EXECUTIVE SUMMARY

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

The *California Report on Coronary Artery Bypass Graft Surgery, 2009 Hospital Data* presents findings from analyses of data collected from 119 California-licensed hospitals performing adult isolated CABG[1] surgeries during 2009. Hospital results for risk-adjusted mortality, risk-adjusted readmissions and internal mammary artery utilization are based only on 2009 data, and hospital results for risk-adjusted post-operative stroke are based on combined 2008 and 2009 data.

The three outcomes measures, operative mortality, readmission and post-operative stroke, are risk-adjusted and help hospitals, physicians, patients and payers evaluate hospital performance. Risk-adjustment is a statistical technique that allows for fair comparison of hospital outcomes even though some hospitals have sicker patients than average. In this report, operative mortality includes all deaths that occur 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 occur). Post-operative stroke is defined as a central neurologic deficit that did not resolve within 24 hours after surgery. 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.

Using 2009 data, this report also provides hospital-level information on internal mammary artery (IMA)[2] usage—an important measure of surgical quality.

Key findings from this report are:

2009 Mortality Findings by Hospital:

- There were 252 operative deaths among 13,260 isolated non-salvage CABG surgeries. Patients undergoing cardiopulmonary resuscitation (CPR) on the way to the operating room (salvage cases) were excluded from the report results.

- The operative mortality rate for isolated CABG surgery in California was 1.90% compared to 2.24% for 2008. This represents a 35% reduction in the operative mortality rate since 2003 (2.91%), the first year of mandated public reporting.

- There was significant variation, from 0% to 13.01%, in hospital operative mortality rates after adjusting for patients' pre-operative health. Despite such variation, 116 of 119

[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. For a complete definition of isolated CABG, see http://www.oshpd.ca.gov/HID/SubmitData/CCORP_CABG/2006AbstractTrain.pdf.

[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.

hospitals (97%) 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, and two hospitals performed **"Worse"** than the state average (shown in the following table alphabetically):

Hospitals with "Better" Performance Ratings Based on Risk-Adjusted Operative Mortality Rates, 2009	
Hospital	**Region**
Scripps Memorial Hospital - La Jolla	Greater San Diego
Hospitals with "Worse" Performance Ratings Based on Risk-Adjusted Operative Mortality Rates, 2009	
Hospital	**Region**
Scripps Mercy Hospital	Greater San Diego
West Hills Regional Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara

2008-2009 Post-Operative Stroke Findings:

- 384 of the 27,217 patients (1.41%) who underwent isolated CABG surgery experienced a post-operative stroke, similar to the national rate of 1.4% reported by the Society of Thoracic Surgeons.[3]

- There is 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 8.87%, and 114 of 121 hospitals (94%) performed at a rate that did not differ significantly from the statewide average.

- Three hospitals performed **"Better"** than the state average on post-operative stroke, and four hospitals performed **"Worse"** than the state average (shown in the following table alphabetically):

[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.

Hospitals with "Better" Performance Ratings Based on Risk-Adjusted Post-Operative Stroke Rates, 2008-2009	
Hospital	**Region**
Alta Bates Summit Medical Center - Summit Campus	San Francisco Bay Area & San Jose
St. Bernardine Medical Center	Inland Empire, Riverside & San Bernardino
St. Joseph's Medical Center of Stockton	Central California

Hospitals with "Worse" Performance Ratings Based on Risk-Adjusted Post-Operative Stroke Rates, 2008-2009	
Hospital	**Region**
Bakersfield Memorial Hospital	Central California
Good Samaritan Hospital - San Jose	San Francisco Bay Area & San Jose
Providence Tarzana Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Scripps Memorial Hospital - La Jolla	Greater San Diego

2009 Hospital Readmission Findings:

- 1,565 of the 11,823 patients (13.24%) who underwent isolated CABG surgery and were discharged alive experienced a hospital readmission within 30 days of the surgery.

- There is 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 29.77% and 117 of 119 hospitals (98%) performed at a rate that did not differ significantly from the statewide average.

- One hospital performed **"Better"** than the state average on hospital readmissions, and one hospital performed **"Worse"** than the state average (shown in the following table alphabetically):

Hospitals with "Better" Performance Ratings Based on Risk-Adjusted Readmission Rates, 2009	
Hospital	**Region**
Queen of the Valley Hospital	San Francisco Bay Area & San Jose

Hospitals with "Worse" Performance Ratings Based on Risk-Adjusted Readmission Rates, 2009	
Hospital	**Region**
San Joaquin Community Hospital	Central California

2009 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 had a 96.2% IMA usage rate in 2009 compared to 89.6% for 2003.[4]

- Five California hospitals had IMA usage rates that were significantly lower than the state average and were given **"Low"** performance ratings. There is no consensus on what an optimum usage rate should be, so performance ratings were not given for very high rates. Those hospitals with **"Low"** performance ratings are listed in the following table alphabetically:

Hospitals with "Low" IMA Usage, 2009	
Hospital	**Region**
Antelope Valley Hospital Medical Center	San Fernando Valley, Antelope Valley, Ventura & Santa Barbara
Lancaster Community Hospital	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
Tri-City Medical Center	Greater San Diego

[4] The increase in the statewide IMA usage rate from 93.7% in 2007 to 95.9% in 2008 and 96.2% in 2009 is partly due to excluding from the denominator patients who did not have the left anterior descending (LAD) artery bypassed. This was a new exclusion criterion for 2008 and after. If not used, the statewide IMA usage rate would be 94.4% for 2008 and 94.8% for 2009.