

The California Report on Coronary Artery Bypass Graft (CABG) Surgery 2011-2012: Hospital and Surgeon Data

Executive Summary

Coronary artery bypass graft (CABG) surgery is one of the most expensive and common cardiac surgeries performed in California. Improved medical interventions and quality improvement efforts have contributed to a declining mortality rate over the last 15 years. However, post-operative death and major complications (e.g. stroke, surgical site infections) still occur at rates that can and should be reduced. This report provides information intended to make heart bypass surgery outcomes in the state more transparent and to improve patient care. This report also may help hospitals, physicians, patients, and payers evaluate provider performance.

The California Report on Coronary Artery Bypass Graft Surgery 2011-2012: Hospital and Surgeon Data provides quality ratings for 126 California-licensed hospitals and 272 surgeons performing adult isolated CABG¹ surgery during 2011 and 2012. The hospital operative mortality, hospital readmission, and internal mammary artery (IMA)² utilization measures are based on calendar year 2012 data. Surgeon results for mortality and hospital results for post-operative stroke are based on combined 2011-2012 calendar year data to increase statistical reliability.

The three outcome measures (operative mortality, post-operative stroke, and hospital readmission) are risk-adjusted, which is a statistical technique that enables fair comparison of hospitals and surgeons even though some hospitals and surgeons treat sicker patients.

- 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 central neurologic deficit that occurred after the surgery and did not resolve within 24 hours.
- A hospital readmission was counted only if the patient - within 30 days of being discharged from the hospital where the surgery was performed - was readmitted with a condition related to the CABG surgery.

Also included in this report are IMA utilization rates. IMA usage is an important process measure of surgical quality.³

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.

³ IMA utilization was only assessed in first-time isolated CABG surgeries where the operative status is elective or urgent and the left anterior artery was bypassed.

All hospitals and surgeons listed in this report were given an opportunity to review their results prior to publication. Two hospitals submitted comment letters, which can be viewed by clicking the hospital name with † in this report. These statements may help readers understand the concerns of healthcare providers regarding their performance information.

Surgeons who felt their operative mortality results did not reflect the quality of care provided were able to submit appeals requesting a review along with information supporting their position to OSHPD staff. Appeals that could not be resolved were forwarded to the CCORP Clinical Advisory Panel (CAP) for a final decision. All appeals were resolved in a public meeting prior to release of this report.

2012 Hospital Operative Mortality Findings:

- ❖ The operative mortality rate for isolated CABG surgery in California was 2.11% in 2012 (247 deaths after 11,720 procedures). This rate increased slightly from 2.01% in 2011 but represents a 27% reduction since 2003 (2.91%), the first year of mandated public reporting.
- ❖ After adjusting for patients' pre-operative health conditions, one hospital (UCSF Medical Center) was rated as **"Worse"** than the state average. No hospital performed **"Better"** than the state average.

2011-2012 Hospital Post-Operative Stroke Findings:

- ❖ The post-operative stroke rate for isolated CABG surgery in California was 1.48% (358 strokes after 24,119 procedures) during 2011-2012. This is similar to the national rate of 1.4% reported by the Society of Thoracic Surgeons⁴, but a slight increase over the 2010-2011 California rate of 1.32%.
- ❖ After adjusting for patients' pre-operative health conditions, one hospital (Sutter Memorial Hospital) was rated as **"Better"** than the state average. Four hospitals (Bakersfield Heart Hospital, Northridge Hospital Medical Center, Seton Medical Center, and Rideout Memorial Hospital) were rated **"Worse"** than the state average.

2012 Hospital Readmission Findings:

- ❖ The hospital 30-day readmission rate was 12.24% (1,292 of 10,553 patients) for patients who underwent isolated CABG surgery in 2012 and were discharged alive. This is a slight reduction from the 2011 rate of 12.97%.
- ❖ After adjusting for patients' pre-operative health conditions, three hospitals (John Muir Medical Center – Concord Campus, Methodist Hospital of Southern California, and St. Joseph's Medical Center of Stockton) were rated **"Better"** than the state average and four hospitals (Alvarado Hospital, Glendale Adventist Medical Center – Wilson Terrace, Valley Presbyterian Hospital, and White Memorial Medical Center) were rated **"Worse"** than the state average.

⁴ 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.

2012 Hospital Internal Mammary Artery (IMA) Usage Findings:

- ❖ The IMA is the preferred conduit for CABG surgery of the left anterior descending (LAD) artery and hospitals with *high* rates of IMA usage are adhering to nationally recognized best practices in heart bypass surgery. There is no consensus on an optimal usage rate, so “**Better**” performance ratings are not given. California hospitals had a 96.5% IMA usage rate in 2012 compared to 96.7% in 2011 and 89.6%⁵ in 2003.
- ❖ Seven of 124 California hospitals (Shasta Regional Medical Center, St. Joseph Hospital – Eureka, Marin General Hospital, Sutter Medical Center of Santa Rosa, Antelope Valley Hospital, St. Francis Medical Center, and Desert Valley Hospital) were rated “**Low**” with IMA usage rates significantly lower than the state average. Three of these hospitals have had low IMA usage rates over several years. Sutter Medical Center of Santa Rosa has been rated “**Low**” every year since 2005 (when IMA usage was first publicly reported). Antelope Valley and Shasta Regional Medical Center were rated “**Low**” in 2009, 2010 and 2012.

2011-2012 Surgeon Operative Mortality Findings:

The operative mortality rate was 2.06% (498 deaths after 24,119 procedures) for the 272 surgeons who performed isolated CABG surgery in 2011-2012.

- ❖ Three surgeons (Drs. Hakob G. Davtyan, Robert C. Kincade, and Henry L. Zhu) performed “**Better**” than the state average operative mortality rate.
- ❖ Six surgeons (Drs. Joe Bolton, Baron Harper, James C. MacMillan, Ashrat I. Osman, Dominic J. Tedesco, and Georg M. Weiselthaler) performed “**Worse**” than the state average operative mortality rate.

For detailed results by hospital and by surgeon, please see *California Hospital Performance Ratings for Coronary Artery Bypass Graft (CABG) Surgery by Region, 2011-2012* and *California Surgeon Risk-Adjusted Operative Mortality Rates for Coronary Artery Bypass Graft (CABG) Surgery, 2011-2012*; these tables contain more detailed information. For information on research methods and statistical results, please see the [*Technical Notes for the California Report on Coronary Artery Bypass Graft Surgery 2011-2012: HOSPITAL AND SURGEON DATA*](#).

⁵ The increase in the statewide IMA usage rate is partly due to a change in the IMA measure. Beginning in 2008, patients who did not have the left anterior descending artery bypassed were excluded from the denominator.