kaiser Foundation Hospital – San Francisco	114	86	Average
Hoopes, Charles W.	*Surgeon Overall*	8	4	Average
	UCSF Medical Center	8	4	Average
Howden, Frederick M.	*Surgeon Overall*	112	88	Average
	Alvarado Hospital Medical Center	95	75	Average
	Grossmont Hospital	17	13	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Huang, Mark W.	*Surgeon Overall*	98	83	Average
	Alvarado Hospital Medical Center	1	1	Average
	Sharp Chula Vista Medical Center	95	80	Average
	Grossmont Hospital	2	2	Average
Huang, Ming-Lu	*Surgeon Overall*	280	227	Average
	Beverly Hospital	21	18	Average
	Citrus Valley Medical Center – IC Campus	136	110	Average
	Garfield Medical Center	111	88	Average
	Methodist Hospital of Southern California	12	11	Average
Hunter, Curtis T.	*Surgeon Overall*	59	42	Average
	Ronald Reagan UCLA Medical Center	26	15	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	21	20	Average
	St. John's Hospital and Health Center	12	7	Average
Hurwitz, Andrew S.	*Surgeon Overall*	158	113	Average
	Glendale Adventist Medical Center – Wilson Terrace	18	16	Average
	Glendale Memorial Hospital and Health Center	140	97	Average
Ihnken, Kai A.	*Surgeon Overall*	86	77	Average
	El Camino Hospital	1	0	Not Applicable
	Santa Clara Valley Medical Center	77	71	Average
	Stanford University Hospital	8	6	Average
Ingram, Michael T.	*Surgeon Overall*	300	203	Average
	Sutter Memorial Hospital	300	203	Average
Iyengar, Sridhara K.	*Surgeon Overall*	54	48	Average
	AHMC Anaheim Regional Medical Center	1	1	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	50	44	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Iyengar, Sridhara K. (continued)	Saddleback Memorial Medical Center	3	3	Average
Jacobson, John	*Surgeon Overall*	71	57	Average
	St. Helena Hospital	71	57	Average
Jain, Sarika	*Surgeon Overall*	103	88	Average
	Pomona Valley Hospital Medical Center	99	84	Average
	San Antonio Community Hospital	4	4	Average
Jamieson, Stuart	*Surgeon Overall*	19	2	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	19	2	Average
Jones, Blanding U.	*Surgeon Overall*	281	273	Average
	Kaiser Foundation Hospital – Sunset	205	200	Average
	St. Bernardine Medical Center	76	73	Average
Joyo, Colin I.	*Surgeon Overall*	145	119	Average
	Hoag Memorial Hospital Presbyterian	145	119	Average
Kajitani, Michio	*Surgeon Overall*	37	30	Average
	Alvarado Hospital Medical Center	1	1	Average
	Sharp Chula Vista Medical Center	28	21	Average
	Grossmont Hospital	8	8	Average
Kamlot, Andreas	*Surgeon Overall*	177	152	Average
	John Muir Medical Center – Concord Campus	177	152	Average
Kaplon, Richard J.	*Surgeon Overall*	323	207	Average
	Mercy General Hospital	315	200	Average
	Mercy San Juan Hospital	8	7	Average
Kass, Robert M.	*Surgeon Overall*	78	53	Average
	Cedars Sinai Medical Center	78	53	Average
Khan, Junaid H.	*Surgeon Overall*	233	179	Average
	Alta Bates Summit Medical Center – Summit Campus	231	177	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Khan, Junaid H. (continued)	Washington Hospital – Fremont	2	2	Average
Khan, Tanveer	*Surgeon Overall*	76	73	Average
	John Muir Medical Center – Concord Campus	66	63	Average
	San Ramon Regional Medical Center	7	7	Average
	Valleycare Medical Center	3	3	Average
Khoynezhad, Ali	*Surgeon Overall*	11	10	Average
	Cedars Sinai Medical Center	11	10	Average
Khwaja, Shamsuddin	*Surgeon Overall*	332	271	Average
	Community Medical Center – Fresno	187	154	Average
	Fresno Heart Hospital	105	82	Average
	St. Agnes Medical Center	40	35	Average
Kincade, Robert C.	*Surgeon Overall*	356	257	Average
	Sutter Memorial Hospital	356	257	Average
Klingman, Robert R.	*Surgeon Overall*	192	155	Average
	North Bay Medical Center	19	18	Average
	Queen of the Valley Hospital – Napa	153	118	Average
	Santa Rosa Memorial Hospital – Montgomery	20	19	Average
Kochamba, Gary S.	*Surgeon Overall*	169	93	Average
	Kaiser Foundation Hospital – Sunset	168	93	Average
	St. Bernardine Medical Center	1	0	Not Applicable
Korver, Keith F.	*Surgeon Overall*	273	191	Average
	California Pacific Medical Center – Pacific Campus	1	1	Average
	Marin General Hospital	54	39	Average
	Santa Rosa Memorial Hospital – Montgomery	59	46	Average
	Sutter Medical Center of Santa Rosa	159	105	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Koumjian, Michael P.	*Surgeon Overall*	178	144	Average
	Alvarado Hospital Medical Center	7	7	Average
	Scripps Mercy Hospital	30	19	Average
	Sharp Chula Vista Medical Center	33	28	Average
	Grossmont Hospital	108	90	Average
Kwon, Murray H.	*Surgeon Overall*	34	23	Average
	Ronald Reagan UCLA Medical Center	34	23	Average
Labourene, Jay I.	*Surgeon Overall*	30	26	Average
	Kaiser Foundation Hospital – San Francisco	30	26	Average
Laks, Hillel	*Surgeon Overall*	53	9	Average
	Ronald Reagan UCLA Medical Center	53	9	Average
Lam, Tuan T.	*Surgeon Overall*	138	127	Average
	Beverly Hospital	10	9	Average
	Citrus Valley Medical Center – IC Campus	54	49	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	43	42	Average
	Garfield Medical Center	30	26	Average
	Long Beach Memorial Medical Center	1	1	Average
Lapunzina, Paul M.	*Surgeon Overall*	142	102	Average
	Kaiser Foundation Hospital – San Francisco	142	102	Average
Lee, Anthony W.	*Surgeon Overall*	124	119	Average
	Downey Regional Medical Center	40	39	Average
	St. Francis Medical Center	84	80	Average
Lee, Hon S.	*Surgeon Overall*	121	67	Average
	Kaiser Foundation Hospital – Santa Clara	121	67	Average
Lee, Kenneth	*Surgeon Overall*	82	79	Average
	O'Connor Hospital – San Jose	33	31	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Lee, Kenneth (continued)	Regional Medical of San Jose	4	4	Average
	Washington Hospital – Fremont	45	44	**Worse**
Lee, Sang H.	*Surgeon Overall*	241	213	Average
	Doctors Medical Center – Modesto Campus	22	21	Average
	O'Connor Hospital – San Jose	72	63	Average
	Regional Medical of San Jose	18	18	Average
	Washington Hospital – Fremont	129	111	Average
Lee, Vincent	*Surgeon Overall*	1	1	Average
	Centinela Hospital Medical Center	1	1	Average
Lemire, Guy G.	*Surgeon Overall*	12	12	Average
	Enloe Medical Center – Esplanade Campus	12	12	Average
Lemoine, Philippe H.	*Surgeon Overall*	28	25	Average
	Centinela Hospital Medical Center	15	14	Average
	Providence Little Company of Mary Medical Center	11	10	Average
	St. Vincent Medical Center	2	1	Average
Lin, Yuan H.	*Surgeon Overall*	289	255	Average
	Alvarado Hospital Medical Center	31	26	Average
	Sharp Chula Vista Medical Center	77	68	Average
	Grossmont Hospital	181	161	Average
Longoria, James	*Surgeon Overall*	317	210	Average
	Sutter Memorial Hospital	317	210	Average
MacMillan, James C.	*Surgeon Overall*	197	163	Average
	Doctors Medical Center – Modesto Campus	189	155	Average
	Memorial Medical Center of Modesto	8	8	Average
Madani, Michael	*Surgeon Overall*	80	39	Average
	UCSD Medical Center	2	0	Not Applicable

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Madani, Michael (continued)	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	78	39	Average
Magliato, Kathy	*Surgeon Overall*	11	8	Average
	St. John's Hospital and Health Center	11	8	Average
Mahendra, Tom	*Surgeon Overall*	41	34	**Worse**
	Antelope Valley Hospital Medical Center	34	28	**Worse**
	Lancaster Community Hospital	7	6	Average
Malekmehr, Farshad	*Surgeon Overall*	75	69	Average
	Valley Presbyterian Hospital	71	66	Average
	West Hills Regional Medical Center	1	0	Not Applicable
	White Memorial Medical Center	3	3	Average
Malki, Alan E.	*Surgeon Overall*	307	267	Average
	Riverside Community Hospital	31	24	Average
	St. Bernardine Medical Center	169	141	Average
	St. Mary Regional Medical Center	107	102	Average
Mallidi, Hari	*Surgeon Overall*	83	66	Average
	Regional Medical of San Jose	12	12	Average
	Santa Clara Valley Medical Center	14	13	Average
	Stanford University Hospital	57	41	Average
Marmureanu, Alexandru R.	*Surgeon Overall*	15	15	Average
	St. Vincent Medical Center	15	15	Average
Mayer, Frederick W.	*Surgeon Overall*	283	219	Average
	Kaweah Delta Hospital	283	219	Average
Mazur, Paul A.	*Surgeon Overall*	194	176	Average
	Lakewood Regional Medical Center	52	46	Average
	Long Beach Memorial Medical Center	139	127	Average
	Orange Coast Memorial Medical Center	3	3	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
McConnell, Douglas H.	*Surgeon Overall*	119	109	Average
	Lakewood Regional Medical Center	9	9	Average
	Long Beach Memorial Medical Center	8	8	Average
	Shasta Regional Medical Center	102	92	Average
McDonald, Jerome M.	*Surgeon Overall*	326	253	Average
	Dameron Hospital	61	59	Average
	St. Joseph's Medical Center of Stockton	265	194	Average
McClean, Michael	*Surgeon Overall*	55	50	Average
	Centinela Hospital Medical Center	20	20	Average
	Providence St. Joseph Medical Center	6	3	Average
	St. Vincent Medical Center	21	20	**Worse**
	Valley Presbyterian Hospital	8	7	Average
McPherson, James G.	*Surgeon Overall*	83	77	Average
	Centinela Hospital Medical Center	9	9	Average
	Glendale Adventist Medical Center – Wilson Terrace	11	11	Average
	Providence Little Company of Mary Medical Center	35	31	Average
	Shasta Regional Medical Center	2	2	Average
	St. Vincent Medical Center	24	22	Average
	Torrance Memorial Medical Center	2	2	Average
Mehmood, Syed A.	*Surgeon Overall*	5	5	Average
	Valley Presbyterian Hospital	4	4	Average
	West Hills Regional Medical Center	1	1	Average
Melikian, Vicken	*Surgeon Overall*	98	72	Average
	Kaiser Foundation Hospital – San Francisco	98	72	Average
Merrick, Scot	*Surgeon Overall*	104	70	Average
	St. Mary's Medical Center, San Francisco	3	2	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Merrick, Scot (continued)	UCSF Medical Center	101	68	Average
Miller, David C.	*Surgeon Overall*	17	2	Average
	Stanford University Hospital	17	2	Average
Milliken, Jeffrey C.	*Surgeon Overall*	57	42	Average
	UC Irvine Medical Center	57	42	Average
Mitchell, Robert S.	*Surgeon Overall*	70	41	Average
	Stanford University Hospital	70	41	Average
Mitruka, Surindra N.	*Surgeon Overall*	194	158	Average
	Eisenhower Memorial Hospital	194	158	Average
Mohammadzadeh, Gholam R.	*Surgeon Overall*	147	125	Average
	Los Robles Regional Medical Center	60	48	Average
	Providence Tarzana Regional Medical Center – Tarzana	46	40	Average
	St. John's Regional Medical Center	1	1	Average
	West Hills Regional Medical Center	40	36	Average
Morales, Rodolfo A.	*Surgeon Overall*	99	66	Average
	Good Samaritan Hospital – San Jose	88	55	Average
	O'Connor Hospital – San Jose	4	4	Average
	Regional Medical of San Jose	7	7	Average
Morenocabral, Ricardo J.	*Surgeon Overall*	247	151	Average
	Alvarado Hospital Medical Center	4	3	Average
	Scripps Mercy Hospital	31	22	Average
	Sharp Chula Vista Medical Center	132	84	Average
	Grossmont Hospital	80	42	Average
Morris, Allen S.	*Surgeon Overall*	281	128	Average
	Mercy General Hospital	277	127	Average
	Mercy San Juan Hospital	4	1	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Morrissey, James D.	*Surgeon Overall*	250	195	Average
	Dameron Hospital	20	18	Average
	St. Joseph's Medical Center of Stockton	230	177	Average
Mudge, Devin R.	*Surgeon Overall*	301	261	Average
	Riverside Community Hospital	17	16	Average
	St. Bernardine Medical Center	197	167	Average
	St. Mary Regional Medical Center	87	78	Average
Naficy, Sepehre	*Surgeon Overall*	7	6	Average
	North Bay Medical Center	4	4	Average
	Queen of the Valley Hospital – Napa	3	2	Average
Nagendran, Jayan	*Surgeon Overall*	17	15	Average
	Salinas Valley Memorial Hospital	17	15	Average
Neal, Joe F.	*Surgeon Overall*	7	6	Average
	Doctors Medical Center – Modesto Campus	7	6	Average
Nucho, Ramsay C.	*Surgeon Overall*	142	131	Average
	Glendale Adventist Medical Center – Wilson Terrace	59	57	Average
	Valley Presbyterian Hospital	1	1	Average
	White Memorial Medical Center	82	73	Average
Nuno, Ismael N.	*Surgeon Overall*	211	180	Average
	Huntington Memorial Hospital	1	1	Average
	Los Angeles Co. USC Medical Center	186	158	Average
	Keck Hospital of USC	7	4	Average
	White Memorial Medical Center	17	17	Average
O'Dorisio, James E.	*Surgeon Overall*	45	42	Average
	Santa Rosa Memorial Hospital – Montgomery	13	11	Average
	Sutter Medical Center of Santa Rosa	32	31	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Ogden, William	*Surgeon Overall*	183	148	Average
	St. Agnes Medical Center	183	148	Average
Oka, Tomomi	*Surgeon Overall*	57	45	Average
	California Pacific Medical Center – Pacific Campus	2	2	Average
	El Camino Hospital	35	25	Average
	Peninsula Medical Center	16	15	Average
	Sequoia Hospital	4	3	Average
Omari, Bassam O.	*Surgeon Overall*	124	95	Average
	Los Angeles Co. Harbor – UCLA Medical Center	109	81	Average
	St. Mary Medical Center	9	9	Average
	St. Mary Regional Medical Center	6	5	Average
Osman, Ashraf I.	*Surgeon Overall*	46	39	Average
	St. Agnes Medical Center	46	39	Average
Ott, Richard A.	*Surgeon Overall*	460	369	Average
	AHMC Anaheim Regional Medical Center	245	187	Average
	Saddleback Memorial Medical Center	21	16	Average
	Western Medical Center – Santa Ana	75	63	Average
	Western Medical Center Hospital – Anaheim	119	103	Average
Overton, John B.	*Surgeon Overall*	23	22	Average
	Dameron Hospital	23	22	Average
Oyer, Philip E.	*Surgeon Overall*	24	15	Average
	Stanford University Hospital	24	15	Average
Palafox, Brian A.	*Surgeon Overall*	165	130	Average
	St. Joseph Hospital – Orange	165	130	Average
Panagiotides, George P.	*Surgeon Overall*	279	252	Average
	Downey Regional Medical Center	36	32	Average
	Lakewood Regional Medical Center	155	139	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Panagiotides, George P. (continued)	Long Beach Memorial Medical Center	88	81	Average
Paw, Patrick T.	*Surgeon Overall*	181	165	Average
	Bakersfield Heart Hospital	34	26	Average
	Bakersfield Memorial Hospital	78	74	Average
	San Joaquin Community Hospital	69	65	Average
Peck, Eric A.	*Surgeon Overall*	183	156	Average
	Bakersfield Heart Hospital	59	52	Average
	Bakersfield Memorial Hospital	75	59	Average
	San Joaquin Community Hospital	49	45	Average
Pellegrini, Daniel P.	*Surgeon Overall*	173	131	Average
	Alta Bates Summit Medical Center - Summit Campus	114	88	Average
	Kaiser Foundation Hospital – San Francisco	59	43	Average
Perch, Paul G.	*Surgeon Overall*	212	203	Average
	Kaiser Foundation Hospital – Sunset	170	161	Average
	St. Bernardine Medical Center	42	42	Average
Perkowski, David J.	*Surgeon Overall*	234	200	Average
	Mission Hospital Regional Medical Center	13	12	Average
	Saddleback Memorial Medical Center	209	178	Average
	St. Joseph Hospital – Orange	9	7	Average
	Tri-City Medical Center	3	3	Average
Perricone, Anthony	*Surgeon Overall*	56	52	Average
	UCSD Medical Center	20	19	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	36	33	Average
Petrik, Pavel	*Surgeon Overall*	34	33	**Worse**
	Antelope Valley Hospital Medical Center	25	24	Average
	Lancaster Community Hospital	9	9	**Worse**

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Pfeffer, Thomas A.	*Surgeon Overall*	185	106	Average
	Kaiser Foundation Hospital – Sunset	150	91	Average
	St. Bernardine Medical Center	35	15	Average
Phillips, Robert A.	*Surgeon Overall*	13	11	Average
	Shasta Regional Medical Center	13	11	Average
Poa, Li	*Surgeon Overall*	144	103	Average
	Kaiser Foundation Hospital – Sunset	144	103	Average
Pompili, Mario F.	*Surgeon Overall*	170	89	Average
	Kaiser Foundation Hospital – Santa Clara	170	89	Average
Postel, Joachim M.	*Surgeon Overall*	103	76	Average
	St. Joseph Hospital – Eureka	103	76	Average
Pottmeyer, Edward W.	*Surgeon Overall*	292	215	Average
	Mercy Medical Center – Redding	292	215	Average
Pratt, Jerry W.	*Surgeon Overall*	63	47	Average
	UC Davis Medical Center	63	47	Average
Prejean, Curtis A.	*Surgeon Overall*	2	2	Average
	Garfield Medical Center	2	2	Average
Puig-Palomar, Miguel	*Surgeon Overall*	329	290	Average
	Enloe Medical Center – Esplanade Campus	329	290	Average
Purewal, Sarabjit S.	*Surgeon Overall*	369	317	**Worse**
	Bakersfield Heart Hospital	196	170	**Worse**
	Bakersfield Memorial Hospital	113	92	Average
	San Joaquin Community Hospital	60	55	Average
Raissi, Sharo	*Surgeon Overall*	57	41	Average
	Cedars Sinai Medical Center	14	10	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Raissi, Sharo (continued)	Torrance Memorial Medical Center	43	31	Average
Raney, Aidan A.	*Surgeon Overall*	95	39	Average
	Hoag Memorial Hospital Presbyterian	95	39	Average
Rasi, Alfredo L.	*Surgeon Overall*	184	151	Average
	Loma Linda University Medical Center	169	136	Average
	Riverside Community Hospital	1	1	Average
	San Antonio Community Hospital	14	14	Average
Razzouk, Anees J.	*Surgeon Overall*	110	74	Average
	Loma Linda University Medical Center	110	74	Average
Reddy, Kuruganti	*Surgeon Overall*	1	1	Average
	Citrus Valley Medical Center – IC Campus	1	1	Average
Reed, William H.	*Surgeon Overall*	39	32	Average
	Community Hospital Monterey Peninsula	39	32	Average
Reemtsen, Brian	*Surgeon Overall*	1	0	Not Applicable
	Ronald Reagan UCLA Medical Center	1	0	Not Applicable
Reichman, Robert T.	*Surgeon Overall*	211	157	**Worse**
	Palomar Health Downtown Campus	211	157	**Worse**
Reitz, Bruce A.	*Surgeon Overall*	23	13	Average
	Stanford University Hospital	23	13	Average
Richter, Richard C.	*Surgeon Overall*	69	60	Average
	Kaiser Foundation Hospital – San Francisco	69	60	Average
Riebman, Jerome B.	*Surgeon Overall*	9	9	Average
	Santa Rosa Memorial Hospital – Montgomery	9	9	Average
Robbins, Robert C.	*Surgeon Overall*	15	9	Average
	Stanford University Hospital	15	9	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Roberts, Randall F.	*Surgeon Overall*	209	141	Average
	Glendale Adventist Medical Center – Wilson Terrace	19	19	Average
	Glendale Memorial Hospital and Health Center	190	122	Average
Robertson, John	*Surgeon Overall*	102	65	Average
	St. John's Hospital and Health Center	102	65	Average
Rosenburg, Jeffrey M.	*Surgeon Overall*	3	3	Average
	Palomar Health Downtown Campus	3	3	Average
Sakopoulos, Andreas	*Surgeon Overall*	68	60	Average
	St. Helena Hospital	68	60	Average
Salem, Fakhri M.	*Surgeon Overall*	127	114	**Worse**
	Scripps Mercy Hospital	105	95	**Worse**
	Sharp Chula Vista Medical Center	8	8	Average
	Grossmont Hospital	14	11	Average
Sasevich, Michael	*Surgeon Overall*	5	5	Average
	Tri-City Medical Center	5	5	Average
Schwartz, Steven M.	*Surgeon Overall*	60	46	Average
	Good Samaritan Hospital – San Jose	48	36	Average
	O'Connor Hospital – San Jose	4	2	Average
	Regional Medical of San Jose	8	8	Average
Serna, Daniel L.	*Surgeon Overall*	265	233	Average
	Kaiser Foundation Hospital – Sunset	4	3	Average
	St. Bernardine Medical Center	261	230	Average
Shankar, Kuppe G.	*Surgeon Overall*	66	45	Average
	UC Davis Medical Center	66	45	Average
Sharma, Kapil	*Surgeon Overall*	345	285	Average
	Mercy General Hospital	330	271	Average
	Mercy San Juan Hospital	15	14	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Shemin, Richard J.	*Surgeon Overall*	134	59	Average
	Ronald Reagan UCLA Medical Center	133	58	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	1	Average
Shuman, Robert L.	*Surgeon Overall*	20	17	Average
	Long Beach Memorial Medical Center	20	17	Average
Silva, Raymond	*Surgeon Overall*	41	38	Average
	Good Samaritan Hospital – San Jose	25	24	Average
	O'Connor Hospital – San Jose	2	1	Average
	Regional Medical of San Jose	14	13	Average
Simsir, Sinan A.	*Surgeon Overall*	27	17	Average
	Cedars Sinai Medical Center	27	17	Average
Slachman, Frank N.	*Surgeon Overall*	298	179	Average
	Mercy General Hospital	292	178	Average
	Mercy San Juan Hospital	6	1	Average
Smith, Larry H.	*Surgeon Overall*	5	5	Average
	Santa Rosa Memorial Hospital – Montgomery	3	3	Average
	Sutter Medical Center of Santa Rosa	2	2	Average
Soltero, Michael	*Surgeon Overall*	103	71	Average
	Northridge Hospital Medical Center	32	24	Average
	Providence Holy Cross Medical Center	66	46	Average
	Providence Tarzana Regional Medical Center – Tarzana	1	0	Not Applicable
	West Hills Regional Medical Center	4	1	Average
Spowart, Gregory S.	*Surgeon Overall*	135	112	Average
	Community Hospital Monterey Peninsula	93	76	Average
	Salinas Valley Memorial Hospital	42	36	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Stahl, Richard D.	*Surgeon Overall*	187	141	Average
	Scripps Memorial Hospital – La Jolla	187	141	Average
Stanten, Russell D.	*Surgeon Overall*	177	153	Average
	Alta Bates Summit Medical Center – Summit Campus	165	141	Average
	Washington Hospital – Fremont	12	12	Average
Starnes, Vaughn A.	*Surgeon Overall*	135	55	Average
	Huntington Memorial Hospital	1	1	Average
	Los Angeles Co. USC Medical Center	1	0	Not Applicable
	Keck Hospital of USC	133	54	Average
Stein, Alexander G.	*Surgeon Overall*	105	95	Average
	Long Beach Memorial Medical Center	2	1	Average
	Los Angeles Co. Harbor – UCLA Medical Center	1	1	Average
	St. Mary Medical Center	102	93	Average
Stewart, Robert	*Surgeon Overall*	138	109	Average
	Dominican Hospital	137	108	Average
	Fresno Heart Hospital	1	1	Average
Stoneburner, John M.	*Surgeon Overall*	87	52	Average
	Providence Little Company of Mary Medical Center	10	9	Average
	Torrance Memorial Medical Center	77	43	Average
Talieh, Yahya J.	*Surgeon Overall*	139	110	Average
	Doctors Medical Center – Modesto Campus	38	25	Average
	Memorial Medical Center of Modesto	101	85	Average
Tang, Eddie	*Surgeon Overall*	53	43	Average
	St. Mary's Medical Center, San Francisco	53	43	Average
Taylor, Benedict J.	*Surgeon Overall*	3	3	Average
	Santa Barbara Cottage Hospital	3	3	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Tedesco, Dominic J.	*Surgeon Overall*	93	76	Average
	Community Memorial Hospital of San Buenaventura	93	76	Average
Tendulkar, Amod P.	*Surgeon Overall*	22	20	Average
	St. Joseph's Medical Center of Stockton	22	20	Average
Thibault, William N.	*Surgeon Overall*	166	155	Average
	Mission Hospital Regional Medical Center	50	46	Average
	Saddleback Memorial Medical Center	8	8	Average
	St. Jude Medical Center	108	101	Average
Toporoff, Bruce M.	*Surgeon Overall*	104	85	Average
	Community Memorial Hospital of San Buenaventura	8	8	Average
	Los Robles Regional Medical Center	22	17	Average
	St. John's Regional Medical Center	74	60	Average
Tovar, Eduardo A.	*Surgeon Overall*	191	143	Average
	Presbyterian Intercommunity Hospital	191	143	Average
Trento, Alfredo	*Surgeon Overall*	118	54	Average
	Cedars Sinai Medical Center	118	54	Average
Trivedi, Rohitkumar R.	*Surgeon Overall*	69	56	Average
	Pomona Valley Hospital Medical Center	51	41	Average
	San Antonio Community Hospital	18	15	Average
Tyner, John	*Surgeon Overall*	120	66	Average
	Scripps Green Hospital	107	55	Average
	Scripps Mercy Hospital	13	11	Average
Tzeng, Thomas S.	*Surgeon Overall*	31	24	Average
	Downey Regional Medical Center	27	20	Average
	Presbyterian Intercommunity Hospital	4	4	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Uppal, Kanti M.	*Surgeon Overall*	9	9	Average
	Alta Bates Summit Medical Center – Summit Campus	9	9	Average
Veeragandham, Ramesh	*Surgeon Overall*	136	101	Average
	John Muir Medical Center – Concord Campus	87	65	Average
	San Ramon Regional Medical Center	18	13	Average
	Valleycare Medical Center	31	23	Average
Vial, Conrad	*Surgeon Overall*	117	87	Average
	El Camino Hospital	49	36	Average
	Peninsula Medical Center	51	41	Average
	Sequoia Hospital	17	10	Average
Vo, Quang T.	*Surgeon Overall*	116	104	Average
	Beverly Hospital	9	8	Average
	Citrus Valley Medical Center – IC Campus	26	23	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	57	50	Average
	Garfield Medical Center	10	10	Average
	Long Beach Memorial Medical Center	12	11	Average
	Saddleback Memorial Medical Center	2	2	Average
Vunnamadala, Syam P.	*Surgeon Overall*	62	58	Average
	AHMC Anaheim Regional Medical Center	35	33	Average
	West Anaheim Medical Center	12	10	Average
	Western Medical Center Hospital – Anaheim	15	15	Average
Walkes, Jon-Cecil	*Surgeon Overall*	46	45	Average
	Washington Hospital – Fremont	46	45	Average
Wang, Nan	*Surgeon Overall*	255	187	Average
	Loma Linda University Medical Center	96	76	Average
	San Antonio Community Hospital	159	111	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
West, Phillip N.	*Surgeon Overall*	186	140	Average
	Santa Barbara Cottage Hospital	186	140	Average
Westerman, G. Richard	*Surgeon Overall*	96	71	Average
	Santa Barbara Cottage Hospital	96	71	Average
Wilson, Joseph W.	*Surgeon Overall*	211	162	Average
	Eisenhower Memorial Hospital	211	162	Average
Wood, Michael N.	*Surgeon Overall*	63	45	Average
	San Antonio Community Hospital	63	45	Average
Yagubyan, Marineh	*Surgeon Overall*	100	86	Average
	Glendale Adventist Medical Center – Wilson Terrace	43	40	Average
	Glendale Memorial Hospital and Health Center	57	46	Average
Yap, Alexander	*Surgeon Overall*	123	112	Average
	Seton Medical Center	120	109	Average
	St. Mary's Medical Center, San Francisco	3	3	Average
Yasuda, Roderick	*Surgeon Overall*	117	100	Average
	Northridge Hospital Medical Center	50	45	Average
	Providence Holy Cross Medical Center	61	49	Average
	Valley Presbyterian Hospital	1	1	Average
	West Hills Regional Medical Center	5	5	Average
Yee, Edward S.	*Surgeon Overall*	3	3	Average
	Salinas Valley Memorial Hospital	3	3	Average
Yokoyama, Taro	*Surgeon Overall*	226	187	Average
	Centinela Hospital Medical Center	43	35	Average
	Good Samaritan Hospital – Los Angeles	9	9	Average
	Providence St. Joseph Medical Center	54	46	Average
	St. Vincent Medical Center	107	87	Average

Table 5: California Surgeon CABG Surgery Volume and Performance Ratings for Operative Mortality† by Hospital, 2009-2010

Surgeon	Hospital	All CABG Cases*	Isolated CABG Cases	Performance Rating
Yokoyama, Taro (continued)	Valley Presbyterian Hospital	13	10	Average
Young, Joseph N.	*Surgeon Overall*	99	47	Average
	UC Davis Medical Center	99	47	Average
Yun, Kwok L.	*Surgeon Overall*	196	70	Average
	Kaiser Foundation Hospital – Sunset	196	70	Average
Zhu, Henry L.	*Surgeon Overall*	329	257	Average
	Mercy General Hospital	81	67	Average
	Mercy San Juan Hospital	248	190	Average
Zusman, Douglas R.	*Surgeon Overall*	165	117	Average
	Hoag Memorial Hospital Presbyterian	165	117	Average

* "All CABG Cases" counts both isolated *and* non-isolated CABG cases in this category; however, the performance rating column excludes non-isolated CABG from the calculation and resulting rating.

† Operative Mortality is defined as patient death occurring in the hospital after CABG surgery, regardless of length of stay, or death occurring anywhere after hospital discharge but within 30 days after the CABG surgery. Surgeon ratings are risk-adjusted using a statistical technique that allows for fair comparison of surgeon outcomes even though some surgeons have sicker patients than average.

Cardiac Revascularization Procedures: Statewide Volume and Observed In-Hospital Mortality of CABG Surgeries and PCI Procedures

There are two types of cardiac revascularization procedures: CABG surgery and percutaneous coronary interventions (PCI), also known as angioplasty, balloon catheterization, or intra-coronary stenting. These procedures, which have been refined during the past 30 years, have contributed to improved survival for heart attack patients. Since its introduction, the intra-coronary stent insertion procedure (using small wire cylinders to hold a narrow or clogged artery open) has largely replaced angioplasty without stents because of its lower rate of restenosis (re-narrowing of the arteries). New technologies and improved adjunctive medical therapy (e.g., medication) are making PCI a viable alternative to CABG for many patients. The advantages associated with PCI have been widely noted: PCI involves a shorter hospital stay, is suitable for most patients, can be repeated, and is performed by a cardiologist without anesthesia. However, CABG surgery is associated with lower rates of repeat revascularization, less overall angina (chest pain), and lower long-term mortality. A more comprehensive approach to examining and reporting on the quality of revascularization procedures in California would include measuring PCI outcomes.

