

Quality Measures Fact Sheet

STS Coronary Artery Bypass Graft Composite Score (NQF #0696) *National Quality Strategy Domain: Prevention and Treatment*

Quality Measures Set: Alternate

Data Source: Registry

BPCI Advanced and Quality

The Center for Medicare & Medicaid Innovation's (the CMS Innovation Center's) BPCI Advanced Model rewards health care providers for delivering services more efficiently, supports enhanced care coordination, and recognizes high quality care. Hospitals and clinicians should work collaboratively to achieve these goals, which have the potential to improve the BPCI Advanced Beneficiary experience and align to the CMS Quality Strategy goals of promoting effective communication and care coordination, highlighting best practices, and making care safer and more affordable. A goal of the BPCI Advanced Model is to promote seamless, patient-centered care throughout each Clinical Episode, regardless of who is responsible for a specific element of that care.

Background on Coronary Artery Bypass Graft Surgery

CMS expects more Medicare beneficiaries to undergo Coronary Artery Bypass Graft (CABG) procedures as the population continues to age. Goals for pursuing CABG surgery include enhancing quality of life, reducing angina and other coronary heart disease symptoms, preserving or restoring cardiac function, and improving survival. Cardiac surgery patients experience variable quality and outcomes, particularly within the elderly population where the incidence of mortality and adverse events is significantly higher.⁶³ As with any surgery, there is risk of complication for patients who undergo CABG procedures, which health care teams may reduce if managed effectively.

CMS Innovation Center Rationale for Including the CABG Composite Score Measure in BPCI Advanced

Through evidence based, reliable and valid quality measurement, the CMS Innovation Center aims to measure performance and adjust payment based on a composite outcome. Historically, providers have used risk-adjusted mortality as a key outcome measure for many types of cardiac surgery, including

⁶³ Agarwal, S., Garg, A., Parashar, A., Svensson, L. G., Tuzcu, M., Navia, J. L., Mick, S., & Kapadia, S. R. (2015). In-hospital mortality and stroke after surgical aortic valve replacement: a nationwide perspective. *The Journal of Thoracic and Cardiovascular Surgery*, 150(3), 571-578. Retrieved from [https://www.jtcvs.org/article/S0022-5223\(15\)00882-X/fulltext](https://www.jtcvs.org/article/S0022-5223(15)00882-X/fulltext).

CABG. As mortality has decreased⁶⁴, providers require a better indicator of the quality of CABG procedures to account for differences in care that could lead to poor outcomes. The CMS Innovation Center has added the CABG Composite Score to the BPCI Advanced Model to provide a more complete reflection of care provided, including other surgical complications like stroke and appropriate discharge prescribing. The Society of Thoracic Surgeons (STS) National Database™, Adult Cardiac Surgery Database (ACSD) registry has worked with leaders in the field to develop, test and implement the CABG Composite Score.

Applicable Clinical Episodes

The CABG Composite Score measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode⁶⁵:

- CABG: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 231, 232, 233, 234, 235, and 236

Measure Specifications

The CABG Composite Score measure selected for BPCI Advanced follows National Quality Forum (NQF) #0696 measure specifications. The CABG Composite Score is a hospital-level measure that includes four domains consisting of 11 individual measures. The CMS Innovation Center will exclude Participants from the analysis if they have fewer than 25 isolated CABG procedures in the patient population, or if more than five percent of their data is missing on any of the five NQF-endorsed process measures detailed below.

