



Working together to improve health care quality, outcomes, and affordability in Washington State.

Coronary Artery Bypass Graft Surgical Bundle

September 2015

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Related Documents:

CABG Warranty: www.breecollaborative.org/wp-content/uploads/CABG-Warranty-Final-15-09.pdf

CABG Evidence Table: www.breecollaborative.org/wp-content/uploads/CABG-Evidence-Table-Final-15-09.pdf

INTRODUCTION

The Dr. Robert Bree Collaborative was established in 2011 to provide a forum in which public and private health care stakeholders can work together to improve quality, health outcomes, and cost-effectiveness of care in Washington State. Hospital readmissions was identified as a priority area in 2012, with a focus on accountable payment models that align incentives, including warranty pricing, bundled payments, and other innovative payment methodologies. The Accountable Payment Models workgroup began by creating an accountable payment model for total knee and hip replacements (TKR/THR) surgery, completed in November 2013, and adopted this model to lumbar fusion in September 2014. Coronary artery bypass graft (CABG) surgery was chosen as the third procedure and the workgroup met from February 2015 to September 2015.

The intent of the CABG Surgical Bundle is to provide a community-based, evidence-informed standard for production, purchasing, and payment of health care based on quality. The bundle has been created by a multi-stakeholder design team representing purchaser, provider, payer, and quality sectors. The design team reports to the full Bree Collaborative that in turn reports to the Washington State Health Care Authority. A public comment period is included in the design phase to enlist broad critique. Final documents are in the public domain for any individual or organization to use.

Please note, this bundle and warranty exclude urgent or emergent CABG.

Elements of the bundle are supported by an evidence table that includes over 100 appraised citations. Where medical evidence is absent or of marginal quality, we have declared standards based on consensus of stakeholders.

The four-cycle bundle extends well beyond the surgical procedure itself. The first cycle documents the need for intervention and deploys non-surgical care. The second cycle ensures that patients who do not improve with non-surgical care are safe for surgery. We view these first two cycles as necessary to ensure appropriateness. The third cycle describes elements of best practice surgery and the fourth is aimed at our ultimate outcome, rapid return to function.

We believe the CABG bundle represents an incremental advance in helping to create a market for quality in health care. We will continue to refine and improve the bundle as new information becomes available. We encourage purchasers to contribute to the success of this bundle by reimbursing for essential services (e.g., health coach, care coordination).

DR. ROBERT BREE COLLABORATIVE BACKGROUND

The Dr. Robert Bree Collaborative was established in 2011 by Washington State House Bill 1311 “...to provide a mechanism through which public and private health care stakeholders can work together to improve quality, health outcomes, and cost effectiveness of care in Washington State.” The Bree Collaborative was modeled after the Washington State Advanced Imaging Management (AIM) project and named in memory of Dr. Robert Bree, a pioneer in the imaging field and a key member of the AIM project.

Members are appointed by the Washington State Governor and include public health care purchasers for Washington State, private health care purchasers (employers and union trusts), health plans, physicians and other health care providers, hospitals, and quality improvement organizations. The Bree Collaborative is charged with identifying up to three health care services annually that have substantial variation in practice patterns, high utilization trends in Washington State, or patient safety issues. For each health care service, the Bree Collaborative identifies and recommends best-practice evidence-based approaches that build upon existing efforts and quality improvement activities aimed at decreasing variation. In the bill, the legislature does not authorize agreements among competing health care providers or health carriers as to the price or specific level of reimbursement for health care services. Furthermore, it is not the intent of the legislature to mandate payment or coverage decisions by private health care purchasers or carriers.

See **Appendix A** for a list of current Bree Collaborative members.

Recommendations are sent to the Washington State Health Care Authority for review and approval. The Health Care Authority (HCA) oversees Washington State’s largest health care purchasers, Medicaid and the Public Employees Benefits Board Program, as well as other programs. The HCA uses the recommendations to guide state purchasing for these programs. The Bree Collaborative also strives to develop recommendations to improve patient health, health care service quality, and the affordability of health care for the private sector but does not have the authority to mandate implementation of recommendations.

For more information about the Bree Collaborative, please visit: www.breecollaborative.org.

See **Appendix B** for the Accountable Payment Models workgroup charter and list of members.