Cardiac Revascularization Volume

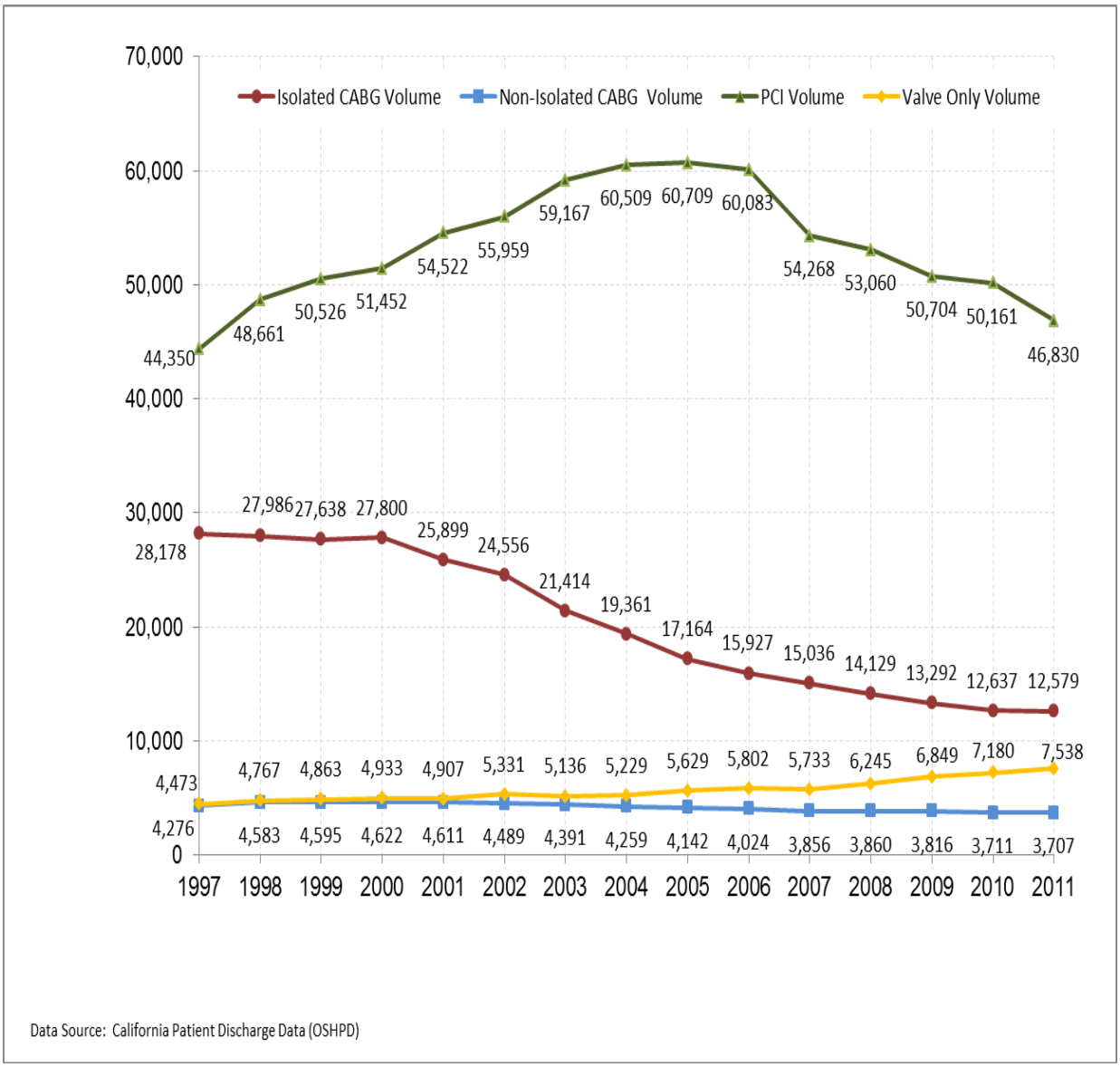
Figure 1 shows change in the use of the two revascularization procedures, CABG and PCI, over time using data from OSHPD's Patient Discharge Data. Despite a dip in recent years (2007-2011), PCI volume increased by 5.6% between 1997 and 2011 in California. During the same timeframe, the number of isolated CABG surgeries decreased 55% between 1997 and 2011.[10] Non-isolated CABG surgery volume remained relatively constant, with a slight decline each year since 2001. Meanwhile the valve-only procedures increased by 69% from 4,473 in 1997 to 7,538 in 2011.

Cardiac Revascularization Mortality

Figure 2 presents the trends in observed in-hospital mortality rates for isolated CABG surgeries, non-isolated CABG surgeries, valve-only procedures, and PCIs in California between 1997 and 2011. During the 15 years between 1997 and 2011, the in-hospital mortality rate for isolated CABG surgeries declined from 3.08%, when the voluntary California CABG Mortality Reporting Program (CCMRP) was launched in 1997 to 1.57% in 2011, the ninth year of the mandatory reporting program. Meanwhile, the observed in-hospital mortality rates for non-isolated CABG surgeries and valve-only procedures also declined from 9.66% to 5.18% and from 5.28% to 2.71%, respectively. However, the observed in-hospital mortality rate for PCIs increased from 1.70% in 1997 to 2.28% in 2011. The increase in the PCI mortality rate may be due, in part, to changes in selection criteria for certain high-risk patients getting PCIs.

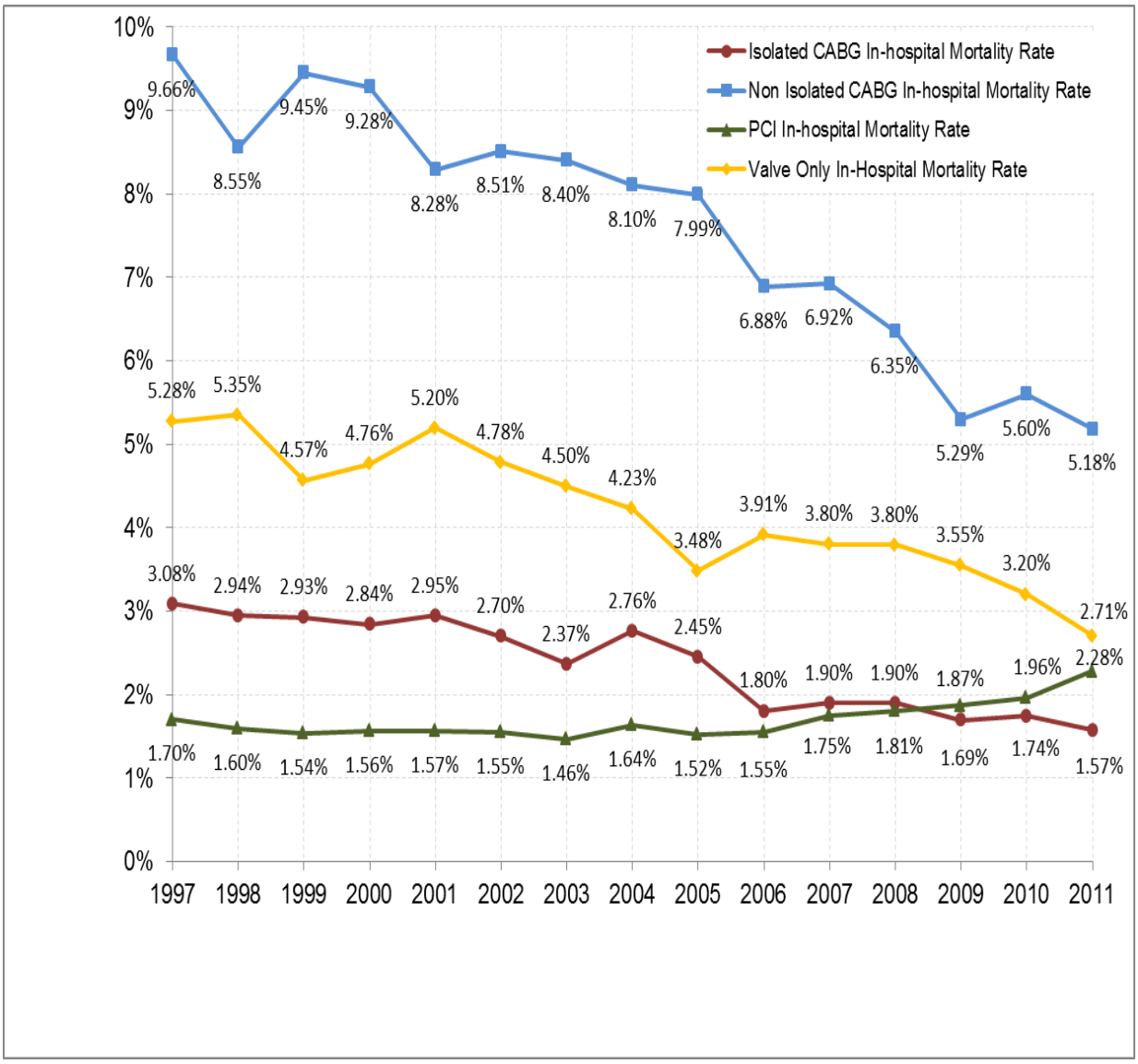
[10] The numbers cited for isolated CABG and PCI volume come from the OSHPD Patient Discharge Data (PDD) and the number of isolated CABGs differs from what is cited earlier in this report from the CCORP registry. Since OSHPD does not maintain a PCI data registry, only the PDD provides a consistent source of numbers for both procedures.

Figure 1: Volume of Isolated CABG, Non-Isolated CABG, Valve-Only, and PCI Procedures in California, 1997-2011



Data Source: California Patient Discharge Data (OSHPD)

Figure 2: In-Hospital Mortality Rates for Isolated CABG, Non-Isolated CABG, Valve-Only, and PCI Procedures in California, 1997-2011



Appendices:
Technical Notes on Statistical Methods and Hospital Statements

Appendix A: Data Quality Review and Verification

CCORP reviews the data submitted by each hospital for completeness and errors. Using a three-step data quality review and verification process, CCORP asks hospitals to check data quality, data discrepancies, and potential risk-factor coding problems.

Step 1: Data Collection and Acceptance

Data quality reports are generated by CCORP's online data collection system, Cardiac Online Reporting for California (CORC), throughout the year. A three-step process allows hospitals to upload data, review and adjust inputs, and finalize and certify their data submission. This electronic system expedites the review process by checking for invalid, missing, and abnormally high or low risk factor values during point of input.

Step 2: Data Discrepancy Reports

Data discrepancy reports compare the CCORP clinical registry data to OSHPD's hospital administrative data source, the Patient Discharge Data (PDD). Hospitals are asked to review and account for discrepancies between the two data sources via patient medical chart review to verify that 1) all CABG surgeries discharged in 2010 were reported; 2) each CABG was accurately coded as isolated or non-isolated CABG surgery; 3) coding of *Discharge Status* was consistent; 4) *Resuscitation* occurred prior to CABG surgery; and 5) coding of *Post-Operative Complications* (including strokes) was consistent.

Step 3: Risk-Factor Coding Reports

Risk-factor coding reports compare each hospital's data to prior years of data and to the PDD and medical chart audit findings to identify possible under-reporting and over-reporting of risk factors. CCORP requests hospitals to review and, when necessary, correct miscoded data elements.

Hospital Medical Chart Audit

After completing the quality review and verification process, CCORP develops a preliminary risk model for operative mortality and post-operative stroke to help identify candidate hospitals for an on-site medical chart audit. Candidate selection for the 2010 audit was based on results of the preliminary model which identified **"Better"** or **"Worse"** hospital performers and on data quality reports which identified problems in over- and under-reporting of patient risk prevalence. Additionally, a small number of hospitals were randomly selected for audit.

The 2010 audit included 37 hospitals and a total of 2,596 patient records (31% of all hospitals and approximately 16% of all CABG surgery cases in 2010). On-site medical chart reviews were conducted by trained, independent auditors under contract with OSHPD. All isolated CABG deaths and post-operative strokes at selected hospitals were audited and high-risk patients were sampled at a higher rate. The number of patient records selected within a hospital was proportional to the isolated CABG volume of the hospital, but generally fell within a range of 40 to 160 cases. If a selected hospital performed fewer than 40 isolated CABG surgeries per year, all surgeries were audited. An audit summary was sent to each hospital for review and comment.

Key findings from the 2010 hospital medical chart audit include:

- *Discharge Status* was coded correctly for all isolated and non-isolated CABG records audited.
- Auditors found six non-isolated CABG cases and one isolated CABG to not be CABG procedures at all.
- Auditors found twelve CABG cases reported to CCORP as non-isolated were isolated CABGs. And conversely, auditors found that nine CABG cases reported to CCORP as isolated were non-isolated cases.
- The Kappa statistic measures the degree to which CCORP data abstractors and auditors concurred in coding each data element. It measures agreement beyond that expected by chance, can range from 0 (no agreement) to 1.0 (perfect agreement), and is used to identify potential coding problems.
- According to the Kappa statistics most data elements were well coded. The poorest coded were *Resuscitation, Chronic Lung Disease, Infectious Endocarditis* and *LAD Bypassed.*
- Kappa statistics for all post-operative complications ranged from moderate to excellent (0.37-0.89). *Post-Operative Stroke*, which is publically reported, had a strong Kappa value of 0.88.
- The most frequently under-coded data elements were *PCI*, *PCI Interval* and *Mitral Insufficiency*.
- The most frequently over-coded data elements were *Chronic Lung Disease* and *Number of Diseased Vessels.*
- Individual audit summary reports were sent to audited hospitals for review. The audited data replaced hospital-submitted data to generate the final results for this report. All outlier hospitals in 2009-2010 were audited in recent years.

Appendix B: Technical Notes on Hospital and Surgeon Operative Mortality Rate Calculations (2009-2010)

Risk Model for Adjusting Hospital and Surgeon Operative Mortality Rates, 2009-2010

Whether patients recover quickly, have complications, or die following CABG surgery is, in part, a result of the medical care they receive. However, it is difficult to compare outcomes and assess surgical performance because patients treated at different hospitals or by different surgeons often vary in the severity of their pre-operative clinical conditions. This section explains the development and validation of CCORP's risk model that accounts for the variation in patient severity of illness for hospital and surgeon operative mortality.

To make fair comparisons of care delivered by different healthcare providers, CCORP "levels the playing field" by considering the pre-operative condition of each patient. Providers handling more complex cases receive a larger risk-adjustment weight in the risk model, and providers that handle less complex cases receive a smaller weight. Thus, hospitals and surgeons treating sicker patients are not at a disadvantage when their performance is compared with other hospitals or surgeons.

CCORP used a multivariable logistic regression model to estimate the relationship between each of the demographic and pre-operative risk factors and the probability of operative mortality. Multivariable logistic regression models relate the probability of death to the risk factor (e.g., patient age) while controlling for all other risk factors in the model.

To develop the risk model, the 25,808 isolated (non-salvage) CABG surgery cases in 2009-2010 were evaluated for missing data; 25,659 cases had no missing data in any field and were used for the risk model parameter estimation. The 149 (0.6%) isolated CABG cases with missing data fields were removed to ensure that the effects of risk factors were estimated based on the most complete data available. To generate the hospital and surgeon specific results shown in this report, missing values for these 149 records were imputed (after risk model parameter estimation) by replacing them with the lowest risk category of the same variable (e.g., *Chronic Lung Disease = none*). CCORP assigned the lowest risk value for the following reasons: 1) some hospitals leave data fields blank by design when the risk factor is absent or the value is normal; 2) this maintains consistency with other major cardiac reporting programs that replace missing data with the lowest-risk or normal value; and 3) this imputing method creates an incentive for more complete reporting by hospitals. After imputing the missing values, the parameters of the risk model were applied to all cases to estimate each patient's probability of death. CCORP summed these probabilities to estimate the expected mortality for each hospital. The risk model, based on the 2010 data, is presented in Table B-1 with statistically significant risk factors identified in bolded text.

Table B-1: Logistic Regression Risk Model for Hospital and Surgeon Operative Mortality, 2009-2010

Risk Factor		Coefficient	Standard Error	p-value	Odds Ratio
Intercept		-9.887	0.524	<.0001	
Age (Years)		**0.050**	**0.005**	**<.0001**	**1.051**
Gender	Male	Reference			
	Female	**0.604**	**0.101**	**<.0001**	**1.829**
Race	White	Reference			
	Non-White	-0.057	0.101	0.575	0.945
Body Mass Index	18.5-39.9	Reference			
	<18.5	**1.044**	**0.272**	**0.001**	**2.842**
	>=40.0	0.103	0.244	0.673	1.108
Status of Procedure	Elective	Reference			
	Urgent	0.160	0.130	0.217	1.174
	Emergent	**1.103**	**0.228**	**<.0001**	**3.012**
Last Creatinine Level Pre-Op (mg/dl)		**1.157**	**0.198**	**<.0001**	**3.180**
Hypertension		0.296	0.174	0.089	1.344
Peripheral Vascular Disease		0.160	0.119	0.177	1.174
Cerebrovascular Disease		0.201	0.166	0.228	1.222
Cerebrovascular Accident (CVA)Timing	*No CVA*	Reference			
	> 2 weeks	0.086	0.207	0.678	1.090
	<= 2 weeks	0.665	0.569	0.243	1.944
Chronic Lung Disease	None, Mild	Reference			
	Moderate	0.051	0.192	0.792	1.052
	Severe	**0.394**	**0.181**	**0.029**	**1.482**
Dialysis		0.102	0.220	0.644	1.107
Atrial Fibrillation/Flutter		**0.317**	**0.136**	**0.020**	**1.373**
Sustained VT/VF		**0.432**	**0.201**	**0.032**	**1.541**
Timing of Myocardial Infarction (MI)	No MI	Reference			
	21 or more days ago	-0.052	0.151	0.730	0.949
	8-20 days ago	0.085	0.201	0.671	1.089
	1-7 days ago	0.238	0.129	0.065	1.269
	Within 24 Hours	**0.607**	**0.202**	**0.003**	**1.834**
Cardiogenic Shock		**0.815**	**0.221**	**0.001**	**2.259**
Heart Failure		**0.364**	**0.112**	**0.001**	**1.439**
Prior Cardiac Surgery	None	Reference			
	One or more	**1.230**	**0.170**	**<.0001**	**3.420**

Table B-1: Logistic Regression Risk Model for Hospital and Surgeon Operative Mortality, 2009-2010

Risk Factor		Coefficient	Standard Error	P-Value	Odds Ratio
Interval from Prior PCI to Surgery	No Prior PCI	Reference			
	Prior PCI > 6 HRS	0.158	0.114	0.165	1.171
	Prior PCI <= 6 HRS	0.238	0.278	0.391	1.269
Ejection Fraction		**-0.015**	**0.004**	**<.0001**	**0.985**
Left Main Disease (% Stenosis)		**0.006**	**0.003**	**0.042**	**1.006**
Number of Diseased Vessels	None, One, or Two	Reference			
	3 or more	0.184	0.122	0.131	1.202
Mitral Insufficiency	None, Trivial, Mild	Reference			
	Moderate/Severe	**0.498**	**0.135**	**0.001**	**1.645**

Bolded text indicates statistically significant.
Note: Last Creatinine Pre-Op, Ejection Fraction, and Left Main Stenosis were modeled using piecewise linear transformations.

Discrimination: Operative Mortality for Hospitals and Surgeons

Risk models that distinguish well between patients who die and those who survive are said to have good discrimination. A commonly used measure of discrimination is the C-statistic, also known as the area under the Receiver Operating Characteristic (ROC) curve. For all possible pairs of patients, where one dies and the other survives surgery, the C-statistic describes the proportion of pairs where the patient who died had a higher predicted risk of death than the patient who lived. C-statistics range from 0.5 to 1, with higher values indicating better discrimination. For the 2009-2010 risk model, the C-statistic was 0.815. In recently published CABG surgery mortality reports by other states (New Jersey, New York, and Pennsylvania), the C-statistic ranged from 0.791 to 0.836, which is similar to the 2009-2010 CCORP model.

Calibration: Operative Mortality for Hospitals and Surgeons

Calibration refers to the ability of a risk model to match predicted mortality with observed mortality. A model in which the number of observed deaths matches closely with the number of deaths predicted by the model demonstrates good calibration. Good calibration is essential for accurate risk adjustment. A common measure of calibration is the Hosmer-Lemeshow χ^2 test, which compares observed and predicted outcomes over deciles of risk. The p-value of the Hosmer-Lemeshow test statistic for this 2009-2010 risk model is 0.204, indicating adequate calibration. That is, the predicted mortality was consistent with actual mortality in the data.

Another way to test model calibration is to partition the data and compare observed deaths with predicted deaths in each of 10 risk groups. The 10 risk groups are created by sorting all observations by the predicted risk of death and then dividing the sorted observations into deciles of approximately equal size. As presented in Table B-2, Risk Group 10 shows the patients in the highest risk group. Among the 2,559 patients in Group 10, 235 patients died, and the model predicted 235.4 patient deaths. Assuming a Poisson distribution for a binary outcome, the

predicted range of deaths for Risk Group 10 is 205.3 to 265.5. The observed number of 235 deaths falls within the range of predicted deaths. In fact, none of the 10 risk groups had either significantly fewer or significantly more deaths than were predicted by the model. Overall, the risk model shows no systematic underestimation or overestimation of mortality at the extremes.

Table B-2: Calibration of Risk Model for Operative Mortality, 2009-2010

Risk Group	Isolated CABG Cases	Observed Deaths	Predicted Deaths	Difference	95% CI of Predicted Deaths
1	2,567	3	6.2	3.2	(1.3, 11.0)
2	2,567	4	10.0	6.0	(3.8, 16.2)
3	2,567	12	13.3	1.3	(6.1, 20.4)
4	2,566	16	17.0	1.0	(8.9, 25.1)
5	2,566	19	21.7	2.7	(12.6, 30.8)
6	2,567	29	27.9	-1.1	(17.5, 38.2)
7	2,566	29	36.7	7.7	(24.8, 48.6)
8	2,567	60	51.4	-8.6	(37.4, 65.5)
9	2,567	93	80.4	-12.6	(62.8, 98.0)
10	2,559	235	235.4	0.4	(205.3, 265.5)
Total	**25,659**	**500**	**500.0**	**0**	

Note: Risk Group 1 is at lowest risk and Risk Group 10 is at highest risk.

Process for Calculating Hospital and Surgeon Risk-Adjusted Mortality Rates and Performance Rating

The risk-adjusted mortality rate (RAMR) represents the best estimate of what a healthcare provider's operative mortality rate would have been if the provider had a patient case mix identical to the statewide average. Thus, this rate is comparable among providers because it accounts for the differences in patient severity-of-illness.

The RAMR is computed first by dividing the provider's observed mortality by the provider's expected mortality (obtained from the risk model calculation) to get the observed/expected (O/E) ratio. If the O/E ratio is greater than one, the provider has a higher mortality than expected based on patient mix. If the O/E ratio is less than one, the provider has a lower mortality rate than expected. The O/E ratio is then multiplied by the overall state mortality to obtain the provider's risk-adjusted mortality rate. This results in the 2010 hospital rate of 2.00% and the 2009-2010 surgeon rate of 1.95%.

However, because a provider's point estimate of the RAMR can be attributed to chance, this report determines the performance rating not based on a point estimate of the RAMR, but based on a comparison of the 95% confidence interval (CI) of each provider's RAMR to the California average mortality rate.[11] CCORP treated the 2009 and 2010 data as a sample, and inferred a range within which each provider's true performance was likely to fall. As shown in Tables B-3 and B-4, if the

[11] CCORP uses the Poisson Exact Probability method to compute the 95% confidence interval for the risk-adjusted mortality rate. (Buchan Iain, *Calculating Poisson Confidence Interval in Excel*, January 2004).

upper 95% CI of a provider's risk-adjusted mortality is below the state average mortality rate, indicating the provider's RAMR is significantly lower than the state average, then the provider's performance rating is **"Better."** If the lower 95% CI of a provider's RAMR is above the state average mortality rate, indicating the provider's risk-adjusted mortality is significantly higher than the state average, then the performance rating is **"Worse."** If the state average mortality rate is within the 95% CI of a provider's RAMR, then the performance rating is **"Average."** See the following section for detailed discussion of results.

Statistical Details of Hospital Risk-Adjusted Operative Mortality Rate Results (2010)

The risk-adjusted operative mortality results represent the best estimate of what a healthcare provider's mortality rate would have been if the provider had a patient case mix identical to the statewide average. Thus, this rate is comparable among providers because it accounts for the differences in patient severity-of-illness.

Among the 12,548 isolated and non-salvage CABG surgeries performed at 120 hospitals in 2010, 251 patients died either in-hospital or within 30 days of the surgery date, reflecting an overall operative mortality rate of 2.00%. The *observed* mortality rates among hospitals ranged from 0% to 25.00%. The *expected* mortality rates, which are generated by the risk model and account for patient severity-of-illness, ranged between 0.64% and 3.51%. The risk-adjusted mortality rates (RAMR), which measure hospital performance, ranged from 0% to 32.65%.

Based on the 95% confidence intervals for risk-adjusted mortality rates, 115 of 120 hospitals (96%) performed within the expected range when compared to the state's overall mortality rate (denoted by a blank space in the performance rating column of Table B-3), one hospital performed significantly **"Better"** than the state average, and four hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table B-3 submitted statements regarding this report (Appendix G).

Definitions of Table B-3 Terms

All CABG Cases: The total number of isolated and non-isolated CABG cases submitted to CCORP for 2010. Non-isolated CABG cases are not used in calculating performance ratings.

Isolated CABG Cases: The number of isolated CABG cases submitted to CCORP in 2010. All patients in salvage operative status are excluded from the isolated CABG cases, thus only isolated CABG cases without salvage operative status are used in calculating performance ratings.

Isolated CABG Deaths: The number of deaths includes 1) all deaths that occur during the hospitalization in which the CABG surgery was performed, including those occurring after 30 days; and 2) all deaths occurring within 30 days after the CABG surgery.

Observed Mortality Rate: The ratio of the number of isolated CABG deaths and the isolated CABG cases multiplied by 100: Observed Mortality Rate = Number of Isolated CABG Deaths/Isolated CABG Cases × 100.

Expected Mortality Rate: The ratio of the expected number of operative deaths predicted for a provider (after risk adjusting for their patient population) and the isolated CABG cases multiplied

by 100: Expected Mortality Rate = Number of Expected Deaths/Number of Isolated CABG Cases × 100.

Risk-Adjusted Mortality Rate (95% CI): The Risk-Adjusted Mortality Rate (RAMR) is obtained by multiplying the California observed mortality rate by a provider's O/E ratio. The 95% confidence interval represents the confidence in the estimate for the RAMR. The lower and upper confidence limits are calculated using Poisson exact confidence interval calculations.

Performance Rating: The performance rating is based on a comparison of each provider's risk-adjusted mortality rate to the California observed mortality rate. A provider is classified as "**Better**" if the upper 95% confidence limit of its RAMR falls below the California observed mortality rate. A provider is classified as "**Worse**" if the lower 95% confidence limit of its RAMR is higher than the California observed mortality rate. A provider is classified as "**Average**" if the California mortality rate falls within the confidence interval of the provider's risk-adjusted mortality rate.

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Sacramento Valley & Northern California Region	Enloe Medical Center – Esplanade Campus	170	148	2	1.35	1.88	1.44	(0.17, 5.20)	Average
	Mercy General Hospital	793	492	1	0.20	1.44	0.28	(0.01, 1.58)	**Better**
	Mercy Medical Center – Redding	130	95	1	1.05	2.64	0.80	(0.02, 4.44)	Average
	Mercy San Juan Hospital	153	116	1	0.86	1.60	1.08	(0.03, 6.01)	Average
	Rideout Memorial Hospital	149	123	5	4.07	1.93	4.21	(1.37, 9.83)	Average
	Shasta Regional Medical Center	67	60	0	0.00	1.26	0.00	(0.00, 9.72)	Average
	St. Joseph Hospital – Eureka	42	33	1	3.03	1.44	4.21	(0.11, 23.44)	Average
	Sutter Memorial Hospital	505	342	4	1.17	1.83	1.28	(0.35, 3.27)	Average
	UC Davis Medical Center	163	119	3	2.52	1.25	4.02	(0.83, 11.75)	Average
San Francisco Bay Area & San Jose	Alta Bates Summit Medical Center – Summit Campus	289	234	2	0.85	1.89	0.90	(0.11, 3.26)	Average
	California Pacific Medical Center – Pacific Campus	78	53	0	0.00	1.53	0.00	(0.00, 9.11)	Average
	Community Hospital Monterey Peninsula	80	57	0	0.00	2.05	0.00	(0.00, 6.30)	Average
	Dominican Hospital	82	64	1	1.56	1.27	2.46	(0.06, 13.72)	Average
	El Camino Hospital	82	51	0	0.00	1.20	0.00	(0.00, 12.04)	Average
	Good Samaritan Hospital – San Jose	85	61	2	3.28	1.77	3.71	(0.45, 13.40)	Average
	John Muir Medical Center – Concord Campus	248	207	3	1.45	1.92	1.51	(0.31, 4.42)	Average
	Kaiser Foundation Hospital – San Francisco	387	298	4	1.34	1.24	2.17	(0.59, 5.56)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
San Francisco Bay Area & San Jose (continued)	Kaiser Foundation Hospital – Santa Clara	311	192	5	2.60	1.73	3.01	(0.98, 7.01)	Average
	Marin General Hospital	59	46	1	2.17	1.33	3.28	(0.08, 18.25)	Average
	North Bay Medical Center	33	32	2	6.25	1.04	12.06	(1.46, 43.55)	Average
	O'Connor Hospital – San Jose	74	64	0	0.00	2.40	0.00	(0.00, 4.79)	Average
	Peninsula Medical Center	49	43	1	2.33	1.67	2.78	(0.07, 15.50)	Average
	Queen of the Valley Hospital – Napa	70	49	1	2.04	2.97	1.37	(0.03, 7.65)	Average
	Regional Medical of San Jose	52	50	1	2.00	2.70	1.48	(0.04, 8.26)	Average
	Salinas Valley Memorial Hospital	107	84	2	2.38	1.74	2.73	(0.33, 9.86)	Average
	San Ramon Regional Medical Center	36	27	0	0.00	1.19	0.00	(0.00, 23.00)	Average
	Santa Clara Valley Medical Center	48	46	1	2.17	0.64	6.79	(0.17, 37.84)	Average
	Santa Rosa Memorial Hospital – Montgomery	84	64	2	3.13	1.97	3.18	(0.38, 11.48)	Average
	Sequoia Hospital	100	52	2	3.85	1.77	4.35	(0.53, 15.71)	Average
	Seton Medical Center	113	99	3	3.03	2.49	2.44	(0.50, 7.12)	Average
	St. Helena Hospital	73	63	2	3.17	2.27	2.79	(0.34, 10.09)	Average
	St. Mary's Medical Center, San Francisco	35	31	2	6.45	1.60	8.09	(0.98, 29.20)	Average
	Stanford University Hospital	131	73	0	0.00	1.71	0.00	(0.00, 5.91)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
San Francisco Bay Area & San Jose (continued)	Sutter Medical Center of Santa Rosa	96	70	2	2.86	1.33	4.29	(0.52, 15.48)	Average
	UCSF Medical Center	80	62	0	0.00	1.37	0.00	(0.00, 8.68)	Average
	Valleycare Medical Center	36	26	0	0.00	1.86	0.00	(0.00, 15.24)	Average
	Washington Hospital – Fremont	99	95	3	3.16	2.32	2.72	(0.56, 7.95)	Average
Central California	Bakersfield Heart Hospital	122	105	7	6.67	1.94	6.86	(2.76, 14.13)	**Worse**
	Bakersfield Memorial Hospital	129	110	2	1.82	1.41	2.57	(0.31, 9.30)	Average
	Community Medical Center – Fresno	266	219	8	3.65	1.91	3.83	(1.65, 7.54)	Average
	Dameron Hospital	56	54	3	5.56	3.27	3.39	(0.70, 9.92)	Average
	Doctors Medical Center – Modesto Campus	304	240	5	2.08	2.29	1.82	(0.59, 4.24)	Average
	Fresno Heart Hospital	196	155	3	1.94	1.93	2.01	(0.41, 5.86)	Average
	Kaweah Delta Hospital†	308	261	12	4.60	2.20	4.18	(2.16, 7.30)	**Worse**
	Marian Medical Center	93	87	0	0.00	1.61	0.00	(0.00, 5.26)	Average
	Memorial Medical Center of Modesto	234	191	5	2.62	1.80	2.91	(0.95, 6.80)	Average
	San Joaquin Community Hospital	78	72	2	2.78	3.38	1.64	(0.20, 5.93)	Average
	St. Agnes Medical Center	314	264	9	3.41	2.43	2.81	(1.28, 5.33)	Average
	St. Joseph's Medical Center of Stockton	281	216	8	3.70	2.40	3.08	(1.33, 6.07)	Average
San Fernando	Antelope Valley Hospital	33	30	3	10.00	1.49	13.39	(2.76, 39.13)	**Worse**