Domain One: Absence of Operative Mortality

- NQF #0119 Risk-adjusted operative mortality for CABG

Domain Two: Absence of major morbidity, scored any-or-none

- NQF #0131 Risk-adjusted postoperative stroke/cerebrovascular accident
- NQF #0115 Risk-adjusted postoperative surgical re-exploration
- NQF #0130 Risk-adjusted postoperative deep sternal wound infection
- NQF #0114 Risk-adjusted postoperative renal failure
- NQF #0129 Risk-adjusted postoperative prolonged intubation (ventilation)

Domain Three: Use of Internal Mammary Artery (IMA)

- NQF #0134 Use of IMA in CABG

Domain Four: Use of All Evidence-Based Perioperative Medications, scored all-or-none

- NQF #0127 Preoperative beta blockade
- NQF #0117 Beta blockade at discharge
- NQF #0116 Anti-platelet medication at discharge
- NQF #0118 Anti-lipid treatment discharge

⁶⁴ Ferguson T. B., Hammill B. G., Peterson, E. D., DeLong, E. R., & Grover, F. L. (2002). A decade of change—risk profiles and outcomes for isolated coronary artery bypass grafting procedures, 1990-1999: a report from the STS National Database Committee and the Duke Clinical Research Institute. *Annals of Thoracic Surgery*, 73(2), 480-489. Retrieved from [https://www.annalsthoracicsurgery.org/article/S0003-4975\(01\)03339-2/fulltext](https://www.annalsthoracicsurgery.org/article/S0003-4975(01)03339-2/fulltext).

⁶⁵ MS-DRGs are up to date as of Model Year 3 (2020) and will be updated for Model Year 4 as needed.

The STS National Database™ ACSD calculates a score for each of the four domains, and then calculates an overall composite score by “rolling up” the four domain scores into a single number. The STS National Database™ ACSD will provide the CMS Innovation Center with a score for the measure NQF #0696 for all patients included in the denominator. The registry will calculate Acute Care Hospital (ACH) level performance for all patients included in the denominator. The term “patients” refers to people 18 years and older who undergo a procedure at the hospital associated with the Clinical Episodes from the “Applicable Clinical Episodes” section, not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries. For Physician Group Practices (PGPs), the registry will calculate the measure as specified at individual hospitals, then the CMS Innovation Center will weight measure performance based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode.

Denominator

The denominator for the CABG Composite Score measure includes all patients 18 years or older who undergo isolated CABG surgery in a US hospital. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

Numerator

The CABG Composite Score is a hospital-level measure that includes four domains consisting of 11 individual measures. The type of patient and/or case will dictate which of these 11 individual measures in the composite will apply.

Measure Submission

BPCI Advanced Participants may submit this measure through the STS National Database™ ACSD.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a three-year period of data. In Model Year 4, data from January 1, 2019 through December 31, 2021 will be used to calculate the measure.

Composite Quality Score

The CABG Composite Score measure is one component of the BPCI Advanced Composite Quality Score (CQS) calculation. The CMS Innovation Center uses the CQS to adjust a portion of any Positive Total Reconciliation Amount and any Negative Total Reconciliation Amount. The CQS adjustment will not adjust the Positive Total Reconciliation Amount down by more than 10 percent, nor will it adjust the Negative Total Reconciliation Amount up by more than 10 percent. More information is available at the BPCI Advanced website provided below.

Other Resources

Organization/Resource	Website Address
NQF #0696 specifications	http://www.qualityforum.org/QPS/696
NQF #0114 specifications	http://www.qualityforum.org/QPS/0114
NQF #0115 specifications	http://www.qualityforum.org/QPS/0115
NQF #0116 specifications	http://www.qualityforum.org/QPS/0116
NQF #0117 specifications	http://www.qualityforum.org/QPS/0117
NQF #0118 specifications	http://www.qualityforum.org/QPS/0118
NQF #0119 specifications	http://www.qualityforum.org/QPS/0119
NQF #0127 specifications	http://www.qualityforum.org/QPS/0127
NQF #0129 specifications	http://www.qualityforum.org/QPS/0129
NQF #0130 specifications	http://www.qualityforum.org/QPS/0130
NQF #0131 specifications	http://www.qualityforum.org/QPS/0131
NQF #0134 specifications	http://www.qualityforum.org/QPS/0134
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
STS National Database™ ACSD registry specifications	https://www.sts.org/quality-safety/performance-measures/descriptions#CABGCompositeScore