I. DISABILITY DESPITE NON-SURGICAL THERAPY

A) Document disability

1. Document grade of angina (I-IV) according to Canadian Cardiovascular Society grade of angina pectoris
2. Document disability according to the Seattle Angina Questionnaire-7
3. Document self-reported loss of function with Patient Reported Outcomes Measurement Information System-10® (PROMIS-10)

B) Document myocardial ischemia with appropriate non-invasive stress testing according to 2012 ACCF, et.al. Guidelines and 2014 Guidelines Focused Update

C) Begin risk factor modification according to ACCF Guideline above unless need for urgent intervention

1. Begin patient education with a goal of empowering and improving participation in shared decision-making
2. Begin or maintain a cardiac diet, with attention to:
 - a. Weight management to maintain or achieve a BMI between 18.5 and 24.9 kg/m²
 - b. Blood pressure management
 - c. Lipid management
3. Advise on appropriate physical activity
 - a. Estimate risk of physical activity
 - b. Recommend 30-60 minutes moderate-intensity activity daily for low risk patients
 - c. Consider medically supervised exercise for higher-risk patients
4. Screen for overuse of alcohol and manage if needed
5. Assist patient with smoking cessation if needed
6. Manage diabetes with target HbA1c between 7-9% depending on risk/benefit
7. Screen for depression, treat if screen is positive
8. Consider assistance with stress management if indicated
9. Screen for dementia and manage as necessary if screen is positive
10. Immunize against influenza annually
11. Prescribe statin medication unless contraindicated
12. Manage blood pressure according to March 2015 guideline update from AHA/ACC/AHS, including anti-hypertensive drugs for BP above guideline goals
13. Prescribe antiplatelet therapy unless contraindicated
14. Prescribe beta blocker therapy unless contraindicated
15. Prescribe renin-angiotensin-aldosterone blocker therapy, per ACCF Guideline
16. Prescribe anti-anginal therapy as tolerated, with two or more of the following agents as needed:
 - a. Beta blockers
 - b. Calcium channel blockers when beta blockers are contraindicated or unsuccessful
 - c. Long acting nitrates
 - d. Ranolazine

D) Stratify prior to determining appropriate intervention

1. Use a multidisciplinary Heart Team approach in decision making for patients with complex coronary artery disease composed of an interventional cardiologist, a cardiac surgeon, and other consultants, as needed
2. Base interventions on the 2012 ACCF Guidelines (<http://content.onlinejacc.org/article.aspx?articleid=1201161>)

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3. Use STS score to assist with decision for intervention
4. Consider additional factors such as left main disease, diabetes with multi-vessel disease, and severity of symptoms related to ischemia

II. FITNESS FOR SURGERY

A) Document requirements related to patient safety

If compatible with patient safety, providers should assess the following minimum requirements prior to surgery to minimize the risk of complications. Meeting these requirements should not delay urgent or emergent surgery (e.g., threatening coronary anatomy, heart failure, increase in symptoms).

1. Body Mass Index less than 40
2. Hemoglobin A1c less than 8% in patients with diabetes
3. Adequate nutritional status to ensure healing
4. Sufficient liver function to ensure healing
5. Pre-operative plan for management of opioid dependency, if patient has taken opioids for more than three months
6. Avoidance of smoking for at least four weeks pre-operatively
7. Screen for alcohol abuse, with management plan if screen is positive
8. Screen for depression with management plan if positive
9. Screen for dementia with management plan if positive
10. Develop pre-operative plan for post-operative return to function
11. Assess of risk for co-occurring cerebrovascular disease; including imaging carotid circulation (ultrasound or MRA) for clinically high-risk patients
 - a. Treat patients with high-risk carotid arterial disease according to ACC/AHA guidelines, 2012.

