Bundled Payments for Care Improvement Advanced | BPCI Advanced

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES
CENTER FOR MEDICARE & MEDICAID INNOVATION

BPCI Advanced Model Year 7 (MY7)
Alternate Quality Measures Set Fact Sheets

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Version History

Version	Update Date	Description of Updates
MY6_V1.0	9/1/2022	• Updated Clinical Episode triggering codes (accurate as of 9/1/2022). • Updated data collection periods. • Updated resource links. • Revised specifications Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy (NQF #1525, CMIT ID #82) • Removed Metric 56, "Time to Primary PCI Among Transferred Patients" from the STEMI numerator for Defect Free Care for Acute Myocardial Infarction (AMI) (NQF #2377, CMIT ID #1734). • Updated measure naming for Discharge Medications (Angiotensin-Converting Enzyme (ACE)/ Angiotensin Receptor Blocker (ARB), Angiotensin Receptor-Neprilysin Inhibitor (ARNI), and Beta Blockers) in Eligible Implantable Cardioverter-Defibrillator (ICD)/Cardiac Resynchronization Therapy Defibrillators (CRT-D) Implant Patients (NQF #0965, CMIT ID #1732). • Changed registry reporting options for Patient-Centered Surgical Risk Assessment and Communication (QPP #358, CMIT ID #502). • Updated measure specifications for Severe Sepsis and Septic Shock: Management Bundle Measure (NQF #0500, CMIT ID #678). • Changed registry reporting options for Substance Use Screening and Intervention Composite (NQF #2597, CMIT ID 862). • Updated specifications for Therapy with Aspirin, P2Y12 Inhibitor, and Statin at Discharge Following Percutaneous Coronary Intervention in Eligible Patients (NQF #0964, CMIT ID # 1739). • Updated numerator for STS Coronary Artery Bypass Graft Composite Score (NQF #0696, CMIT ID #1737). • Added HCPCS code to multi-setting Major Joint Replacement of the Upper Extremity Clinical Episodes.
MY6_V2.0	3/1/2023	• Removed reporting via Quality Data Codes (claims) from Preventative Care and Screening: Tobacco Use: Screening and Cessation Intervention (NQF #0028, CMIT ID #596) for the Chronic Obstructive Pulmonary Disease (COPD), Bronchitis, and Asthma Clinical Episode. HCPCS codes have been discontinued effective 1/1/2023.
MY7_V1.0	7/21/2023	• Updated Clinical Episode triggering codes (accurate as of 05/12/2023) • Updated data collection periods. • Updated resource links. • Added CMIT IDs to measures. • Revised National Quality Forum (NQF) mentions to Consensus-Based Entity (CBE). • Updated measure specifications and revisions to published specifications for Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy (NQF #1525, CMIT ID #82) • Updated measure name for Discharge Medications (Angiotensin-Converting Enzyme Inhibitor (ACE-I)/ Angiotensin Receptor Blocker

		(ARB)/ Angiotensin II Receptor Blocker and -Neprilysin Inhibitor (ARNI), and Beta Blockers) in Eligible Implantable Cardioverter-Defibrillator/Cardiac Resynchronization Therapy Defibrillators Implant Patients (NQF #0965, CMIT ID #1732) • Updated measure specifications for Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) or Angiotensin Receptor-Neprilysin Inhibitor (ARNI) Therapy for Left Ventricular Systolic Dysfunction (LVSD) (NQF #0081, CMIT ID #305) • Updated measure specifications for Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD) (NQF #0083, CMIT ID #306) • Updated numerator for Risk Standardized Bleeding for Patients Undergoing Percutaneous Coronary Intervention (PCI) (NQF #2459, CMIT ID # 1735)
MY7_V2.0	7/23/2024	• Updated the CMIT ID for Time to Intravenous Thrombolytic Therapy (NQF #1952, CMIT ID #1740)

Quality Measures Fact Sheet

3-Item Care Transition Measure (CTM-3) (NQF #0228, CMIT ID #767)
National Quality Strategy Domain: Communication and Care Coordination

Quality Measures Set: Alternate   *Data Source*: Hospital Inpatient Quality Reporting Program

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 3-Item Care Transition Measure

The 3-Item Care Transition Measure (CTM-3) is a patient-centered survey measure that assesses patient self-reported preparation for hospital discharge by asking three key questions involving shared decision making, clearly communicating what the patient is responsible for after discharge, and educating the patient about the purpose of medications prescribed. The CTM-3 is one component of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey instrument. CMS has used, or is currently using, this measure in the following Federal programs: the Community-Based Care Transitions Model, the Hospital Inpatient Quality Reporting (IQR) Program, and the Hospital Value-Based Purchasing Program. CTM-3 performance reflects responses drawn from all adult patients discharged from general acute care hospitals (ACHs) within the past 30 days.

CMS Innovation Center Rationale for Including the CTM-3 Measure in BPCI Advanced

The CMS Innovation Center selected the CTM-3 measure because discharge from an ACH is a vulnerable time for Medicare beneficiaries.[1] Higher clinical acuity, combined with shorter lengths of stay, has

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[1] Coleman, E. A. (2003). Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society*, *51*(4), 549-555. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/12657078.

contributed to increased complexity in hospital discharge instructions and higher expectations for patients to perform challenging self-care activities. Many factors may contribute to patients' lack of understanding, including the volume of information conveyed, the relatively brief period allotted for hospital discharge education, and the influence of acute illness, sleep deprivation, and medication side effects. Patients often are unable to recall their discharge diagnoses, treatment plan, or explain how to take prescribed medications.[2] This lack of understanding may have serious consequences, including a preventable decline in health and functional status, suboptimal chronic illness management, and harm related to adverse effects from medications. Suboptimal care transitions may also lead to increased cost due to duplicative testing, emergency room visits, and readmissions.[3] Numerous interventions can improve the quality of care transitions including involving family and care givers in care planning, providing clear written materials, and facilitating early post-discharge follow-up.

