

**California CABG Outcomes Reporting Program (CCORP)  
Clinical Advisory Panel  
Minutes of November 10, 2009**

The meeting was held at OSHPD Headquarters, 400 R Street, Sacramento, California

**Clinical Advisory Panel Members in attendance:**

Fredrick Grover, M.D.	Ralph Brindis, M.D., FACC
Timothy Denton, M.D. FACC	Coyness Ennix, Jr., M.D.
James MacMillan, M.D.	Cheryl Damberg, Ph.D.
Keith Flachsbart, M.D.	

**Clinical Advisory Panel Members absent:**

Robert Brook, M.D., Sc.D.	Andrew Bindman, M.D.
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**OSHPD Staff/Consultants in attendance:**

David M. Carlisle, M.D., Ph.D., OSHPD Director	Ron Spingarn, Deputy Director, Healthcare Information Division
Joseph Parker, Ph.D., HOC Manager	Holly Hoegh, Ph.D., HOC
Mary Moseley, M.A., HOC	Denise O'Neill, HOC
Robert Springborn, Ph.D., HOC	Beth Herse, OSHPD Sr. Legal Counsel
Merry Holiday-Hanson, Ph.D., HOC	Sanaa Shabbir, M.P.H, Cal EIS Fellow, HOC Contractor
Zhongmin Li, Ph.D., UCD, HOC Contractor	Beate Danielsen, Ph.D., UCD, HOC Contractor
Richard White, M.D., UCD, HOC Contractor	Geeta Mahendra, UCD, HOC Contractor
Brandon Fong, Student Asst.	Dominique Ritley, MPH, UCD, HOC Contractor
Ka Lor, HOC Student Assistant	Alex Salvador, Student Asst.

**Members of the Public and Others present:**

Gretchen Trowbridge, RN, Sutter	Edwin Fonner, Dr.PH, Ca STS
Kelly Jaeger-Jackson, Sutter	

**1. Call to Order and Introductions**

Fred Grover, M.D., acting Chairperson, called the meeting to order at 9:32 a.m. A quorum of members was present.

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**2. Approval of Minutes of May 6, 2009**

The minutes of the May meeting were approved with one correction regarding the Veterans Affairs Randomized On/Off Bypass Study Group's randomized trial of 2,200 patients with off-pump versus on-pump coronary bypass surgery.

**3. Director's Report – David Carlisle, M.D., Ph.D., OSHPD Director**

Dr. Carlisle informed the panel that OSHPD has a new Assistant Director for Legislative and Public Affairs, Anne Drumm.

He also noted that these are challenging budget times for the State. A significant budget deficit is projected for both the current and upcoming fiscal years. Staff is furloughed three days a month, which has impacted work volume.

Dr. Carlisle praised the work done by the panel and CCORP staff. The project is well respected statewide, nationally, and internationally.

When asked about future expansion for cardiovascular intervention outcomes public reporting, Dr. Carlisle indicated that no formal plan has been created but much discussion has occurred. Expansion of clinical data reporting for angioplasty, stenting, and other interventions would require legislative authorization. However, the Healthcare Outcomes Center uses AHRQ indicators to create hospital quality reports on many topics using patient discharge data, including angioplasty.

**4. CCORP Program Update – Holly Hoegh, Ph.D., CCORP Director**

Dr. Hoegh provided a timeline and discussed progress made on the 2007 hospital public report. She also presented information regarding statewide and national trends for CABG surgeries and PCI.

Regarding 2008 CCORP data, hospitals are currently in the final 30-day data review period. Medical chart abstraction should begin in January 2010 and include 36 hospitals and 2,500 records. Getting the State Death File earlier in 2010 (currently received in April) would allow CCORP to put forth a final risk-adjustment model sooner. Discussion centered on getting the state death file earlier and exploring use of the Social Security Index to speed up the report timeframe.

Recommendation: In response to a request, Dr. Parker stated that the Office will evaluate the Social Security Index. Dr. Hoegh suggested a comparison of the two data sources to determine what might be missed.

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Dr. Hoegh recommended that a Clinical Advisory Panel Meeting be scheduled in April. At this meeting CCORP would ask for the panel's recommendations on the contents of the 2008 data report and their approval of the risk models. Then, preliminary results will be sent to hospitals and surgeons before the Clinical Advisory Panel meeting for surgeon appeals anticipated in late summer or early fall.

CCORP is moving to online data reporting from hospitals rather than mailing of diskettes and CD's. The change will provide more efficient collection and correction of data for hospitals and OSHPD.

Decreasing CABG surgery volume trends were shown. The number of hospitals that performed CABG surgeries remained constant but the mean number of surgeries declined. Mean non-isolated CABG surgery volume also remained constant.