B) Document patient engagement

1. The patient will participate actively in shared decision-making with full knowledge of risks, benefits, alternatives, and preferences. This requirement is in addition to informed consent.
 - a. Engage the patient in a discrete shared decision making process with a credentialed health coach or equivalent
 - b. Include use of a validated shared decision-making aid such as those certified by the Washington State Health Care Authority, if available
 - c. During this encounter, the patient and coach should address:
 - i. Issues related to an active, life-limiting condition that would likely cause death before recovery from surgery
 - ii. Disability from an unrelated condition that would severely limit the benefits of surgery
 - iii. Dementia that would interfere with recovery from surgery. Performing surgery on a patient with such dementia requires preauthorization, informed consent of a person with durable power of attorney for health care, and a contract with the patient's care partner regarding accountability for care aligned with the patient's care plan and be available to the purchaser.
 - iv. For patients 65 years and older, the ASCERT calculator may be used to assess likelihood of survival from CABG
 - d. Document patient's preference for treatment as part of this encounter.

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2. Patient must designate a personal care partner.¹ Patient and care partner should actively participate in the following:
 - a. Surgical consultation
 - b. Pre-operative evaluation
 - c. Pre-surgical class and/or required surgical and anesthesia educational programs
 - d. In-hospital care
 - e. Post-operative care teaching patient's home care and exercise program
 - f. Assessment of home-based physical and psychosocial hazards that may interfere with recovery
3. Offer patient end-of-life planning, including completion of an advance directive, designation of durable power of attorney for health care, and participation in an option for organ donation
4. Encourage patient to participate in the COAP registry with two years follow-up data collection

C) Document optimal preparation for surgery

1. Perform pre-operative history, physical, and screening lab tests based on review of systems:
 - a. Evaluate for pulmonary fitness
 - b. Obtain basic lab profile, plasma glucose, prothrombin time, complete blood count, urinalysis with culture, if indicated
 - c. Culture nasal passages to identify staphylococcal carrier state and treat accordingly
 - d. Screen for predictors of delirium
2. Obtain relevant consultations
 - a. Evaluate for good dental hygiene in high-risk patients
 - b. Refer to Anesthesia for pre-operative assessment including identification and management of conditions such as sleep apnea and pulmonary hypertension
 - c. Request other consultations, as necessary
3. Review post-operative care plan, including cardiac rehabilitation
4. Start or continue patient on statin therapy (unless contraindicated) according to current guidelines.
5. Administer a beta-blocker during the perioperative period for all patients on beta-blocker therapy prior to surgery
6. Administer beta blockers at least 24-hours before CABG to all patients without contraindications to reduce the incidence of complications of post-operative atrial fibrillation
7. Begin or continue aspirin unless contraindicated
8. Collect patient-reported measures to confirm lack of significant response to non-surgical treatments using:
 - a. General health questionnaire PROMIS-10
 - b. Condition-specific/standard disability questionnaire: Seattle Angina Questionnaire-7

¹ A care partner is someone who joins the patient as a supportive lay partner who attends pre- and post-operative informational sessions with providers and provides general assistance to the patient until the patient is able to return to independent function. Instruction to the care partner should include the elements of discharge planning. The care partner must be intellectually, emotionally and physically qualified to assume this role. The care partner may also be supplied by the facility.

III. CABG PROCEDURE

Follow these guidelines or more recent if possible:

<http://circ.ahajournals.org/content/124/23/e652.full.pdf+html>

A) General standards for a surgical team performing surgery

1. Cardiac surgeons must be board certified or board eligible by the American Board of Thoracic Surgery or certified by a reciprocal and equivalent credentialing organization
2. Surgeon outcome metrics must be within two standard deviations of the community standard (e.g., mean) of the Clinical Outcome Assessment Program (COAP) Level I quality indicators including: mortality, post-operative stroke, and renal insufficiency requiring dialysis based on at least 25 open heart surgeries (elective and urgent) to ensure statistical reliability. COAP may audit the data reported by provider groups.
 - a. If outcome metrics are outside of two standard deviations for one year, purchaser and health plan should be informed. If outcome metrics are outside of two standard deviations for two sequential years, provider will not be able to qualify as supplier of the bundle.
 - b. If the surgeon has been disqualified as a supplier of the bundle, eligibility may be reinstated on the basis of achieving performance metrics within two standard deviations of 25 subsequent surgeries.
3. Ensure that members of the surgical team have documented credentials, training, and experience
4. Ensure consistency in roster of the surgical team
5. Perform surgery in an inpatient facility
6. Align policies with the American College of Surgeons Statement on Health Care Industry Representatives in the Operating Room in facilities in which surgery is performed