Applicable Clinical Episodes

The CTM-3 measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episodes:

- Acute Myocardial Infarction: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 280, 281, and 282
- Back and Neck Except Spinal Fusion: MS-DRGs 518, 519, and 520
- Cardiac Arrhythmia: MS-DRGs 308, 309, and 310
- Cardiac Defibrillator: MS-DRGs 222, 223, 224, 225, 226, and 227
- Cellulitis: MS-DRGs 602 and 603
- COPD, Bronchitis, Asthma: MS-DRGs 190, 191, 192, 202, and 203
- Disorders of the Liver Excluding Malignancy, Cirrhosis, Alcoholic Hepatitis: MS-DRGs 441, 442, and 443
- Fractures of the Femur and Hip or Pelvis: MS-DRGs 533, 534, 535, and 536
- Gastrointestinal Hemorrhage: MS-DRGs 377, 378, and 379
- Gastrointestinal Obstruction: MS-DRGs 388, 389, and 390
- Hip and Femur Procedures Except Major Joint: MS-DRGs 480, 481, and 482
- Inflammatory Bowel Disease: MS-DRGs 385, 386, and 387
- Lower Extremity and Humerus Procedure Except Hip, Foot, Femur: MS-DRGs 492, 493, and 494
- Major Bowel Procedure: MS-DRGs 329, 330, and 331
- Major Joint Replacement of the Upper Extremity (Inpatient and Outpatient): MS-DRG 483, Healthcare Common Procedure Coding System (HCPCS) 23472
- Pacemaker: MS-DRGs 242, 243, and 244
- Renal Failure: MS-DRGs 682, 683, and 684
- Sepsis: MS-DRGs 870, 871, and 872
- Seizures: MS-DRGs 100 and 101

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[2] Makaryus, A., & Friedman, E. (2005). Patients' understanding of their treatment plans and diagnosis at discharge. *Mayo Clinic Proceedings*, *80*(8), 991-994. Retrieved from: https://com-dom-im.sites.medinfo.ufl.edu/files/2012/07/5.17.04.-Help-patients-understand-their-hospitalizations.pdf.
[3] 3-Item Care Transition Measure (CTM-3) Specifications. NQF #0228, CMIT ID #767. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=1154&sectionNumber=1.

- Simple Pneumonia and Respiratory Infections: MS-DRGs 177, 178, 179, 193, 194, and 195
- Spinal Fusion: MS-DRGs 453, 454, 455, 459, 460, 471, 472, and 473
- Transcatheter Aortic Valve Replacement (TAVR): MS-DRGs 266 and 267
- Urinary Tract Infection: MS-DRGs 689, and 690

Measure Specifications

The CTM-3 measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0228, CMIT ID #767) measure specifications.[4] The CTM-3 is a hospital-wide measure derived from HCAHPS survey data. Members of the care team can administer the HCAHPS survey by phone and/or mail within 48 hours to 30 days post discharge. For the three CTM-3 survey questions listed below, there are four response options for Question 1 and Question 2 (Strongly Disagree = 1, Disagree = 2, Agree = 3, and Strongly Agree = 4) and five response options for Question 3 (Strongly Disagree = 1, Disagree = 2, Agree = 3, Strongly Agree = 4, and "I was not given any medication when I left the hospital" = 5).

Q1: During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.

Q2: When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.

Q3: When I left the hospital, I clearly understood the purpose for taking each of my medications.

The CMS Innovation Center will calculate ACH performance at the hospital level for all Medicare beneficiaries included in the denominator. For Physician Group Practices (PGPs), the CMS Innovation Center will calculate the measure as specified at the hospital level, then weight the measure based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode.

Denominator

The denominator for the CTM-3 measure includes all sampled patients aged 18 years and older. The exclusions for this measure include patients:

- who died in the hospital
- who did not stay at least one night in the hospital
- as required by law or regulation in the state in which the hospital operates

Numerator

The numerator is the hospital level sum of CTM-3 scores for all eligible sampled Beneficiaries, where the Beneficiaries include individuals in the previously defined denominator. Hospitals (or their vendors) develop HCAHPS sampling frames of relevant discharges, draw samples of discharges to survey, and collect data from each sampled discharge.

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[4]On March 27, 2023, Battelle was contracted by the Centers for Medicare & Medicaid Services (CMS) to replace the National Quality Forum (NQF) as the Consensus-Based Entity (CBE) for quality measure endorsement and maintenance processes. For more information on CBE refer to: https://mmshub.cms.gov/sites/default/files/Blueprint-CMS-CBE-Endorsement-Maintenance.pdf.

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare claims data and does not require action or reporting by Model Participants beyond what is currently involved in the Hospital IQR Program. To better align with the performance years of the BPCI Advanced Model, the Model uses January 1 through December 31 for measure calculation. The date of discharge on the index admission will determine the calendar year in which the claim belongs.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a one-year calendar period of data rather than any 12-month period. In Model Year 7, the data will be collected from January 1, 2024 to December 2024.

Composite Quality Score

The CTM-3 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
CBE #0228	https://p4qm.org/measures/0228
CMIT ID #767	https://cmit.cms.gov/cmit/#/MeasureView?variantId=1154&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
HCAHPS Overview	https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalHCAHPS.html

Quality Measures Fact Sheet

Advance Care Plan (NQF #0326, CMIT ID #37)
National Quality Strategy Domain: Communication and Coordination

Quality Measures Sets: Administrative and Alternate   **Data Source:** Quality Data Codes (Claims)

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 Advance Care Planning

For the Medicare beneficiary population, consideration of care goals is central to delivering patient-centered care. An Advance Care Plan (ACP) typically documents patient preferences for their care, including use of life-sustaining treatment options. An ACP is based on an individual's personal values, preferences, and discussions with their loved ones. ACPs empower patients to direct the care they want to receive, particularly should they become unable to speak for themselves.

CMS Innovation Center Rationale for Including the ACP Measure in BPCI Advanced

At the heart of a patient-centered episode of care lies a patient's values, meaningful conversation, and planning. Inclusion of the ACP measure is especially important in the BPCI Advanced Model because many beneficiaries that trigger an episode are hospitalized for life threatening conditions and/or are undergoing major medical procedures. These triggering events, as challenging as they may be, represent opportunities for hospitals and clinicians to collaborate with each other and the patient to ensure care reflects the patient's will.[5] The CMS Innovation Center has added a revised version of the Consensus-

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[5] Advanced Care Plan Measure Specifications. NQF #0326, CMIT ID #37. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=3777&sectionNumber=1.

Based Entity (CBE)-endorsed ACP measure to the BPCI Advanced Model. This measure will encourage the documentation of these important discussions, and/or the existence of an ACP in an efficient manner through Medicare claims. Although the measure has been revised specifically for the BPCI Advanced Model, it is still based upon the ACP measure that CMS has used or is currently using in the following Federal programs: the Home Health Value Based Purchasing Model (HHVBP), Medicare Physician Quality Reporting System (PQRS), Physician Quality and Resource Use Reports (QRUR), the Merit-based Incentive Payment System (MIPS), and the Physician Value-Based Payment Modifier.

Applicable Clinical Episodes

The ACP measure is in both the Administrative and Alternate Quality Measures Sets and applies to all inpatient and outpatient Clinical Episodes included in the BPCI Advanced Model.