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Valley, Antelope Valley, Ventura & Santa Barbara	Medical Center								
	Community Memorial Hospital of San Buenaventura	100	85	1	1.18	2.32	1.01	(0.03, 5.64)	Average
	French Hospital Medical Center	123	93	5	5.38	2.02	5.32	(1.73, 12.42)	Average
	Glendale Adventist Medical Center – Wilson Terrace	107	97	0	0.00	1.91	0.00	(0.00, 3.99)	Average
	Glendale Memorial Hospital and Health Center	192	139	3	2.16	2.33	1.85	(0.38, 5.41)	Average
	Lancaster Community Hospital	8	8	1	12.50	2.11	11.85	(0.30, 66.04)	Average
	Los Robles Regional Medical Center	89	66	2	3.03	2.15	2.81	(0.34, 10.16)	Average
	Northridge Hospital Medical Center	87	77	0	0.00	1.93	0.00	(0.00, 4.97)	Average
	Providence Holy Cross Medical Center	77	55	2	3.64	2.13	3.41	(0.41, 12.32)	Average
	Providence St. Joseph Medical Center	72	55	0	0.00	1.28	0.00	(0.00, 10.46)	Average
	Providence Tarzana Regional Medical Center – Tarzana	88	68	1	1.47	1.70	1.73	(0.04, 9.63)	Average
	Santa Barbara Cottage Hospital	132	100	1	1.00	1.89	1.06	(0.03, 5.90)	Average
	St. John's Regional Medical Center	87	66	2	3.03	3.03	2.00	(0.24, 7.22)	Average
	Valley Presbyterian Hospital	58	53	1	1.89	1.95	1.94	(0.05, 10.80)	Average
	West Hills Regional Medical Center	65	55	3	5.45	2.44	4.47	(0.92, 13.06)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Greater Los Angeles	Beverly Hospital	19	16	0	0.00	1.29	0.00	(0.00, 35.76)	Average
	Cedars Sinai Medical Center	166	99	2	2.02	1.60	2.52	(0.31, 9.11)	Average
	Centinela Hospital Medical Center	44	40	1	2.50	2.52	1.99	(0.05, 11.07)	Average
	Citrus Valley Medical Center – IC Campus	114	97	1	1.03	1.93	1.07	(0.03, 5.94)	Average
	Downey Regional Medical Center	48	43	2	4.65	1.74	5.34	(0.65, 19.30)	Average
	Garfield Medical Center	102	84	3	3.57	1.89	3.79	(0.78, 11.06)	Average
	Good Samaritan Hospital – Los Angeles	107	82	2	2.44	2.35	2.07	(0.25, 7.49)	Average
	Huntington Memorial Hospital	98	83	1	1.20	2.11	1.14	(0.03, 6.37)	Average
	Kaiser Foundation Hospital – Sunset	626	441	5	1.13	1.69	1.35	(0.44, 3.14)	Average
	Lakewood Regional Medical Center	141	126	3	2.38	2.36	2.02	(0.42, 5.89)	Average
	Providence Little Company of Mary Medical Center	73	60	2	3.33	1.96	3.40	(0.41, 12.29)	Average
	Long Beach Memorial Medical Center	220	182	5	2.75	2.15	2.56	(0.83, 5.97)	Average
	Los Angeles Co. Harbor – UCLA Medical Center	114	85	0	0.00	1.08	0.00	(0.00, 8.07)	Average
	Los Angeles Co. USC Medical Center	105	76	1	1.32	0.75	3.50	(0.09, 19.52)	Average
	Methodist Hospital of Southern California	40	34	3	8.82	3.51	5.03	(1.04, 14.71)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Greater Los Angeles (continued)	Presbyterian Intercommunity Hospital	98	75	0	0.00	1.71	0.00	(0.00, 5.74)	Average
	Ronald Reagan UCLA Medical Center	211	101	1	0.99	2.62	0.76	(0.02, 4.21)	Average
	Santa Monica - UCLA Medical Center and Orthopaedic Hospital	4	4	1	25.00	1.53	32.65	(0.83, 100.0)	Average
	St. Francis Medical Center	35	32	0	0.00	0.96	0.00	(0.00, 23.91)	Average
	St. John's Hospital and Health Center	67	48	1	2.08	2.74	1.52	(0.04, 8.47)	Average
	St. Mary Medical Center	61	58	1	1.72	3.31	1.04	(0.03, 5.81)	Average
	St. Vincent Medical Center	81	72	5	6.94	2.98	4.66	(1.51, 10.87)	Average
	Torrance Memorial Medical Center	81	52	0	0.00	1.65	0.00	(0.00, 8.59)	Average
	Keck Hospital of USC	165	77	2	2.60	1.69	3.08	(0.37, 11.13)	Average
	White Memorial Medical Center	54	51	1	1.96	1.94	2.02	(0.05, 11.26)	Average
Inland Empire, Riverside & San Bernardino	Desert Regional Medical Center	132	104	1	0.96	1.72	1.12	(0.03, 6.23)	Average
	Eisenhower Memorial Hospital	202	158	1	0.63	1.65	0.77	(0.02, 4.28)	Average
	Loma Linda University Medical Center	285	230	4	1.74	1.42	2.44	(0.67, 6.25)	Average
	Pomona Valley Hospital Medical Center	133	114	0	0.00	1.64	0.00	(0.00, 3.94)	Average
	Riverside Community Hospital	191	152	3	1.97	1.82	2.17	(0.45, 6.34)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Inland Empire, Riverside & San Bernardino (continued)	San Antonio Community Hospital	167	124	1	0.81	1.52	1.06	(0.03, 5.90)	Average
	St. Bernardine Medical Center	539	462	3	0.65	1.60	0.81	(0.17, 2.37)	Average
	St. Mary Regional Medical Center	186	165	4	2.42	1.93	2.51	(0.68, 6.43)	Average
Orange County	AHMC Anaheim Regional Medical Center	164	130	1	0.77	2.49	0.62	(0.02, 3.44)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	144	132	4	3.03	2.55	2.38	(0.65, 6.09)	Average
	Hoag Memorial Hospital Presbyterian	208	143	2	1.40	1.46	1.91	(0.23, 6.90)	Average
	Mission Hospital Regional Medical Center	144	123	1	0.81	1.24	1.31	(0.03, 7.31)	Average
	Orange Coast Memorial Medical Center	18	18	0	0.00	1.63	0.00	(0.00, 25.19)	Average
	Saddleback Memorial Medical Center	112	93	2	2.15	1.86	2.31	(0.28, 8.36)	Average
	St. Joseph Hospital – Orange	131	107	0	0.00	1.15	0.00	(0.00, 6.00)	Average
	St. Jude Medical Center	140	110	1	0.91	1.70	1.07	(0.03, 5.95)	Average
	UC Irvine Medical Center	36	26	1	3.85	2.08	3.69	(0.09, 20.56)	Average
	West Anaheim Medical Center	10	9	0	0.00	2.01	0.00	(0.00, 40.74)	Average
	Western Medical Center – Santa Ana†	42	36	1	2.78	2.37	2.34	(0.06, 13.05)	Average
	Western Medical Center Hospital – Anaheim	74	65	3	4.62	1.60	5.78	(1.19, 16.88)	Average

Table B-3: Hospital Risk-Adjusted Operative Mortality Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**16,346**	**12,548**	**251**	**2.00**				
Greater San Diego	Alvarado Hospital Medical Center	72	56	2	3.57	1.47	4.85	(0.59, 17.51)	Average
	Palomar Health Downtown Campus	88	65	5	7.69	1.73	8.89	(2.89, 20.75)	**Worse**
	Scripps Green Hospital	65	34	0	0.00	2.01	0.00	(0.00, 10.81)	Average
	Scripps Memorial Hospital – La Jolla	341	209	5	2.39	2.21	2.16	(0.70, 5.05)	Average
	Scripps Mercy Hospital	168	138	2	1.45	1.77	1.63	(0.20, 5.90)	Average
	Sharp Chula Vista Medical Center	196	155	7	4.52	2.68	3.37	(1.35, 6.93)	Average
	Grossmont Hospital	194	155	4	2.58	2.51	2.05	(0.56, 5.26)	Average
	Sharp Memorial Hospital	195	109	0	0.00	1.17	0.00	(0.00, 5.77)	Average
	Tri-City Medical Center	92	79	0	0.00	1.86	0.00	(0.00, 5.02)	Average
	UCSD Medical Center	27	25	1	4.00	2.55	3.14	(0.08, 17.48)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	88	62	0	0.00	1.11	0.00	(0.00, 10.73)	Average

*A hospital is classified as **"Better"** if the upper 95% CI of the RAMR falls below the California observed mortality rate (2.00%). A hospital is classified as **"Worse"** if the lower 95% CI of the RAMR is higher than the California observed mortality rate. A hospital's performance is considered **"Average"** if the California mortality rate falls within the 95% CI of a hospital's RAMR.

† Hospitals submitted statements regarding this report. See Appendix G for their statements.

Statistical Details of Surgeon Risk-Adjusted Operative Mortality Rate Results, 2009-2010

Among the 25,808 isolated and non-salvage CABG surgeries performed in 2010, 502 patients died either in-hospital or within 30 days of the surgery date, reflecting an overall surgeon operative mortality rate of 1.95%. The *observed* mortality rates among surgeons overall range from 0% to 20.00%. The *expected* mortality rates, which are generated by the risk model and account for patient severity of illness, range between 0.13% and 6.00%. The risk-adjusted mortality rates (RAMR), which measure surgeon performance, range from 0% to 16.98%.

Based on the 95% confidence intervals for risk-adjusted mortality rates, 264 of 271 surgeons (97%) performed within the expected range when compared to the state's overall mortality rate (denoted by a blank space in the performance rating column of Table B-4). No surgeon performed significantly **"Better"** than the state average, and eight surgeons performed significantly **"Worse"** than the state average.

Definitions of Table B-4 Terms

All CABG Cases: The total number of isolated and non-isolated CABG cases submitted to CCORP for 2009 and 2010. Non-isolated CABG cases are not used in calculating performance ratings.

Isolated CABG Cases: The number of isolated CABG cases submitted to CCORP during the time period indicated. All patients in salvage operative status are excluded from the isolated CABG cases, thus only isolated CABG cases without salvage operative status are used in calculating performance ratings.

Isolated CABG Deaths: The actual number of operative deaths for isolated CABG cases for the time period indicated. The number of deaths includes 1) all deaths that occur during the hospitalization in which the CABG surgery was performed, including those occurring after 30 days; and 2) all deaths occurring within 30 days after the CABG surgery.

Observed Mortality Rate: The ratio of the number of isolated CABG deaths and the isolated CABG cases multiplied by 100: Observed Mortality Rate = Number of Isolated CABG Deaths/Isolated CABG Cases × 100.

Expected Mortality Rate: The ratio of the expected number of operative deaths predicted for a provider (after risk adjusting for their patient population) and the isolated CABG cases multiplied by 100: Expected Mortality Rate = Number of Expected Deaths/Number of Isolated CABG Cases × 100.

Risk-Adjusted Mortality Rate (95% CI): The Risk-Adjusted Mortality Rate (RAMR) is obtained by multiplying the California observed mortality rate by a provider's O/E ratio. The 95% confidence interval represents the confidence in the estimate for the RAMR. The lower and upper confidence limits are calculated using Poisson exact confidence interval calculations.

Performance Rating: The performance rating is based on a comparison of each provider's risk-adjusted mortality rate and the California observed mortality rate. This is a test of statistical significance. A provider is classified as "**Better**" if the upper 95% confidence limit of its RAMR falls

below the California observed mortality rate. A provider is classified as "**Worse**" if the lower 95% confidence limit of its RAMR is higher than the California observed mortality rate. A provider is classified as "**Average**" if the California mortality rate falls within the confidence interval of the provider's risk-adjusted mortality rate.

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Abolhoda, Amir M.	*Surgeon Overall*	34	30	0	0.00	1.73	0.00	(0.00, 13.85)	Average
	UC Irvine Medical Center	34	30	0	0.00	1.73	0.00	(0.00, 13.85)	Average
Abraham, Reginald G.	*Surgeon Overall*	58	54	1	1.85	1.49	2.43	(0.06, 13.55)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	58	54	1	1.85	1.49	2.43	(0.06, 13.55)	Average
Adams, Carl W.	*Surgeon Overall*	5	5	0	0.00	4.02	0.00	(0.00, 35.80)	Average
	St. Joseph Hospital – Eureka	5	5	0	0.00	4.02	0.00	(0.00, 35.80)	Average
Adamson, Robert M.	*Surgeon Overall*	72	35	0	0.00	1.16	0.00	(0.00, 17.74)	Average
	Sharp Memorial Hospital	72	35	0	0.00	1.16	0.00	(0.00, 17.74)	Average
Afifi, Alaa Y.	*Surgeon Overall*	73	66	2	3.03	1.87	3.15	(0.38, 11.40)	Average
	AHMC Anaheim Regional Medical Center	18	15	0	0.00	1.11	0.00	(0.00, 43.39)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	17	15	2	13.33	3.07	8.47	(1.03, 30.62)	Average
	West Anaheim Medical Center	3	3	0	0.00	0.84	0.00	(0.00, 100.0)	Average
	Western Medical Center – Santa Ana	8	8	0	0.00	4.52	0.00	(0.00, 19.88)	Average
	Western Medical Center Hospital – Anaheim	27	25	0	0.00	0.89	0.00	(0.00, 32.23)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Afifi, Hazem Y.	*Surgeon Overall*	16	15	0	0.00	1.26	0.00	(0.00, 37.92)	Average
	AHMC Anaheim Regional Medical Center	1	1	0	0.00	0.94	0.00	(0.00, 100.0)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	5	5	0	0.00	1.43	0.00	(0.00, 100.0)	Average
	Western Medical Center – Santa Ana	2	2	0	0.00	1.10	0.00	(0.00, 100.0)	Average
	Western Medical Center Hospital – Anaheim	8	7	0	0.00	1.24	0.00	(0.00, 82.90)	Average
Alyono, David	*Surgeon Overall*	175	120	2	1.67	1.26	2.57	(0.31, 9.28)	Average
	Alta Bates Summit Medical Center – Summit Campus	103	69	2	2.90	1.18	4.78	(0.58, 17.27)	Average
	Kaiser Foundation Hospital – Santa Clara	72	51	0	0.00	1.38	0.00	(0.00, 10.25)	Average
Anastassiou, Peter T.	*Surgeon Overall*	7	7	0	0.00	1.37	0.00	(0.00, 74.82)	Average
	Seton Medical Center	7	7	0	0.00	1.37	0.00	(0.00, 74.82)	Average
Araim, Leheb H.	*Surgeon Overall*	26	24	1	4.17	1.42	5.73	(0.15, 31.95)	Average
	Kaweah Delta Hospital	26	24	1	4.17	1.42	5.73	(0.15, 31.95)	Average
Ardehali, Abbas	*Surgeon Overall*	99	65	0	0.00	1.75	0.00	(0.00, 6.31)	Average
	Ronald Reagan UCLA Medical Center	98	65	0	0.00	1.75	0.00	(0.00, 6.31)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Ardehali, Abbas (continued)	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	0	.	.	.	.		Not Applicable
Atiya, Azmi	*Surgeon Overall*	126	100	1	1.00	1.75	1.11	(0.03, 6.20)	Average
	Northridge Hospital Medical Center	77	66	0	0.00	1.59	0.00	(0.00, 6.85)	Average
	Providence Holy Cross Medical Center	45	31	1	3.23	1.95	3.23	(0.08, 18.01)	Average
	Providence Tarzana Regional Medical Center – Tarzana	1	1	0	0.00	1.42	0.00	(0.00, 100.0)	Average
	West Hills Regional Medical Center	3	2	0	0.00	4.31	0.00	(0.00, 83.48)	Average
Baker, Craig J.	*Surgeon Overall*	86	52	1	1.92	1.52	2.46	(0.06, 13.74)	Average
	Huntington Memorial Hospital	6	3	0	0.00	1.70	0.00	(0.00, 100.0)	Average
	Los Angeles Co. USC Medical Center	8	5	0	0.00	0.38	0.00	(0.00, 100.0)	Average
	Keck Hospital of USC	72	44	1	2.27	1.64	2.71	(0.07, 15.08)	Average
Baladi, Naoum	*Surgeon Overall*	124	104	4	3.85	3.09	2.43	(0.66, 6.22)	Average
	Seton Medical Center	120	100	4	4.00	3.16	2.47	(0.67, 6.32)	Average
	St. Mary's Medical Center, San Francisco	4	4	0	0.00	1.21	0.00	(0.00, 100.0)	Average
Baradarian, Sam	*Surgeon Overall*	87	53	0	0.00	1.25	0.00	(0.00, 10.82)	Average
	Sharp Memorial Hospital	87	53	0	0.00	1.25	0.00	(0.00, 10.82)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Baumgartner, Fritz J.	*Surgeon Overall*	12	10	1	10.00	2.52	7.73	(0.20, 43.11)	Average
	Long Beach Memorial Medical Center	1	1	0	0.00	1.09	0.00	(0.00, 100.0)	Average
	Mercy Medical Center – Redding	11	9	1	11.11	2.68	8.08	(0.20, 45.05)	Average
Benharash, Peyman	*Surgeon Overall*	1	1	0	0.00	1.86	0.00	(0.00, 100.0)	Average
	Ronald Reagan UCLA Medical Center	1	1	0	0.00	1.86	0.00	(0.00, 100.0)	Average
Bethencourt, Daniel M.	*Surgeon Overall*	183	138	2	1.45	1.79	1.58	(0.19, 5.71)	Average
	Lakewood Regional Medical Center	24	16	0	0.00	3.64	0.00	(0.00, 12.34)	Average
	Long Beach Memorial Medical Center	154	117	2	1.71	1.53	2.18	(0.26, 7.86)	Average
	Orange Coast Memorial Medical Center	5	5	0	0.00	1.82	0.00	(0.00, 79.12)	Average
Beygui, Ramin	*Surgeon Overall*	64	40	1	2.50	3.90	1.25	(0.03, 6.97)	Average
	El Camino Hospital	59	37	1	2.70	4.05	1.30	(0.03, 7.25)	Average
	Stanford University Hospital	5	3	0	0.00	2.00	0.00	(0.00, 100.0)	Average
Birnbaum, Peter	*Surgeon Overall*	178	131	4	3.05	2.27	2.63	(0.72, 6.73)	Average
	Community Medical Center – Fresno	43	36	1	2.78	1.54	3.51	(0.09, 19.56)	Average
	Dominican Hospital	1	1	0	0.00	3.65	0.00	(0.00, 100.0)	Average
	Fresno Heart Hospital	90	59	1	1.69	1.83	1.80	(0.05, 10.04)	Average
	St. Agnes Medical Center	44	35	2	5.71	3.69	3.01	(0.37, 10.89)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Biswas, Shankha	*Surgeon Overall*	122	106	5	4.72	1.71	5.38	(1.75, 12.56)	Average
	Loma Linda University Medical Center	5	5	0	0.00	2.12	0.00	(0.00, 67.99)	Average
	Riverside Community Hospital	115	99	5	5.05	1.62	6.07	(1.97, 14.18)	**Worse**
	San Antonio Community Hospital	1	1	0	0.00	0.85	0.00	(0.00, 100.0)	Average
	St. Bernardine Medical Center	1	1	0	0.00	9.25	0.00	(0.00, 77.78)	Average
Bogerty, Sharon	*Surgeon Overall*	1	1	0	0.00	2.90	0.00	(0.00, 100.0)	Average
	O'Connor Hospital – San Jose	1	1	0	0.00	2.90	0.00	(0.00, 100.0)	Average
Bolton, Joe	*Surgeon Overall*	145	128	7	5.47	2.71	3.93	(1.58, 8.11)	Average
	St. Agnes Medical Center	145	128	7	5.47	2.71	3.93	(1.58, 8.11)	Average
Bowdish, Michael E.	*Surgeon Overall*	25	12	0	0.00	0.71	0.00	(0.00, 84.50)	Average
	Huntington Memorial Hospital	2	1	0	0.00	0.67	0.00	(0.00, 100.0)	Average
	Los Angeles Co. USC Medical Center	12	5	0	0.00	0.52	0.00	(0.00, 100.0)	Average
	Keck Hospital of USC	11	6	0	0.00	0.88	0.00	(0.00, 100.0)	Average
Boyd, Walter D.	*Surgeon Overall*	68	60	1	1.67	1.35	2.41	(0.06, 13.41)	Average
	UC Davis Medical Center	68	60	1	1.67	1.35	2.41	(0.06, 13.41)	Average
Brandenhoff, Preben	*Surgeon Overall*	1	1	0	0.00	1.08	0.00	(0.00, 100.0)	Average
	California Pacific Medical Center – Pacific Campus	1	1	0	0.00	1.08	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Brewster, Scot A.	*Surgeon Overall*	186	101	0	0.00	1.96	0.00	(0.00, 3.64)	Average
	Scripps Memorial Hospital – La Jolla	186	101	0	0.00	1.96	0.00	(0.00, 3.64)	Average
Buehler, Donald L.	*Surgeon Overall*	204	112	2	1.79	3.28	1.06	(0.13, 3.83)	Average
	Scripps Memorial Hospital – La Jolla	204	112	2	1.79	3.28	1.06	(0.13, 3.83)	Average
Burdon, Thomas A.	*Surgeon Overall*	1	1	0	0.00	0.28	0.00	(0.00, 100.0)	Average
	Stanford University Hospital	1	1	0	0.00	0.28	0.00	(0.00, 100.0)	Average
Bushnell, Lamar J.	*Surgeon Overall*	76	62	0	0.00	2.01	0.00	(0.00, 5.76)	Average
	Community Memorial Hospital of San Buenaventura	76	62	0	0.00	2.01	0.00	(0.00, 5.76)	Average
Caffarelli, Anthony	*Surgeon Overall*	20	15	1	6.67	1.80	7.23	(0.18, 40.29)	Average
	Hoag Memorial Hospital Presbyterian	20	15	1	6.67	1.80	7.23	(0.18, 40.29)	Average
Cain, Brian S.	*Surgeon Overall*	233	187	2	1.07	1.99	1.05	(0.13, 3.79)	Average
	Alta Bates Summit Medical Center – Summit Campus	160	128	1	0.78	2.13	0.71	(0.02, 3.98)	Average
	Kaiser Foundation Hospital – San Francisco	73	59	1	1.69	1.69	1.96	(0.05, 10.92)	Average
Calhoun, Royce F.	*Surgeon Overall*	2	0	.	.	.	.		Not Applicable
	UC Davis Medical Center	2	0	.	.	.	.		Not Applicable