B) Elements of optimal surgical process

1. Optimize pain management and anesthesia:
 - a. Use anesthesia management format to minimize sedation and encourage early extubation and recovery
 - b. Minimize use of opioids and prescribe according to Washington State Agency Medical Director's Group Opioid Prescribing Guidelines, 2015 Interagency Guidelines or more recent if available
2. Avoid infection:
 - a. Administer appropriate peri-operative course of antibiotics according to guidelines set forth in the Surgical Care Improvement Project (SCIP): SCIP-Inf-1b, 2b, 3b; CMS Measure 1, 2, 3
 - b. Restrict use of urinary catheter to less than 48 hours per SCIP guidelines: SCIP-Inf-9
 - c. Use appropriate method for hair removal, avoid shaving: SCIP-Inf-6
 - d. Use appropriate skin prep by patient prior to surgery
3. Avoid bleeding and low blood pressure:
 - a. Administer standardized protocols using appropriate medications to limit blood loss
 - b. Use institution-based standard IV fluid and inotrope protocols including those implemented by RNs post-operatively with appropriate supervision and monitoring
4. Avoid deep venous thrombosis and embolism according to guidelines set forth in the SCIP VTE-2, CMS Measure 4
5. Avoid hyperglycemia: Use standardized protocol to maintain optimal glucose control, SCIP-Inf-4

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6. Manage perioperative temperature, SCIP-Inf-10

C) Participation in registries

1. Participate in the Washington State Clinical Outcomes Assessment Program (COAP) for cardiovascular surgery

IV. POST-OPERATIVE CARE AND RETURN TO FUNCTION

A) Standard process for post-operative care

1. Utilize a rapid and durable recovery track to mobilize patients following surgery:
 - a. Provide cardiac rehabilitation, including early ambulation during hospitalization, outpatient prescriptive exercise training, and education
 - b. Provide a patient-oriented visual cue to record progress on functional milestones required for discharge
 - c. Reinforce risk factor modification
 - d. Instruct Care Partner to assist with home care
2. Provide access to hospitalists or appropriate medical consultants for consultation to assist with complex or unstable medical problems in the post-operative period
3. Address post-operative nursing and rehabilitative needs for patients that meet Medicare standards and will be discharged to a skilled nursing facility
4. Schedule follow-up call by the surgical team to patient and family 24 to 48 hours and seven days post discharge.

B) Use standardized hospital discharge process aligned with Washington State Hospital Association (WSHA) toolkit

1. Arrange follow up with outpatient care team according to WSHA toolkit
2. Evaluate social and resource barriers based on WSHA toolkit
3. Continue smoking cessation program for previous nicotine users
4. Reconcile medications and ensure essential medications are started or continued
 - a. Anti-platelet medication: CMS Measure 10
 - b. Statins
 - c. Aspirin
5. Provide patient and family/caregiver education with plan of care
 - a. Signs or symptoms that warrant follow-up with provider
 - b. Guidelines for emergency care and alternatives to emergency care
 - c. Contact information for cardiac care team and primary care provider
6. Ensure post-discharge phone call to patient by care team to check progress, with timing of call aligned with WSHA toolkit
7. Provide hospital discharge kit upon discharge according to WSHA toolkit

C) Arrange home care

1. Provide the patient and care partner with information regarding home care
2. Arrange additional home health services as necessary

D) Arrange for post-operative care

1. Send post-discharge summary to primary care provider within three business days of discharge

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2. Schedule cardiac rehab to be managed as clinically appropriate
3. Schedule follow up appointments as appropriate
4. Measure patient-reported functional outcomes with standard instrument at three months
 - a. SAQ-7
 - b. PROMIS-10
5. If opioid use exceeds six weeks, develop a formal plan for opioid management

QUALITY METRICS

The provider group performing surgery must participate in the Clinical Outcomes Assessment Program (COAP) and maintain an organization-specific registry of metrics not collected by COAP. This registry will be updated quarterly and be available for reporting to current or prospective purchasers and health plans. Data may change based on available evidence. We have included COAP level I and level II metrics as of September 2015. Metrics will be revisited and aligned with future COAP metrics when available. COAP metrics can be found here: www.coap.org/participating-hospitals/participating-hospitals-publicly-released-coap-data-cabg

During the first year of the bundled contract, providers will be expected to install methods to measure appropriateness, evidence-based surgery, return to function, and the patient care experience according to the standards noted below. Reporting of results will be expected to begin the second year of the contract. The only exception to this reporting requirement is that the measures of patient safety and affordability noted in section 5 below will begin the first year of the contract.