Measure Specifications

The ACP measure selected for BPCI Advanced follows the National Committee for Quality Assurance's (NCQA) provider level measure, "Advance Care Plan," (ACP) specifications endorsed by CBE (#0326, CMIT ID #37) and appears in the Quality Payment Program (QPP) as measure #47. The CMS Innovation Center will calculate the measure at the Episode Initiator level, limited to BPCI Advanced Beneficiaries treated during an attributed Clinical Episode during the calendar year. The term "BPCI Advanced Beneficiary" refers to a Medicare beneficiary eligible for the Model[6] who receives care from a clinician in an acute care hospital (ACH) or physician group practice (PGP) that participates in BPCI Advanced, and who triggers a Clinical Episode as specified in the "Applicable Clinical Episodes" section above. An Episode Initiator must have a minimum of 10 attributed Clinical Episodes that fit the criteria for the denominator to generate a score.

Any Medicare health care provider, including physicians, advanced practice nurses, and physician assistants, can submit the qualifying Current Procedural Terminology (CPT) codes (CPT or CPT II codes) for this measure regardless of the health care provider's participation in the Model. These ACP codes can be used in any health care setting – including hospitals and outpatient clinics – except the emergency department. If an ACP discussion occurs outside of a BPCI Advanced Beneficiary's annual preventive visit, that patient may incur an associated copay if the billing department applies the qualifying CPT codes to the bill. To avoid this situation, the health care provider can utilize the applicable qualifying CPT II tracking codes that do not generate a charge (provided below). Otherwise, the health care provider should inform the BPCI Advanced Beneficiary of the cost sharing prior to having the discussion.

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[6] Medicare beneficiaries entitled to benefits under Part A and enrolled under Part B on whose behalf an Episode Initiator submits a claim to Medicare FFS for an Anchor Stay or Anchor Procedure. The term "BPCI Advanced Beneficiary" specifically excludes: (1) Medicare beneficiaries covered under United Mine Workers or managed care plans (e.g., Medicare Advantage, Health Care Prepayment Plans, or cost-based health maintenance organizations); (2) beneficiaries eligible for Medicare on the basis of an end-stage renal disease (ESRD) diagnosis; (3) Medicare beneficiaries for whom Medicare is not the primary payer; and (4) Medicare beneficiaries who die during the Anchor Stay or Anchor Procedure. A BPCI Advanced Beneficiary must meet this definition for the full duration of the Clinical Episode. (2023 BPCI Advanced Participation Agreement).

Denominator

The denominator of the ACP measure includes all Model Year Clinical Episodes from the "Applicable Clinical Episodes" section above that end during the calendar year, involving BPCI Advanced Beneficiaries aged 65 years or over that CMS attributes to a BPCI Advanced Episode Initiator at reconciliation. CMS attributes Clinical Episodes to Episode Initiators based upon their CMS Certification Number if they are an ACH, or by their Taxpayer Identification Number if they are a PGP. The anchor end date of the Clinical Episode (the last date of the Anchor Stay or the date of the Anchor Procedure) will determine the calendar year to which the Clinical Episode belongs. The revised BPCI Advanced ACP measure specifications apply to all relevant BPCI Advanced Beneficiaries in the BPCI Advanced Clinical Episode cohort, whereas the CBE-endorsed ACP measure specifications apply to all relevant patients.

Numerator

The numerator includes individuals in the previously defined denominator who have a Medicare claim with a qualifying CPT or CPT II code for ACP during the 12 months prior to the BPCI Advanced episode end date. The qualifying codes for this measure are CPT codes 99497 and 99498 and/or CPT II codes 1123F and 1124F. The ACP CPT codes are billing codes that may result in additional Medicare Beneficiary charges outside of annual preventive visits, as opposed to the ACP CPT II codes, which are tracking codes that do not result in charges.

CPT Billing Code	Description
99497	Advance care planning including the explanation and discussion of advance directives such as standard forms (with completion of such forms, when performed), by the physician or other qualified health care professional; first 30 minutes, face-to-face with the patient, family member(s), and/or surrogate.
99498	Advance care planning including the explanation and discussion of advance directives such as standard forms (with completion of such forms, when performed), by the physician or other qualified health care professional; each additional 30 minutes (list separately in addition to code for primary procedure).

CPT II Tracking Code	Description
1123F	Advance care planning discussed and documented – advance care plan or surrogate decision-maker was documented in the medical record.
1124F	Advance care planning discussed and documented in the medical record – Beneficiary/patient did not wish to or was unable to provide an advance care plan or name a surrogate decision-maker. If patient's cultural and/or spiritual beliefs preclude a discussion of advance care planning, submit this CPT II code.

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare Part B claims data for the calendar year period that aligns to the BPCI Advanced Model Year. Model Participants need to make sure that they are reporting the relevant codes listed above on their claims.

Revisions to the Published Specifications

The measure calculations occur at the Episode Initiator level for only BPCI Advanced Beneficiaries –as opposed to all Medicare beneficiaries–at the National Provider Identifier (NPI) level. This revised version also removes the data completion requirement in NCQA's provider-level ACP measure endorsed by CBE #0326, CMIT ID #37) and distinguishes between a failure to adhere to the guidelines and failure to bill the CPT or CPT II codes, regardless of whether a qualifying health care provider discussed an advance care plan. As a result, the BPCI Advanced version does not exclude BPCI Advanced Beneficiaries with missing CPT or CPT II codes from the denominator.

With Medicare claims for BPCI Advanced Beneficiaries where the health care team did not report the appropriate codes (99497, 99498, 1123F, or 1124F), the CMS Innovation Center will continue to count beneficiaries in the denominator but not in the numerator. In other words, unlike the NCQA's provider level ACP measure, endorsed by CBE#0326, CMIT ID #37), the CMS Innovation Center will treat failure to code equivalent to failing to provide appropriate advance care planning services, without regard to the 8P modifier code: advance care planning not documented, reason not otherwise specified.

Composite Quality Score

The ACP 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 downward by more than 10 percent, nor will it adjust the Negative Total Reconciliation Amount upward by more than 10 percent. More information is available at the BPCI Advanced website provided below.