The Panel suggested that CCORP explore development of a hospital readmissions measure, compare hospital outcomes using STS operative mortality and 30-day mortality, and develop risk models for additional complications. Hospital post operative stroke results will be in the next report. Dr. Parker added that CCORP will look to develop new requirement for post operative dialysis as the next complication measure. Dr. Denton suggested that California focus on those things which make a significant difference to a patient's quality of life or to survival, then address a few cost issues.

The Panel discussed national efforts to evaluate readmissions; length of stay in the hospital; linking the STS database to other national databases; capturing more longitudinal data in the Medicare population; and evaluating appropriateness of care and systems of care.

**5. Presentation and Discussion of Preliminary Risk-Adjusted Mortality Model for Possible Public Reporting on Non-Isolated CABG – Zhongmin Li, Ph.D., UCD**

Dr. Li outlined the five topics of his presentation: the trend of non-isolated CABG in California in terms of volume change and mortality; public reporting of non-isolated CABG outside of California; preliminary risk model for Valve+CABG cases including comparisons with STS and New York; and preliminary hospital risk-adjusted results for 2008 CCORP data.

Two charts demonstrated California's isolated and non-isolated CABG volume and mortality changes over time. Isolated CABG volume has declined while non-isolated has remained relatively stable. Mortality rates have decreased for both isolated and non-isolated CABG.

Two other states report on non-isolated CABG mortality, New York and Pennsylvania. These states utilize very different methodologies. New York uses different models for isolated CABG surgery, valve surgery, and CABG plus valve surgery. Pennsylvania uses

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one model that includes most isolated and non-isolated cases. New York reports operative mortality, while Pennsylvania reports on multiple outcome measures. Dr. Li noted the differences in the New York risk model and STS risk model which includes aortic stenosis in the STS model and type of valve surgery in the New York model.

Dr. Li showed several slides illustrating the 2008 data, which covered types of procedures. Dr. Parker clarified that CCORP collects data on all CABG surgeries; however, if heart surgery was performed on valves only, the data is not collected.

The Valve+CABG chart demonstrated that aortic valve replacement constitutes 60% of all non-isolated cases. Discussion occurred regarding the accuracy of coding some of the other valve procedures listed on the chart. Next Dr. Li showed the Valve+CABG risk factors, and highlighted the high death rates associated with previous MI less than 24 hours, cardiogenic shock, renal failure, and prior open heart surgery. The graph of the baseline model clearly identified significant risk factors.

Dr. Li presented the baseline risk model for Valve+CABG which was developed using the New York algorithm and a chart that showed the prevalence of the risk factors. A stepwise method was used to determine which risk factors to retain in the preliminary model. Dr. Li noted that CCORP has only one year of valve-related data for CABG cases. Salvage cases are captured but probably will not be included in public reporting.

Recommendation: Dr. Flachsbart recommended that CCORP look at the 604 cases in which no valve procedure was performed and try to identify what the exclusions were for not being reported as isolated CABG.

Dr. Li presented slides showing the preliminary risk model as applied to the CCORP hospital data. He also compared the RAMR using the New York model to the California model. Hospital volume did not show a significant relationship to mortality outcome.

Several recommendations were proposed by Dr. Li and the UCD team: focus on Valve+CABG surgeries and exclude other non-isolated CABG cases; publicly report only risk-adjusted operative mortality; use more than one year of data for public reporting; devote resources to improve the quality of non-isolated CABG data; and develop and refine the risk model for operative mortality.

Panel members praised Dr. Li's work. The panel discussed developing a separate model to break out mitral valves by procedures and focusing on procedures that have the greatest density of patients and could do the most for patient outcomes. The panel questioned the number of aortic valve repairs and hypothesized there may be some inaccurate coding. OSHPD staff noted that CCORP has not yet audited data on valves.

The Panel discussed comparing isolated CABG surgery data to valve data. OSHPD staff noted that collecting valve-only information would require a change in legislation. The panel discussed eventually capturing data on stents and through legislation and funding

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CCORP might evaluate appropriateness of care and comparative effectiveness in a large population and change public health focus away from isolated coronaries.

The Panel discussed changing ways of treating coronary disease and the idea that the safest procedure to be done in the short term may not be the best in the long run.

6. Presentation of Trends of Cardiac Intervention in Patients Admitted with Acute Coronary Artery Disease in California, 1997-2007 – Beate Danielsen, Ph.D., UCD

Dr. Danielsen stated that her presentation was motivated by a question brought forth by the panel in its January 2009 meeting: Does public reporting of hospital and surgeon-level outcomes affect the use of cardiac surgery and interventions in acutely ill coronary artery disease patients?