See **Appendix 1** for more detailed information on quality standard numerators and denominators.

1. Standards for appropriateness

These standards are intended to document patient engagement in medical decision-making and measurement of disability prior to surgery. Report:

- a. Proportion of CABG patients receiving formal shared decision-making decision aids pre-operatively
- b. Proportion of CABG patients with documented patient-reported measures of quality of life and heart-related function prior to surgery – the Seattle Angina Questionnaire-7 and PROMIS-10 Global Health tools may be used
- c. Results of measures from 1b, including responses to all questions of the Seattle Angina Questionnaire-7 and questions regarding everyday physical activities (Question Global 6) on the PROMIS-10 survey

2. Standards for evidence-based surgery

These standards are intended to document adherence to evidence-based best practices related to the peri-operative process. Report the proportion of patients that have received all of the following in the peri-operative period and omission rates, if any:

- a. Prolonged intubation: Post-op vent hours >24
- b. RBC Transfusion: Any intra- or post-op RBC units
- c. Long Length of Stay: LOS surgery – discharge >14 days

3. Standards for ensuring rapid return to function

These standards are intended to optimize mobilization following surgery and measure patient recovery. Report:

- a. Proportion of CABG patients with documented cardiac rehabilitation including early ambulation following surgery and prescriptive exercise training
- b. Proportion of CABG patients for which there are documented patient-reported measures of quality of life and cardiovascular function six months following surgery – the same measures should be used as in standard 1b
- c. Change in results of measures from 2b prior to surgery, and post-surgery at three, six, and twelve months, specifically including the responses to the questions identified in standard 1c

4. Standards for the patient care experience

These standards are intended to measure patient-centered care. Report:

- a. Proportion of CABG patients surveyed using HCAHPS
- b. Results of measures from 4a, specifically including responses to Q6 and Q22 of HCAHPS

5. Standards for patient safety and affordability

These standards are intended to measure success in avoiding complications and reducing readmissions. Report:

- a. 30-day all-cause readmission rate for CABG patients
- b. 30-day readmission rate for CABG patients with any of the complications included under the terms of the warranty
- c. Mortality: Any death during hospitalization
- d. Post-operative stroke: intra- or post-procedure CVA defined as loss of neurologic function caused by ischemic event with residual symptoms lasting >72 hours after onset.
- e. New onset renal failure: Patients (without pre-existing renal failure) who develop post-operative renal failure or require dialysis.
- f. Any Return to OR: Return to OR for bleeding/tamponade; graft occlusion; other cardiac; other non-cardiac; valve dysfunction
- g. New Requirement for Dialysis: New requirement for dialysis post-procedure whether temporary or ongoing.
- h. Deep Sternal Wound Infection: Patients who develop post-operative DSWI/mediastinitis.

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Appendix A: Bree Collaborative Members

Member	Title	Organization
Susie Dade MS	Deputy Director	Washington Health Alliance
John Espinola MD, MPH	Vice President, Quality and Medical Management and Provider Engagement	Premera Blue Cross
Gary Franklin MD, MPH	Medical Director	Washington State Department of Labor and Industries
Stuart Freed MD	Medical Director	Wenatchee Valley Medical Center
Joe Gifford MD	Chief Executive, ACO of Washington	Providence Health and Services
Richard Goss MD	Medical Director	Harborview Medical Center – University of Washington
Christopher Kodama MD	Medical Vice President, Clinical Operations	MultiCare Health System
Paula Lozano MD, MPH	Assistant Medical Director, Department of Preventive Care	Group Health Cooperative
MaryAnne Lindeblad RN, MPH	Director, Medicaid Program	Health Care Authority
Greg Marchand	Director, Benefits & Policy and Strategy	The Boeing Company
Robert Mecklenburg MD	Medical Director, Center for Health Care Solutions	Virginia Mason Medical Center
Kimberly Moore MD	Associate Chief Medical Officer	Franciscan Health System
Carl Olden MD	Family Physician	Pacific Crest Family Medicine, Yakima
John Robinson MD, SM	Chief Medical Officer	First Choice Health
Terry Rogers MD (Vice Chair)	Chief Executive Officer	Foundation for Health Care Quality
Jeanne Rupert DO, PhD	Director of Medical Education	Skagit Valley Hospital
Kerry Schaefer	Strategic Planner for Employee Health	King County
Lani Spencer RN, MHA	Vice President, Health Care Management Services	Amerigroup
Hugh Straley MD (Chair)	Retired	Medical Director, Group Health Cooperative; President, Group Health Physicians
Jay Tihinen	Assistant Vice President Benefits	Costco Wholesale
Carol Wagner RN, MBA	Senior Vice President for Patient Safety	The Washington State Hospital Association
Shawn West MD	Family Physician	Edmonds Family Medicine