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Caminha, Sergio D.	*Surgeon Overall*	195	162	3	1.85	1.83	1.97	(0.41, 5.76)	Average
	Kaweah Delta Hospital	195	162	3	1.85	1.83	1.97	(0.41, 5.76)	Average
Canvasser, David A.	*Surgeon Overall*	168	138	2	1.45	1.59	1.77	(0.21, 6.40)	Average
	French Hospital Medical Center	107	84	2	2.38	1.53	3.04	(0.37, 10.98)	Average
	Marian Medical Center	61	54	0	0.00	1.70	0.00	(0.00, 7.85)	Average
Capouya, Eli R.	*Surgeon Overall*	154	126	1	0.79	2.18	0.71	(0.02, 3.95)	Average
	Glendale Adventist Medical Center – Wilson Terrace	65	53	0	0.00	1.78	0.00	(0.00, 7.64)	Average
	Good Samaritan Hospital – Los Angeles	41	34	1	2.94	2.25	2.55	(0.06, 14.20)	Average
	Huntington Memorial Hospital	13	10	0	0.00	1.83	0.00	(0.00, 39.38)	Average
	Methodist Hospital of Southern California	15	11	0	0.00	5.99	0.00	(0.00, 10.91)	Average
	Providence St. Joseph Medical Center	17	15	0	0.00	1.04	0.00	(0.00, 46.09)	Average
	St. Vincent Medical Center	3	3	0	0.00	1.43	0.00	(0.00, 100.0)	Average
Castro, Luis	*Surgeon Overall*	194	111	1	0.90	2.06	0.85	(0.02, 4.74)	Average
	California Pacific Medical Center – Pacific Campus	37	25	0	0.00	2.73	0.00	(0.00, 10.55)	Average
	Community Hospital Monterey Peninsula	5	2	0	0.00	0.49	0.00	(0.00, 100.0)	Average
	El Camino Hospital	9	6	1	16.67	3.69	8.81	(0.22, 49.09)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Castro, Luis (continued)	Peninsula Medical Center	31	20	0	0.00	1.45	0.00	(0.00, 24.81)	Average
	Sequoia Hospital	112	58	0	0.00	1.88	0.00	(0.00, 6.61)	Average
Chammas, Joseph H.	*Surgeon Overall*	95	73	0	0.00	1.23	0.00	(0.00, 7.98)	Average
	Sharp Memorial Hospital	95	73	0	0.00	1.23	0.00	(0.00, 7.98)	Average
Chaudhry, Pervaiz	*Surgeon Overall*	396	345	14	4.06	2.19	3.62	(1.98, 6.08)	**Worse**
	Community Medical Center – Fresno	227	197	8	4.06	2.15	3.68	(1.59, 7.25)	Average
	Dominican Hospital	16	15	0	0.00	1.67	0.00	(0.00, 28.68)	Average
	Fresno Heart Hospital	98	82	2	2.44	1.78	2.67	(0.32, 9.64)	Average
	St. Agnes Medical Center	55	51	4	7.84	3.11	4.92	(1.34, 12.60)	Average
Chen, Raymond H.	*Surgeon Overall*	227	213	3	1.41	1.33	2.06	(0.43, 6.03)	Average
	Kaiser Foundation Hospital – Sunset	221	207	3	1.45	1.35	2.10	(0.43, 6.13)	Average
	St. Bernardine Medical Center	6	6	0	0.00	0.81	0.00	(0.00, 100.0)	Average
Cheng, Wen	*Surgeon Overall*	30	20	2	10.00	1.57	12.39	(1.50, 44.79)	Average
	Cedars Sinai Medical Center	30	20	2	10.00	1.57	12.39	(1.50, 44.79)	Average
Cohen, Robbin G.	*Surgeon Overall*	166	128	1	0.78	2.20	0.69	(0.02, 3.86)	Average
	Huntington Memorial Hospital	135	109	1	0.92	2.29	0.78	(0.02, 4.36)	Average
	Los Angeles Co. USC Medical Center	1	1	0	0.00	2.14	0.00	(0.00, 100.0)	Average
	Keck Hospital of USC	29	17	0	0.00	1.65	0.00	(0.00, 25.71)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Cohen, Robbin G. (continued)	White Memorial Medical Center	1	1	0	0.00	1.64	0.00	(0.00, 100.0)	Average
Coletta, Joelle	*Surgeon Overall*	15	15	0	0.00	0.95	0.00	(0.00, 50.27)	Average
	Scripps Green Hospital	1	1	0	0.00	0.51	0.00	(0.00, 100.0)	Average
	UCSD Medical Center	9	9	0	0.00	1.16	0.00	(0.00, 68.87)	Average
	UCSD Medical Center –La Jolla, John M. & Sally B. Thornton Hospital	5	5	0	0.00	0.67	0.00	(0.00, 100.0)	Average
Concepcion, Noel L.	*Surgeon Overall*	401	313	4	1.28	2.29	1.09	(0.30, 2.79)	Average
	Doctors Medical Center – Modesto Campus	381	295	4	1.36	2.31	1.15	(0.31, 2.94)	Average
	Memorial Medical Center of Modesto	20	18	0	0.00	1.98	0.00	(0.00, 20.22)	Average
Copeland, Jack	*Surgeon Overall*	4	3	0	0.00	0.93	0.00	(0.00, 100.0)	Average
	UCSD Medical Center	1	0	.	.	.	.		Not Applicable
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	3	3	0	0.00	0.93	0.00	(0.00, 100.0)	Average
Cunningham, Mark J.	*Surgeon Overall*	114	66	2	3.03	2.10	2.81	(0.34, 10.17)	Average
	Huntington Memorial Hospital	9	8	0	0.00	1.80	0.00	(0.00, 49.83)	Average
	Los Angeles Co. USC Medical Center	13	8	0	0.00	0.62	0.00	(0.00, 100.0)	Average
	Keck Hospital of USC	91	49	2	4.08	2.38	3.34	(0.41, 12.09)	Average
	White Memorial Medical Center	1	1	0	0.00	2.64	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Daniel, Subashini	*Surgeon Overall*	66	57	2	3.51	1.55	4.42	(0.54, 15.97)	Average
	Community Medical Center – Fresno	39	31	1	3.23	1.72	3.65	(0.09, 20.32)	Average
	Fresno Heart Hospital	11	11	0	0.00	1.96	0.00	(0.00, 33.33)	Average
	St. Agnes Medical Center	7	7	0	0.00	0.54	0.00	(0.00, 100.0)	Average
	UCSF Medical Center	9	8	1	12.50	1.18	20.70	(0.52, 100.0)	Average
Danielson, Daren S.	*Surgeon Overall*	73	59	3	5.08	1.39	7.11	(1.47, 20.78)	Average
	UC Davis Medical Center	73	59	3	5.08	1.39	7.11	(1.47, 20.78)	Average
Darbinian, Sevak H.	*Surgeon Overall*	237	182	2	1.10	1.31	1.63	(0.20, 5.90)	Average
	Mission Hospital Regional Medical Center	223	172	2	1.16	1.29	1.76	(0.21, 6.36)	Average
	Saddleback Memorial Medical Center	14	10	0	0.00	1.72	0.00	(0.00, 41.71)	Average
Davtyan, Hakob G.	*Surgeon Overall*	291	245	1	0.41	1.75	0.45	(0.01, 2.53)	Average
	Riverside Community Hospital	44	30	0	0.00	1.42	0.00	(0.00, 16.85)	Average
	St. Bernardine Medical Center	165	144	1	0.69	1.68	0.80	(0.02, 4.48)	Average
	St. Mary Regional Medical Center	82	71	0	0.00	2.03	0.00	(0.00, 5.00)	Average
Declusin, Richard J.	*Surgeon Overall*	152	115	2	1.74	2.17	1.56	(0.19, 5.65)	Average
	Community Memorial Hospital of San Buenaventura	6	5	0	0.00	1.55	0.00	(0.00, 93.02)	Average
	Los Robles Regional Medical Center	37	30	1	3.33	1.98	3.28	(0.08, 18.27)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Declusin, Richard J. (continued)	St. John's Regional Medical Center	109	80	1	1.25	2.28	1.07	(0.03, 5.96)	Average
Deeik, Ramzi K.	*Surgeon Overall*	148	108	1	0.93	2.39	0.76	(0.02, 4.21)	Average
	North Bay Medical Center	29	29	1	3.45	1.16	5.82	(0.15, 32.43)	Average
	Queen of the Valley Hospital – Napa	62	38	0	0.00	2.77	0.00	(0.00, 6.83)	Average
	Santa Rosa Memorial Hospital – Montgomery	57	41	0	0.00	2.91	0.00	(0.00, 6.04)	Average
Defilippi, Vincent J.	*Surgeon Overall*	163	122	0	0.00	1.90	0.00	(0.00, 3.10)	Average
	Salinas Valley Memorial Hospital	163	122	0	0.00	1.90	0.00	(0.00, 3.10)	Average
Dein, John R.	*Surgeon Overall*	283	173	1	0.58	1.36	0.83	(0.02, 4.61)	Average
	Mercy General Hospital	268	165	1	0.61	1.37	0.86	(0.02, 4.80)	Average
	Mercy San Juan Hospital	15	8	0	0.00	1.16	0.00	(0.00, 77.19)	Average
Del Campo, Carlos	*Surgeon Overall*	111	82	1	1.22	1.81	1.32	(0.03, 7.33)	Average
	St. Jude Medical Center	111	82	1	1.22	1.81	1.32	(0.03, 7.33)	Average
Delrio, Michael J.	*Surgeon Overall*	136	99	0	0.00	2.33	0.00	(0.00, 3.12)	Average
	Riverside Community Hospital	136	99	0	0.00	2.33	0.00	(0.00, 3.12)	Average
Dembitsky, Walter P.	*Surgeon Overall*	103	43	0	0.00	0.99	0.00	(0.00, 16.94)	Average
	Sharp Memorial Hospital	103	43	0	0.00	0.99	0.00	(0.00, 16.94)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Derenoncourt, Frantz J.	*Surgeon Overall*	19	17	0	0.00	1.92	0.00	(0.00, 22.08)	Average
	Alvarado Hospital Medical Center	9	8	0	0.00	2.24	0.00	(0.00, 40.17)	Average
	Scripps Mercy Hospital	2	2	0	0.00	1.83	0.00	(0.00, 100.0)	Average
	Sharp Chula Vista Medical Center	8	7	0	0.00	1.57	0.00	(0.00, 65.38)	Average
Derrick, Marvin J.	*Surgeon Overall*	16	14	0	0.00	0.86	0.00	(0.00, 60.02)	Average
	Bakersfield Heart Hospital	1	1	0	0.00	0.83	0.00	(0.00, 100.0)	Average
	Bakersfield Memorial Hospital	11	10	0	0.00	0.92	0.00	(0.00, 78.04)	Average
	San Joaquin Community Hospital	4	3	0	0.00	0.65	0.00	(0.00, 100.0)	Average
Dhar, Naveen	*Surgeon Overall*	54	50	2	4.00	3.48	2.24	(0.27, 8.10)	Average
	AHMC Anaheim Regional Medical Center	4	4	0	0.00	2.45	0.00	(0.00, 73.34)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	29	27	1	3.70	4.85	1.49	(0.04, 8.30)	Average
	West Anaheim Medical Center	6	5	0	0.00	2.56	0.00	(0.00, 56.16)	Average
	Western Medical Center – Santa Ana	8	8	1	12.50	1.61	15.11	(0.38, 84.23)	Average
	Western Medical Center Hospital – Anaheim	7	6	0	0.00	1.23	0.00	(0.00, 97.69)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Dharan, Murali	*Surgeon Overall*	180	129	5	3.88	1.99	3.80	(1.23, 8.87)	Average
	John Muir Medical Center – Concord Campus	97	68	3	4.41	2.05	4.20	(0.87, 12.29)	Average
	San Ramon Regional Medical Center	50	34	0	0.00	1.05	0.00	(0.00, 20.17)	Average
	Valleycare Medical Center	33	27	2	7.41	3.02	4.77	(0.58, 17.25)	Average
Dhawan, Puneet	*Surgeon Overall*	141	102	0	0.00	1.47	0.00	(0.00, 4.80)	Average
	Desert Regional Medical Center	2	1	0	0.00	3.11	0.00	(0.00, 100.0)	Average
	Los Angeles Co. Harbor – UCLA Medical Center	90	65	0	0.00	1.47	0.00	(0.00, 7.52)	Average
	St. Jude Medical Center	49	36	0	0.00	1.42	0.00	(0.00, 14.11)	Average
Dhillon, Jatinder	*Surgeon Overall*	142	117	1	0.85	1.50	1.11	(0.03, 6.17)	Average
	John Muir Medical Center – Concord Campus	112	88	1	1.14	1.69	1.31	(0.03, 7.32)	Average
	Kaiser Foundation Hospital – San Francisco	18	17	0	0.00	0.97	0.00	(0.00, 43.41)	Average
	San Ramon Regional Medical Center	5	5	0	0.00	0.69	0.00	(0.00, 100.0)	Average
	Valleycare Medical Center	7	7	0	0.00	1.09	0.00	(0.00, 94.47)	Average
Dunnington, Gansevoort	*Surgeon Overall*	8	4	0	0.00	2.08	0.00	(0.00, 86.38)	Average
	El Camino Hospital	8	4	0	0.00	2.08	0.00	(0.00, 86.38)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Durzinsky, Dennis S.	*Surgeon Overall*	82	65	0	0.00	1.31	0.00	(0.00, 8.47)	Average
	Alta Bates Summit Medical Center – Summit Campus	57	43	0	0.00	1.48	0.00	(0.00, 11.29)	Average
	Kaiser Foundation Hospital – San Francisco	25	22	0	0.00	0.97	0.00	(0.00, 33.83)	Average
Edwards, Phyllis A.	*Surgeon Overall*	108	96	5	5.21	2.38	4.27	(1.39, 9.97)	Average
	Kaweah Delta Hospital	108	96	5	5.21	2.38	4.27	(1.39, 9.97)	Average
Egrie, Glenn D.	*Surgeon Overall*	71	64	0	0.00	1.80	0.00	(0.00, 6.23)	Average
	California Pacific Medical Center – Pacific Campus	71	64	0	0.00	1.80	0.00	(0.00, 6.23)	Average
Ehrman, Walter J.	*Surgeon Overall*	29	24	1	4.17	1.93	4.20	(0.11, 23.40)	Average
	Desert Regional Medical Center	29	24	1	4.17	1.93	4.20	(0.11, 23.40)	Average
Ellis, Robert J.	*Surgeon Overall*	68	58	1	1.72	1.09	3.09	(0.08, 17.20)	Average
	Marin General Hospital	57	48	1	2.08	1.11	3.65	(0.09, 20.33)	Average
	St. Mary's Medical Center, San Francisco	11	10	0	0.00	0.97	0.00	(0.00, 73.98)	Average
Esmailian, Fardad	*Surgeon Overall*	87	55	1	1.82	1.56	2.28	(0.06, 12.69)	Average
	Cedars Sinai Medical Center	14	10	0	0.00	1.81	0.00	(0.00, 39.72)	Average
	Ronald Reagan UCLA Medical Center	72	44	1	2.27	1.51	2.94	(0.07, 16.39)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Esmailian, Fardad (continued)	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	1	0	0.00	1.23	0.00	(0.00, 100.0)	Average
Estioko, Manuel	*Surgeon Overall*	40	26	0	0.00	1.23	0.00	(0.00, 22.54)	Average
	St. John's Hospital and Health Center	28	18	0	0.00	1.27	0.00	(0.00, 31.53)	Average
	Torrance Memorial Medical Center	12	8	0	0.00	1.14	0.00	(0.00, 79.01)	Average
Faber, Luke A.	*Surgeon Overall*	107	80	1	1.25	2.09	1.16	(0.03, 6.49)	Average
	French Hospital Medical Center	78	54	1	1.85	2.33	1.55	(0.04, 8.63)	Average
	Marian Medical Center	29	26	0	0.00	1.60	0.00	(0.00, 17.32)	Average
Faraci, Philip A.	*Surgeon Overall*	127	104	2	1.92	2.07	1.81	(0.22, 6.55)	Average
	Enloe Medical Center – Esplanade Campus	2	1	0	0.00	1.71	0.00	(0.00, 100.0)	Average
	Lakewood Regional Medical Center	29	22	1	4.55	2.75	3.22	(0.08, 17.95)	Average
	Long Beach Memorial Medical Center	81	66	1	1.52	1.91	1.55	(0.04, 8.62)	Average
	Orange Coast Memorial Medical Center	10	10	0	0.00	1.71	0.00	(0.00, 42.17)	Average
	Shasta Regional Medical Center	5	5	0	0.00	1.96	0.00	(0.00, 73.42)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Fee, Henry J.	*Surgeon Overall*	84	70	2	2.86	3.06	1.82	(0.22, 6.59)	Average
	Good Samaritan Hospital – San Jose	37	29	0	0.00	4.16	0.00	(0.00, 5.96)	Average
	O'Connor Hospital – San Jose	20	17	1	5.88	1.99	5.76	(0.15, 32.12)	Average
	Regional Medical of San Jose	27	24	1	4.17	2.48	3.28	(0.08, 18.28)	Average
Felahy, Isam	*Surgeon Overall*	113	101	5	4.95	1.94	4.97	(1.61, 11.60)	Average
	Dameron Hospital	18	18	1	5.56	1.80	6.02	(0.15, 33.57)	Average
	St. Joseph's Medical Center of Stockton	95	83	4	4.82	1.97	4.76	(1.30, 12.19)	Average
Fischbein, Michael P.	*Surgeon Overall*	67	43	0	0.00	1.52	0.00	(0.00, 10.99)	Average
	Stanford University Hospital	67	43	0	0.00	1.52	0.00	(0.00, 10.99)	Average
Flores, Mona G.	*Surgeon Overall*	2	2	0	0.00	0.31	0.00	(0.00, 100.0)	Average
	UC Davis Medical Center	2	2	0	0.00	0.31	0.00	(0.00, 100.0)	Average
Floridia, Rosario	*Surgeon Overall*	160	125	1	0.80	1.43	1.09	(0.03, 6.08)	Average
	Loma Linda University Medical Center	104	80	1	1.25	1.41	1.73	(0.04, 9.63)	Average
	San Antonio Community Hospital	56	45	0	0.00	1.46	0.00	(0.00, 10.93)	Average
Folkerth, Theodore	*Surgeon Overall*	169	140	2	1.43	1.99	1.40	(0.17, 5.05)	Average
	Tri-City Medical Center	169	140	2	1.43	1.99	1.40	(0.17, 5.05)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Fontana, Gregory P.	*Surgeon Overall*	48	30	0	0.00	1.27	0.00	(0.00, 18.86)	Average
	Cedars Sinai Medical Center	48	30	0	0.00	1.27	0.00	(0.00, 18.86)	Average
Freyaldenhoven, Stephen J.	*Surgeon Overall*	139	114	6	5.26	1.83	5.60	(2.06, 12.20)	**Worse**
	French Hospital Medical Center	77	60	5	8.33	1.99	8.15	(2.65, 19.02)	**Worse**
	Marian Medical Center	62	54	1	1.85	1.65	2.19	(0.06, 12.19)	Average
Fung, Lit K.	*Surgeon Overall*	373	302	4	1.32	1.96	1.32	(0.36, 3.37)	Average
	Doctors Medical Center – Modesto Campus	8	5	0	0.00	2.67	0.00	(0.00, 53.96)	Average
	Memorial Medical Center of Modesto	365	297	4	1.35	1.95	1.35	(0.37, 3.45)	Average
Gates, Richard N.	*Surgeon Overall*	104	89	0	0.00	1.56	0.00	(0.00, 5.18)	Average
	Mission Hospital Regional Medical Center	2	1	0	0.00	0.99	0.00	(0.00, 100.0)	Average
	Saddleback Memorial Medical Center	2	0	.	.	.	.		Not Applicable
	St. Joseph Hospital – Orange	100	88	0	0.00	1.57	0.00	(0.00, 5.22)	Average
Gaudiani, Vincent A.	*Surgeon Overall*	116	40	2	5.00	1.13	8.59	(1.04, 31.06)	Average
	California Pacific Medical Center – Pacific Campus	44	16	0	0.00	1.01	0.00	(0.00, 44.33)	Average
	Community Hospital Monterey Peninsula	24	5	0	0.00	0.94	0.00	(0.00, 100.0)	Average
	El Camino Hospital	1	1	0	0.00	2.07	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Gaudiani, Vincent A. (continued)	Sequoia Hospital	47	18	2	11.11	1.24	17.42	(2.11, 62.96)	**Worse**
Ghaly, Aziz	*Surgeon Overall*	27	22	2	9.09	1.77	9.99	(1.21, 36.10)	Average
	Loma Linda University Medical Center	27	22	2	9.09	1.77	9.99	(1.21, 36.10)	Average
Gharavi, Mohammad A.	*Surgeon Overall*	259	192	10	5.21	2.57	3.95	(1.89, 7.26)	Average
	Los Robles Regional Medical Center	62	44	1	2.27	2.54	1.74	(0.04, 9.71)	Average
	Providence Tarzana Regional Medical Center – Tarzana	128	89	3	3.37	2.27	2.90	(0.60, 8.48)	Average
	West Hills Regional Medical Center	69	59	6	10.17	3.06	6.48	(2.38, 14.12)	**Worse**
Gheissari, Ali	*Surgeon Overall*	194	147	3	2.04	2.43	1.64	(0.34, 4.79)	Average
	Glendale Adventist Medical Center – Wilson Terrace	10	8	0	0.00	1.22	0.00	(0.00, 73.48)	Average
	Good Samaritan Hospital – Los Angeles	157	121	3	2.48	2.43	1.99	(0.41, 5.82)	Average
	Providence St. Joseph Medical Center	11	6	0	0.00	1.59	0.00	(0.00, 75.24)	Average
	St. Vincent Medical Center	16	12	0	0.00	3.62	0.00	(0.00, 16.54)	Average
Gibson, Christopher F.	*Surgeon Overall*	300	255	3	1.18	1.51	1.52	(0.31, 4.44)	Average
	Riverside Community Hospital	38	33	0	0.00	1.69	0.00	(0.00, 12.86)	Average
	St. Bernardine Medical Center	161	131	1	0.76	1.45	1.03	(0.03, 5.72)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Gibson, Christopher F. (continued)	St. Mary Regional Medical Center	101	91	2	2.20	1.53	2.80	(0.34, 10.14)	Average
Giritsky, Alexander S.	*Surgeon Overall*	177	132	1	0.76	2.02	0.73	(0.02, 4.08)	Average
	Scripps Memorial Hospital – La Jolla	177	132	1	0.76	2.02	0.73	(0.02, 4.08)	Average
Golts, Eugene	*Surgeon Overall*	80	71	1	1.41	2.11	1.30	(0.03, 7.25)	Average
	UCSD Medical Center	23	22	1	4.55	3.84	2.30	(0.06, 12.85)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	57	49	0	0.00	1.33	0.00	(0.00, 11.01)	Average
Gordon, Robert T.	*Surgeon Overall*	182	122	3	2.46	1.78	2.70	(0.56, 7.89)	Average
	Kaiser Foundation Hospital – Santa Clara	182	122	3	2.46	1.78	2.70	(0.56, 7.89)	Average
Gottner, Robert J.	*Surgeon Overall*	143	117	4	3.42	2.20	3.03	(0.83, 7.75)	Average
	Glendale Adventist Medical Center – Wilson Terrace	10	8	0	0.00	1.84	0.00	(0.00, 48.94)	Average
	Good Samaritan Hospital – Los Angeles	24	21	1	4.76	1.70	5.45	(0.14, 30.36)	Average
	Huntington Memorial Hospital	1	1	0	0.00	1.04	0.00	(0.00, 100.0)	Average
	Methodist Hospital of Southern California	58	49	3	6.12	2.68	4.45	(0.92, 13.01)	Average
	Providence St. Joseph Medical Center	49	37	0	0.00	1.98	0.00	(0.00, 9.83)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Gottner, Robert J. (continued)	St. Vincent Medical Center	1	1	0	0.00	1.47	0.00	(0.00, 100.0)	Average
Gregory, Richard	*Surgeon Overall*	234	194	4	2.06	2.23	1.80	(0.49, 4.62)	Average
	Community Medical Center – Fresno	8	7	0	0.00	1.23	0.00	(0.00, 83.24)	Average
	Fresno Heart Hospital	116	93	3	3.23	1.62	3.89	(0.80, 11.36)	Average
	St. Agnes Medical Center	110	94	1	1.06	2.91	0.71	(0.02, 3.97)	Average
Griffith, Patrick K.	*Surgeon Overall*	159	130	4	3.08	1.87	3.21	(0.87, 8.22)	Average
	Rideout Memorial Hospital	159	130	4	3.08	1.87	3.21	(0.87, 8.22)	Average
Gulati, Rajeev	*Surgeon Overall*	137	120	1	0.83	2.36	0.69	(0.02, 3.84)	Average
	Pomona Valley Hospital Medical Center	127	110	1	0.91	2.31	0.77	(0.02, 4.28)	Average
	San Antonio Community Hospital	10	10	0	0.00	2.91	0.00	(0.00, 24.69)	Average
Gundry, Steven R.	*Surgeon Overall*	49	31	0	0.00	2.10	0.00	(0.00, 11.04)	Average
	Desert Regional Medical Center	49	31	0	0.00	2.10	0.00	(0.00, 11.04)	Average
Gunupati, Venkata	*Surgeon Overall*	1	1	0	0.00	0.13	0.00	(0.00, 100.0)	Average
	Citrus Valley Medical Center – IC Campus	1	1	0	0.00	0.13	0.00	(0.00, 100.0)	Average
Habibipour, Saied	*Surgeon Overall*	222	186	4	2.15	1.44	2.92	(0.79, 7.47)	Average
	Desert Regional Medical Center	222	186	4	2.15	1.44	2.92	(0.79, 7.47)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Hall, James D.	*Surgeon Overall*	114	86	1	1.16	2.16	1.05	(0.03, 5.85)	Average
	Providence Little Company of Mary Medical Center	77	60	1	1.67	2.04	1.59	(0.04, 8.87)	Average
	Torrance Memorial Medical Center	37	26	0	0.00	2.43	0.00	(0.00, 11.39)	Average
Harmon, Adam L.	*Surgeon Overall*	29	27	1	3.70	2.67	2.70	(0.07, 15.05)	Average
	California Pacific Medical Center – Pacific Campus	4	4	0	0.00	3.34	0.00	(0.00, 53.80)	Average
	Peninsula Medical Center	6	6	0	0.00	1.31	0.00	(0.00, 91.39)	Average
	Sequoia Hospital	19	17	1	5.88	3.00	3.83	(0.10, 21.33)	Average
Harper, Baron	*Surgeon Overall*	147	118	5	4.24	1.63	5.07	(1.65, 11.84)	Average
	Rideout Memorial Hospital	147	118	5	4.24	1.63	5.07	(1.65, 11.84)	Average
Hasaniya, Nahidh W.	*Surgeon Overall*	56	50	0	0.00	1.42	0.00	(0.00, 10.16)	Average
	Loma Linda University Medical Center	54	49	0	0.00	1.43	0.00	(0.00, 10.26)	Average
	Riverside Community Hospital	2	1	0	0.00	0.68	0.00	(0.00, 100.0)	Average
Hemp, James	*Surgeon Overall*	186	136	1	0.74	1.58	0.91	(0.02, 5.05)	Average
	Scripps Green Hospital	40	25	0	0.00	2.18	0.00	(0.00, 13.22)	Average
	Scripps Mercy Hospital	146	111	1	0.90	1.45	1.21	(0.03, 6.77)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Hill, Arthur C.	*Surgeon Overall*	59	51	0	0.00	0.57	0.00	(0.00, 24.79)	Average
	UCSF Medical Center	59	51	0	0.00	0.57	0.00	(0.00, 24.79)	Average
Hom, Sophia S.	*Surgeon Overall*	71	55	0	0.00	1.77	0.00	(0.00, 7.39)	Average
	Garfield Medical Center	71	55	0	0.00	1.77	0.00	(0.00, 7.39)	Average
Hood, James S.	*Surgeon Overall*	114	86	0	0.00	1.23	0.00	(0.00, 6.80)	Average
	Kaiser Foundation Hospital – San Francisco	114	86	0	0.00	1.23	0.00	(0.00, 6.80)	Average
Hoopes, Charles W.	*Surgeon Overall*	8	4	0	0.00	5.89	0.00	(0.00, 30.54)	Average
	UCSF Medical Center	8	4	0	0.00	5.89	0.00	(0.00, 30.54)	Average
Howden, Frederick M.	*Surgeon Overall*	112	88	3	3.41	2.00	3.32	(0.68, 9.70)	Average
	Alvarado Hospital Medical Center	95	75	2	2.67	1.89	2.75	(0.33, 9.92)	Average
	Grossmont Hospital	17	13	1	7.69	2.64	5.67	(0.14, 31.63)	Average
Huang, Mark W.	*Surgeon Overall*	98	83	2	2.41	2.35	2.00	(0.24, 7.23)	Average
	Alvarado Hospital Medical Center	1	1	0	0.00	0.41	0.00	(0.00, 100.0)	Average
	Sharp Chula Vista Medical Center	95	80	2	2.50	2.41	2.03	(0.25, 7.32)	Average
	Grossmont Hospital	2	2	0	0.00	1.05	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Huang, Ming-Lu	*Surgeon Overall*	280	227	7	3.08	1.94	3.10	(1.25, 6.40)	Average
	Beverly Hospital	21	18	0	0.00	1.24	0.00	(0.00, 32.30)	Average
	Citrus Valley Medical Center – IC Campus	136	110	1	0.91	1.61	1.10	(0.03, 6.13)	Average
	Garfield Medical Center	111	88	5	5.68	1.98	5.58	(1.81, 13.04)	Average
	Methodist Hospital of Southern California	12	11	1	9.09	5.96	2.97	(0.08, 16.58)	Average
Hunter, Curtis T.	*Surgeon Overall*	59	42	2	4.76	5.07	1.83	(0.22, 6.62)	Average
	Ronald Reagan UCLA Medical Center	26	15	0	0.00	7.62	0.00	(0.00, 6.29)	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	21	20	1	5.00	2.90	3.36	(0.09, 18.73)	Average
	St. John's Hospital and Health Center	12	7	1	14.29	5.81	4.80	(0.12, 26.74)	Average
Hurwitz, Andrew S.	*Surgeon Overall*	158	113	4	3.54	3.11	2.22	(0.61, 5.69)	Average
	Glendale Adventist Medical Center – Wilson Terrace	18	16	1	6.25	1.73	7.04	(0.18, 39.24)	Average
	Glendale Memorial Hospital and Health Center	140	97	3	3.09	3.33	1.81	(0.37, 5.29)	Average
Ihnken, Kai A.	*Surgeon Overall*	86	77	2	2.60	0.99	5.11	(0.62, 18.46)	Average
	El Camino Hospital	1	0	.	.	.	.		Not Applicable

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Ihnken, Kai A. (continued)	Santa Clara Valley Medical Center	77	71	2	2.82	0.96	5.71	(0.69, 20.64)	Average
	Stanford University Hospital	8	6	0	0.00	1.34	0.00	(0.00, 89.46)	Average
Ingram, Michael T.	*Surgeon Overall*	300	203	3	1.48	2.04	1.41	(0.29, 4.12)	Average
	Sutter Memorial Hospital	300	203	3	1.48	2.04	1.41	(0.29, 4.12)	Average
Iyengar, Sridhara K.	*Surgeon Overall*	54	48	1	2.08	3.10	1.31	(0.03, 7.29)	Average
	AHMC Anaheim Regional Medical Center	1	1	0	0.00	1.41	0.00	(0.00, 100.0)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	50	44	1	2.27	3.31	1.34	(0.03, 7.45)	Average
	Saddleback Memorial Medical Center	3	3	0	0.00	0.61	0.00	(0.00, 100.0)	Average
Jacobson, John	*Surgeon Overall*	71	57	0	0.00	2.62	0.00	(0.00, 4.82)	Average
	St. Helena Hospital	71	57	0	0.00	2.62	0.00	(0.00, 4.82)	Average
Jain, Sarika	*Surgeon Overall*	103	88	0	0.00	2.19	0.00	(0.00, 3.73)	Average
	Pomona Valley Hospital Medical Center	99	84	0	0.00	2.23	0.00	(0.00, 3.83)	Average
	San Antonio Community Hospital	4	4	0	0.00	1.25	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Jamieson, Stuart	*Surgeon Overall*	19	2	0	0.00	0.13	0.00	(0.00, 100.0)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	19	2	0	0.00	0.13	0.00	(0.00, 100.0)	Average
Jones, Blanding U.	*Surgeon Overall*	281	273	3	1.10	1.48	1.45	(0.30, 4.25)	Average
	Kaiser Foundation Hospital – Sunset	205	200	3	1.50	1.64	1.78	(0.37, 5.22)	Average
	St. Bernardine Medical Center	76	73	0	0.00	1.03	0.00	(0.00, 9.58)	Average
Joyo, Colin I.	*Surgeon Overall*	145	119	3	2.52	1.82	2.70	(0.56, 7.90)	Average
	Hoag Memorial Hospital Presbyterian	145	119	3	2.52	1.82	2.70	(0.56, 7.90)	Average
Kajitani, Michio	*Surgeon Overall*	37	30	4	13.33	5.12	5.09	(1.38, 13.01)	Average
	Alvarado Hospital Medical Center	1	1	0	0.00	2.51	0.00	(0.00, 100.0)	Average
	Sharp Chula Vista Medical Center	28	21	2	9.52	5.09	3.65	(0.44, 13.17)	Average
	Grossmont Hospital	8	8	2	25.00	5.50	8.87	(1.07, 32.00)	Average
Kamlot, Andreas	*Surgeon Overall*	177	152	2	1.32	1.48	1.73	(0.21, 6.25)	Average
	John Muir Medical Center – Concord Campus	177	152	2	1.32	1.48	1.73	(0.21, 6.25)	Average
Kaplon, Richard J.	*Surgeon Overall*	323	207	2	0.97	1.89	1.00	(0.12, 3.60)	Average
	Mercy General Hospital	315	200	2	1.00	1.83	1.07	(0.13, 3.85)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Kaplon, Richard J. (continued)	Mercy San Juan Hospital	8	7	0	0.00	3.71	0.00	(0.00, 27.66)	Average
Kass, Robert M.	*Surgeon Overall*	78	53	1	1.89	1.27	2.89	(0.07, 16.13)	Average
	Cedars Sinai Medical Center	78	53	1	1.89	1.27	2.89	(0.07, 16.13)	Average
Khan, Junaid H.	*Surgeon Overall*	233	179	0	0.00	1.74	0.00	(0.00, 2.31)	Average
	Alta Bates Summit Medical Center – Summit Campus	231	177	0	0.00	1.71	0.00	(0.00, 2.37)	Average
	Washington Hospital – Fremont	2	2	0	0.00	3.92	0.00	(0.00, 91.74)	Average
Khan, Tanveer	*Surgeon Overall*	76	73	1	1.37	1.92	1.39	(0.04, 7.75)	Average
	John Muir Medical Center – Concord Campus	66	63	1	1.59	2.05	1.51	(0.04, 8.40)	Average
	San Ramon Regional Medical Center	7	7	0	0.00	1.16	0.00	(0.00, 88.86)	Average
	Valleycare Medical Center	3	3	0	0.00	0.91	0.00	(0.00, 100.0)	Average
Khoynezhad, Ali	*Surgeon Overall*	11	10	0	0.00	4.24	0.00	(0.00, 16.97)	Average
	Cedars Sinai Medical Center	11	10	0	0.00	4.24	0.00	(0.00, 16.97)	Average
Khwaja, Shamsuddin	*Surgeon Overall*	332	271	8	2.95	2.09	2.75	(1.19, 5.43)	Average
	Community Medical Center – Fresno	187	154	4	2.60	2.15	2.36	(0.64, 6.04)	Average
	Fresno Heart Hospital	105	82	1	1.22	1.91	1.24	(0.03, 6.93)	Average
	St. Agnes Medical Center	40	35	3	8.57	2.26	7.40	(1.53, 21.63)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Kincade, Robert C.	*Surgeon Overall*	356	257	1	0.39	1.57	0.48	(0.01, 2.70)	Average
	Sutter Memorial Hospital	356	257	1	0.39	1.57	0.48	(0.01, 2.70)	Average
Klingman, Robert R.	*Surgeon Overall*	192	155	3	1.94	2.83	1.33	(0.27, 3.89)	Average
	North Bay Medical Center	19	18	1	5.56	1.33	8.16	(0.21, 45.49)	Average
	Queen of the Valley Hospital – Napa	153	118	2	1.69	2.70	1.22	(0.15, 4.42)	Average
	Santa Rosa Memorial Hospital – Montgomery	20	19	0	0.00	5.07	0.00	(0.00, 7.46)	Average
Kochamba, Gary S.	*Surgeon Overall*	169	93	0	0.00	2.48	0.00	(0.00, 3.12)	Average
	Kaiser Foundation Hospital – Sunset	168	93	0	0.00	2.48	0.00	(0.00, 3.12)	Average
	St. Bernardine Medical Center	1	0	.	.	.	.		Not Applicable
Korver, Keith F.	*Surgeon Overall*	273	191	2	1.05	1.32	1.54	(0.19, 5.58)	Average
	California Pacific Medical Center – Pacific Campus	1	1	0	0.00	0.17	0.00	(0.00, 100.0)	Average
	Marin General Hospital	54	39	0	0.00	1.29	0.00	(0.00, 14.29)	Average
	Santa Rosa Memorial Hospital – Montgomery	59	46	0	0.00	1.40	0.00	(0.00, 11.17)	Average
	Sutter Medical Center of Santa Rosa	159	105	2	1.90	1.31	2.83	(0.34, 10.24)	Average
Koumjian, Michael P.	*Surgeon Overall*	178	144	5	3.47	1.84	3.68	(1.20, 8.60)	Average
	Alvarado Hospital Medical Center	7	7	0	0.00	0.60	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Koumjian, Michael P. (continued)	Scripps Mercy Hospital	30	19	2	10.53	1.85	11.07	(1.34, 40.00)	Average
	Sharp Chula Vista Medical Center	33	28	1	3.57	2.31	3.02	(0.08, 16.83)	Average
	Grossmont Hospital	108	90	2	2.22	1.78	2.43	(0.29, 8.78)	Average
Kwon, Murray H.	*Surgeon Overall*	34	23	1	4.35	3.58	2.37	(0.06, 13.21)	Average
	Ronald Reagan UCLA Medical Center	34	23	1	4.35	3.58	2.37	(0.06, 13.21)	Average
Labourene, Jay I.	*Surgeon Overall*	30	26	0	0.00	1.54	0.00	(0.00, 17.98)	Average
	Kaiser Foundation Hospital – San Francisco	30	26	0	0.00	1.54	0.00	(0.00, 17.98)	Average
Laks, Hillel	*Surgeon Overall*	53	9	0	0.00	1.44	0.00	(0.00, 55.66)	Average
	Ronald Reagan UCLA Medical Center	53	9	0	0.00	1.44	0.00	(0.00, 55.66)	Average
Lam, Tuan T.	*Surgeon Overall*	138	127	1	0.79	1.88	0.82	(0.02, 4.55)	Average
	Beverly Hospital	10	9	0	0.00	1.32	0.00	(0.00, 60.74)	Average
	Citrus Valley Medical Center – IC Campus	54	49	0	0.00	2.14	0.00	(0.00, 6.84)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	43	42	0	0.00	1.55	0.00	(0.00, 11.06)	Average
	Garfield Medical Center	30	26	1	3.85	2.17	3.45	(0.09, 19.22)	Average
	Long Beach Memorial Medical Center	1	1	0	0.00	0.34	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Lapunzina, Paul M.	*Surgeon Overall*	142	102	0	0.00	1.22	0.00	(0.00, 5.79)	Average
	Kaiser Foundation Hospital – San Francisco	142	102	0	0.00	1.22	0.00	(0.00, 5.79)	Average
Lee, Anthony W.	*Surgeon Overall*	124	119	0	0.00	0.98	0.00	(0.00, 6.14)	Average
	Downey Regional Medical Center	40	39	0	0.00	0.84	0.00	(0.00, 21.96)	Average
	St. Francis Medical Center	84	80	0	0.00	1.05	0.00	(0.00, 8.53)	Average
Lee, Hon S.	*Surgeon Overall*	121	67	2	2.99	2.02	2.88	(0.35, 10.42)	Average
	Kaiser Foundation Hospital – Santa Clara	121	67	2	2.99	2.02	2.88	(0.35, 10.42)	Average
Lee, Kenneth	*Surgeon Overall*	82	79	4	5.06	2.21	4.46	(1.22, 11.42)	Average
	O'Connor Hospital – San Jose	33	31	0	0.00	2.20	0.00	(0.00, 10.53)	Average
	Regional Medical of San Jose	4	4	0	0.00	3.68	0.00	(0.00, 48.84)	Average
	Washington Hospital – Fremont	45	44	4	9.09	2.09	8.49	(2.31, 21.74)	**Worse**
Lee, Sang H.	*Surgeon Overall*	241	213	1	0.47	2.52	0.36	(0.01, 2.02)	Average
	Doctors Medical Center – Modesto Campus	22	21	1	4.76	2.48	3.75	(0.09, 20.90)	Average
	O'Connor Hospital – San Jose	72	63	0	0.00	3.61	0.00	(0.00, 3.17)	Average
	Regional Medical of San Jose	18	18	0	0.00	2.57	0.00	(0.00, 15.52)	Average
	Washington Hospital – Fremont	129	111	0	0.00	1.91	0.00	(0.00, 3.39)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Lee, Vincent	*Surgeon Overall*	1	1	0	0.00	2.68	0.00	(0.00, 100.0)	Average
	Centinela Hospital Medical Center	1	1	0	0.00	2.68	0.00	(0.00, 100.0)	Average
Lemire, Guy G.	*Surgeon Overall*	12	12	0	0.00	1.09	0.00	(0.00, 55.16)	Average
	Enloe Medical Center – Esplanade Campus	12	12	0	0.00	1.09	0.00	(0.00, 55.16)	Average
Lemoine, Philippe H.	*Surgeon Overall*	28	25	0	0.00	2.42	0.00	(0.00, 11.88)	Average
	Centinela Hospital Medical Center	15	14	0	0.00	2.85	0.00	(0.00, 18.04)	Average
	Providence Little Company of Mary Medical Center	11	10	0	0.00	1.95	0.00	(0.00, 36.80)	Average
	St. Vincent Medical Center	2	1	0	0.00	1.15	0.00	(0.00, 100.0)	Average
Lin, Yuan H.	*Surgeon Overall*	289	255	12	4.71	2.67	3.44	(1.78, 6.01)	Average
	Alvarado Hospital Medical Center	31	26	2	7.69	2.72	5.51	(0.67, 19.91)	Average
	Sharp Chula Vista Medical Center	77	68	4	5.88	2.98	3.85	(1.05, 9.86)	Average
	Grossmont Hospital	181	161	6	3.73	2.53	2.88	(1.06, 6.26)	Average
Longoria, James	*Surgeon Overall*	317	210	4	1.90	2.20	1.69	(0.46, 4.32)	Average
	Sutter Memorial Hospital	317	210	4	1.90	2.20	1.69	(0.46, 4.32)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
MacMillan, James C.	*Surgeon Overall*	197	163	5	3.07	2.37	2.52	(0.82, 5.89)	Average
	Doctors Medical Center – Modesto Campus	189	155	4	2.58	2.35	2.14	(0.58, 5.47)	Average
	Memorial Medical Center of Modesto	8	8	1	12.50	2.68	9.08	(0.23, 50.60)	Average
Madani, Michael	*Surgeon Overall*	80	39	0	0.00	1.10	0.00	(0.00, 16.80)	Average
	UCSD Medical Center	2	0	.	.	.	.		Not Applicable
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	78	39	0	0.00	1.10	0.00	(0.00, 16.80)	Average
Magliato, Kathy	*Surgeon Overall*	11	8	0	0.00	1.93	0.00	(0.00, 46.65)	Average
	St. John's Hospital and Health Center	11	8	0	0.00	1.93	0.00	(0.00, 46.65)	Average
Mahendra, Tom	*Surgeon Overall*	41	34	3	8.82	1.79	9.58	(1.98, 28.02)	**Worse**
	Antelope Valley Hospital Medical Center	34	28	3	10.71	1.65	12.66	(2.61, 37.02)	**Worse**
	Lancaster Community Hospital	7	6	0	0.00	2.47	0.00	(0.00, 48.53)	Average
Malekmehr, Farshad	*Surgeon Overall*	75	69	0	0.00	1.52	0.00	(0.00, 6.85)	Average
	Valley Presbyterian Hospital	71	66	0	0.00	1.57	0.00	(0.00, 6.96)	Average
	West Hills Regional Medical Center	1	0	.	.	.	.		Not Applicable

