

Quality Measures Fact Sheet

**Risk Standardized Bleeding for Patients Undergoing Percutaneous
Coronary Intervention (PCI) (NQF #2459)**
*National Quality Strategy Domain: Making Care Safer by Reducing Harm
Caused in the Delivery of Care*

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 Percutaneous Coronary Interventions

Percutaneous Coronary Interventions (PCI) (e.g., angioplasty) are increasingly common as the Medicare population ages and the prevalence of coronary artery disease increases. Bleeding is a common non-cardiac complication of PCI that is associated with increased morbidity, mortality, length of hospitalization, and cost.⁵⁴ Fortunately, bleeding avoidance strategies such as radial arterial access and vascular closure devices can reduce this risk.⁵⁵

⁵⁴ Manoukian, S. V., Feit, F., Mehran, R., Voeltz, M. D., Ebrahimi, R., Hamon, M., Dangas, G. D., Lincoff, A. M., White, H. D., Moses, J. W., King, S. B., Ohman, E. M., & Stone, G. W. (2007). Impact of major bleeding on 30-day mortality and clinical outcomes in patients with acute coronary syndromes: an analysis from the ACUTY trial. *Journal of the American College of Cardiology*, 49(12), 1362-1368. Retrieved from <http://www.onlinejacc.org/content/49/12/1362>.

⁵⁵ Vora, A. N., Peterson, E. D., McCoy, L. A., Garratt, K. N., Kutcher, M. A., Marso, S. P., Roe, M. T., Messenger, J. C., & Rao, S. V. (2016). The impact of bleeding avoidance strategies on hospital-level variation in bleeding rates following percutaneous coronary intervention. *Journal of the American College of Cardiology: Cardiovascular Interventions*, 9(8), 771-779. Retrieved from <https://www.sciencedirect.com/science/article/pii/S193687981600162X?via%3Dihub#bib9>.

CMS Innovation Center Rationale for Including the Risk Standardized Bleeding for Patients Undergoing PCI Measure in BPCI Advanced

Because bleeding is among the most common complications after PCI and confers a poor prognosis, measuring and reporting adverse bleeding rates after PCI can focus continuing quality improvement efforts on this important issue and strengthen incentives for practice transformation. The CMS Innovation Center has added the Risk Standardized Bleeding for Patients Undergoing PCI measure to the BPCI Advanced Model to draw greater attention to this avoidable complication, provide the foundation for quality improvement initiatives, and ultimately to improve outcomes for Medicare beneficiaries who undergo PCI.

Applicable Clinical Episodes

The Risk Standardized Bleeding for Patients Undergoing PCI measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes⁵⁶:

- PCI (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 246, 247, 248, 249, 250, and 251
- PCI (Outpatient): Healthcare Common Procedure Coding System (HCPCS) 92920, 92924, 92928, 92933, 92937, 92943, C9600, C9602, C9604, and C9607

Because inpatient and outpatient procedures typically use the same personnel, intervention protocols, and catheterization laboratory, the inpatient measure will apply to both inpatient and outpatient PCI procedures in the Model.

Measure Specifications

The Risk Standardized Bleeding for Patients Undergoing PCI measure selected for BPCI Advanced follows National Quality Forum (NQF) #2459 measure specifications. The measure calculates the hospital-level risk standardized rate of bleeding events following PCI procedures. 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 Risk Standardized Bleeding for Patients Undergoing PCI measure includes all patients 18 or older undergoing a PCI during the episode of care at a US hospital, regardless of payer status; and only index procedures when providers perform multiple PCI procedures (i.e., the population excludes subsequent PCIs during a single episode of care). This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries. All MS-DRG triggers apply, but this measure only applies to patients who undergo PCI.

⁵⁶ MS-DRGs are up to date as of Model Year 3 (2020) and will be updated for Model Year 4 as needed.

The exclusions for this measure include patients:

- who expired on the same day of the procedure
- who underwent coronary artery bypass graft during the episode of care

Numerator

The numerator includes individuals in the previously defined denominator who have a post-PCI bleeding event, defined as one of the following:

- bleeding event within 72 hours (access site, gastrointestinal, genitourinary, hematoma at access site, retroperitoneal, other)
- hemorrhagic stroke
- cardiac tamponade
- red blood cell transfusion PCI for patients with a pre-procedure hemoglobin (Hgb) > 8 grams per deciliter (g/dL) and pre-procedure Hgb not missing
- absolute Hgb decrease from pre-PCI to post-PCI of greater than or equal to 4 g/dL for patients with pre-procedure (6030) Hgb < 16 g/dL and/or a mechanical support device not used

Measure Submission

BPCI Advanced Participants may submit this measure through the American College of Cardiology (ACC) National Cardiovascular Data Registry (NCDR®) CathPCI Registry®.

Revisions to the Published Specifications

There are no revisions from the current, published specifications.

Composite Quality Score

The Bleeding for Patients Undergoing PCI 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 #2459 specifications	http://www.qualityforum.org/QPS/2459
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR® CathPCI Registry® Data Coder's Dictionary v5.0	https://www.ncdr.com/WebNCDR/docs/default-source/cathpci-v5.0-documents/cathpci_v5_codersdatadictionary.pdf?sfvrsn=3eafde9f_7
ACC Data quality checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolkit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/BPCIAdvanced
Current list of participating hospitals; Find Your Heart A Home	https://www.cardiosmart.org/Resources/For-Hospitals
ACC Bleeding Risk Calculator App	https://cvquality.acc.org/clinical-toolkits/acc-cathpci-bleeding-risk-calculator-app
ACC Reduce the Risk: PCI Bleed campaign	https://cvquality.acc.org/initiatives/reduce-the-risk-pci-bleed/about-reduce-the-risk