Appendix B: Accountable Payment Models Workgroup Charter and Roster

Problem Statement

Health care in the United States is typically fee-for-service, rewarding providers for volume instead of quality. This misalignment between health care reimbursement and quality does not provide incentive for appropriateness, best outcomes, and affordability.

Aim

To recommend reimbursement models including warranties and bundled payments that align with patient safety, appropriateness, evidence-based quality, timeliness, outcomes and the patient care experience.

Purpose

To identify conditions of high variability in clinical practice and cost to purchasers, to define evidence-based standards of practice for these conditions and to develop quality measures that align with best practice. The intent of developing such standards and quality measures is to provide a basis for production, payment, and purchasing of health care that should be used by providers, health plans and purchasers as a basis for market-based health care reform.

Methods used by the Accountable Payment Models Workgroup (APM) should themselves be standardized, permitting applicability to a variety of medical conditions.

Duties and Functions

The APM workgroup shall:

1. Select a series of medical conditions in which variation in practice and price to purchasers is not associated with commensurate quality of outcomes.
2. Review existing standards related to each condition, particularly those developed by the Centers for Medicare and Medicaid Services.
3. Ensure that appropriate content experts and opinion leaders are recruited to participate in the work associated with each medical condition the APM workgroup selects.
4. Consult members of WSHA, WSMA and other stakeholder organizations and subject matter experts on feedback on content of payment models the APM develops.
5. Define scope of work for each medical condition.
6. Identify common medical interventions for each condition to create a standardized patient care pathway.
7. Use standardized evidence search and appraisal methods to create an evidence table that can be used to assess the value of each intervention.

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8. Eliminate interventions from the pathway that are not value-added to create a future-state patient care pathway.
9. Develop quality metrics that can be used to assess performance as providers to support payment and purchasing of health care.
10. Solicit feedback from stakeholders to improve the patient care pathway, evidence table and quality metrics.
11. Present the final draft to the Bree Collaborative for approval.

Structure

The APM will consist of individuals appointed by the Bree Collaborative Steering Committee. Individuals must have in-depth knowledge and expertise in at least one of the following: payment reform, the health care delivery system, benefit design, and/or quality improvement. There must be at least one representative from each stakeholder group: employer, health plan, hospital, provider (including a specialist), and quality improvement organization.

The chair of the APM workgroup will be appointed by the chair of the Collaborative with advice from the Collaborative steering committee.

The Collaborative project director will staff and provide management and support services for the APM. The CEO of the Foundation for Health Care Quality will also provide staff support and technical assistance.

Less than the full APM may convene to: gather and discuss information; conduct research; analyze relevant issues and facts or draft recommendations for the deliberation of the full APM. A quorum shall be a simple majority and shall be required to accept and approve recommendations to the PAR workgroup and the Collaborative.

Meetings

The APM will hold meetings at least once a month and more frequently if necessary.

The APM chair will conduct meetings. The Collaborative project director will arrange for the recording of each meeting, and will distribute meeting agendas and other materials prior to each meeting.