The study included California inpatients with evidence of Coronary Artery Disease (CAD) present at admission and looked at two specific patient populations, those who presented with cardiogenic shock and/or received CPR/CCM at admission. The overall trend for cardiac surgeries shows an increase in PCIs and a decrease in CABG surgery. The trends for cardiogenic shock cases clearly demonstrate patients are receiving more surgeries and the volume is not decreasing at the same rate as all patients. Next Dr. Danielsen noted that the percent of patients who entered the hospital with cardiogenic shock and received an intervention had risen from 1997 to 2007. Of these patients, CABG surgeries decreased from 17% to 10% and PCIs increased from 17% to 26%. The volume of CAD patients with cardiogenic shock present at admission who survived at least 1 day increased from 1,917 in 1997 to 2,681 in 2007. The percent of patients who received an intervention remained the same at 40% for the time period.

One year survival rates have increased for cardiogenic shock and CPR/CCM patients regardless of whether the patient received a CABG, PCI, or no intervention.

Overall, there is no evidence to indicate that CAD patients presenting with cardiogenic shock or CPR/CCM are less likely to receive an intervention than patients without these risk factors. In fact, these patients are now more likely to receive an intervention than they were 10 years ago. Survivorship for all CAD patients has improved.

Discussion included explanations of methodology. The panel concluded that over the ten year period studied, the combination of improved medical treatment and surgical technique, and increased coronary intervention by cardiologists had resulted in at least some mortality improvement.

This observation also applies to hospitals that don't have coronary intervention capabilities but have transfer mechanisms that are working. Also, prevention and early intervention are major factors in improving public health outcomes.

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7. Preliminary Analysis of per Capita CABG and PCI volume – Holly Hoegh, Ph.D., CCORP

The report was requested at the May CAP meeting. From crude population-based rates it appears that California performs fewer PTCAs and CABGs than nationally. It was hypothesized that the difference might be due to the different age distributions of California and the nation. Age-adjusting the results did bring the rates closer together, but California remained lower than the nation. Dr. Hoegh speculated that adjusting for racial differences might further close the gap. California also has lower overall admission rates than the U.S. for patients with a diagnosis of AMI. This difference might be smaller if age- and/or race- adjusted.

The AHRQ Inpatient Quality Indicators include four area-level utilization indicators for CABG and PTCA. AHRQ uses an age- and sex-adjusted population based denominator and a discharge based numerator based on county of residence for patients over 40 years of age. For both CABG and PTCA, volume is higher in the interior counties of California than in the rest of the state

Discussion around improving the analysis presented included gathering county data regarding smoking rates and air quality; using RAND's block by block indirect estimates of race; and using zip code and census block information to access median income.

8. Presentation of Preliminary Analysis of the Impact of Off-Pump CABG surgery on Post-Operative Stroke – Zhongmin Li, Ph.D., UCD

This presentation was requested by the panel at the May 2009 meeting following presentation of prior Off-Pump vs. On-Pump research. The question is: Does OPCAB reduce post-operative stroke after controlling for patients pre-operative risk conditions? Dr. Li used CCORP data from 2006-2007 for all isolated CABG surgeries. He presented a multivariate logistic model for patient risk adjustment and a "recycled predictions" method for comparison of risk-adjusted results.

A table of pre-operative clinical risk factors and patient profiles indicated some variation in odds ratios for the two groups. OPCAB and CCB patients differed significantly with regard to several preoperative risk factors, though it was not clear that either group was clinically more ill than the other. OPCAB was associated with a significantly lower post-operative stroke risk compared to CCB. Patients undergoing intra-operative conversion from OPCAB to CCB had the highest risk of post operative stroke.

Discussion topics included: selection bias in some studies; patients for whom off-pump surgery is appropriate may be less likely to have a stroke; and three vessel disease may well correlate with cerebral vascular disease. The panel thanked Dr. Li for his excellent work.

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9. Presentation of a Proposed Outline for Review of the State of Cardiac Outcomes Reporting in California – Dominique Ritley, MPH, UCD

At the request of the panel in January of this year, the goal of this research is to inform OSHPD and the panel about the possible future directions of CCORP through review of major coronary revascularization outcomes reporting programs in the US.

Data sources for the project include websites of states with public reporting programs. Telephone interviews are also being held with senior state managers/program officers charged with cardiac outcomes reporting and with California stakeholders.

The proposed outline for the report includes current and proposed cardiac measures of quality, current and future plans for public reporting cardiac outcomes; the role of measures of appropriateness; and conclusions to include the feasibility of expanded cardiac quality reporting in California.

Discussion included how broad the review should be, other comparative reporting interests, connecting with other groups, potential funding in play, and cost effectiveness. The panel thanked Dominique for her work.

10) Public Comment

A letter from a surgeon was sent to a panel member. The letter and a discussion will be included in the next CAP meeting agenda.

The meeting adjourned at 1:30 p.m.