Other Resources

Organization/Resource	Website Address
CBE #0326	https://p4qm.org/measures/0326
CMIT ID #37	https://cmit.cms.gov/cmit/#/MeasureView?variantId=3775&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
CMS/Medicare Learning Network ACP Fact Sheet	https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/AdvanceCarePlanning.pdf
CMS ACP Frequently Asked Questions	https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/Downloads/FAQ-Advance-Care-Planning.pdf
National Hospice and Palliative Care Organization	https://www.nhpco.org/

Organization/Resource	Website Address
Centers for Disease Control and Prevention Advance Care Planning Course	https://www.cdc.gov/aging/advancecareplanning/care-planning-course.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Faging%2Fadvancecareplanning%2Fcare-planning-course.htm

Quality Measures Fact Sheet

Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy (NQF #1525, CMIT ID #82)
National Quality Strategy Domain: Effective Clinical Care

<u>*Quality Measures Set*</u>*: Alternate*   <u>*Data Source*</u>*: 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 Chronic Anticoagulation Therapy

Stroke and systemic embolization are the most frequent major complications of atrial fibrillation.[7] Anticoagulants are medications that dissolve existing blood clots and prevent new ones from forming. These medications substantially reduce the risk of embolic events, and current guidelines include a class I A (Strong recommendation; High quality evidence) recommendation for oral anticoagulation in atrial fibrillation / atrial flutter patients at increased risk for stroke.[8]

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[7] Nallamothu, B. K., Ghanbar, H. (2012). Net clinical benefit of warfarin in patients with atrial fibrillation: a report from the Swedish atrial fibrillation cohort study. *Circulation 125*, 2298-2307. Retrieved from: https://www.acc.org/latest-in-cardiology/articles/2014/07/18/17/10/net-clinical-benefit-of-warfarin-in-patients-with-afib.

[8] January, C. T. et al (2019). 2019 AHA/ACC/HRS Focused Update of the 2014 AHA/ACC/HRS Guideline for the Management of Patients with Atrial Fibrillation. *Circulation*, *139*. Retrieved from: https://www.ahajournals.org/doi/10.1161/CIR.0000000000000665.

CMS Innovation Center Rationale for Including the Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy Measure in BPCI Advanced

The CMS Innovation Center applied the Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy measure to the Cardiac Arrhythmia Clinical Episode because it promotes patient-centric care for those experiencing atrial flutter and atrial fibrillation.[9] The appropriate use of antithrombotic therapy and the control of other risk factors, including hypertension and hypercholesterolemia, substantially reduce stroke risk.[9] Current guidelines recommend a careful risk assessment of patients with atrial fibrillation and flutter. The selection of an antithrombotic agent should be based on shared decision making that acknowledges risk factors, cost, tolerability, patient preference, potential for drug interactions, and other clinical considerations. The Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy measure clearly indicates whether care teams have conducted an assessment and prescribed anticoagulation therapy for those patients whose risk level warrants it. CMS uses this measure in Federal reporting programs, including CMS' Quality Payment Program, Merit-Based Incentive Payment System (QPP MIPS).

Applicable Clinical Episodes

The Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Cardiac Arrhythmia: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 308, 309, and 310

Measure Specifications

The Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#1525, CMIT ID #82) measure specifications. The measure involves using the using the CHA_2DS_2-VASc Stroke Risk Assessment tool, which allows providers and care teams to quantify stroke risk for patients with nonvalvular atrial fibrillation or atrial flutter. Any Medicare health care provider, including physicians, advanced practice nurses, registered nurses, licensed practical nurses, physician assistants and medical assistants can conduct the CHA_2DS_2-VASc Stroke Risk Assessment and calculate the score for each patient by adding up the points in each Yes/No criterion, where only a "Yes" answer results in points. If the result from the assessment is two or greater, they should make sure the patient is discharged with a prescription for an anti-coagulant.

CHA_2DS_2-VASc Criteria	Score
Congestive heart failure (HF)	1
Hypertension	1
Age >= 75 years	2

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[9] Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy Measure Specifications. NQF #1525, CMIT ID # 82. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=1169&sectionNumber=1.

CHA$_2$DS$_2$-VASc Criteria	Score
Diabetes mellitus	1
Stroke/Transient Ischemic Attack (TIA)/Thromboembolism (TE)	2
Vascular disease (prior myocardial infarction (MI), peripheral artery disease (PAD), or aortic plaque)	1
Age 65-74 years	1
Sex category (i.e., female)	1

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 Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy measure includes all patients 18 years and older with a diagnosis of nonvalvular atrial fibrillation or atrial flutter who do not have a documented CHA$_2$DS$_2$-VASc risk score of 0 or 1 for men; or 0, 1, or 2 for women.

The exclusions for this measure include patients:

- with transient or reversible causes of atrial fibrillation (e.g., pneumonia, hyperthyroidism, pregnancy, cardiac surgery)
- who are on comfort care measures only
- with moderate or severe mitral stenosis
- with a mechanical prosthetic heart valve

The exceptions for this measure include:

- with documentation of a medical or patient reason for not prescribing an oral anticoagulant drug that is FDA approved for the prevention of thromboembolism, including present or planned atrial appendage occlusion or ligation or patient preference for not receiving anticoagulation or patient currently enrolled in a clinical trial related to atrial fibrillation/atrial flutter treatment

Numerator

The numerator includes all individuals in the previously defined denominator who received a prescription for an FDA-approved oral anticoagulant prior to hospital discharge, as indicated by the CPT II G8967.

Measure Submission

BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get with the Guidelines (GWTG)®-AFib Registry.

Revisions to the Published Specifications

The BPCI Advanced version of this measure uses the denominator listed above based on the updated 2022 atrial fibrillation guideline.

Composite Quality Score

The Atrial Fibrillation and Atrial Flutter: Chronic Anticoagulation Therapy 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
CBE #1525	https://p4qm.org/measures/1525
CMIT ID #82	https://cmit.cms.gov/cmit/#/MeasureView?variantId=1169&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
CMS Quality Payment Program Measure Specifications	https://qpp.cms.gov/docs/QPP_quality_measure_specifications/Claims-Registry-Measures/2020_Measure_326_MedicarePartBClaims.pdf
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG® AFib	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-afib
BPCI Advanced Quality Measures Frequently Asked Questions	https://innovation.cms.gov/files/x/bpci-advanced-faqs.pdf
BPCIA Alternate Quality Measures Fact Sheet	https://innovation.cms.gov/innovation-models/bpci-advanced/quality-measures-fact-sheets

Quality Measures Fact Sheet

> ## Bariatric Surgery Standards
> ## for Successful Programs Measure (CMIT #1730)
> ### *National Quality Strategy Domain: Making Care Safer by Reducing Harm*

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 Bariatric Surgery Standards for Successful Programs Measure

The Bariatric Surgery Standards for Successful Programs Measure promotes the critical structural elements within metabolic and bariatric surgery programs which are necessary to provide safe, effective, and high-quality care to all metabolic and bariatric surgery (MBS) patients. The measure includes six structural domains which are strongly linked to safer and higher quality of care for bariatric surgical patients, and align with CMS' Meaningful Measures 2.0 Framework.