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Malekmehr, Farshad (continued)	White Memorial Medical Center	3	3	0	0.00	0.56	0.00	(0.00, 100.0)	Average
Malki, Alan E.	*Surgeon Overall*	307	267	4	1.50	2.36	1.24	(0.34, 3.17)	Average
	Riverside Community Hospital	31	24	0	0.00	2.55	0.00	(0.00, 11.73)	Average
	St. Bernardine Medical Center	169	141	2	1.42	2.27	1.22	(0.15, 4.41)	Average
	St. Mary Regional Medical Center	107	102	2	1.96	2.45	1.56	(0.19, 5.65)	Average
Mallidi, Hari	*Surgeon Overall*	83	66	2	3.03	1.30	4.53	(0.55, 16.36)	Average
	Regional Medical of San Jose	12	12	0	0.00	1.08	0.00	(0.00, 55.70)	Average
	Santa Clara Valley Medical Center	14	13	0	0.00	0.46	0.00	(0.00, 100.0)	Average
	Stanford University Hospital	57	41	2	4.88	1.64	5.80	(0.70, 20.97)	Average
Marmureanu, Alexandru R.	*Surgeon Overall*	15	15	0	0.00	1.55	0.00	(0.00, 31.02)	Average
	St. Vincent Medical Center	15	15	0	0.00	1.55	0.00	(0.00, 31.02)	Average
Mayer, Frederick W.	*Surgeon Overall*	283	219	8	3.65	2.54	2.80	(1.21, 5.53)	Average
	Kaweah Delta Hospital	283	219	8	3.65	2.54	2.80	(1.21, 5.53)	Average
Mazur, Paul A.	*Surgeon Overall*	194	176	7	3.98	2.24	3.46	(1.39, 7.13)	Average
	Lakewood Regional Medical Center	52	46	4	8.70	3.79	4.47	(1.22, 11.44)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Mazur, Paul A. (continued)	Long Beach Memorial Medical Center	139	127	3	2.36	1.71	2.70	(0.56, 7.89)	Average
	Orange Coast Memorial Medical Center	3	3	0	0.00	1.05	0.00	(0.00, 100.0)	Average
McConnell, Douglas H.	*Surgeon Overall*	119	109	2	1.83	2.33	1.53	(0.19, 5.54)	Average
	Lakewood Regional Medical Center	9	9	0	0.00	1.13	0.00	(0.00, 70.86)	Average
	Long Beach Memorial Medical Center	8	8	1	12.50	1.46	16.68	(0.42, 92.99)	Average
	Shasta Regional Medical Center	102	92	1	1.09	2.52	0.84	(0.02, 4.68)	Average
McDonald, Jerome M.	*Surgeon Overall*	326	253	6	2.37	2.69	1.72	(0.63, 3.74)	Average
	Dameron Hospital	61	59	1	1.69	2.24	1.47	(0.04, 8.22)	Average
	St. Joseph's Medical Center of Stockton	265	194	5	2.58	2.83	1.77	(0.58, 4.14)	Average
McClean, Michael	*Surgeon Overall*	55	50	2	4.00	1.49	5.24	(0.63, 18.92)	Average
	Centinela Hospital Medical Center	20	20	0	0.00	1.74	0.00	(0.00, 20.69)	Average
	Providence St. Joseph Medical Center	6	3	0	0.00	2.34	0.00	(0.00, 100.0)	Average
	St. Vincent Medical Center	21	20	2	10.00	1.04	18.66	(2.26, 67.44)	**Worse**
	Valley Presbyterian Hospital	8	7	0	0.00	1.68	0.00	(0.00, 61.07)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
McPherson, James G.	*Surgeon Overall*	83	77	5	6.49	2.59	4.88	(1.59, 11.40)	Average
	Centinela Hospital Medical Center	9	9	3	33.33	7.22	9.00	(1.86, 26.32)	Average
	Glendale Adventist Medical Center – Wilson Terrace	11	11	0	0.00	1.35	0.00	(0.00, 48.40)	Average
	Providence Little Company of Mary Medical Center	35	31	1	3.23	1.65	3.82	(0.10, 21.28)	Average
	Shasta Regional Medical Center	2	2	0	0.00	4.10	0.00	(0.00, 87.81)	Average
	St. Vincent Medical Center	24	22	1	4.55	2.67	3.31	(0.08, 18.47)	Average
	Torrance Memorial Medical Center	2	2	0	0.00	0.88	0.00	(0.00, 100.0)	Average
Mehmood, Syed A.	*Surgeon Overall*	5	5	0	0.00	0.93	0.00	(0.00, 100.0)	Average
	Valley Presbyterian Hospital	4	4	0	0.00	1.06	0.00	(0.00, 100.0)	Average
	West Hills Regional Medical Center	1	1	0	0.00	0.43	0.00	(0.00, 100.0)	Average
Melikian, Vicken	*Surgeon Overall*	98	72	2	2.78	1.18	4.57	(0.55, 16.53)	Average
	Kaiser Foundation Hospital – San Francisco	98	72	2	2.78	1.18	4.57	(0.55, 16.53)	Average
Merrick, Scot	*Surgeon Overall*	104	70	0	0.00	1.46	0.00	(0.00, 7.05)	Average
	St. Mary's Medical Center, San Francisco	3	2	0	0.00	0.38	0.00	(0.00, 100.0)	Average
	UCSF Medical Center	101	68	0	0.00	1.49	0.00	(0.00, 7.10)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Miller, David C.	*Surgeon Overall*	17	2	0	0.00	0.72	0.00	(0.00, 100.0)	Average
	Stanford University Hospital	17	2	0	0.00	0.72	0.00	(0.00, 100.0)	Average
Milliken, Jeffrey C.	*Surgeon Overall*	57	42	1	2.38	1.97	2.36	(0.06, 13.15)	Average
	UC Irvine Medical Center	57	42	1	2.38	1.97	2.36	(0.06, 13.15)	Average
Mitchell, Robert S.	*Surgeon Overall*	70	41	0	0.00	3.91	0.00	(0.00, 4.49)	Average
	Stanford University Hospital	70	41	0	0.00	3.91	0.00	(0.00, 4.49)	Average
Mitruka, Surindra N.	*Surgeon Overall*	194	158	1	0.63	1.88	0.66	(0.02, 3.66)	Average
	Eisenhower Memorial Hospital	194	158	1	0.63	1.88	0.66	(0.02, 3.66)	Average
Mohammadzadeh, Gholam R.	*Surgeon Overall*	147	125	6	4.80	2.67	3.50	(1.28, 7.62)	Average
	Los Robles Regional Medical Center	60	48	2	4.17	2.76	2.94	(0.36, 10.62)	Average
	Providence Tarzana Regional Medical Center – Tarzana	46	40	3	7.50	2.65	5.52	(1.14, 16.14)	Average
	St. John's Regional Medical Center	1	1	0	0.00	0.51	0.00	(0.00, 100.0)	Average
	West Hills Regional Medical Center	40	36	1	2.78	2.65	2.05	(0.05, 11.40)	Average
Morales, Rodolfo A.	*Surgeon Overall*	99	66	1	1.52	1.70	1.74	(0.04, 9.68)	Average
	Good Samaritan Hospital – San Jose	88	55	1	1.82	1.71	2.08	(0.05, 11.57)	Average
	O'Connor Hospital – San Jose	4	4	0	0.00	0.55	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Morales, Rodolfo A. (continued)	Regional Medical of San Jose	7	7	0	0.00	2.30	0.00	(0.00, 44.65)	Average
Morenocabral, Ricardo J.	*Surgeon Overall*	247	151	1	0.66	2.60	0.50	(0.01, 2.77)	Average
	Alvarado Hospital Medical Center	4	3	0	0.00	3.63	0.00	(0.00, 66.07)	Average
	Scripps Mercy Hospital	31	22	0	0.00	1.56	0.00	(0.00, 20.95)	Average
	Sharp Chula Vista Medical Center	132	84	1	1.19	2.96	0.78	(0.02, 4.37)	Average
	Grossmont Hospital	80	42	0	0.00	2.36	0.00	(0.00, 7.26)	Average
Morris, Allen S.	*Surgeon Overall*	281	128	0	0.00	1.63	0.00	(0.00, 3.45)	Average
	Mercy General Hospital	277	127	0	0.00	1.64	0.00	(0.00, 3.45)	Average
	Mercy San Juan Hospital	4	1	0	0.00	0.34	0.00	(0.00, 100.0)	Average
Morrissey, James D.	*Surgeon Overall*	250	195	8	4.10	2.20	3.64	(1.57, 7.17)	Average
	Dameron Hospital	20	18	2	11.11	5.26	4.11	(0.50, 14.87)	Average
	St. Joseph's Medical Center of Stockton	230	177	6	3.39	1.89	3.50	(1.29, 7.63)	Average
Mudge, Devin R.	*Surgeon Overall*	301	261	4	1.53	1.64	1.82	(0.50, 4.67)	Average
	Riverside Community Hospital	17	16	0	0.00	2.79	0.00	(0.00, 16.14)	Average
	St. Bernardine Medical Center	197	167	3	1.80	1.43	2.44	(0.50, 7.14)	Average
	St. Mary Regional Medical Center	87	78	1	1.28	1.84	1.35	(0.03, 7.55)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Naficy, Sepehre	*Surgeon Overall*	7	6	0	0.00	6.00	0.00	(0.00, 19.99)	Average
	North Bay Medical Center	4	4	0	0.00	0.53	0.00	(0.00, 100.0)	Average
	Queen of the Valley Hospital – Napa	3	2	0	0.00	16.93	0.00	(0.00, 21.25)	Average
Nagendran, Jayan	*Surgeon Overall*	17	15	2	13.33	1.91	13.58	(1.65, 49.08)	Average
	Salinas Valley Memorial Hospital	17	15	2	13.33	1.91	13.58	(1.65, 49.08)	Average
Neal, Joe F.	*Surgeon Overall*	7	6	0	0.00	1.20	0.00	(0.00, 99.50)	Average
	Doctors Medical Center – Modesto Campus	7	6	0	0.00	1.20	0.00	(0.00, 99.50)	Average
Nucho, Ramsay C.	*Surgeon Overall*	142	131	4	3.05	1.62	3.68	(1.00, 9.42)	Average
	Glendale Adventist Medical Center – Wilson Terrace	59	57	1	1.75	1.29	2.64	(0.07, 14.72)	Average
	Valley Presbyterian Hospital	1	1	0	0.00	0.87	0.00	(0.00, 100.0)	Average
	White Memorial Medical Center	82	73	3	4.11	1.88	4.26	(0.88, 12.44)	Average
Nuno, Ismael N.	*Surgeon Overall*	211	180	4	2.22	0.86	5.04	(1.37, 12.91)	Average
	Huntington Memorial Hospital	1	1	0	0.00	1.44	0.00	(0.00, 100.0)	Average
	Los Angeles Co. USC Medical Center	186	158	3	1.90	0.81	4.56	(0.94, 13.33)	Average
	Keck Hospital of USC	7	4	0	0.00	0.57	0.00	(0.00, 100.0)	Average
	White Memorial Medical Center	17	17	1	5.88	1.34	8.54	(0.22, 47.61)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
O'Dorisio, James E.	*Surgeon Overall*	45	42	1	2.38	2.35	1.97	(0.05, 11.00)	Average
	Santa Rosa Memorial Hospital – Montgomery	13	11	1	9.09	4.11	4.31	(0.11, 24.04)	Average
	Sutter Medical Center of Santa Rosa	32	31	0	0.00	1.73	0.00	(0.00, 13.42)	Average
Ogden, William	*Surgeon Overall*	183	148	0	0.00	1.64	0.00	(0.00, 2.96)	Average
	St. Agnes Medical Center	183	148	0	0.00	1.64	0.00	(0.00, 2.96)	Average
Oka, Tomomi	*Surgeon Overall*	57	45	0	0.00	1.12	0.00	(0.00, 14.24)	Average
	California Pacific Medical Center – Pacific Campus	2	2	0	0.00	2.74	0.00	(0.00, 100.0)	Average
	El Camino Hospital	35	25	0	0.00	1.13	0.00	(0.00, 25.44)	Average
	Peninsula Medical Center	16	15	0	0.00	0.96	0.00	(0.00, 49.77)	Average
	Sequoia Hospital	4	3	0	0.00	0.77	0.00	(0.00, 100.0)	Average
Omari, Bassam O.	*Surgeon Overall*	124	95	3	3.16	1.77	3.47	(0.72, 10.15)	Average
	Los Angeles Co. Harbor – UCLA Medical Center	109	81	3	3.70	1.36	5.29	(1.09, 15.46)	Average
	St. Mary Medical Center	9	9	0	0.00	4.63	0.00	(0.00, 17.25)	Average
	St. Mary Regional Medical Center	6	5	0	0.00	3.25	0.00	(0.00, 44.28)	Average
Osman, Ashraf I.	*Surgeon Overall*	46	39	2	5.13	1.68	5.96	(0.72, 21.52)	Average
	St. Agnes Medical Center	46	39	2	5.13	1.68	5.96	(0.72, 21.52)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Ott, Richard A.	*Surgeon Overall*	460	369	4	1.08	2.33	0.91	(0.25, 2.33)	Average
	AHMC Anaheim Regional Medical Center	245	187	1	0.53	2.45	0.43	(0.01, 2.37)	Average
	Saddleback Memorial Medical Center	21	16	0	0.00	0.49	0.00	(0.00, 90.96)	Average
	Western Medical Center – Santa Ana	75	63	1	1.59	1.89	1.64	(0.04, 9.14)	Average
	Western Medical Center Hospital – Anaheim	119	103	2	1.94	2.65	1.43	(0.17, 5.15)	Average
Overton, John B.	*Surgeon Overall*	23	22	0	0.00	1.76	0.00	(0.00, 18.61)	Average
	Dameron Hospital	23	22	0	0.00	1.76	0.00	(0.00, 18.61)	Average
Oyer, Philip E.	*Surgeon Overall*	24	15	0	0.00	3.32	0.00	(0.00, 14.42)	Average
	Stanford University Hospital	24	15	0	0.00	3.32	0.00	(0.00, 14.42)	Average
Palafox, Brian A.	*Surgeon Overall*	165	130	2	1.54	1.63	1.83	(0.22, 6.63)	Average
	St. Joseph Hospital – Orange	165	130	2	1.54	1.63	1.83	(0.22, 6.63)	Average
Panagiotides, George P.	*Surgeon Overall*	279	252	5	1.98	2.28	1.70	(0.55, 3.97)	Average
	Downey Regional Medical Center	36	32	2	6.25	1.86	6.53	(0.79, 23.61)	Average
	Lakewood Regional Medical Center	155	139	1	0.72	2.28	0.61	(0.02, 3.43)	Average
	Long Beach Memorial Medical Center	88	81	2	2.47	2.43	1.98	(0.24, 7.16)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Paw, Patrick T.	*Surgeon Overall*	181	165	7	4.24	1.86	4.45	(1.79, 9.18)	Average
	Bakersfield Heart Hospital	34	26	1	3.85	1.77	4.23	(0.11, 23.61)	Average
	Bakersfield Memorial Hospital	78	74	3	4.05	1.19	6.65	(1.37, 19.44)	Average
	San Joaquin Community Hospital	69	65	3	4.62	2.65	3.39	(0.70, 9.92)	Average
Peck, Eric A.	*Surgeon Overall*	183	156	2	1.28	1.42	1.76	(0.21, 6.35)	Average
	Bakersfield Heart Hospital	59	52	2	3.85	1.77	4.23	(0.51, 15.29)	Average
	Bakersfield Memorial Hospital	75	59	0	0.00	1.47	0.00	(0.00, 8.32)	Average
	San Joaquin Community Hospital	49	45	0	0.00	0.96	0.00	(0.00, 16.70)	Average
Pellegrini, Daniel P.	*Surgeon Overall*	173	131	3	2.29	1.07	4.16	(0.86, 12.17)	Average
	Alta Bates Summit Medical Center – Summit Campus	114	88	2	2.27	1.02	4.32	(0.52, 15.62)	Average
	Kaiser Foundation Hospital – San Francisco	59	43	1	2.33	1.17	3.87	(0.10, 21.60)	Average
Perch, Paul G.	*Surgeon Overall*	212	203	1	0.49	1.56	0.62	(0.02, 3.43)	Average
	Kaiser Foundation Hospital – Sunset	170	161	1	0.62	1.69	0.72	(0.02, 3.99)	Average
	St. Bernardine Medical Center	42	42	0	0.00	1.07	0.00	(0.00, 16.06)	Average
Perkowski, David J.	*Surgeon Overall*	234	200	4	2.00	1.66	2.35	(0.64, 6.02)	Average
	Mission Hospital Regional Medical Center	13	12	0	0.00	2.23	0.00	(0.00, 26.93)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Perkowski, David J. (continued)	Saddleback Memorial Medical Center	209	178	4	2.25	1.65	2.65	(0.72, 6.79)	Average
	St. Joseph Hospital – Orange	9	7	0	0.00	1.33	0.00	(0.00, 77.15)	Average
	Tri-City Medical Center	3	3	0	0.00	0.56	0.00	(0.00, 100.0)	Average
Perricone, Anthony	*Surgeon Overall*	56	52	0	0.00	1.36	0.00	(0.00, 10.20)	Average
	UCSD Medical Center	20	19	0	0.00	1.44	0.00	(0.00, 26.24)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	36	33	0	0.00	1.31	0.00	(0.00, 16.70)	Average
Petrik, Pavel	*Surgeon Overall*	34	33	4	12.12	1.61	14.69	(4.01, 37.64)	**Worse**
	Antelope Valley Hospital Medical Center	25	24	2	8.33	1.54	10.53	(1.28, 38.05)	Average
	Lancaster Community Hospital	9	9	2	22.22	1.78	24.32	(2.95, 87.91)	**Worse**
Pfeffer, Thomas A.	*Surgeon Overall*	185	106	1	0.94	1.85	0.99	(0.03, 5.54)	Average
	Kaiser Foundation Hospital – Sunset	150	91	1	1.10	1.83	1.17	(0.03, 6.53)	Average
	St. Bernardine Medical Center	35	15	0	0.00	2.00	0.00	(0.00, 24.02)	Average
Phillips, Robert A.	*Surgeon Overall*	13	11	0	0.00	2.09	0.00	(0.00, 31.31)	Average
	Shasta Regional Medical Center	13	11	0	0.00	2.09	0.00	(0.00, 31.31)	Average
Poa, Li	*Surgeon Overall*	144	103	5	4.85	2.10	4.50	(1.46, 10.51)	Average
	Kaiser Foundation Hospital – Sunset	144	103	5	4.85	2.10	4.50	(1.46, 10.51)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Pompili, Mario F.	*Surgeon Overall*	170	89	2	2.25	1.86	2.36	(0.29, 8.53)	Average
	Kaiser Foundation Hospital – Santa Clara	170	89	2	2.25	1.86	2.36	(0.29, 8.53)	Average
Postel, Joachim M.	*Surgeon Overall*	103	76	1	1.32	2.03	1.26	(0.03, 7.04)	Average
	St. Joseph Hospital - Eureka	103	76	1	1.32	2.03	1.26	(0.03, 7.04)	Average
Pottmeyer, Edward W.	*Surgeon Overall*	292	215	3	1.40	2.39	1.14	(0.23, 3.32)	Average
	Mercy Medical Center – Redding	292	215	3	1.40	2.39	1.14	(0.23, 3.32)	Average
Pratt, Jerry W.	*Surgeon Overall*	63	47	1	2.13	1.65	2.51	(0.06, 14.02)	Average
	UC Davis Medical Center	63	47	1	2.13	1.65	2.51	(0.06, 14.02)	Average
Prejean, Curtis A.	*Surgeon Overall*	2	2	0	0.00	1.18	0.00	(0.00, 100.0)	Average
	Garfield Medical Center	2	2	0	0.00	1.18	0.00	(0.00, 100.0)	Average
Puig-Palomar, Miguel	*Surgeon Overall*	329	290	3	1.03	2.01	1.00	(0.21, 2.93)	Average
	Enloe Medical Center – Esplanade Campus	329	290	3	1.03	2.01	1.00	(0.21, 2.93)	Average
Purewal, Sarabjit S.	*Surgeon Overall*	369	317	13	4.10	2.16	3.70	(1.97, 6.34)	**Worse**
	Bakersfield Heart Hospital	196	170	8	4.71	1.99	4.60	(1.99, 9.07)	**Worse**
	Bakersfield Memorial Hospital	113	92	2	2.17	1.15	3.70	(0.45, 13.37)	Average
	San Joaquin Community Hospital	60	55	3	5.45	4.36	2.44	(0.50, 7.12)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Raissi, Sharo	*Surgeon Overall*	57	41	1	2.44	2.68	1.77	(0.04, 9.89)	Average
	Cedars Sinai Medical Center	14	10	1	10.00	4.44	4.39	(0.11, 24.45)	Average
	Torrance Memorial Medical Center	43	31	0	0.00	2.11	0.00	(0.00, 11.00)	Average
Raney, Aidan A.	*Surgeon Overall*	95	39	0	0.00	0.78	0.00	(0.00, 23.52)	Average
	Hoag Memorial Hospital Presbyterian	95	39	0	0.00	0.78	0.00	(0.00, 23.52)	Average
Rasi, Alfredo L.	*Surgeon Overall*	184	151	2	1.32	1.48	1.75	(0.21, 6.32)	Average
	Loma Linda University Medical Center	169	136	1	0.74	1.50	0.96	(0.02, 5.32)	Average
	Riverside Community Hospital	1	1	0	0.00	0.89	0.00	(0.00, 100.0)	Average
	San Antonio Community Hospital	14	14	1	7.14	1.28	10.91	(0.28, 60.80)	Average
Razzouk, Anees J.	*Surgeon Overall*	110	74	0	0.00	1.51	0.00	(0.00, 6.44)	Average
	Loma Linda University Medical Center	110	74	0	0.00	1.51	0.00	(0.00, 6.44)	Average
Reddy, Kuruganti	*Surgeon Overall*	1	1	0	0.00	0.69	0.00	(0.00, 100.0)	Average
	Citrus Valley Medical Center – IC Campus	1	1	0	0.00	0.69	0.00	(0.00, 100.0)	Average
Reed, William H.	*Surgeon Overall*	39	32	0	0.00	1.78	0.00	(0.00, 12.64)	Average
	Community Hospital Monterey Peninsula	39	32	0	0.00	1.78	0.00	(0.00, 12.64)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Reemtsen, Brian	*Surgeon Overall*	1	0	.	.	.	.		Not Applicable
	Ronald Reagan UCLA Medical Center	1	0	.	.	.	.		Not Applicable
Reichman, Robert T.	*Surgeon Overall*	211	157	10	6.37	1.78	6.96	(3.34, 12.81)	Worse
	Palomar Health Downtown Campus	211	157	10	6.37	1.78	6.96	(3.34, 12.81)	Worse
Reitz, Bruce A.	*Surgeon Overall*	23	13	0	0.00	0.76	0.00	(0.00, 73.19)	Average
	Stanford University Hospital	23	13	0	0.00	0.76	0.00	(0.00, 73.19)	Average
Richter, Richard C.	*Surgeon Overall*	69	60	1	1.67	1.28	2.54	(0.06, 14.18)	Average
	Kaiser Foundation Hospital – San Francisco	69	60	1	1.67	1.28	2.54	(0.06, 14.18)	Average
Riebman, Jerome B.	*Surgeon Overall*	9	9	0	0.00	1.91	0.00	(0.00, 41.86)	Average
	Santa Rosa Memorial Hospital – Montgomery	9	9	0	0.00	1.91	0.00	(0.00, 41.86)	Average
Robbins, Robert C.	*Surgeon Overall*	15	9	1	11.11	1.34	16.12	(0.41, 89.88)	Average
	Stanford University Hospital	15	9	1	11.11	1.34	16.12	(0.41, 89.88)	Average
Roberts, Randall F.	*Surgeon Overall*	209	141	2	1.42	1.83	1.51	(0.18, 5.45)	Average
	Glendale Adventist Medical Center – Wilson Terrace	19	19	1	5.26	2.45	4.19	(0.11, 23.36)	Average
	Glendale Memorial Hospital and Health Center	190	122	1	0.82	1.74	0.92	(0.02, 5.12)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Robertson, John	*Surgeon Overall*	102	65	1	1.54	2.44	1.23	(0.03, 6.86)	Average
	St. John's Hospital and Health Center	102	65	1	1.54	2.44	1.23	(0.03, 6.86)	Average
Rosenburg, Jeffrey M.	*Surgeon Overall*	3	3	0	0.00	0.49	0.00	(0.00, 100.0)	Average
	Palomar Health Downtown Campus	3	3	0	0.00	0.49	0.00	(0.00, 100.0)	Average
Sakopoulos, Andreas	*Surgeon Overall*	68	60	2	3.33	2.57	2.53	(0.31, 9.14)	Average
	St. Helena Hospital	68	60	2	3.33	2.57	2.53	(0.31, 9.14)	Average
Salem, Fakhri M.	*Surgeon Overall*	127	114	7	6.14	2.14	5.58	(2.24, 11.50)	Worse
	Scripps Mercy Hospital	105	95	7	7.37	2.06	6.98	(2.81, 14.38)	Worse
	Sharp Chula Vista Medical Center	8	8	0	0.00	1.99	0.00	(0.00, 45.20)	Average
	Grossmont Hospital	14	11	0	0.00	3.00	0.00	(0.00, 21.78)	Average
Sasevich, Michael	*Surgeon Overall*	5	5	0	0.00	1.56	0.00	(0.00, 92.12)	Average
	Tri-City Medical Center	5	5	0	0.00	1.56	0.00	(0.00, 92.12)	Average
Schwartz, Steven M.	*Surgeon Overall*	60	46	1	2.17	2.04	2.08	(0.05, 11.60)	Average
	Good Samaritan Hospital – San Jose	48	36	1	2.78	2.23	2.43	(0.06, 13.54)	Average
	O'Connor Hospital – San Jose	4	2	0	0.00	0.70	0.00	(0.00, 100.0)	Average
	Regional Medical of San Jose	8	8	0	0.00	1.50	0.00	(0.00, 59.89)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Serna, Daniel L.	*Surgeon Overall*	265	233	2	0.86	1.27	1.32	(0.16, 4.77)	Average
	Kaiser Foundation Hospital – Sunset	4	3	0	0.00	2.86	0.00	(0.00, 83.78)	Average
	St. Bernardine Medical Center	261	230	2	0.87	1.25	1.36	(0.16, 4.91)	Average
Shankar, Kuppe G.	*Surgeon Overall*	66	45	1	2.22	1.92	2.25	(0.06, 12.57)	Average
	UC Davis Medical Center	66	45	1	2.22	1.92	2.25	(0.06, 12.57)	Average
Sharma, Kapil	*Surgeon Overall*	345	285	1	0.35	1.14	0.60	(0.02, 3.33)	Average
	Mercy General Hospital	330	271	1	0.37	1.12	0.64	(0.02, 3.59)	Average
	Mercy San Juan Hospital	15	14	0	0.00	1.70	0.00	(0.00, 30.31)	Average
Shemin, Richard J.	*Surgeon Overall*	134	59	1	1.69	2.56	1.29	(0.03, 7.20)	Average
	Ronald Reagan UCLA Medical Center	133	58	1	1.72	2.53	1.33	(0.03, 7.40)	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	1	1	0	0.00	4.12	0.00	(0.00, 100.0)	Average
Shuman, Robert L.	*Surgeon Overall*	20	17	1	5.88	2.43	4.73	(0.12, 26.35)	Average
	Long Beach Memorial Medical Center	20	17	1	5.88	2.43	4.73	(0.12, 26.35)	Average
Silva, Raymond	*Surgeon Overall*	41	38	1	2.63	2.64	1.94	(0.05, 10.82)	Average
	Good Samaritan Hospital – San Jose	25	24	1	4.17	2.66	3.05	(0.08, 17.03)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Silva, Raymond (continued)	O'Connor Hospital – San Jose	2	1	0	0.00	0.81	0.00	(0.00, 100.0)	Average
	Regional Medical of San Jose	14	13	0	0.00	2.75	0.00	(0.00, 20.09)	Average
Simsir, Sinan A.	*Surgeon Overall*	27	17	0	0.00	2.07	0.00	(0.00, 20.42)	Average
	Cedars Sinai Medical Center	27	17	0	0.00	2.07	0.00	(0.00, 20.42)	Average
Slachman, Frank N.	*Surgeon Overall*	298	179	0	0.00	1.65	0.00	(0.00, 2.44)	Average
	Mercy General Hospital	292	178	0	0.00	1.65	0.00	(0.00, 2.45)	Average
	Mercy San Juan Hospital	6	1	0	0.00	0.87	0.00	(0.00, 100.0)	Average
Smith, Larry H.	*Surgeon Overall*	5	5	1	20.00	2.30	16.98	(0.43, 94.66)	Average
	Santa Rosa Memorial Hospital – Montgomery	3	3	1	33.33	3.44	18.88	(0.48, 100.0)	Average
	Sutter Medical Center of Santa Rosa	2	2	0	0.00	0.58	0.00	(0.00, 100.0)	Average
Soltero, Michael	*Surgeon Overall*	103	71	1	1.41	1.77	1.56	(0.04, 8.67)	Average
	Northridge Hospital Medical Center	32	24	0	0.00	1.37	0.00	(0.00, 21.88)	Average
	Providence Holy Cross Medical Center	66	46	1	2.17	2.00	2.12	(0.05, 11.81)	Average
	Providence Tarzana Regional Medical Center – Tarzana	1	0	.	.	.	.		Not Applicable
	West Hills Regional Medical Center	4	1	0	0.00	0.43	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Spowart, Gregory S.	*Surgeon Overall*	135	112	0	0.00	1.88	0.00	(0.00, 3.42)	Average
	Community Hospital Monterey Peninsula	93	76	0	0.00	2.25	0.00	(0.00, 4.21)	Average
	Salinas Valley Memorial Hospital	42	36	0	0.00	1.09	0.00	(0.00, 18.41)	Average
Stahl, Richard D.	*Surgeon Overall*	187	141	3	2.13	2.70	1.54	(0.32, 4.49)	Average
	Scripps Memorial Hospital – La Jolla	187	141	3	2.13	2.70	1.54	(0.32, 4.49)	Average
Stanten, Russell D.	*Surgeon Overall*	177	153	0	0.00	1.66	0.00	(0.00, 2.83)	Average
	Alta Bates Summit Medical Center – Summit Campus	165	141	0	0.00	1.53	0.00	(0.00, 3.34)	Average
	Washington Hospital – Fremont	12	12	0	0.00	3.23	0.00	(0.00, 18.56)	Average
Starnes, Vaughn A.	*Surgeon Overall*	135	55	0	0.00	1.42	0.00	(0.00, 9.20)	Average
	Huntington Memorial Hospital	1	1	0	0.00	1.02	0.00	(0.00, 100.0)	Average
	Los Angeles Co. USC Medical Center	1	0	.	.	.	.		Not Applicable
	Keck Hospital of USC	133	54	0	0.00	1.43	0.00	(0.00, 9.33)	Average
Stein, Alexander G.	*Surgeon Overall*	105	95	4	4.21	3.32	2.48	(0.67, 6.34)	Average
	Long Beach Memorial Medical Center	2	1	0	0.00	1.59	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Stein, Alexander G. (continued)	Los Angeles Co. Harbor – UCLA Medical Center	1	1	0	0.00	1.90	0.00	(0.00, 100.0)	Average
	St. Mary Medical Center	102	93	4	4.30	3.35	2.50	(0.68, 6.41)	Average
Stewart, Robert	*Surgeon Overall*	138	109	4	3.67	1.61	4.43	(1.21, 11.36)	Average
	Dominican Hospital	137	108	4	3.70	1.62	4.46	(1.22, 11.43)	Average
	Fresno Heart Hospital	1	1	0	0.00	1.17	0.00	(0.00, 100.0)	Average
Stoneburner, John M.	*Surgeon Overall*	87	52	0	0.00	1.70	0.00	(0.00, 8.15)	Average
	Providence Little Company of Mary Medical Center	10	9	0	0.00	2.82	0.00	(0.00, 28.36)	Average
	Torrance Memorial Medical Center	77	43	0	0.00	1.46	0.00	(0.00, 11.44)	Average
Talieh, Yahya J.	*Surgeon Overall*	139	110	4	3.64	2.38	2.98	(0.81, 7.64)	Average
	Doctors Medical Center – Modesto Campus	38	25	2	8.00	2.95	5.29	(0.64, 19.12)	Average
	Memorial Medical Center of Modesto	101	85	2	2.35	2.21	2.07	(0.25, 7.50)	Average
Tang, Eddie	*Surgeon Overall*	53	43	2	4.65	1.90	4.78	(0.58, 17.26)	Average
	St. Mary's Medical Center, San Francisco	53	43	2	4.65	1.90	4.78	(0.58, 17.26)	Average
Taylor, Benedict J.	*Surgeon Overall*	3	3	0	0.00	0.40	0.00	(0.00, 100.0)	Average
	Santa Barbara Cottage Hospital	3	3	0	0.00	0.40	0.00	(0.00, 100.0)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Tedesco, Dominic J.	*Surgeon Overall*	93	76	1	1.32	2.34	1.10	(0.03, 6.11)	Average
	Community Memorial Hospital of San Buenaventura	93	76	1	1.32	2.34	1.10	(0.03, 6.11)	Average
Tendulkar, Amod P.	*Surgeon Overall*	22	20	2	10.00	2.57	7.60	(0.92, 27.45)	Average
	St. Joseph's Medical Center of Stockton	22	20	2	10.00	2.57	7.60	(0.92, 27.45)	Average
Thibault, William N.	*Surgeon Overall*	166	155	1	0.65	1.81	0.69	(0.02, 3.86)	Average
	Mission Hospital Regional Medical Center	50	46	0	0.00	1.30	0.00	(0.00, 12.06)	Average
	Saddleback Memorial Medical Center	8	8	0	0.00	6.03	0.00	(0.00, 14.92)	Average
	St. Jude Medical Center	108	101	1	0.99	1.72	1.12	(0.03, 6.27)	Average
Toporoff, Bruce M.	*Surgeon Overall*	104	85	5	5.88	2.96	3.87	(1.26, 9.04)	Average
	Community Memorial Hospital of San Buenaventura	8	8	0	0.00	0.46	0.00	(0.00, 100.0)	Average
	Los Robles Regional Medical Center	22	17	0	0.00	2.90	0.00	(0.00, 14.58)	Average
	St. John's Regional Medical Center	74	60	5	8.33	3.31	4.91	(1.59, 11.46)	Average
Tovar, Eduardo A.	*Surgeon Overall*	191	143	2	1.40	1.88	1.45	(0.18, 5.24)	Average
	Presbyterian Intercommunity Hospital	191	143	2	1.40	1.88	1.45	(0.18, 5.24)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Trento, Alfredo	*Surgeon Overall*	118	54	2	3.70	1.91	3.78	(0.46, 13.67)	Average
	Cedars Sinai Medical Center	118	54	2	3.70	1.91	3.78	(0.46, 13.67)	Average
Trivedi, Rohitkumar R.	*Surgeon Overall*	69	56	0	0.00	2.57	0.00	(0.00, 5.00)	Average
	Pomona Valley Hospital Medical Center	51	41	0	0.00	2.80	0.00	(0.00, 6.27)	Average
	San Antonio Community Hospital	18	15	0	0.00	1.93	0.00	(0.00, 24.80)	Average
Tyner, John	*Surgeon Overall*	120	66	0	0.00	1.51	0.00	(0.00, 7.23)	Average
	Scripps Green Hospital	107	55	0	0.00	1.50	0.00	(0.00, 8.70)	Average
	Scripps Mercy Hospital	13	11	0	0.00	1.52	0.00	(0.00, 42.95)	Average
Tzeng, Thomas S.	*Surgeon Overall*	31	24	0	0.00	1.81	0.00	(0.00, 16.52)	Average
	Downey Regional Medical Center	27	20	0	0.00	1.89	0.00	(0.00, 19.04)	Average
	Presbyterian Intercommunity Hospital	4	4	0	0.00	1.44	0.00	(0.00, 100.0)	Average
Uppal, Kanti M.	*Surgeon Overall*	9	9	0	0.00	0.92	0.00	(0.00, 86.99)	Average
	Alta Bates Summit Medical Center – Summit Campus	9	9	0	0.00	0.92	0.00	(0.00, 86.99)	Average
Veeragandham, Ramesh	*Surgeon Overall*	136	101	1	0.99	2.27	0.85	(0.02, 4.74)	Average
	John Muir Medical Center – Concord Campus	87	65	1	1.54	2.02	1.49	(0.04, 8.29)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Veeragandham, Ramesh (continued)	San Ramon Regional Medical Center	18	13	0	0.00	1.99	0.00	(0.00, 27.83)	Average
	Valleycare Medical Center	31	23	0	0.00	3.15	0.00	(0.00, 9.93)	Average
Vial, Conrad	*Surgeon Overall*	117	87	2	2.30	1.76	2.54	(0.31, 9.18)	Average
	El Camino Hospital	49	36	0	0.00	1.31	0.00	(0.00, 15.20)	Average
	Peninsula Medical Center	51	41	2	4.88	1.82	5.23	(0.63, 18.91)	Average
	Sequoia Hospital	17	10	0	0.00	3.16	0.00	(0.00, 22.78)	Average
Vo, Quang T.	*Surgeon Overall*	116	104	4	3.85	2.15	3.49	(0.95, 8.94)	Average
	Beverly Hospital	9	8	1	12.50	1.77	13.80	(0.35, 76.91)	Average
	Citrus Valley Medical Center – IC Campus	26	23	2	8.70	3.71	4.56	(0.55, 16.49)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	57	50	1	2.00	1.55	2.51	(0.06, 14.00)	Average
	Garfield Medical Center	10	10	0	0.00	1.73	0.00	(0.00, 41.68)	Average
	Long Beach Memorial Medical Center	12	11	0	0.00	2.57	0.00	(0.00, 25.41)	Average
	Saddleback Memorial Medical Center	2	2	0	0.00	0.33	0.00	(0.00, 100.0)	Average
Vunnamadala, Syam P.	*Surgeon Overall*	62	58	0	0.00	1.05	0.00	(0.00, 11.84)	Average
	AHMC Anaheim Regional Medical Center	35	33	0	0.00	1.11	0.00	(0.00, 19.63)	Average
	West Anaheim Medical Center	12	10	0	0.00	0.98	0.00	(0.00, 73.47)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Vunnamadala, Syam P. (continued)	Western Medical Center Hospital – Anaheim	15	15	0	0.00	0.95	0.00	(0.00, 50.22)	Average
Walkes, Jon-Cecil	*Surgeon Overall*	46	45	1	2.22	2.17	2.00	(0.05, 11.14)	Average
	Washington Hospital – Fremont	46	45	1	2.22	2.17	2.00	(0.05, 11.14)	Average
Wang, Nan	*Surgeon Overall*	255	187	0	0.00	1.79	0.00	(0.00, 2.15)	Average
	Loma Linda University Medical Center	96	76	0	0.00	1.80	0.00	(0.00, 5.25)	Average
	San Antonio Community Hospital	159	111	0	0.00	1.78	0.00	(0.00, 3.65)	Average
West, Phillip N.	*Surgeon Overall*	186	140	2	1.43	1.77	1.57	(0.19, 5.69)	Average
	Santa Barbara Cottage Hospital	186	140	2	1.43	1.77	1.57	(0.19, 5.69)	Average
Westerman, G. Richard	*Surgeon Overall*	96	71	1	1.41	2.66	1.03	(0.03, 5.76)	Average
	Santa Barbara Cottage Hospital	96	71	1	1.41	2.66	1.03	(0.03, 5.76)	Average
Wilson, Joseph W.	*Surgeon Overall*	211	162	3	1.85	2.05	1.76	(0.36, 5.15)	Average
	Eisenhower Memorial Hospital	211	162	3	1.85	2.05	1.76	(0.36, 5.15)	Average
Wood, Michael N.	*Surgeon Overall*	63	45	1	2.22	2.85	1.52	(0.04, 8.47)	Average
	San Antonio Community Hospital	63	45	1	2.22	2.85	1.52	(0.04, 8.47)	Average
Yagubyan, Marineh	*Surgeon Overall*	100	86	3	3.49	2.04	3.33	(0.69, 9.74)	Average
	Glendale Adventist Medical Center – Wilson Terrace	43	40	1	2.50	2.10	2.32	(0.06, 12.91)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Yagubyan, Marineh (continued)	Glendale Memorial Hospital and Health Center	57	46	2	4.35	1.99	4.27	(0.52, 15.42)	Average
Yap, Alexander	*Surgeon Overall*	123	112	1	0.89	2.33	0.75	(0.02, 4.17)	Average
	Seton Medical Center	120	109	1	0.92	2.36	0.76	(0.02, 4.22)	Average
	St. Mary's Medical Center, San Francisco	3	3	0	0.00	0.94	0.00	(0.00, 100.0)	Average
Yasuda, Roderick	*Surgeon Overall*	117	100	3	3.00	2.38	2.46	(0.51, 7.19)	Average
	Northridge Hospital Medical Center	50	45	1	2.22	2.42	1.79	(0.05, 9.99)	Average
	Providence Holy Cross Medical Center	61	49	1	2.04	2.43	1.63	(0.04, 9.11)	Average
	Valley Presbyterian Hospital	1	1	0	0.00	0.23	0.00	(0.00, 100.0)	Average
	West Hills Regional Medical Center	5	5	1	20.00	1.86	20.93	(0.53, 100.0)	Average
Yee, Edward S.	*Surgeon Overall*	3	3	0	0.00	0.50	0.00	(0.00, 100.0)	Average
	Salinas Valley Memorial Hospital	3	3	0	0.00	0.50	0.00	(0.00, 100.0)	Average
Yokoyama, Taro	*Surgeon Overall*	226	187	5	2.67	2.74	1.90	(0.62, 4.44)	Average
	Centinela Hospital Medical Center	43	35	0	0.00	2.63	0.00	(0.00, 7.82)	Average
	Good Samaritan Hospital – Los Angeles	9	9	0	0.00	7.45	0.00	(0.00, 10.72)	Average
	Providence St. Joseph Medical Center	54	46	0	0.00	1.33	0.00	(0.00, 11.76)	Average