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Workgroup Members

Member	Position	Organization
Glenn Barnhart, MD	Cardiac Surgeon	Swedish Medical Center
Drew Baldwin, MD, FACC	Cardiologist/Quality Organization	Virginia Mason Medical Center; COAP Management Committee
Vinay Malhotra, MD	Cardiologist	Cardiac Study Center
Gregory Eberhart, MD, FACC	Cardiologist	CHI Franciscan Health
Gregg Shibata	Health Plan	Regence Blue Shield
Dan Kent, MD	Health Plan	Premera Blue Cross
Bob Herr, MD	Physician	US HealthWorks
Robert Mecklenburg, MD (Co-Chair)	Physician	Virginia Mason Medical Center
Kerry Schaefer (Co-Chair)	Purchaser	King County
Marissa Brooks	Purchaser	SEIU Healthcare NW Benefits
Greg Marchand/Theresa Helle	Purchaser	The Boeing Company
Thomas Richards	Purchaser	Alaska Airlines
Susie Dade	Quality Organization	Washington Health Alliance
Jeff Hummel, MD	Quality Organization	Qualis Health
Shilpen Patel, MD, FACRO	Quality Organization	Clinical Outcomes Assessment Program
Jay Pal, MD	Cardiac Surgeon	University of Washington

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Appendix C: Detailed Quality Standards

Please note that three of the quality measures refer to specific results or scores and therefore have no numerator or denominator.

	Numerator	Denominator	Registry
1. Standards for appropriateness			
a	Number of CABG patients receiving formal shared decision-making decision aids pre-operatively	Total number of CABG patients	Clinic-Specific
b	Number of CABG patients with documented patient-reported measures of quality of life and heart-related function prior to surgery – the Seattle Angina Questionnaire-7 and PROMIS-10 Global Health tools	Total number of CABG patients	Clinic-Specific
c	Results of measures from 1b, including responses to all questions of the Seattle Angina Questionnaire-7 and questions regarding everyday physical activities (Question Global 6) on the PROMIS-10 survey		Clinic-Specific
2. Standards for evidence-based surgery			
a	Number of CABG patients receiving prolonged intubation: Post-op vent hours >24	Total number of CABG patients	COAP
b	Number of CABG patients receiving RBC Transfusion: Any intra- or post-op RBC units	Total number of CABG patients	COAP
c	Number of CABG patients with long length of stay: surgery – discharge >14 days	Total number of CABG patients	COAP
3. Standards for ensuring rapid return to function			
a	Number of CABG patients with documented cardiac rehabilitation including early ambulation following surgery and prescriptive exercise training	Total number of CABG patients	COAP
b	Number of CABG patients for which there are documented patient-reported measures of quality of life and cardiovascular function six months following surgery – the same measures should be used as in standard 1b	Total number of CABG patients	Clinic-Specific
c	Change in results of measures from 2b prior to surgery, and post-surgery at three, six, and twelve months, specifically including the responses to the questions identified in standard 1c		Clinic-Specific
4. Standards for the patient care experience			

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a	Number of CABG patients surveyed using HCAHPS	Total number of CABG patients	Clinic-Specific
b	Results of measures from 4a, specifically including responses to Q6 and Q22 if HCAHPS is used		Clinic-Specific
5. Standards for patient safety and affordability			
a	Number of CABG patients readmitted to the hospital 30 days post discharge, all-cause	Total number of CABG patients	COAP
b	Number of CABG patients readmitted to the hospital 30 days post discharge with any of the complications included under the terms of the warranty	Total number of CABG patients	Clinic-Specific
c	Number of patient deaths during hospitalization	Total number of CABG patients	COAP
d	Number of CABG patients with post-operative stroke: intra- or post-procedure CVA defined as loss of neurologic function caused by ischemic event with residual symptoms lasting >72 hours after onset.	Total number of CABG patients	COAP
e	Number of CABG patients with new onset renal failure: Patients (without pre-existing renal failure) who develop post-operative renal failure or require dialysis.	Total number of CABG patients	COAP
f	Number of CABG patients who return to OR for bleeding/tamponade; graft occlusion; other cardiac; other non-cardiac; valve dysfunction	Total number of CABG patients	COAP
g	Number of CABG patients with a new requirement for dialysis: New requirement for dialysis post-procedure whether temporary or ongoing.	Total number of CABG patients	COAP
h	Number of CABG patients with deep sternal wound infection: Patients who develop post-operative DSWI/mediastinitis	Total number of CABG patients	COAP