CMS Innovation Center Rationale for Including the Bariatric Surgery Standards for Successful Programs Measure in BPCI Advanced

Successful bariatric surgery can result in significant improvements in both health and quality of life; however, MBS can result in a significant risk of complications including bleeding, anastomotic leak, infection, and pulmonary embolism. The CMS Innovation Center selected the Bariatric Surgery Standards for Successful Programs Measure based upon multiple studies that show that specific

structural processes improve patient safety in metabolic and bariatric surgery, resulting in reduced post-operative complications, lower in-hospital mortality, reduced length of stay, and lower costs.[10,11]

CMS worked collaboratively with the American College of Surgeons (ACS) and the American Society for Metabolic and Bariatric Surgery (ASMBS) Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP®) to select the specific components included in the measure based on their importance for patient safety and quality improvement. The domains captured in this measure draw on the experience of ACS and ASMBS with guidance for facilities working with MBS patients.

Applicable Clinical Episodes

The Bariatric Surgery Standards for Successful Programs measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Bariatric Surgery: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 619, 620, and 621

Measure Specifications

The Bariatric Surgery Standards for Successful Programs measure selected for BPCI Advanced follows the *Optimal Resources for Metabolic and Bariatric Surgery* (MBS) 2019 Standards. Data for the measure will be collected by ACS representatives annually from those MBSAQIP®-participating acute care hospitals (ACHs). The measure is comprised of six selected standards as a composite.

Standard	Measure Description
2.4: MBS Committee Weight=10%	• Provides documentation of meeting minutes, including date, agenda, and attendance records, for the minimum of three MBS Committee meetings. • Provides documentation that all actively participating metabolic and bariatric surgeons and proceduralists attended the annual comprehensive review meeting, unless excused by the MBS Director. • Provides documentation of any multidisciplinary bariatric team members (by specialty) attending the MBS Committee meetings.

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[10] Bariatric Surgery Outcomes in US Accredited vs Non-Accredited Centers: A Systematic Review Dan Azagury, MD, John M Morton, MD, MPH, FACS, ASMBS. J Am Coll Surg 2016;223:469e477. 2016 by the American College of Surgeons. https://www.journalacs.org/article–S1072-7515(16)30267-8/fulltext.

[11] Nguyen, N. T., Nguyen, B., Nguyen, V. Q., Ziogas, A., Hohmann, S., & Stamos, M. J. (2012). Outcomes of bariatric surgery performed at accredited vs nonaccredited centers. *Journal of the American College of Surgeons*, *215*(4), 467–474. https://doi.org/10.1016/j.jamcollsurg.2012.05.032.

Standard	Measure Description
2.5: MBS Director Weight=10%	• Provides documentation of the MBS Director's privileges and credentials. • Provides documentation of meeting minutes showing that the MBS Director has attended at least the minimum number of required MBS Committee meetings as outlined above. • Provides proof that the MBS Director is an MBSAQIP® Verified Surgeon. • Provides documentation of MBS Committee meeting minutes that prove the MBS Director is leading the design and implementation of quality improvement initiatives. • Provides a job description, contract, or agreement for the MBS Director documenting that the MBS Director position is fully integrated into the institution's organizational framework and has the authority and resources to fulfill all duties. • In addition to the above, may provide documentation of any networking and sharing of best practices by the MBS Director at the hospital, local, or national level.
5.1: Patient Education Pathways Weight=10%	• Provides documentation of the patient education pathways for each metabolic and bariatric surgeon or proceduralist, which meet the requirements outlined above and have been approved by the MBS Committee. • Provides documentation of MBS Committee meeting minutes showing, at minimum, annual review of patient care pathways, which indicate any revisions driven by the review of the center's outcomes data. • In addition to the above, may provide documentation of research conducted in the creation of the pathways as well as regular pathway review.
5.2: Patient Care Pathways Weight=10%	• Provides documentation of the patient care pathways for each metabolic and bariatric surgeon or proceduralist, inclusion and exclusion patient selection criteria, and evaluation process, including psychological evaluation, preoperative clearance, nutrition regimens, and metabolic and bariatric standardized order sets, addressing all of the requirements outlined above. • Provides documentation of MBS Committee meeting minutes showing, at minimum, annual review of patient care pathways, which indicate any revisions driven by the review of the center's outcomes data. • In addition to the above, may provide documentation of research conducted in the creation of pathways as well as regular pathway review. • In addition to the above, may provide documentation of adherence to pathways and any process improvement conducted to improve adherence.

Standard	Measure Description

7.1: Adverse Event Monitoring
 	
Weight=25%
	• Provides documentation of a protocol for the notification of adverse events and the subsequent review process.
	• Provides documentation in a HIPAA-compliant manner of the minutes of all MBS Committee meetings indicating that all of the following were reviewed:
	   ○ All adverse events as part of a protected, peer review process
	   ○ All in-hospital or 90-day mortalities, if any, within 60 days of discovery
	   ○ Bariatric procedure specific Risk-adjusted reports
	• In addition to the above, may provide documentation of action plans created for adverse events as well as evidence of bariatric-specific morbidity and mortality meetings at the hospital.

7.2: Quality Improvement Initiatives Weight=35%	• Provides documentation for at least one and up to three (or more) quality improvement (QI) initiatives per year, which outlines how the center measured, evaluated, and improved their performance through the implementation of a consistent quality improvement methodology. • Provides proof that any clinical outliers as identified by the bariatric procedure specific reports were prioritized for a quality improvement initiative. • Provides documentation of MBS Committee meeting minutes which review how the MBS Committee members identified, implemented, and monitored QI initiatives. • In addition to the above, may provide documentation of improved patient outcomes related to the QI initiatives.

The measure calculates the level of compliance with six selected standards from the ACS Registry Program. The ACS Registry Program will calculate ACH-level performance for all program components included in the denominator. For Physician Group Practices (PGPs), the ACS Registry Program will calculate the measure as specified at individual hospitals. The CMS Innovation Center will then weight measure performance based upon the PGP Clinical Episode volume for each ACH where a PGP triggers a Clinical Episode.

Denominator

For all ACHs reporting on the Bariatric Surgery Standards for Successful Programs Measure, the denominator is 100, which is the maximum total number of points possible to accrue across all six components of the measure after conversion to a 100-point scale.

Numerator

The numerator is the hospital level sum of Bariatric Surgery Standards for Successful Programs measure scores for each of the six components of the measure. ACS will score ACH performance on each component from 0-3 points based on the degree of compliance with the requirements for each standard. Appropriate weighting (as above) will be applied. Points will be converted into a 100-point

scale. The requirements and scoring for each standard can be found on the ACS MBSAQIP® page in the "Other Resources" table below.