Table B-4: Surgeon Risk-Adjusted Operative Mortality Results, 2009-2010

Surgeon	Hospital	All CABG Cases	Isolated CABG Cases†	Isolated CABG Deaths	Observed Mortality Rate (%)	Expected Mortality Rate (%)	Risk-Adjusted Mortality Rate (%, RAMR)	95% CI for RAMR	Performance Rating*
State		**33,556**	**25,808**	**502**	**1.95**				
Yokoyama, Taro (continued)	St. Vincent Medical Center	107	87	4	4.60	2.66	3.37	(0.92, 8.63)	Average
	Valley Presbyterian Hospital	13	10	1	10.00	6.08	3.21	(0.08, 17.88)	Average
Young, Joseph N.	*Surgeon Overall*	99	47	1	2.13	1.12	3.70	(0.09, 20.63)	Average
	UC Davis Medical Center	99	47	1	2.13	1.12	3.70	(0.09, 20.63)	Average
Yun, Kwok L.	*Surgeon Overall*	196	70	1	1.43	2.62	1.06	(0.03, 5.91)	Average
	Kaiser Foundation Hospital – Sunset	196	70	1	1.43	2.62	1.06	(0.03, 5.91)	Average
Zhu, Henry L.	*Surgeon Overall*	329	257	2	0.78	1.65	0.92	(0.11, 3.33)	Average
	Mercy General Hospital	81	67	1	1.49	1.78	1.63	(0.04, 9.10)	Average
	Mercy San Juan Hospital	248	190	1	0.53	1.60	0.64	(0.02, 3.58)	Average
Zusman, Douglas R.	*Surgeon Overall*	165	117	0	0.00	1.36	0.00	(0.00, 4.52)	Average
	Hoag Memorial Hospital Presbyterian	165	117	0	0.00	1.36	0.00	(0.00, 4.52)	Average

*A surgeon is classified as **"Better"** if the upper 95% CI of the RAMR falls below the California observed mortality rate (1.95%). A surgeon is classified as **"Worse"** if the lower 95% CI of the RAMR is higher than the California observed mortality rate. A surgeon's performance is considered **"Average"** if the California mortality rate falls within the 95% CI of a surgeon's RAMR.

† The number of isolated CABG cases by surgeon may not equal the total number of isolated CABG cases reported due to various reasons, including unresolved issues of surgeon case attribution and cases not appearing for surgeons who died.

Note: Not Applicable Non-isolated CABG cases were not used to determine performance ratings in this report.

Appendix C: Technical Notes on Risk-Adjusted Hospital Post-Operative Stroke Calculations

Risk Model for Adjusting Hospital Post-Operative Stroke Rates, 2009-2010

Post-operative stroke is a fairly rare complication that can occur after CABG surgery. To assess hospital performance on this outcome, CCORP combined 2009 and 2010 data to increase the number of cases and reliability of hospital results. Similar to the methodology used to assess the operative mortality rate, CCORP used a multivariable logistic regression model to estimate the relationship between each of the demographic and pre-operative risk factors and the probability of post-operative stroke.

To develop the risk model, the 25,808 isolated (non-salvage) CABG surgery cases (2009 and 2010) were evaluated for missing data (25,659 cases had no missing data in any field and were used for the risk model parameter estimation). The 149 (approximately 0.6%) isolated CABG cases with missing data fields were removed to ensure that the effects of risk factors were estimated based on the most complete data available. To generate the hospital-specific results shown in this report, missing values for these 149 records were imputed (after risk model parameter estimation) by replacing them with the lowest risk category of the same variable (e.g., *Mitral Insufficiency = none/trivial/mild*). CCORP assigned the lowest risk value based on the following rationale: 1) some hospitals leave data fields blank by design when the risk factor is absent or the value is normal; 2) to maintain consistency with other major cardiac reporting programs that replace missing data with the lowest-risk or normal value; and 3) assigning values for missing data in this way creates an incentive for more complete reporting by hospitals. After imputing the missing values, the parameters of the risk model were applied to all cases to estimate each patient's probability of post-operative stroke. CCORP summed these probabilities to estimate the expected outcome for each hospital. The risk model, based on the 2009-2010 data, is presented in Table C-1 with statistically significant risk factors identified in bolded text.

Table C-1: Logistic Regression Risk Model for Post-Operative Stroke, 2009-2010

Risk Factors		Coefficient	Standard Error	p-value	Odds Ratio
Intercept		-7.714	0.567	<.0001	
Age (Years)		**0.024**	**0.006**	**<.0001**	**1.025**
Gender	Male				
	Female	**0.244**	**0.122**	**0.045**	**1.276**
Race	White				
	Non-White	**0.247**	**0.116**	**0.033**	**1.280**
Status of the Procedure	Elective	Reference			
	Urgent	0.235	0.148	0.113	1.265
	Emergent	**0.768**	**0.301**	**0.011**	**2.156**
Last Creatinine Level Pre-Op (mg/dl)		0.337	0.194	0.083	1.400
Hypertension		0.281	0.205	0.170	1.324
Peripheral Arterial Disease		**0.408**	**0.138**	**0.003**	**1.504**
Cerebrovascular Disease		**0.420**	**0.195**	**0.031**	**1.521**
Cerebrovascular Accident (CVA) Timing	NO CVA	Reference			
	> 2 weeks	0.177	0.231	0.442	1.194
	<= 2 weeks	0.768	0.640	0.231	2.155
Diabetes		0.086	0.119	0.473	1.089
Chronic Lung Disease (CLD)	None/Mild	Reference			
	Moderate	0.020	0.231	0.930	1.021
	Severe	0.282	0.225	0.209	1.326
Arrhythmia: Third Degree Heart Block		0.444	0.426	0.298	1.558
Timing of Myocardial Infarction	No MI	Reference			
	21+ days ago	0.099	0.174	0.569	1.104
	8-21 days ago	0.402	0.235	0.088	1.495
	1-7 days ago	**0.534**	**0.148**	**0.000**	**1.706**
	Within 24 Hours	0.443	0.277	0.110	1.557
Cardiogenic Shock		0.440	0.349	0.208	1.552
Heart Failure		0.238	0.139	0.087	1.269
Ejection Fraction (%)		-0.004	0.004	0.395	0.996
Number of Diseased Vessels	None, One, or Two	Reference			
	3 or More	**0.435**	**0.159**	**0.006**	**1.545**
Year	2009	Reference			
	2010	-0.044	0.111	0.694	0.957

Bolded text indicates statistical significance.
Note: "Last Creatinine PreOp" and "Ejection Fraction" were modeled using piecewise linear transformations.

Discrimination: Post-Operative Stroke

Risk models that distinguish well between patients who have an adverse event and those who do not are said to have good discrimination. A commonly used measure of discrimination is the C-statistic, also known as the area under the Receiver Operating Characteristic (ROC) curve. For all possible pairs of patients, where one has post-operative stroke and the other does not, the C-statistic describes the proportion of pairs where the patient with a post-operative stroke had a higher predicted risk of post-operative stroke than the patient with no stroke. C-statistics range from 0.5 to 1, with higher values indicating better discrimination. For the 2009-2010 risk model, the C-statistic was 0.706. The CCORP 2009-2010 risk model compares favorably with the Society of Thoracic Surgeons' recently published post-operative stroke model (C-statistic = 0.716 for isolated CABG surgery).[12]

Calibration: Post-Operative Stroke

Calibration refers to the ability of a risk model to match predicted and observed post-operative stroke cases. A model in which the number of observed stroke cases matches closely with the number of stroke cases predicted by the model demonstrates good calibration. Good calibration is essential for accurate risk adjustment. A common measure of calibration is the Hosmer-Lemeshow χ^2 test, which compares observed and predicted outcomes over deciles of risk. The p-value of the Hosmer-Lemeshow test statistic for this post-operative stroke risk model is 0.122, indicating adequate calibration. That is, predicted post-operative stroke was consistent with actual post-operative stroke in the data.

Another way to test model calibration is to partition the data and compare observed stroke cases with predicted stroke cases in each of 10 risk groups. The 10 risk groups are created by sorting all observations by the predicted risk of post-operative stroke and then dividing the sorted observations into deciles of approximately equal size. As presented in Table C-2, Risk Group 1 shows the patients in the lowest risk group. Among the 2,567 patients in this group, 8 patients had post-operative strokes, but the model predicted 9.3 cases. Assuming a Poisson distribution for a binary outcome, the predicted range of strokes for this group is 3.3 to 15.2. The observed number of 8 strokes falls within the range of predicted strokes. In fact, 9 of the 10 risk groups have neither significantly fewer nor significantly more post-operative strokes than were predicted by the model. Overall the risk model shows no systematic underestimation or overestimation of stroke cases at the extremes.

[12] Shahian DM, O'Brien SM, Filardo G, et al. The Society of Thoracic Surgeons 2008 cardiac surgery risk models: part 1—coronary artery bypass grafting surgery. *Ann Thorac Surg* 2009; 88:S2-22.

Table C-2: Calibration of Risk Model for Post-Operative Stroke, 2009-2010

Risk Group	Isolated CABG Cases	Observed Post-Op Stroke	Predicted Post-Op Stroke	Difference	95% CI of Predicted Post-Op Stroke
1	2,567	8	9.3	1.3	(3.3, 15.2)
2	2,566	8	13.4	5.4	(6.2, 20.6)
3	2,566	14	16.5	2.5	(8.5, 24.4)
4	2,566	19	19.5	0.5	(10.8, 28.1)
5	2,567	30	22.8	-7.2	(13.4, 32.2)
6	2,565	29	26.9	-2.1	(16.7, 37.0)
7	2,566	21	32.3	11.3	(21.2, 43.4)
8	2,568	44	40.2	-3.8	(27.8, 52.7)
9	2,566	66	53.6	-12.4	(39.3, 68.0)
10	2,562	95	99.6	4.6	(80.0, 119.1)
Total	**25,659**	**334**	**334.0**	**0**	

Note: Risk Group 1 is at lowest risk and Risk Group 10 is at highest risk.

Process for Calculating Risk-Adjusted Stroke Rate and Performance Ratings

The risk-adjusted post-operative stroke rate (RASR) represents the best estimate of what a healthcare provider's post-operative stroke rate would have been if the provider had a patient case mix identical to the statewide average. Thus, this rate is comparable among providers because it accounts for the differences in patient severity-of-illness.

The RASR is computed first by dividing the provider's number of patient strokes by the provider's expected number of patient strokes (based on the risk model) to obtain the observed/expected (O/E) ratio. If the O/E ratio is greater than one, the provider has a higher stroke rate than expected based on patient mix. If the O/E ratio is less than one, the provider has a lower stroke rate than expected. The O/E ratio is then multiplied by the average state post-operative stroke rate (1.31% for 2009-2010) to obtain the provider's risk-adjusted stroke rate.

The performance rating is based on a comparison of the 95% confidence interval (CI) of each provider's RASR to the California average post-operative stroke rate. Thus, CCORP treated 2009-2010 data as a sample, and inferred the range in which each provider's true performance was likely to fall. As shown in Table C-3, if the upper 95% CI of a provider's risk-adjusted stroke rate is below the state average stroke rate, indicating the provider's RASR is significantly lower than the state average, the performance rating is **"Better."** If the lower 95% CI of a provider's RASR is above the state average stroke rate, indicating the provider's risk-adjusted stroke rate is significantly higher than the state average, the performance rating is **"Worse."** If the state average stroke rate is within the 95% CI of a provider's RASR, the performance rating is **"Average."** See the following section for a detailed discussion of results.

Statistical Details of Hospital Risk-Adjusted Post-Operative Stroke Results, 2009-2010

Table C-3 presents the risk-adjusted results for each hospital for 2009-2010. The table is sorted by geographic region and contains, for each hospital, total number of CABG surgeries performed (isolated and non-isolated combined), number of isolated CABG surgeries (excluding salvage cases), number of observed isolated CABG post-operative stroke cases, observed post-operative stroke rate, expected post-operative stroke rate predicted by the risk model, RASR and 95% CI of the RASR, and the associated hospital performance rating.

Among the 25,808 isolated CABG surgeries performed in 2009-2010, 337 patients had a post-operative stroke in-hospital, reflecting an overall rate of 1.31%. Among 337 patients with post-operative stroke, 59 (17.5%) died either in-hospital or after discharge but within 30 days of CABG surgery. The observed stroke rate among hospitals ranged from 0% to 6.67%. The expected stroke rates, which are generated by the model and measure patient severity of illness, were between 0.84% and 1.98%. The risk-adjusted stroke rates, which measure hospital performance, ranged from 0% to 6.29%.

Based on the 95% confidence intervals for risk-adjusted stroke rates, 116 of 120 hospitals (97%) performed within the expected range compared to the state's average stroke rate (denoted by a blank space in the performance rating column of Table C-3), no hospital performed significantly **"Better"** than the state average, and four hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table C-3 submitted statements regarding this report and are presented in Appendix G.

Definitions of Table C-3 Terms

All CABG Cases: The total number of isolated and non-isolated CABG cases submitted to CCORP for 2009 and 2010 combined. Non-isolated CABG cases are not used in calculating performance ratings.

Isolated CABG Cases: The number of isolated CABG cases submitted to CCORP during the time period indicated. All patients in salvage operative status are excluded from the isolated CABG cases, thus only isolated CABG cases without salvage operative status are used in calculating performance ratings.

Isolated CABG Post-Op Strokes: The actual number of post-operative strokes that were unresolved after 24 hours for isolated CABG cases for the time period indicated.

Observed Post-Op Stroke Rate: The ratio of the number of isolated CABG with post-operative stroke and the isolated CABG cases multiplied by 100: Observed Post-Operative Stroke Rate = Number of Isolated CABG Post-Op Strokes/Isolated CABG Cases × 100.

Expected Post-Op Stroke Rate: The ratio of the expected number of post-operative strokes predicted for a provider (after risk adjusting for their patient population) and the isolated CABG cases multiplied by 100: Expected Post-Operative Stroke Rate = Number of Expected Post-Operative Strokes/Number of Isolated CABG Cases × 100.

Risk-Adjusted Post-Operative Stroke Rate (95% CI): The Risk-Adjusted Post-Operative Stroke Rate (RASR) is obtained by multiplying the observed state post-operative stroke rate by a

provider's O/E ratio. The 95% confidence interval represents the confidence we have in the estimate for the RASR. The lower and upper confidence limits are calculated using Poisson exact confidence interval calculations.

Performance Rating: The performance rating is based on a comparison of each provider's risk-adjusted post-operative stroke rate and the state observed post-operative stroke rate. This is a test of statistical significance. A provider is classified as "**Better**" if the upper 95% confidence limit of its RASR falls below the California observed post-operative stroke rate. A provider is classified as "**Worse**" if the lower 95% confidence limit of its RASR is higher than the California observed post-operative stroke rate. A provider is classified as "**Average**" if the California post-operative stroke rate falls within the confidence interval of the provider's risk-adjusted post-operative stroke rate.