Score	Definition
0	The hospital does not meet the criteria as enumerated by the specific standard (i.e., Standard 2.4, 2.5, etc.)
1	The hospital meets the criteria as enumerated by the specific standard (i.e., Standard 2.4, 2.5, etc.)
2	The hospital exceeds the criteria as enumerated by the specific standard (i.e., Standard 2.4, 2.5, etc.) by demonstrating (for example, but not limited to: more meetings, more quality improvement projects, etc.)
3	The hospital is considered exemplary against the criteria as enumerated by the specific standard (i.e., Standard 2.4, 2.5, etc.) by demonstrating (for example, but not limited to: more meetings with a specific percentage of attendance by particular personnel, more quality improvement projects which are shared outside of the organization, etc.)

Measure Submission

BPCI Advanced Participants may submit this measure through the American College of Surgeons (ACS) and the American Society for Metabolic and Bariatric Surgery (ASMBS) MBSAQIP® Registry.

Revisions to the Established Specifications

The BPCI Advanced version of this measure uses one calendar year of data. In Model Year 7, the data will be collected from January 1, 2024 to December 31, 2024.

Composite Quality Score

The Bariatric Surgery Standards for Successful Programs 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
CMIT ID #1730	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12565&sectionNumber=1
Optimal Resources for Metabolic and Bariatric Surgery Standards Manual, effective October 2022.	https://www.facs.org/quality-programs/accreditation-and-verification/metabolic-and-bariatric-surgery-accreditation-and-quality-improvement-program/standards/
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACS MBSAQIP® *For more information on the MBSAQIP standards and scoring for the measure bundle, please go to this link.*	https://www.facs.org/mbsaqip

Quality Measures Fact Sheet

**Cardiac Rehabilitation Patient Referral from an Inpatient Setting
(NQF #0642, CMIT ID #99)**
National Quality Strategy Domain: Communication and Care Coordination

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 Cardiac Rehabilitation

Cardiac rehabilitation comprises three core components: exercise counseling and training; education for heart healthy living; and counseling to reduce stress.[12] For appropriately selected patients, cardiac rehabilitation improves quality of life and function while reducing hospitalization and cardiovascular mortality.[13] This important intervention is also underutilized, and clinicians should assess all eligible beneficiaries and refer to cardiac rehabilitation when appropriate.

CMS Innovation Center Rationale for Including the Cardiac Rehabilitation Patient Referral from an Inpatient Setting Measure in BPCI Advanced

Within the BPCI Advanced Model, patients treated through the heart failure, percutaneous coronary intervention (PCI), and coronary artery bypass graft (CABG) Clinical Episodes may benefit from cardiac rehabilitation referral. The Defect Free Care for Acute Myocardial Infarction (AMI) measure for patients

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[12] What is cardiac rehabilitation? (2016). Retrieved from https://www.heart.org/en/health-topics/cardiac-rehab/what-is-cardiac-rehabilitation.

[13]Anderson, L., Thompson, D. R., Oldridge, N., Zwisler, A., Rees, K., Martin, N., & Taylor, R. S. (2016). Exercise-based cardiac rehabilitation for coronary heart disease. *Cochrane Database of Systematic Reviews*, *1.* https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD001800.pub3/full.

treated through the AMI Clinical Episode already includes cardiac rehabilitation referral. Improving the referral rate to cardiac rehabilitation is a crucial first step in increasing beneficiary participation in this service. Care teams should work together to ensure that patients obtain written documentation of a referral for the patient (by the physician, advanced practice nurse, or other personnel) to an outpatient cardiac rehabilitation program prior to discharge and encourage them to follow-through. The CMS Innovation Center selected the Cardiac Rehabilitation Patient Referral from an Inpatient Setting measure for BPCI Advanced to promote and document this best practice. The measure has been used or is currently being used by the Million Hearts®: CVD Risk Reduction Model.

Applicable Clinical Episodes

The Cardiac Rehabilitation Patient Referral from an Inpatient Setting measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episodes:

- Coronary Artery Bypass Graft (CABG): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 231, 232, 233, 234, 235, and 236
- PCI: MS-DRGs 246, 247, 248, 249, 250, and 251

Measure Specifications

The Cardiac Rehabilitation Patient Referral from an Inpatient Setting measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0642, CMIT ID #99) measure specifications. The measure assesses the percentage of patients who receive a referral to an outpatient cardiac rehabilitation (CR) or secondary prevention program after completing a PCI or CABG procedure. 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 Cardiac Rehabilitation Patient Referral from an Inpatient Setting measure includes all patients 18 or older who are hospitalized in the US regardless of payer status, with a qualifying cardiovascular diagnosis. Qualifying events include all patients hospitalized with primary diagnosis of myocardial infarction (MI), chronic stable angina, or who during hospitalization have undergone CABG, PCI, cardiac valve surgery, and/or heart transplantation. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

The exclusions for this measure include patients:

- on comfort measures only
- discharged against medical advice (AMA)
- who die during hospitalization
- transferred to another acute care facility
- discharged to hospice

- with a medical reason for not providing a cardiac rehabilitation referral
- with a health care system reason for not providing a cardiac rehabilitation referral (this exclusion does not apply to ACC NCDR CathPCI registry)

Numerator

The numerator includes individuals in the previously defined denominator who qualified health care professionals refer to an outpatient CR program prior to hospital discharge.

Note: A referral is an official communication between the health care provider and the patient to recommend and carry out a referral order to an early outpatient CR program. This includes the provision of all necessary information to the patient that will allow the patient to enroll in an early outpatient CR program. This also includes communication between the health care provider or health care system and the CR program that includes the patient's referral information for the program.

Measure Submission

BPCI Advanced Participants may submit this measure through American College of Cardiology (ACC) National Cardiovascular Data Registry (NCDR®) CathPCI Registry® or the Society of Thoracic Surgery (STS) National Database™, Adult Cardiac Surgery Database (ACSD) depending on the Clinical Episode.

The ACC NCDR® CathPCI Registry® will report on the following Clinical Episodes:
- PCI (Inpatient)

The STS ACSD Registry will report on the following Clinical Episodes:
- CABG (Inpatient)

Revisions to the Published Specifications

This registry measure's specifications reflect the CBE published specifications (e.g., exceptions) as well as annual updates provided to CBE by the measure steward to maintain endorsement status.

Composite Quality Score

The Cardiac Rehabilitation Patient Referral 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
CBE #0642	https://p4qm.org/measures/0642
CMIT ID #99	https://cmit.cms.gov/cmit/#/MeasureView?variantId=3800&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC Measure Specification	https://www.onlinejacc.org/content/71/16/1814/T7
ACC/AHA® Performance Measures	https://doi.org/10.1016/j.jacc.2018.01.004
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/ncdr-home/quality-payment-program
ACC NCDR® CathPCI Registry® Data Coder's Dictionary v5.0	https://cvquality.acc.org/docs/default-source/pdfs/2019/01/10/pci-v5-0-data-dictionary-coders-rtd-07242018-uploaded-jan-10-2019.pdf?sfvrsn=b95981bf_2
ACC Data Quality Checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolikit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
For a current list of participating hospitals; Find Your Heart A Home	https://www.cardiosmart.org/Resources/For-Hospitals
Hospital to Home (H2H) Initiative	https://cvquality.acc.org/initiatives/hospital-to-home
STS National Database™	https://www.sts.org/registries-research-center/sts-national-database

Quality Measures Fact Sheet

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 AMI Care

Acute myocardial infarctions (AMIs) are life-threatening events with significant potential for long term disability. Fortunately, a large and growing arsenal of interventions can improve the outcomes of patients who experience AMI.[14] The standard of care for AMI includes multiple steps that occur at different points in time, from diagnosis through the post discharge period. These standards vary for Non-ST-Elevation Myocardial Infarction (NSTEMI) and ST-Elevation Myocardial Infarction (STEMI).

CMS Innovation Center Rationale for Including the Defect Free Care for AMI Composite Measure in BPCI Advanced

Recent evidence highlights significant gaps in care provided to AMI patients, and more consistent application of accepted standards of care could improve outcomes.[15] Hospitals and providers should

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[14] Jneid, H., Addison, D., Bhatt, D. L., Fonarow, G. C., Gokak, S., Grady, K. L., Green, L. A., Heidenreich, P., Ho, M., Jurgens, C. Y., King, M. L., Kumbhani, D. J., and Pancholy, S. (2017). AHA/ACC clinical performance and quality measures for adults with ST-elevation and non-ST-elevation myocardial infarction. *Journal of the American College of Cardiology*, *70*(16). Retrieved from: http://www.onlinejacc.org/content/70/16/2048.

[15] Williams, S. C., Schmaltz, S. P., Morton, D. J., Koss, R. G., and Loeb, J. M. (2005). Quality of care in U.S. hospitals as reflected by standardized measures, 2002–2004. *New England Journal of Medicine*, *353*, 255–64. Retrieved from: https://www.nejm.org/doi/10.1056/NEJMsa043778.

work together to ensure that they treat AMI patients optimally throughout the Clinical Episode. The CMS Innovation Center selected the Defect Free Care for AMI composite measure for BPCI Advanced because it indicates whether health care teams document a patient's care as meeting 11 elements of guideline-based optimal AMI care.

Applicable Clinical Episodes

The Defect Free Care for AMI composite measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- AMI: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 280, 281, and 282

Measure Specifications

The Defect Free Care for AMI measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#2377, CMIT # 1734) measure specifications. It is a composite measure that estimates the proportion of AMI patients who receive "perfect care" based on their eligibility for each of the individual performance measures in the composite. That is, to achieve the composite measure score, the patients must meet all eligible care opportunities. 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 Defect Free Care for AMI measure includes all patients 18 or older who are AMI patients in the registry, regardless of age or payer status. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries. There are two denominator populations: STEMI and NSTEMI. These two denominator populations are necessary because the guidelines-based care for STEMI and NSTEMI populations differ.

The exclusions for this measure include patients:

- younger than 18 years of age
- who were ineligible for a defect-free care measure (e.g., contraindications, clinical studies)

Numerator

There are two numerators as well: STEMI and NSTEMI. Each numerator of the Defect Free Care for AMI composite measure includes the number of perfect care opportunities provided to patients in each denominator. All care opportunities for which the patient is eligible must be met for that patient to be included in the numerator (All or nothing composite). Eligibility for care opportunities is based on each individual metric. The care opportunities for the STEMI population include:

1. Aspirin at arrival
2. Evaluation of left ventricular (LV) systolic function
3. Reperfusion therapy
4. Door-to-needle time

5. First medical contact-device time
6. Aspirin at discharge
7. Beta blocker at discharge
8. Angiotensin Converting Enzyme Inhibitors (ACE-I) or Angiotensin II Receptor Blockers (ARB) for left ventricular systolic dysfunction (LVSD) at discharge
9. High-intensity statin at discharge
10. Cardiac Rehabilitation patient referral from an inpatient setting
11. P2Y12 inhibitor at discharge
12. Door-in door-out time
13. Immediate angiography after cardiac arrest

The care opportunities for the NSTEMI population include:

1. Aspirin at arrival
2. Evaluation of LV systolic function
3. Aspirin at discharge
4. Beta blocker at discharge
5. ACE-I or ARB for LVSD at discharge
6. High-intensity statin at discharge
7. Rehabilitation patient referral from an inpatient setting
8. Early troponin measurement after NSTEMI
9. P2Y12 inhibitor at discharge

Measure Submission

BPCI Advanced Participants may submit this measure through the American College of Cardiology (ACC) National Cardiovascular Data Registry (NCDR®) Chest Pain – MI Registry™ or American Heart Association® (AHA) Get With The Guidelines (GWTG)®-Coronary Artery Disease Registry.

Revisions to the Published Specifications

This registry measure specification reflects the CBE published specifications (e.g., exceptions) as well as annual updates provided to CBE by the measure steward to maintain endorsement status.

Composite Quality Score

The Defect Free Care AMI 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
CBE #2377	https://p4qm.org/measures/2377
CMIT ID #1734	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12580&sectionNumber=1

Organization/Resource	Website Address
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR®	https://cvquality.acc.org/NCDR-Home/registries
ACC NCDR® Chest Pain – MI Registry™	https://cvquality.acc.org/NCDR-Home/registries/hospital-registries/chest-pain-mi-registry
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG® CAD	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-coronary-artery-disease

Quality Measures Fact Sheet

Discharge Medications (Angiotensin-Converting Enzyme Inhibitor (ACE-I)/ Angiotensin Receptor Blocker (ARB)/ Angiotensin II Receptor Blocker and Neprilysin Inhibitor (ARNI), and Beta Blockers) in Eligible Implantable Cardioverter-Defibrillator/Cardiac Resynchronization Therapy Defibrillators Implant Patients (NQF #0965, CMIT ID #1732)

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 Discharge Medications for Patients with Implantable Cardiac Defibrillators and Cardiac Resynchronization Therapy Defibrillators

Implantable Cardiac Defibrillators (ICDs) and Cardiac Resynchronization Therapy Defibrillators (CRT-D) prevent sudden cardiac death in patients at heightened risk for ventricular arrhythmia.[16] After ICD implantation in a patient with systolic heart failure, evidence-based professional guidelines support use of several different medications, including an angiotensin-converting enzyme inhibitor (ACE-I) or