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Sacramento Valley & Northern California Region	Enloe Medical Center – Esplanade Campus	343	303	2	0.66	1.32	0.65	(0.08, 2.36)	Average
	Mercy General Hospital	1,563	1,008	15	1.49	1.17	1.66	(0.93, 2.75)	Average
	Mercy Medical Center – Redding	303	224	1	0.45	1.3	0.45	(0.01, 2.51)	Average
	Mercy San Juan Hospital	296	221	1	0.45	1.17	0.51	(0.01, 2.83)	Average
	Rideout Memorial Hospital	306	248	3	1.21	1.16	1.37	(0.28, 4.01)	Average
	Shasta Regional Medical Center	122	110	0	0	1.14	0	(0.00, 3.85)	Average
	St. Joseph Hospital – Eureka	108	81	0	0	1.3	0	(0.00, 4.60)	Average
	Sutter Memorial Hospital	973	670	5	0.75	1.2	0.81	(0.27, 1.90)	Average
	UC Davis Medical Center	373	260	5	1.92	1.24	2.02	(0.66, 4.74)	Average
San Francisco Bay Area & San Jose	Alta Bates Summit Medical Center – Summit Campus	839	655	3	0.46	1.24	0.48	(0.10, 1.42)	Average
	California Pacific Medical Center – Pacific Campus	160	113	0	0	1.17	0	(0.00, 3.64)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
San Francisco Bay Area & San Jose (continued)	Community Hospital Monterey Peninsula	161	115	0	0	1.05	0	(0.00, 3.98)	Average
	Dominican Hospital	154	124	1	0.81	1.16	0.91	(0.02, 5.09)	Average
	El Camino Hospital	162	109	4	3.67	1.17	4.09	(1.12, 10.50)	Average
	Good Samaritan Hospital – San Jose	198	144	4	2.78	1.4	2.59	(0.71, 6.65)	Average
	John Muir Medical Center – Concord Campus	539	436	11	2.52	1.3	2.53	(1.27, 4.54)	Average
	Kaiser Foundation Hospital – San Francisco	628	487	7	1.44	1.11	1.68	(0.68, 3.48)	Average
	Kaiser Foundation Hospital – Santa Clara	545	329	5	1.52	1.33	1.49	(0.49, 3.49)	Average
	Marin General Hospital	111	87	1	1.15	0.93	1.62	(0.04, 9.04)	Average
	North Bay Medical Center	52	51	0	0	0.91	0	(0.00, 10.43)	Average
	O'Connor Hospital – San Jose	136	119	1	0.84	1.82	0.6	(0.02, 3.37)	Average
	Peninsula Medical Center	104	82	1	1.22	1.05	1.51	(0.04, 8.44)	Average
	Queen of the Valley Hospital – Napa	218	158	3	1.9	1.56	1.59	(0.33, 4.67)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
San Francisco Bay Area & San Jose (continued)	Regional Medical of San Jose	90	86	3	3.49	1.59	2.86	(0.59, 8.39)	Average
	Salinas Valley Memorial Hospital	225	176	2	1.14	1.2	1.23	(0.15, 4.47)	Average
	San Ramon Regional Medical Center	80	59	0	0	1.02	0	(0.00, 8.05)	Average
	Santa Clara Valley Medical Center	91	84	0	0	0.91	0	(0.00, 6.32)	Average
	Santa Rosa Memorial Hospital – Montgomery	161	129	1	0.78	1.29	0.79	(0.02, 4.40)	Average
	Sequoia Hospital	199	106	0	0	1.12	0	(0.00, 4.07)	Average
	Seton Medical Center	247	216	5	2.31	1.42	2.13	(0.70, 5.00)	Average
	St. Helena Hospital	139	117	3	2.56	1.47	2.28	(0.47, 6.68)	Average
	St. Mary's Medical Center, San Francisco	74	62	2	3.23	1.29	3.27	(0.40, 11.85)	Average
	Stanford University Hospital	287	174	1	0.57	1.16	0.65	(0.02, 3.61)	Average
	Sutter Medical Center of Santa Rosa	193	138	1	0.72	0.95	1	(0.03, 5.59)	Average
	UCSF Medical Center	177	131	1	0.76	1.01	0.99	(0.03, 5.51)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
San Francisco Bay Area & San Jose (continued)	Valleycare Medical Center	74	60	0	0	1.85	0	(0.00, 4.36)	Average
	Washington Hospital – Fremont	234	214	4	1.87	1.37	1.78	(0.49, 4.58)	Average
Central California	Bakersfield Heart Hospital	290	249	2	0.8	1.22	0.86	(0.10, 3.11)	Average
	Bakersfield Memorial Hospital	277	235	2	0.85	0.96	1.16	(0.14, 4.19)	Average
	Community Medical Center – Fresno	504	425	4	0.94	1.48	0.83	(0.23, 2.13)	Average
	Dameron Hospital	122	117	3	2.56	1.56	2.14	(0.44, 6.28)	Average
	Doctors Medical Center – Modesto Campus	645	507	5	0.99	1.61	0.8	(0.26, 1.88)	Average
	Fresno Heart Hospital	421	328	1	0.3	1.09	0.37	(0.01, 2.05)	Average
	Kaweah Delta Hospital†	612	501	10	2	1.56	1.67	(0.80, 3.08)	Average
	Marian Medical Center	152	134	4	2.99	1.38	2.82	(0.77, 7.23)	Average
	Memorial Medical Center of Modesto	494	408	5	1.23	1.35	1.19	(0.39, 2.78)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Central California (continued)	San Joaquin Community Hospital	182	168	2	1.19	1.31	1.19	(0.14, 4.31)	Average
	St. Agnes Medical Center	630	537	5	0.93	1.28	0.95	(0.31, 2.23)	Average
	St. Joseph's Medical Center of Stockton	612	474	4	0.84	1.34	0.82	(0.22, 2.11)	Average
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara	Antelope Valley Hospital Medical Center	59	52	0	0	1.07	0	(0.00, 8.72)	Average
	Community Memorial Hospital of San Buenaventura	183	151	1	0.66	1.46	0.59	(0.02, 3.31)	Average
	French Hospital Medical Center	262	198	4	2.02	1.14	2.32	(0.63, 5.95)	Average
	Glendale Adventist Medical Center – Wilson Terrace	235	212	2	0.94	1.25	0.98	(0.12, 3.57)	Average
	Glendale Memorial Hospital and Health Center	387	265	2	0.75	1.5	0.66	(0.08, 2.38)	Average
	Lancaster Community Hospital	16	15	1	6.67	1.38	6.29	(0.16, 35.14)	Average
	Los Robles Regional Medical Center	181	139	1	0.72	1.33	0.7	(0.02, 3.94)	Average
	Northridge Hospital Medical Center	159	135	1	0.74	1.21	0.8	(0.02, 4.46)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara (continued)	Providence Holy Cross Medical Center	172	126	3	2.38	1.46	2.13	(0.44, 6.24)	Average
	Providence St. Joseph Medical Center	137	107	2	1.87	1.12	2.18	(0.26, 7.89)	Average
	Providence Tarzana Regional Medical Center – Tarzana	176	130	5	3.85	1.21	4.15	(1.35, 9.72)	**Worse**
	Santa Barbara Cottage Hospital	285	214	4	1.87	1.2	2.04	(0.56, 5.24)	Average
	St. John's Regional Medical Center	184	141	4	2.84	1.7	2.17	(0.59, 5.59)	Average
	Valley Presbyterian Hospital	98	89	0	0	1.15	0	(0.00, 4.70)	Average
	West Hills Regional Medical Center	123	104	3	2.88	1.29	2.92	(0.60, 8.57)	Average
Greater Los Angeles	Beverly Hospital	40	35	0	0	1.02	0	(0.00,13.5)	Average
	Cedars Sinai Medical Center	340	204	2	0.98	1.04	1.23	(0.15, 4.46)	Average
	Centinela Hospital Medical Center	88	79	3	3.8	1.78	2.79	(0.58, 8.19)	Average
	Citrus Valley Medical Center – IC Campus	218	184	3	1.63	1.48	1.44	(0.30, 4.23)	Average
	Downey Regional Medical Center	103	91	0	0	1.16	0	(0.00, 4.58)	Average
	Garfield Medical Center	224	181	0	0	1.51	0	(0.00, 1.77)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Greater Los Angeles (continued)	Good Samaritan Hospital – Los Angeles	231	185	3	1.62	1.56	1.36	(0.28, 3.98)	Average
	Huntington Memorial Hospital	168	134	2	1.49	1.3	1.5	(0.18, 5.44)	Average
	Kaiser Foundation Hospital – Sunset	1,258	928	13	1.4	1.36	1.35	(0.72, 2.31)	Average
	Lakewood Regional Medical Center	269	232	3	1.29	1.69	1	(0.21, 2.93)	Average
	Providence Little Company of Mary Medical Center	133	110	1	0.91	1.56	0.76	(0.02, 4.26)	Average
	Long Beach Memorial Medical Center	506	430	3	0.7	1.36	0.67	(0.14, 1.97)	Average
	Los Angeles Co. Harbor – UCLA Medical Center	200	147	0	0	1.31	0	(0.00, 2.51)	Average
	Los Angeles Co. USC Medical Center	221	177	3	1.69	1.01	2.2	(0.45, 6.44)	Average
	Methodist Hospital of Southern California	85	71	3	4.23	1.62	3.41	(0.70, 9.99)	Average
	Presbyterian Intercommunity Hospital	195	147	1	0.68	1.47	0.6	(0.02, 3.38)	Average
	Ronald Reagan UCLA Medical Center	418	215	2	0.93	1.22	1	(0.12, 3.62)	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	24	22	0	0	1.98	0	(0.00, 11.10)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Greater Los Angeles (continued)	St. Francis Medical Center	84	80	0	0	1.09	0	(0.00, 5.52)	Average
	St. John's Hospital and Health Center	153	98	3	3.06	1.2	3.32	(0.69, 9.73)	Average
	St. Mary Medical Center	111	102	1	0.98	1.91	0.67	(0.02, 3.75)	Average
	St. Vincent Medical Center	189	161	3	1.86	1.44	1.7	(0.35, 4.97)	Average
	Torrance Memorial Medical Center	171	110	1	0.91	1.34	0.89	(0.02, 4.96)	Average
	Keck Hospital of USC	343	174	2	1.15	1.11	1.35	(0.16, 4.90)	Average
	White Memorial Medical Center	104	95	4	4.21	1.45	3.79	(1.04, 9.74)	Average
Inland Empire, Riverside & San Bernardino	Desert Regional Medical Center	302	242	2	0.83	1.23	0.88	(0.11, 3.18)	Average
	Eisenhower Memorial Hospital	405	320	4	1.25	1.29	1.26	(0.34, 3.24)	Average
	Loma Linda University Medical Center	565	442	4	0.9	1.25	0.95	(0.26, 2.44)	Average
	Pomona Valley Hospital Medical Center	277	235	3	1.28	1.44	1.16	(0.24, 3.40)	Average
	Riverside Community Hospital	384	303	3	0.99	1.27	1.02	(0.21, 2.99)	Average
	San Antonio Community Hospital	325	245	5	2.04	1.55	1.72	(0.56, 4.03)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Inland Empire, Riverside & San Bernardino (continued)	St. Bernardine Medical Center	1,114	950	5	0.53	1.18	0.58	(0.19, 1.36)	Average
	St. Mary Regional Medical Center	383	347	1	0.29	1.25	0.3	(0.01, 1.68)	Average
Orange County	AHMC Anaheim Regional Medical Center	307	243	3	1.23	1.39	1.16	(0.24, 3.41)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	259	237	3	1.27	1.49	1.11	(0.23, 3.26)	Average
	Hoag Memorial Hospital Presbyterian	425	290	11	3.79	1.06	4.68	(2.34, 8.40)	**Worse**
	Mission Hospital Regional Medical Center	288	231	2	0.87	0.99	1.15	(0.14, 4.15)	Average
	Orange Coast Memorial Medical Center	18	18	0	0	0.84	0	(0.00, 31.81)	Average
	Saddleback Memorial Medical Center	259	217	0	0	1.04	0	(0.00, 2.14)	Average
	St. Joseph Hospital – Orange	274	225	3	1.33	1.1	1.58	(0.33, 4.63)	Average
	St. Jude Medical Center	268	219	2	0.91	1.22	0.97	(0.12, 3.53)	Average
	UC Irvine Medical Center	91	72	1	1.39	1.48	1.22	(0.03, 6.84)	Average
	West Anaheim Medical Center	21	18	0	0	1.36	0	(0.00, 19.81)	Average
	Western Medical Center – Santa Ana†	93	81	1	1.23	1.61	1	(0.03, 5.60)	Average

Table C-3: Hospital Risk-Adjusted Post-Operative Stroke Results by Region, 2009-2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Post-Operative Strokes	Observed Post-Operative Stroke Rate (%)	Expected Post-Operative Stroke Rate (%)	Risk-Adjusted Post-Operative Stroke Rate (%, RASR)	95% CI for RASR	Performance Rating*
State		**33,557**	**25,808**	**337**	**1.31**				
Orange County (continued)	Western Medical Center Hospital – Anaheim	190	169	1	0.59	1.45	0.53	(0.01, 2.97)	Average
Greater San Diego	Alvarado Hospital Medical Center	148	121	1	0.83	1.25	0.86	(0.02, 4.82)	Average
	Palomar Health Downtown Campus	214	160	1	0.63	1.18	0.69	(0.02, 3.86)	Average
	Scripps Green Hospital	148	81	1	1.23	1.01	1.6	(0.04, 8.96)	Average
	Scripps Memorial Hospital – La Jolla	754	486	11	2.26	1.4	2.11	(1.06, 3.79)	Average
	Scripps Mercy Hospital	327	260	8	3.08	1.35	2.98	(1.29, 5.90)	Average
	Sharp Chula Vista Medical Center	381	296	4	1.35	1.74	1.01	(0.28, 2.60)	Average
	Grossmont Hospital	411	328	12	3.66	1.56	3.07	(1.59, 5.38)	**Worse**
	Sharp Memorial Hospital	357	204	10	4.9	1.03	6.19	(2.98, 11.41)	**Worse**
	Tri-City Medical Center	177	148	2	1.35	1.24	1.42	(0.17, 5.14)	Average
	UCSD Medical Center	55	50	0	0	1.58	0	(0.00, 6.13)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	198	131	1	0.76	1.11	0.9	(0.02, 5.01)	Average

*A hospital is classified as **"Better"** if the upper 95% CI of the RASR falls below the California observed stroke rate (1.31%). A hospital is classified as **"Worse"** if the lower 95% CI of the RASR is higher than the California observed stroke rate. A hospital's performance is considered **"Average"** if the California stroke rate falls within the 95% CI of a hospital's RASR.

† Hospitals submitted statements regarding this report. See Appendix G for their statements.

Appendix D: Technical Notes for 30-Day Risk-Adjusted Hospital Readmission Results

Risk Model for Adjusting 30-Day Hospital Readmission Rates, 2010

Readmissions account for a significant percentage of hospital healthcare costs. To assess hospital performance on this outcome, CCORP limited the analysis to isolated CABG surgery patients readmitted to an acute care hospital within 30 days of being discharged to home or a non-acute care setting. A readmission was counted only if the patient was readmitted with a principal diagnosis (i.e., principal reason for the readmission) that indicated a heart-related condition, or an infection or a complication that was likely related to the CABG surgery (see Appendix F for a list of principal diagnosis categories and their associated ICD-9-CM codes that were included in the readmissions analysis).

Similar to the methodology used to assess the operative mortality and post-operative stroke rate, CCORP used a multivariable logistic regression model to estimate relationship between each of the demographic and pre-operative risk factors and the probability of 30-day readmission. Multivariable logistic regression models relate the probability of readmission to the risk factor (e.g., *patient age*) while controlling for all other risk factors in the model.

To develop the risk model, the 11,304 isolated (non-salvage) CABG surgery cases discharged alive in 2010 were evaluated for missing data (11,178 cases had no missing data in any field and were used for the risk model parameter estimation). The 126 (1.1%) isolated CABG cases with missing data fields were removed to ensure that the effects of risk factors were estimated based on the most complete data available. To generate the hospital results, missing values for these 126 records were imputed (after risk model parameter estimation) by replacing them with the lowest risk category of the same variable (e.g., *Chronic Lung Disease = none*). CCORP assigned the lowest risk value based on the following rationales: 1) some hospitals leave data fields blank by design when the risk factor is absent or the value is normal; 2) to maintain consistency with other major cardiac reporting programs that replace missing data with the lowest-risk or normal value; and 3) assigning values for missing data in this way creates an incentive for more complete reporting by hospitals. After imputing the missing values, the parameters of the risk model were applied to all cases to estimate each patient's probability of readmission. CCORP summed these probabilities to estimate the expected readmission for each hospital. The risk model, based on the 2009 data, is presented in Table D-1 with statistically significant risk factors identified in bolded text.

Table D-1: Logistic Regression Risk Model for 30-Day Readmission, 2010

Risk Factor		Coefficient	Standard Error	p-value	Odds Ratio
Intercept		-4.214	0.270	<.0001	
Patient Age (Years)		**0.012**	**0.003**	**<.0001**	**1.012**
Gender	Male	Reference			
	Female	**0.361**	**0.064**	**<.0001**	**1.435**
Race	White	Reference			
	Non-White vs. White	0.083	0.061	0.175	1.087
Body Mass Index	18.5-39.9	Reference			
	< 18.5	**-0.731**	**0.358**	**0.041**	**0.482**
	≥ 40	**0.483**	**0.127**	**0.000**	**1.621**
Status of the Procedure	Elective	Reference			
	Urgent	**0.232**	**0.063**	**0.000**	**1.261**
	Emergent	0.205	0.181	0.257	1.228
Last Creatinine Pre-Op (mg/dl)		**0.921**	**0.097**	**<.0001**	**2.511**
Hypertension		0.050	0.096	0.600	1.052
Peripheral Vascular Disease		**0.245**	**0.080**	**0.002**	**1.278**
Cerebrovascular Disease		0.182	0.115	0.115	1.199
Cerebrovascular Accident (CVA) Timing	No CVA	Reference			
	> 2 weeks	0.098	0.144	0.496	1.103
	≤ 2 weeks	-0.131	0.566	0.816	0.877
Diabetes		**0.164**	**0.062**	**0.008**	**1.178**
Chronic Lung Disease	None/Mild	Reference			
	Moderate	**0.255**	**0.121**	**0.034**	**1.291**
	Severe	**0.657**	**0.127**	**<.0001**	**1.928**
Immunosuppressive Treatment		0.297	0.155	0.056	1.345
Arrhythmia Type	**Afib/Flutter**	**0.311**	**0.099**	**0.002**	**1.365**
Cardiogenic Shock		0.411	0.285	0.149	1.508
Heart Failure		**0.231**	**0.077**	**0.003**	**1.260**
Prior Cardiac Surgery	None	Reference			
	One or more	0.008	0.179	0.963	1.008
Prior Valve procedure		0.059	0.661	0.929	1.060
Ejection Fraction (%)		**-0.006**	**0.002**	**0.006**	**0.994**

Bolded text indicates statistical significance.

Discrimination: 30-Day Readmission

Risk models that distinguish well between patients who were readmitted to a hospital and those who were not are said to have good discrimination. A commonly used measure of discrimination is the C-statistic, also known as the area under the Receiver Operating Characteristic (ROC) curve. For all possible pairs of patients, where one patient is readmitted and the other is not readmitted, the C-statistic describes the proportion of pairs where the patient who was readmitted had a higher predicted risk of readmission than the patient who was not. C-statistics range from 0.5 to 1, with higher values indicating better discrimination. For the 2010 risk model, the C-statistic was 0.660. In recently published CABG surgery readmission reports by Pennsylvania (2007-2008 data), the C-statistic was 0.637, which is similar to the 2010 CCORP model.

Calibration: 30-Day Readmission

Calibration refers to the ability of a risk model to match predicted readmission with observed readmission. A model in which the number of observed readmissions matches closely with the number of readmissions predicted by the model demonstrates good calibration. Good calibration is essential for accurate risk adjustment. A common measure of calibration is the Hosmer-Lemeshow χ^2 test, which compares observed and predicted outcomes over deciles of risk. The p-value of the Hosmer-Lemeshow test statistic for this 2010 risk model is 0.121, indicating adequate calibration. That is, the predicted readmission was consistent with actual readmission in the data.

Another way to test model calibration is to partition the data and compare observed readmissions with predicted readmissions in each of 10 risk groups. The 10 risk groups are created by sorting all observations by the predicted risk of readmission and then dividing the sorted observations into deciles of approximately equal size. As presented in Table D-2, Risk Group 1 shows the patients in the lowest risk group. Among the 1,118 patients in this group, 64 patients were readmitted to hospital, but the model predicted 71.4 readmissions. Assuming a Poisson distribution for a binary outcome, the predicted range of deaths for Risk Group 1 is 54.9 to 88.0. The observed number of 64 readmissions falls within the range of predicted readmissions. In fact, 9 of the 10 risk groups have neither significantly fewer nor significantly more readmissions than were predicted by the model. Overall, the risk model shows no systematic underestimation or overestimation of readmission at the extremes.

Table D-2: Calibration of Risk Model for 30-Day Readmission, 2010

Risk Group	Isolated CABG cases	Observed Readmission	Predicted Readmission	Difference	95% CI of predicted readmission
1	1,118	64	71.4	7.4	(54.9, 88.0)
2	1,119	85	85.4	0.4	(67.3, 103.5)
3	1,118	73	95.1	22.1	(76.0, 114.2)
4	1,118	104	105.3	1.3	(85.2, 125.4)
5	1,118	114	116.5	2.5	(95.3, 137.6)
6	1,118	135	130.3	-4.7	(108.0, 152.7)
7	1,118	162	148.4	-13.6	(124.5, 172.2)
8	1,118	195	172.9	-22.1	(147.1, 198.7)
9	1,118	221	213.3	-7.7	(184.6, 241.9)
10	1,115	314	328.5	14.5	(293.0, 364.1)
Total	**11,178**	**1,467**	**1,467.0**	**0**	

Note: Risk Group 1 is at lowest risk and Risk Group 10 is at highest risk.

Process for Calculating Risk-Adjusted Readmission Rate and Performance Ratings: 30-Day Readmission

The risk-adjusted readmission rate (RARR) represents the best estimate of what a healthcare provider's readmission rate would have been if the provider had a patient case mix identical to the statewide average. Thus, this rate is comparable among providers because it accounts for the differences in patient severity-of-illness.

The RARR is computed first by dividing the provider's observed readmission by the provider's expected readmission (obtained from the risk model calculation) to get the observed/expected (O/E) ratio. If the O/E ratio is greater than one, the provider has a higher readmission than expected based on patient mix. If the O/E ratio is less than one, the provider has a lower readmission rate than expected. The O/E ratio is then multiplied by the overall state readmission rate (13.15% for 2010) to obtain the provider's risk-adjusted readmission rate.

However, because a provider's point estimate of the RARR can be attributed to chance, this report determines the performance rating not based on a point estimate of the RARR, but based on a comparison of the 95% confidence interval (CI) of each provider's RARR to the California average readmission rate.[13] CCORP treated the 2010 data as samples, and inferred a range within which each provider's true performance was likely to fall. As shown in Table D-3, if the upper 95% CI of a provider's risk-adjusted readmission is below the state average readmission rate, indicating the provider's RARR is significantly lower than the state average, the performance rating is **"Better."** If the lower 95% CI of a provider's RARR is above the state average readmission rate, indicating the provider's risk-adjusted readmission is significantly higher than the state average, the performance rating is **"Worse."** If the state average readmission rate is within the 95% CI of a provider's RARR, the performance rating is **"Average."** See the following section for a detailed discussion of results.

[13] The Poisson Exact Probability method is used for computing the 95% confidence interval for the risk-adjusted readmission rate. (Buchan Iain, *Calculating Poisson Confidence Interval in Excel*, January 2004)

Statistical Details of 30-Day Risk-Adjusted Readmission Results, 2009-2010

Table D-3 presents the risk-adjusted readmission results for each hospital for 2010. The table is sorted by geographic region and contains, for each hospital, the total number of CABG surgeries performed (isolated and non-isolated combined), the number of patients discharged alive after isolated CABG surgeries (excluding salvage patients), the number of observed isolated CABG readmissions, observed readmission rate, expected readmission rate predicted by the risk model, RARR and 95% CI of the RARR, and the associated hospital performance rating.

Among the 11,304 isolated (non-salvage) CABG surgeries performed in 2010 who were discharged alive, 1,487 patients were readmitted to the same or another acute care hospital within 30 days of the surgery date, reflecting an overall readmission rate of 13.15%. The observed readmission rates among hospitals ranges from 0% to 30.35%. The expected readmission rates, which are generated by the risk model and account for patient severity of illness, range between 9.25% and 17.29%. The risk-adjusted readmission rates (RARR), which measure hospital performance, range from 0% to 29.95%.

Based on the 95% confidence intervals for risk-adjusted readmission rates, 116 of 120 hospitals (97%) performed within the expected range compared to the state's overall readmission rate (denoted by a blank space in the performance rating column of Table D-3), two hospitals performed significantly **"Better"** than the state average, and two hospitals performed significantly **"Worse"** than the state average. Hospitals marked with † in Table D-3 submitted statements regarding this report (presented in Appendix G).

Definitions of Table D-3 Terms

All CABG Cases: The total number of isolated and non-isolated CABG cases submitted to CCORP for 2010. Non-isolated CABG cases are not used in calculating performance ratings.

Isolated CABG Cases Discharged-Alive: The number of isolated CABGs submitted to CCORP for 2010, where the patient was discharged alive from a CABG hospital and could be followed up via hospital patient discharge data (PDD) in 2010-2011. Patients in salvage operative status, patients who were transferred to acute care or patients who left against medical advice were excluded.

Isolated CABG Readmissions: The number of hospital readmissions within 30 days of being discharged from the hospital where an isolated CABG operation was performed, irrespective of the hospital to which they were readmitted. A readmission was included only if the patient was readmitted with a principal diagnosis that indicated a heart-related condition, an infection, or a complication that was likely related to the CABG surgery. Readmission was attributed to the hospital performing the initial CABG surgery.

Observed Readmission Rate: The ratio of the number of isolated CABG readmissions within 30 days of discharge and the discharged-alive isolated CABG cases multiplied by 100: Observed Readmission Rate = Number of Isolated CABG Readmissions within 30 Days of Discharge/Discharged-Alive Isolated CABG Cases × 100.

Expected Readmission Rate: The ratio of the expected number of readmissions predicted for a provider (after adjusting for their patient population) and the discharged-alive isolated CABG cases

multiplied by 100: Expected Readmission Rate = Number of Expected Readmissions/Number of Discharged-Alive Isolated CABG Cases × 100.

Risk-Adjusted Readmission Rate (95% CI): The Risk-Adjusted Readmission Rate (RARR) is obtained by multiplying the observed state readmission rate by a provider's O/E ratio. The 95% confidence interval represents the confidence in the estimate of the RARR. The lower and upper confidence limits are calculated using Poisson exact confidence interval calculations.

Performance Rating: The performance rating is based on a comparison of each provider's risk-adjusted readmission rate and the state observed readmission rate. This is a test of statistical significance. A provider is classified as "**Better**" if the upper 95% confidence limit of its RARR falls below the California observed readmission rate. A provider is classified as "**Worse**" if the lower 95% confidence limit of its RARR is higher than the California observed readmission rate. A provider is classified as "**Average**" if the California readmission rate falls within the confidence interval of the provider's risk-adjusted readmission rate.

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Sacramento Valley & Northern California Region	Enloe Medical Center – Esplanade Campus	170	146	22	15.07	12.55	15.79	(9.89, 23.90)	Average
	Mercy General Hospital	793	425	35	8.24	11.58	9.35	(6.51, 13.01)	**Better**
	Mercy Medical Center – Redding	130	92	12	13.04	14.13	12.15	(6.27, 21.21)	Average
	Mercy San Juan Hospital	153	108	13	12.04	12.24	12.93	(6.88, 22.11)	Average
	Rideout Memorial Hospital	149	115	20	17.39	12.36	18.51	(11.31, 28.58)	Average
	Shasta Regional Medical Center	67	56	5	8.93	11.49	10.23	(3.32, 23.86)	Average
	St. Joseph Hospital – Eureka	42	32	4	12.5	13.68	12.02	(3.27, 30.76)	Average
	Sutter Memorial Hospital	505	313	32	10.22	12.57	10.7	(7.31, 15.09)	Average
	UC Davis Medical Center	163	111	18	16.22	12.02	17.75	(10.52, 28.05)	Average
San Francisco Bay Area & San Jose	Alta Bates Summit Medical Center – Summit Campus	289	170	21	12.35	14.47	11.23	(6.95, 17.16)	Average
	California Pacific Medical Center – Pacific Campus	78	46	8	17.39	10.74	21.31	(9.20, 41.97)	Average
	Community Hospital Monterey Peninsula	80	57	6	10.53	12.46	11.12	(4.08, 24.19)	Average
	Dominican Hospital	82	55	6	10.91	10.78	13.31	(4.88, 28.96)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
San Francisco Bay Area & San Jose (continued)	El Camino Hospital	82	46	3	6.52	10.78	7.96	(1.64, 23.24)	Average
	Good Samaritan Hospital – San Jose	85	54	5	9.26	10.86	11.22	(3.64, 26.17)	Average
	John Muir Medical Center – Concord Campus	248	191	19	9.95	12.89	10.15	(6.11, 15.85)	Average
	Kaiser Foundation Hospital - San Francisco	387	289	32	11.07	11.71	12.44	(8.51, 17.56)	Average
	Kaiser Foundation Hospital – Santa Clara	311	186	23	12.37	13.36	12.18	(7.72, 18.27)	Average
	Marin General Hospital	59	44	1	2.27	12.5	2.39	(0.06, 13.32)	Average
	North Bay Medical Center	33	24	1	4.17	10.53	5.21	(0.13, 29.00)	Average
	O'Connor Hospital – San Jose	74	59	4	6.78	14.56	6.13	(1.67, 15.68)	Average
	Peninsula Medical Center	49	35	5	14.29	11.02	17.06	(5.54, 39.79)	Average
	Queen of the Valley Hospital – Napa	70	37	6	16.22	13.3	16.04	(5.89, 34.91)	Average
	Regional Medical of San Jose	52	46	8	17.39	16.52	13.85	(5.98, 27.28)	Average
	Salinas Valley Memorial Hospital	107	81	12	14.81	13.32	14.64	(7.56, 25.56)	Average
	San Ramon Regional Medical Center	36	24	2	8.33	11.95	9.17	(1.11, 33.13)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
San Francisco Bay Area & San Jose (continued)	Santa Clara Valley Medical Center	48	40	3	7.5	9.25	10.66	(2.20, 31.15)	Average
	Santa Rosa Memorial Hospital – Montgomery	84	59	3	5.08	11.65	5.74	(1.18, 16.77)	Average
	Sequoia Hospital	100	48	5	10.42	10.79	12.7	(4.12, 29.62)	Average
	Seton Medical Center	113	94	13	13.83	15	12.13	(6.45, 20.73)	Average
	St. Helena Hospital	73	56	17	30.36	14.65	27.27	(15.88, 43.64)	**Worse**
	St. Mary's Medical Center, San Francisco	35	28	2	7.14	12.32	7.62	(0.92, 27.53)	Average
	Stanford University Hospital	131	63	6	9.52	11.49	10.91	(4.00, 23.73)	Average
	Sutter Medical Center of Santa Rosa	96	63	8	12.7	10.74	15.56	(6.71, 30.64)	Average
	UCSF Medical Center	80	51	10	19.61	13.05	19.77	(9.48, 36.34)	Average
	Valleycare Medical Center	36	23	0	0	12.99	0	(0.00, 16.23)	Average
	Washington Hospital – Fremont	99	87	15	17.24	14.68	15.45	(8.64, 25.47)	Average
	Bakersfield Heart Hospital	122	94	13	13.83	12.24	14.86	(7.91, 25.40)	Average
Central California	Bakersfield Memorial Hospital	129	97	13	13.4	12.64	13.95	(7.42, 23.84)	Average
	Community Medical Center – Fresno	266	201	23	11.44	13.78	10.92	(6.92, 16.38)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Central California (continued)	Dameron Hospital	56	45	8	17.78	14.42	16.21	(7.00, 31.94)	Average
	Doctors Medical Center – Modesto Campus	304	219	24	10.96	16.7	8.63	(5.53, 12.84)	**Better**
	Fresno Heart Hospital	196	148	18	12.16	12.76	12.54	(7.43, 19.80)	Average
	Kaweah Delta Hospital†	308	244	41	16.8	15.77	14.01	(10.05, 19.00)	Average
	Marian Medical Center	93	79	7	8.86	11.7	9.96	(4.00, 20.51)	Average
	Memorial Medical Center of Modesto	234	185	26	14.05	13.68	13.52	(8.83, 19.80)	Average
	San Joaquin Community Hospital	78	62	13	20.97	12.06	22.88	(12.18, 39.11)	Average
	St. Agnes Medical Center	314	227	27	11.89	13.1	11.95	(7.87, 17.38)	Average
	St. Joseph's Medical Center of Stockton	281	203	26	12.81	14.32	11.76	(7.68, 17.23)	Average
	Antelope Valley Hospital Medical Center	33	26	6	23.08	11.27	26.94	(9.88, 58.63)	Average
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara	Community Memorial Hospital of San Buenaventura	100	77	9	11.69	13.67	11.24	(5.14, 21.34)	Average
	French Hospital Medical Center	123	76	9	11.84	11.34	13.74	(6.28, 26.07)	Average
	Glendale Adventist Medical Center – Wilson Terrace	107	86	16	18.6	12.82	19.09	(10.91, 30.99)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara (continued)	Glendale Memorial Hospital and Health Center	192	125	17	13.6	14.26	12.55	(7.31, 20.08)	Average
	Lancaster Community Hospital	8	7	1	14.29	12.6	14.92	(0.38, 83.08)	Average
	Los Robles Regional Medical Center	89	63	9	14.29	12.36	15.21	(6.95, 28.86)	Average
	Northridge Hospital Medical Center	87	66	11	16.67	12.25	17.9	(8.93, 32.01)	Average
	Providence Holy Cross Medical Center	77	53	10	18.87	11.73	21.15	(10.14, 38.89)	Average
	Providence St. Joseph Medical Center	72	52	7	13.46	11.54	15.34	(6.17, 31.60)	Average
	Providence Tarzana Regional Medical Center – Tarzana	88	63	8	12.7	12.03	13.89	(5.99, 27.36)	Average
	Santa Barbara Cottage Hospital	132	98	8	8.16	12.21	8.8	(3.80, 17.33)	Average
	St. John's Regional Medical Center	87	59	15	25.42	16.24	20.59	(11.52, 33.95)	Average
	Valley Presbyterian Hospital	58	45	9	20	12.48	21.09	(9.64, 40.01)	Average
	West Hills Regional Medical Center	65	47	11	23.4	13.3	23.14	(11.55, 41.40)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Greater Los Angeles	Beverly Hospital	19	15	3	20	12.86	20.45	(4.22, 59.75)	Average
	Cedars Sinai Medical Center	166	83	12	14.46	12.12	15.7	(8.11, 27.41)	Average
	Centinela Hospital Medical Center	44	30	6	20	16	16.44	(6.03, 35.78)	Average
	Citrus Valley Medical Center – IC Campus	114	89	12	13.48	14.8	11.98	(6.19, 20.92)	Average
	Downey Regional Medical Center	48	42	4	9.52	12.97	9.66	(2.63, 24.73)	Average
	Garfield Medical Center	102	74	12	16.22	13.43	15.88	(8.20, 27.73)	Average
	Good Samaritan Hospital – Los Angeles	107	65	13	20	14.45	18.2	(9.69, 31.12)	Average
	Huntington Memorial Hospital	98	79	11	13.92	13.91	13.17	(6.57, 23.56)	Average
	Kaiser Foundation Hospital – Sunset	626	428	66	15.42	13.69	14.82	(11.46, 18.85)	Average
	Lakewood Regional Medical Center	141	119	13	10.92	16.1	8.93	(4.75, 15.26)	Average
	Providence Little Company of Mary Medical Center	73	55	10	18.18	14.09	16.97	(8.14, 31.20)	Average
	Long Beach Memorial Medical Center	220	160	33	20.63	12.56	21.61	(14.87, 30.34)	**Worse**
	Los Angeles Co. Harbor – UCLA Medical Center	114	63	13	20.63	13.95	19.46	(10.36, 33.27)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Greater Los Angeles (continued)	Los Angeles Co. USC Medical Center	105	54	8	14.81	11.64	16.74	(7.22, 32.97)	Average
	Methodist Hospital of Southern California	40	31	4	12.9	14.32	11.85	(3.23, 30.33)	Average
	Presbyterian Intercommunity Hospital	98	73	12	16.44	13.75	15.73	(8.12, 27.46)	Average
	Ronald Reagan UCLA Medical Center	211	90	13	14.44	12.58	15.11	(8.04, 25.83)	Average
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	4	4	0	0	9.73	0	(0.00, 100.0)	Average
	St. Francis Medical Center	35	28	3	10.71	11.21	12.57	(2.59, 36.73)	Average
	St. John's Hospital and Health Center	67	41	2	4.88	11.93	5.38	(0.65, 19.43)	Average
	St. Mary Medical Center	61	54	14	25.93	17.29	19.73	(10.78, 33.09)	Average
	St. Vincent Medical Center	81	64	10	15.63	12.97	15.85	(7.60, 29.14)	Average
	Torrance Memorial Medical Center	81	48	6	12.5	13.36	12.31	(4.52, 26.79)	Average
	Keck Hospital of USC	165	73	11	15.07	12.47	15.89	(7.93, 28.43)	Average
	White Memorial Medical Center	54	46	7	15.22	16.01	12.5	(5.02, 25.74)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Inland Empire, Riverside & San Bernardino	Desert Regional Medical Center	132	97	13	13.4	13.01	13.55	(7.21, 23.16)	Average
	Eisenhower Memorial Hospital	202	139	11	7.91	12.94	8.04	(4.01, 14.39)	Average
	Loma Linda University Medical Center	285	199	29	14.57	13.38	14.32	(9.59, 20.56)	Average
	Pomona Valley Hospital Medical Center	133	111	12	10.81	13.72	10.36	(5.35, 18.10)	Average
	Riverside Community Hospital	191	143	15	10.49	13.91	9.92	(5.55, 16.35)	Average
	San Antonio Community Hospital	167	116	11	9.48	13.13	9.5	(4.74, 16.99)	Average
	St. Bernardine Medical Center	539	346	37	10.69	12.98	10.83	(7.63, 14.93)	Average
	St. Mary Regional Medical Center	186	155	26	16.77	13.48	16.37	(10.69, 23.98)	Average
Orange County	AHMC Anaheim Regional Medical Center	164	112	21	18.75	14.77	16.7	(10.33, 25.52)	Average
	Fountain Valley Regional Hospital and Medical Center – Euclid	144	127	24	18.9	14.73	16.88	(10.81, 25.10)	Average
	Hoag Memorial Hospital Presbyterian	208	139	11	7.91	10.88	9.56	(4.77, 17.11)	Average
	Mission Hospital Regional Medical Center	144	116	19	16.38	10.38	20.75	(12.49, 32.39)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Orange County (continued)	Orange Coast Memorial Medical Center	18	17	3	17.65	11.24	20.66	(4.26, 60.35)	Average
	Saddleback Memorial Medical Center	112	91	14	15.38	11.43	17.71	(9.68, 29.70)	Average
	St. Joseph Hospital – Orange	131	106	8	7.55	11.82	8.4	(3.63, 16.55)	Average
	St. Jude Medical Center	140	97	9	9.28	13.48	9.05	(4.14, 17.18)	Average
	UC Irvine Medical Center	36	24	6	25	15.02	21.9	(8.03, 47.65)	Average
	West Anaheim Medical Center	10	8	2	25	10.98	29.95	(3.63, 100.0)	Average
	Western Medical Center – Santa Ana†	42	31	5	16.13	16.04	13.23	(4.29, 30.85)	Average
	Western Medical Center Hospital – Anaheim	74	60	12	20	14.73	17.86	(9.23, 31.19)	Average
Greater San Diego	Alvarado Hospital Medical Center	72	44	3	6.82	12.03	7.45	(1.54, 21.78)	Average
	Palomar Health Downtown Campus	88	57	6	10.53	12.29	11.27	(4.13, 24.52)	Average
	Scripps Green Hospital	65	31	4	12.9	11.24	15.11	(4.11, 38.66)	Average
	Scripps Memorial Hospital – La Jolla	341	179	18	10.06	12.97	10.2	(6.04, 16.11)	Average
	Scripps Mercy Hospital	168	121	15	12.4	13.1	12.45	(6.97, 20.53)	Average

Table D-3: Hospital Risk-Adjusted Readmission Results by Region, 2010

Region	Hospital	All CABG Cases	Isolated CABG Cases	Isolated CABG Readmission	Observed Readmission Rate (%)	Expected Readmission Rate (%)	Risk-Adjusted Readmission Rate (%, RARR)	95% CI for RARR	Performance Rating
State		**16,346**	**11,304**	**1,487**	**13.15**				
Greater San Diego (continued)	Sharp Chula Vista Medical Center	196	142	18	12.68	15.32	10.88	(6.45, 17.19)	Average
	Grossmont Hospital	194	131	17	12.98	13.97	12.22	(7.12, 19.56)	Average
	Sharp Memorial Hospital	195	104	9	8.65	11.59	9.82	(4.49, 18.64)	Average
	Tri-City Medical Center	92	72	12	16.67	12.3	17.83	(9.21, 31.13)	Average
	UCSD Medical Center	27	23	3	13.04	14.8	11.6	(2.39, 33.88)	Average
	UCSD Medical Center – La Jolla, John M. & Sally B. Thornton Hospital	88	57	6	10.53	11.46	12.09	(4.43, 26.30)	Average

*A hospital is classified as **"Better"** if the upper 95% CI of the RARR falls below the California observed readmission rate (13.15%). A hospital is classified as **"Worse"** if the lower 95% CI of the RARR is higher than the California observed readmission rate. A hospital's performance is considered **"Average"** if the California readmission rate falls within the 95% CI of a hospital's RARR.

† Hospitals submitted statements regarding this report. See Appendix G for their statements.

Appendix E: Statistical Details of Internal Mammary Artery Usage by Hospital, 2010: A Process Measure of Quality

A widely accepted definition of healthcare quality contains three dimensions: process, structure, and outcomes.[14] In addition to publishing hospital outcomes (risk-adjusted operative mortality rates, risk-adjusted post-operative stroke rates, and risk-adjusted readmission rates), this report also assesses a process of care measure by reporting hospital use of the internal mammary artery (IMA) in surgery. Although outcomes measurement permits comparison of provider performance and can be used for investigating internal processes and structures, assessing the process of care provides a more immediate path to improvement in patient care since it involves measurement of the care patients actually receive. If diagnostic and therapeutic strategies with clear links to outcomes are monitored, some healthcare quality problems can be detected long before demonstrable health outcome differences occur.

In most cases of first-time isolated CABG surgery where the operative status is elective or urgent, the surgeon has the option of using the IMA (also known as the internal thoracic artery). Clinical literature strongly supports use of the IMA to promote long-term graft patency (durability) and patient survival. Recent research also suggests a reduction in immediate operative mortality associated with use of the internal mammary artery rather than saphenous (leg) vein revascularization.[15] The IMA, and especially the left IMA, is considered the preferred conduit for CABG surgery of the left anterior descending (LAD) coronary artery.

Many nationally respected organizations encourage the use of IMA when appropriate. Currently, the Leapfrog Evidence-Based Hospital Referral program endorses the goal of 80% hospital adherence to IMA use. The National Quality Forum (NQF) does not endorse a specific rate but states that the goal is to raise the IMA usage rates of hospitals with low utilization. The Society of Thoracic Surgeons (STS) states that IMA use should be given primary consideration in every CABG surgery patient. Furthermore, a number of healthcare quality advocates recommend public reporting of IMA usage rates for CABG surgery.

Table E-1 presents hospital results for usage of the IMA by region for 2010. Only first-time isolated CABG surgeries where the operative status is elective or urgent and the LAD was bypassed are included in calculating IMA-usage rates. The statewide IMA usage rate was virtually unchanged (96.2% in 2009 vs. 96.0% in 2010). Five hospitals received a **"Low"** rating for 2010. Hospital IMA usage rates above the statewide average rate are not rated because there is no consensus on what constitutes an optimal IMA usage rate. Hospitals marked with † in Table E-1 submitted statements regarding this report. Their statements are presented in Appendix G.

Definitions of Table E-1 Terms

Isolated CABG Surgeries: Includes only first-time non-cardiogenic shock isolated CABG surgeries for 2010 where the operative status was elective or urgent and the left anterior descending (LAD) artery was bypassed. This number will generally be smaller than the total isolated CABG cases performed by the hospital.

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[14] Donabedian A. Evaluating the Quality of Medical Care. *The Milbank Quarterly*, 2005; 83(4):691-729.

[15] Ferguson TB Jr., Coombs LP, Peterson ED. "Internal thoracic artery grafting in the elderly patient undergoing coronary artery bypass grafting: room for process improvement?" *Journal of Thoracic and Cardiovascular Surgery*, 2002; 123(5):869-80.

IMA Usage Rate: The ratio of the number of CABG surgeries with IMA grafts (including left IMA, right IMA and bilateral IMA) and selected first-time isolated CABG cases multiplied by 100: Percent IMA use = Number of IMA Grafts used for First-Time Isolated CABG Surgeries/Number of First-Time Isolated CABG Cases × 100.

Performance Rating: A blank rating indicates that the IMA usage rate is acceptable. A **"Low"** rating indicates that the IMA usage rate for a hospital is less than 82.51%, i.e., two standard deviations (0.0688 × 1.96) below the hospital statewide average IMA usage rate (95.99%). IMA usage rates above the hospital statewide average IMA usage rate was not evaluated because there is no consensus on what constitutes an optimal rate of usage.

Table E-1: Hospital Internal Mammary Artery Usage Results by Region, 2010

Region	Hospital	Isolated CABGs*	Percent IMA Use	Rank†
State	**All Hospitals**	**11,331**	**95.99%**	
Sacramento Valley & Northern California Region	Enloe Medical Center – Esplanade Campus	132	91.67%	
	Mercy General Hospital	466	99.14%	
	Mercy Medical Center – Redding	72	100.00%	
	Mercy San Juan Hospital	107	99.07%	
	Rideout Memorial Hospital	109	95.41%	
	Shasta Regional Medical Center	55	76.36%	Low
	St. Joseph Hospital – Eureka	33	96.97%	
	Sutter Memorial Hospital	310	97.10%	
	UC Davis Medical Center	114	94.74%	
San Francisco Bay Area & San Jose	Alta Bates Summit Medical Center – Summit Campus	220	99.55%	
	California Pacific Medical Center – Pacific Campus	49	100.00%	
	Community Hospital Monterey Peninsula	55	100.00%	
	Dominican Hospital	60	90.00%	
	El Camino Hospital	47	100.00%	
	Good Samaritan Hospital – San Jose	50	100.00%	
	John Muir Medical Center – Concord Campus	182	98.35%	
	Kaiser Foundation Hospital – San Francisco	282	97.87%	
	Kaiser Foundation Hospital – Santa Clara	181	98.90%	
	Marin General Hospital	44	86.36%	
	North Bay Medical center	30	100.00%	

Table E-1: Hospital Internal Mammary Artery Usage Results by Region, 2010

Region	Hospital	Isolated CABGs*	Percent IMA Use	Rank†
State	**All Hospitals**	**11,331**	**95.99%**	
San Francisco Bay Area & San Jose (continued)	O'Connor Hospital - San Jose	58	100.00%	
	Peninsula Medical Center	40	100.00%	
	Queen of the Valley Hospital – Napa	43	97.67%	
	Regional Medical of San Jose	46	100.00%	
	Salinas Valley Memorial Hospital	70	94.29%	
	San Ramon Regional Medical Center	25	100.00%	
	Santa Clara Valley Medical Center	45	93.33%	
	Santa Rosa Memorial Hospital – Montgomery	57	89.47%	
	Sequoia Hospital	41	100.00%	
	Seton Medical Center	85	94.12%	
	St. Helena Hospital	57	87.72%	
	St. Mary's Medical Center, San Francisco	28	96.43%	
	Stanford University Hospital	64	95.31%	
	Sutter Medical Center of Santa Rosa	61	73.77%	Low
	UCSF Medical Center	57	100.00%	
	Valleycare Medical Center	23	100.00%	
	Washington Hospital – Fremont	88	100.00%	
Central California	Bakersfield Heart Hospital	96	94.79%	
	Bakersfield Memorial Hospital	98	94.90%	
	Community Medical Center – Fresno	191	97.38%	
	Dameron Hospital	46	93.48%	
	Doctors Medical Center – Modesto Campus	223	95.52%	
	Fresno Heart Hospital	136	96.32%	
	Kaweah Delta Hospital†	248	98.39%	
	Marian Medical Center	75	96.00%	
	Memorial Medical Center of Modesto	175	94.86%	
	San Joaquin Community Hospital	61	93.44%	

Table E-1: Hospital Internal Mammary Artery Usage Results by Region, 2010

Region	Hospital	Isolated CABGs*	Percent IMA Use	Rank†
State	**All Hospitals**	**11,331**	**95.99%**	
Central California (continued)	St. Agnes Medical Center	218	98.62%	
	St. Joseph's Medical Center of Stockton	190	97.89%	
San Fernando Valley, Antelope Valley, Ventura & Santa Barbara	Antelope Valley Hospital Medical Center	28	82.14%	Low
	Community Memorial Hospital of San Buenaventura	76	100.00%	
	French Hospital Medical Center	75	97.33%	
	Glendale Adventist Medical Center – Wilson Terrace	91	98.90%	
	Glendale Memorial Hospital and Health Center	129	99.22%	
	Lancaster Community Hospital	7	100.00%	
	Los Robles Regional Medical Center	57	96.49%	
	Northridge Hospital Medical Center	66	100.00%	
	Providence Holy Cross Medical Center	44	97.73%	
	Providence St. Joseph Medical Center	51	98.04%	
	Providence Tarzana Regional Medical Center – Tarzana	63	98.41%	
	Santa Barbara Cottage Hospital	94	96.81%	
	St. John's Regional Medical Center	64	81.25%	Low
	Valley Presbyterian Hospital	49	93.88%	
	West Hills Regional Medical Center	52	94.23%	
Greater Los Angeles	Beverly Hospital	16	93.75%	
	Cedars Sinai Medical Center	89	98.88%	
	Centinela Hospital Medical Center	36	94.44%	
	Citrus Valley Medical Center – IC Campus	92	96.74%	
	Downey Regional Medical Center	43	90.70%	
	Garfield Medical Center	59	93.22%	
	Good Samaritan Hospital – Los Angeles	71	100.00%	
	Huntington Memorial Hospital	78	98.72%	

Table E-1: Hospital Internal Mammary Artery Usage Results by Region, 2010

Region	Hospital	Isolated CABGs*	Percent IMA Use	Rank†
State	**All Hospitals**	**11,331**	**95.99%**	
Greater Los Angeles (continued)	Kaiser Foundation Hospital – Sunset	417	94.48%	
	Lakewood Regional Medical Center	110	95.45%	
	Providence Little Company of Mary Medical Center	40	95.00%	
	Long Beach Memorial Medical Center	160	95.63%	
	Los Angeles Co. Harbor – UCLA Medical Center	84	98.81%	
	Los Angeles Co. USC Medical Center	76	92.11%	
	Methodist Hospital of Southern California	30	100.00%	
	Presbyterian Intercommunity Hospital	72	98.61%	
	Ronald Reagan UCLA Medical Center	82	98.78%	
	Santa Monica – UCLA Medical Center and Orthopaedic Hospital	3	100.00%	
	St. Francis Medical Center	32	93.75%	
	St. John's Hospital and Health Center	41	97.56%	
	St. Mary Medical Center	49	100.00%	
	St. Vincent Medical Center	66	89.39%	
	Torrance Memorial Medical Center	49	100.00%	
	Keck Hospital of USC	66	96.97%	
	White Memorial Medical Center	49	100.00%	
Inland Empire, Riverside & San Bernardino	Desert Regional Medical Center	95	93.68%	
	Eisenhower Memorial Hospital	140	91.43%	
	Loma Linda University Medical Center	213	97.18%	
	Pomona Valley Hospital Medical Center	102	98.04%	
	Riverside Community Hospital	137	95.62%	
	San Antonio Community Hospital	114	99.12%	
	St. Bernardine Medical Center	443	97.07%	
	St. Mary Regional Medical Center	96	98.96%	

Table E-1: Hospital Internal Mammary Artery Usage Results by Region, 2010

Region	Hospital	Isolated CABGs*	Percent IMA Use	Rank†
State	**All Hospitals**	**11,331**	**95.99%**	
Orange County	AHMC Anaheim Regional Medical Center	120	98.33%	
	Fountain Valley Regional Hospital and Medical Center – Euclid	123	93.50%	
	Hoag Memorial Hospital Presbyterian	125	99.20%	
	Mission Hospital Regional Medical Center	113	100.00%	
	Orange Coast Memorial Medical Center	16	100.00%	
	Saddleback Memorial Medical Center	88	97.73%	
	St. Joseph Hospital – Orange	103	100.00%	
	St. Jude Medical Center	100	100.00%	
	UC Irvine Medical Center	23	95.65%	
	West Anaheim Medical Center	5	40.00%	Low
	Western Medical Center – Santa Ana†	29	100.00%	
	Western Medical Center Hospital – Anaheim	59	98.31%	
Greater San Diego	Alvarado Hospital Medical Center	49	100.00%	
	Palomar Health Downtown Campus	62	100.00%	
	Scripps Green Hospital	30	100.00%	
	Scripps Memorial Hospital – La Jolla	195	94.36%	
	Scripps Mercy Hospital	129	100.00%	
	Sharp Chula Vista Medical Center	139	100.00%	
	Grossmont Hospital	138	99.28%	
	Sharp Memorial Hospital	93	95.70%	
	Tri-City Medical Center	69	95.65%	
	UCSD Medical Center	24	100.00%	
	UCSD Medical Center - La Jolla, John M. & Sally B. Thornton Hospital	60	98.33%	

* Only includes first-time non-cardiogenic shock isolated CABGs where the operative status was elective or urgent and LAD was bypassed.

† Low rank: IMA usage rate for a hospital is less than 82.51%, i.e., two standard deviations (0.0688 x 1.96) below the hospital statewide average IMA usage rate (95.99%).

Appendix F: Definition of Readmission

A readmission was counted only if the patient was readmitted with a principal diagnosis (i.e., the reason for the readmission) that indicated a heart-related condition, or an infection or a complication that was likely related to the CABG surgery hospitalization. California adopted the diagnosis categories and associated ICD-9-CM codes used by the Pennsylvania Healthcare Cost Containment Council for readmissions. The following list of categories shows the ICD-9-CM codes that were counted as readmissions if the code was located in the principal diagnosis position.

CIRCULATORY SYSTEM

Cardiac Dysrhythmias
Heart Block: 426.0, 426.10, 426.11, 426.12, 426.13, 426.2, 426.3, 426.4, 426.50, 426.51, 426.52, 426.53, 426.54, 426.6, 426.7, 426.81, 426.82, 426.89, 426.9
Paroxysmal Tachycardia: 427.0, 427.1, 427.2
Atrial Fibrillation and Atrial Flutter: 427.31, 427.32
Ventricular Fibrillation and Ventricular Flutter: 427.41, 427.42, 427.5
Premature Heart Beats: 427.60, 427.61, 427.69
Other Cardiac Dysrhythmias: 427.81, 427.89, 427.9

Heart Failure: 398.91, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 428.42, 428.43, 428.9

Functional Disturbances Follow Cardiac Surgery (Postcardiotomy Syndrome): 429.4

Hypertension and Hypotension:
Essential Hypertension: 401.0, 401.1, 401.9
Hypertensive Heart Disease: 402.00, 402.01, 402.10, 402.11, 402.90, 402.91
Hypertensive Chronic Kidney Disease: 403.00, 403.01, 403.10, 403.11, 403.90, 403.91
Hypertensive Heart and Chronic Kidney Disease: 404.00, 404.01, 404.02, 404.03, 404.10, 404.11, 404.12, 404.13, 404.90, 404.91, 404.92, 404.93
Secondary Hypertension: 405.01, 405.09, 405.11, 405.19, 405.91, 405.99
Hypotension: 458.0, 458.1, 458.21, 458.29, 458.8, 458.9, 796.3

Myocardial Infarction and Ischemia
Acute Myocardial Infarction, Initial Episode: 410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, 410.91
Acute Myocardial Infarction, Unspecified or Subsequent Episode: 410.00, 410.02, 410.10, 410.12, 410.20, 410.22, 410.30, 410.32, 410.40, 410.42, 410.50, 410.52, 410.60, 410.62, 410.70, 410.72, 410.80, 410.82, 410.90, 410.92
Other Forms of Myocardial Ischemia: 411.0, 411.81, 411.89, 429.79

Angina Pectoris and Chest Pain: 411.1, 413.0, 413.1, 413.9, 786.50, 786.51, 786.59

Atherosclerosis
Coronary Atherosclerosis: 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.2, 414.3
Other Atherosclerosis: 429.2, 440.0, 440.1, 440.20, 440.21, 440.22, 440.23, 440.24, 440.29, 440.30, 440.31, 440.32, 440.8, 440.9

Heart Aneurysm and Dissection: 414.10, 414.11, 414.12, 414.19

Pericarditis, Endocarditis and Myocarditis: 397.9, 398.0, 420.90, 420.91, 420.99, 421.0, 421.9, 422.90, 422.91, 422.92, 422.93, 422.99, 423.1, 423.2, 423.3, 423.8, 423.9, 424.90, 424.99, 429.0, 429.1

Heart Valve Disease:
Mitral Valve Disease: 394.0, 394.1, 394.2, 394.9, 424.0
Aortic Valve Disease: 395.0, 395.1, 395.2, 395.9, 424.1
Tricuspid Valve Disease: 397.0, 424.2
Pulmonary Valve Disease: 397.1, 424.3
Multiple Valve Disease: 396.0, 396.1, 396.2, 396.3, 396.8, 396.9
Other Endocardial Structure Disease: 429.5, 429.6, 429.71, 429.81

Cardiomyopathies: 425.0, 425.1, 425.3, 425.4, 425.9

Other Aneurysm and Dissection
Aortic Aneurysm and Dissection: 441.00, 441.01, 441.02, 441.03, 441.1, 441.2, 441.3, 441.4, 441.5, 441.6, 441.7, 441.9
Other Arterial Aneurysm: 442.0, 442.1, 442.2, 442.3, 442.81, 442.82, 442.83, 442.84, 442.89, 442.9
Other Arterial Dissection: 443.21, 443.22, 443.23, 443.24, 443.29

Arterial Embolism and Thrombosis
Abdominal and Thoracic Aorta: 444.0, 444.1
Arteries of the Extremities: 444.21, 444.22, 445.01, 445.02
Other Arteries Excluding Precerebral and Cerebral Arteries: 444.81, 444.89, 444.9, 445.81, 445.89, 449, 593.81

Venous Embolism and Thrombosis
Lower Extremity Venous Embolism and Thrombosis: 453.40, 453.41, 453.42
Renal Vein Embolism and Thrombosis: 453.3
Other Venous Embolism and Thrombosis: 453.8, 453.9

Phlebitis and Thrombophlebitis
Lower Extremity Phlebitis and Thrombophlebitis: 451.0, 451.11, 451.19, 451.2
Upper Extremity Phlebitis and Thrombophlebitis: 451.82, 451.83, 451.84
Other Vessel Phlebitis and Thrombophlebitis: 451.81, 451.89, 451.9

Occlusion and Stenosis
Precerebral Artery Occlusion and Stenosis: 433.00, 433.20, 433.30, 433.80, 433.90
Cerebral Artery Occlusion and Stenosis: 433.10, 434.00, 434.10, 434.90
Retinal Artery Occlusion and Visual Loss: 362.30, 362.31, 362.32, 362.33, 362.34, 362.35, 362.36, 362.37, 368.11, 368.12, 368.40

Other Diseases and Symptoms of the Circulatory System: 398.90, 398.99, 414.8, 414.9, 423.0, 429.3, 429.82, 429.89, 429.9, V533.1, V533.2, V533.9

RESPIRATORY SYSTEM

Pulmonary Embolism and Infarction
Pulmonary Embolism and Infarction: 415.0, 415.12, 415.19
Postoperative Pulmonary Embolism and Infarction: 415.11

Pleural Effusion and Atelectasis: 511.0, 511.8, 511.89, 511.9, 518.0

Pneumothorax
Pneumothorax: 512.0, 512.8
Postoperative Pneumothorax: 512.1

Pulmonary Edema: 514, 518.4, 518.5

Acute Respiratory Failure: 518.81, 518.82, 518.84, 799.1

Other Diseases and Symptoms of the Respiratory System: 518.1, 519.19, 519.2, 733.6, 786.00, 786.02, 786.04, 786.05, 786.06, 786.09, 786.3, 786.52, 786.6, 786.7, 786.8, 786.9, 998.81

NERVOUS SYSTEM

Stroke
Ischemic Stroke: 433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91
Hemorrhagic Stroke: 430, 431, 432.0, 432.1, 432.9
Transient Cerebral Ischemia: 435.0, 435.1, 435.2, 435.3, 435.8, 435.9
Postoperative Stroke: 997.02

Encephalopathies: 348.30, 348.31, 348.39, 349.82, 437.2

Cerebral Edema and Brain Compression: 348.4, 348.5

Anoxic Brain Damage: 348.1

Coma and Stupor: 780.01, 780.03, 780.09

Postoperative Pain: 338.12, 338.18

Other Diseases and Symptoms of the Nervous System: 336.1, 436, 780.2, 780.4, 780.97

DIGESTIVE SYSTEM

Ischemic Bowel and Vascular Insufficiency of the Intestine: 557.0, 557.9

Intestinal Obstruction and Ileus: 560.1, 560.81, 560.89, 560.9

Ulceration, Bleeding and Perforation of the Digestive System: 528.00, 528.02, 528.09, 530.10, 530.12, 530.20, 530.21, 530.82, 531.00, 531.01, 531.10, 531.11, 531.20, 531.21, 531.30, 531.31, 531.40, 531.41, 531.50, 531.51, 531.60, 531.61, 531.70, 531.71, 531.90, 531.91, 532.00, 532.01, 532.10, 532.11, 532.20, 532.21, 532.30, 532.31, 532.40, 532.41, 532.50, 532.51, 532.60, 532.61, 532.70, 532.71, 532.90, 532.91, 533.00, 533.01, 533.10, 533.11, 533.20, 533.21, 533.30, 533.31, 533.40, 533.41, 533.50, 533.51, 533.60, 533.61, 533.70, 533.71, 533.90, 533.91, 534.00, 534.01, 534.10, 534.11, 534.20, 534.21, 534.30, 534.31, 534.40, 534.41, 534.50, 534.51, 534.60, 534.61, 534.70, 534.71, 534.90, 534.91, 535.00, 535.01, 535.40, 535.41, 535.50, 535.51, 535.60, 535.61, 569.3, 569.82, 569.83, 578.9

Acute Liver Failure: 570, 572.2

Other Diseases and Symptoms of the Digestive System: 560.30, 560.39, 568.81, 577.0, 578.0, 578.1

URINARY SYSTEM

Acute Glomerulonephritis and Pyelonephritis: 580.0, 580.4, 580.89, 580.9, 590.10, 590.11, 590.80

Nephrotic Syndrome: 581.0, 581.1, 581.2, 581.3, 581.89, 581.9
Acute Renal Failure: 584.5, 584.6, 584.7, 584.8, 584.9

Other Diseases and Symptoms of the Urinary System: 593.9, 599.7, 599.70, 599.71, 599.72, 788.20, 788.29

COMPLICATIONS OF SURGICAL AND MEDICAL CARE

Mechanical Complication of Cardiac Device, Implant and Graft
Mechanical Complication of Cardiac Pacemaker and AICD: 996.00, 996.01, 996.04
Mechanical Complication of Heart Valve Prosthesis: 996.02
Mechanical Complication of Coronary Artery Bypass Graft: 996.03
Other and Unspecified Mechanical Complication: 996.09, 996.1, 996.59

Other Complication of Internal Prosthetic Device, Implant and Graft
Other Complication of Heart Valve Prosthesis: 996.71
Other Complication of Other Cardiac Device, Implant and Graft: 996.72
Other Complication of Vascular Device, Implant and Graft: 996.74

Shock
Postoperative Shock: 998.0
Cardiogenic Shock: 785.51
Other Shock: 785.50, 785.59

Hemorrhage and Hematoma Complicating a Procedure: 459.0, 998.11, 998.12, 998.13

Foreign Body Accidentally Left or Accidental Laceration During a Procedure: 998.2, 998.4, 998.7

Dehiscence and Rupture of Operation Wound: 998.31, 998.32, 998.6, 998.83

Other Complications of Surgical and Medical Care
Nervous System Complication: 997.00, 997.01, 997.09
Circulatory System Complication: 997.1, 997.2, 997.71, 997.72, 997.79, 999.1, 999.2
Respiratory System Complication: 519.00, 519.02, 519.09, 997.3, 997.39
Digestive System Complication: 536.40, 536.42, 536.49, 997.4
Urinary System Complication: 997.5
Other Complications: 998.89, 998.9, 999.8, 999.89

INFECTIONS

Postoperative Infections: 997.31, 998.51, 998.59, 99.3, 999.31, 999.39

Sepsis and Bacteremia: 038.0, 038.10, 038.11, 038.12, 038.19, 038.2, 038.3, 038.40, 038.41, 038.42, 038.43, 038.44, 038.49, 038.8, 038.9, 785.52, 790.7, 995.90, 995.91, 995.92

Pneumonia
Pneumonia: 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.42, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 485, 486, 511.1
Aspiration Pneumonia: 507.0
Empyema and Abscess of Lung: 510.0, 510.9, 513.0, 513.1

Infection due to Device, Implant and Graft
Cardiac Device, Implant and Graft: 996.61
Vascular Device, Implant and Graft: 996.62
Other and Unspecified Infections due to Device, Implant and Graft: 519.01, 536.41

Urinary Tract Infection: 590.3, 590.9, 595.0, 599.0, 996.64

Cellulitis: 681.00, 681.01, 681.02, 681.10, 681.11, 681.9, 682.0, 682.1, 682.2, 682.3, 682.4, 682.5, 682.6, 682.7, 682.8, 682.9

Osteomyelitis: 730.03, 730.06, 730.07, 730.08, 730.09

Intestinal Infection due to Clostridium difficile: 008.45

Other Infection Related Conditions and Symptoms: 567.21, 567.29, 567.9, 590.2, 780.6, 780.60, 780.61, 780.62

FLUID AND ELECTROLYTE IMBALANCE

Hyperosmolality and Hyposmolality: 276.0, 276.1

Acidosis and Alkalosis: 276.2, 276.3, 276.4
Dehydration and Hypovolemia: 276.50, 276.51, 276.52

Fluid Overload: 276.6

Hyperpotassemia and Hypopotassemia: 276.7, 276.8

Other Electrolyte and Fluid Disorders: 276.9

ANEMIA AND COAGULATION DEFECTS

Anemia
Acute Posthemorrhagic Anemia: 285.1
Anemia: 280.0, 285.8, 285.9

Coagulation Defects
Hemorrhagic Disorders due to Anticoagulants: 286.5
Thrombocytopenia: 287.4, 287.5, 289.84, 446.6
Other Coagulation Defects: 286.6, 286.7, 286.9, 289.82, 790.92

Appendix G: Hospital Statements

CCORP provided each hospital with a preliminary report containing the risk-adjusted models, explanatory materials, and results for all hospitals. Hospitals were given a 60-day review period to submit statements to CCORP for inclusion in this report. Two hospitals submitted statements, which are included here.

Kaweah Delta Health Care District

August 1, 2012

Holly Hoegh, Ph.D.
Manager, Clinical Data Programs
Office of Statewide Health Planning and Development
400 R Street, Room 250
Sacramento, CA 95811

CCORP Statement

We appreciate the opportunity to comment on the 2010 California CABG Outcomes Reporting Program (CCORP) results. As part of our commitment to patient safety and clinical quality we have reported our outcome data since our program began in 1996. In the Spring of 2011, from our own analysis of our 2010 data, we identified the need to improve our risk-adjusted mortality rate for isolated CABG surgery. Between Spring and Fall 2011 we took actions that resulted in the following:

- We retained an outside firm to review the data from 100% of 2010 CABG cases. This external audit confirmed our need to take action.
- We instituted weekly Physician meetings to discuss cases, to monitor results, and to identify and to implement improvements in our processes.
- We reviewed our order sets, protocols and practices to assure they are consistent with proven best practices.
- We terminated our existing exclusive contract for cardiac surgery and we contracted with a new group that includes two of the four surgeons previously performing heart surgery at Kaweah Delta.

When we become aware of opportunities to improve, we investigate and implement changes to achieve improvements without delay. Thanks to the hard work of the Medical Staff and of our employees we know our 2011 risk-adjusted mortality rate for isolated CABG to be better than expected per Society of Thoracic Surgeons (STS) criteria. We are confident when the next wave of CCORP data is released, the improvement will be evident.

Sincerely,

Mark D. Garfield, MD, FACP, FCCP
Vice President/CMO Kaweah Delta Medical Center

400 West Mineral King • Visalia, CA 93291-6263 • 559 624 2000 • FAX 559 635 4021

WESTERN MEDICAL CENTER
SANTA ANA

1001 North Tustin Avenue
Santa Ana, CA 92705
Tel. 714.835.3555

August 3, 2012

Holly Hoegh, Ph.D.
Manager, Clinical Data Programs
Office of Statewide Health Planning and Development
400 R Street Room 250
Sacramento CA 95811

Dear Dr. Hoegh:

Western Medical Center Santa Ana has been providing quality patient care and services to our community since 1902.

We are a tertiary referral center, providing a level of complex care to many specialties including cardiovascular service, Level II trauma, neurosurgical receiving, Burn Services and Stroke Receiving Center.

In the 2009-2010 report for CABG patients an error was identified in the reporting under Post Operative Stroke results.

A data entry error occurred for the one case indicating a post operative stroke. In review of the medical record and coding at discharge, there was no post operative stroke of the patient. The error was discovered after the period available for data correction.

Therefore, for WMCSA the observed post operative stroke rate would be **zero (0) not 1.23** for the 2009-2010 review period.

Sincerely,

Dan Brothman
Chief Executive Officer

Western Medical Center
Celebrating 100 Years of Caring