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[16] Russo, A. M., Stainback, R. F., Bailey, S. R., Epstein, A. E., Heidenreich, P. A., Jessup, M., Kapa, S., Kremers, M. S., Lindsay, B. D., & Stevenson, L. W. (2013). ACCF/HRS/AHA/ASE/HFSA/SCAI/SCCT/SCMR 2013 appropriate use criteria for implantable cardioverter-defibrillators and cardiac resynchronization therapy. *Journal of the American College of Cardiology, 61*(12), 1318–68. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23453819.

angiotensin receptor blocker (ARB) or angiotensin receptor-neprilysin inhibitor (ARNI) and a beta blocker. These medications are shown to reduce morbidity and mortality in patients with heart failure.[17]

CMS Innovation Center Rationale for Including Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients Measure in BPCI Advanced

The CMS Innovation Center selected the Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients measure for BPCI Advanced because it tracks whether providers are following medication prescribing guidelines. Specifically, the measure calculates the percentage of eligible ICD/CRT-D implant patients who receive medication therapy with an ACE-I/ARB/ARNI and beta blocker. Along with implantation of an ICD/CRT-D, these medications are improving outcomes in patients with severe systolic heart failure.[18] Care teams should work together to confirm that patients are prescribed appropriate medications before discharge.

Applicable Clinical Episodes

The Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes:

- Cardiac Defibrillator Clinical Episode (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 222, 223, 224, 225, 226, and 227;
- Cardiac Defibrillator Clinical Episode (Outpatient): Healthcare Common Procedure Coding System (HCPCS) 33249, 33262, 33263, 33264, and 33270

Measure Specifications

The Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients measure selected for BPCI Advanced follows Consensus-Based Entity (CBE #0965, CMIT ID #1732) measure specifications. The measure calculates the proportion of patients undergoing ICD/CRT-D implantation who received prescriptions for all medications (ACE-I/ARB/ARNI and beta blockers) for which they were eligible at discharge. 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

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[17] Hernandez, A., Hammill, B. G., O'Connor, C. M., Schulman, K. A, Curtis, L. H., & Fonarow, G. C. (2009). Clinical effectiveness of beta-blockers in heart failure. *Journal of the American College of Cardiology*, *53*(2), 184-192. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3513266.

[18] Hernandez, A., Hammill, B. G., O'Connor, C. M., Schulman, K. A, Curtis, L. H., & Fonarow, G. C. (2009). Clinical effectiveness of beta-blockers in heart failure. *Journal of the American College of Cardiology*, *53*(2), 184-192. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3513266.

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 Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients measure includes all patients aged 18 years and older, with an ICD/CRT-D implant surviving hospitalization who are eligible to receive either of the two medication classes:

1. eligibility for ACE-I/ARB/ARNI: patients who have an ejection fraction (EF) of less than 40 percent
2. eligibility for beta blockers: patients who have either:
   - EF of less than 40 percent and/or
   - a previous myocardial infarction (MI)

All MS-DRG triggers apply, but this measure only applies to patients with an ICD or CRT-D procedure. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

Numerator

The numerator includes individuals in the previously defined denominator who receive ACE-I/ARB/ARNI and beta blockers for which they are eligible. The registry will exempt patients with medical contraindications to ACE-I/ARB/ARNI or beta blockers, as well as those patients participating in a clinical trial that blinds medication. For these scenarios, the registry will count them as performance-met.

Measure Submission

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

Revisions to the Published Specifications

There are no revisions to the current, published specifications.

Composite Quality Score

The Discharge Medications (ACE-I/ARB/ARNI and Beta Blockers) in Eligible ICD/CRT-D Implant Patients 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
CBE #0965	https://p4qm.org/measures/0965
CMIT ID #1732	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12571&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR® Specifications	https://www.ncdr.com/WebNCDR/docs/default-source/icd-registry-v2-user-guide-documents/icdv2_2-_outcomereport_companionguide_march_8_2017.pdf?sfvrsn=3
ACC NCDR® ICD Registry™ Coder's Data Dictionary	https://cvquality.acc.org/docs/default-source/ncdr/Data-Collection/icd_v2_codersdatadictionary_2-2.pdf?sfvrsn=42748dbf_0
ACC Data Quality Checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolikit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
ACC ICD/CRT Appropriate Use Criteria App	https://www.acc.org/apps
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/ncdr-home/quality-payment-program
For a current list of participating hospitals; Find Your Heart a Home	https://www.cardiosmart.org/Resources/For-Hospitals

Quality Measures Fact Sheet

Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) or Angiotensin Receptor-Neprilysin Inhibitor (ARNI) Therapy for Left Ventricular Systolic Dysfunction (LVSD) (NQF #0081, CMIT ID #305)
National Quality Strategy Domain: Effective Clinical 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 Therapy for Left Ventricular Systolic Dysfunction

Heart failure is a condition where the left ventricle is unable to pump well. Left ventricular systolic dysfunction (LVSD) is one form of the syndrome where the heart muscle is weakened. To diagnose and follow the condition, clinicians typically conduct an echocardiogram to assess left ventricular ejection fraction (LVEF), a number which reflects the proportion of blood ejected with each heartbeat. Extensive evidence supports the use of Angiotensin-Converting Enzyme (ACE) inhibitors or Angiotensin Receptor

Blocker (ARB) therapy for patients with an LVEF of less than 40 percent, which correlates to moderate to severe dysfunction.[19,20,21]

CMS Innovation Center Rationale for Including the HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD Measure in BPCI Advanced

ACE inhibitors or ARB or ARNI therapy improve function and survival and carry a Class IA (Strong recommendation, High quality evidence) recommendation in the current guideline for the management of heart failure. However, a recent analysis found that nearly 20 percent of eligible patients failed to receive ACE inhibitors or ARB therapy at hospital discharge.[21] The CMS Innovation Center is promoting the HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD measure because it represents an important opportunity for improved quality of services provided for patients with HF with reduced ejection fraction. CMS has used, or is currently using, this measure in the Quality Payment Program, Merit-Based Incentive Payment System (QPP MIPS) and other reporting programs.

Applicable Clinical Episodes

The HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Congestive Heart Failure: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 291, 292, and 293

Measure Specifications

The HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0081, CMIT ID #305) measure specifications. The measure reflects the percent of HF patients with LVSD and without both ACE inhibitor and ARB contraindications whose physicians prescribed an ACE Inhibitor or an ARB or ARNI at hospital discharge. 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

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[19] Bainey, K., Armstrong, P., Fonarow, G., Cannon, C., Hernandez, A., Peterson, E., Peacock, W. F., Laskey, W., Zhao, X., Schwamm, L., & Bhatt, D. (2014). Use of renin-angiotensin system blockers in acute coronary syndromes. *Cardiovascular Quality and Outcomes*, *7*, 227-235. Retrieved from https://www.ahajournals.org/doi/10.1161/CIRCOUTCOMES.113.000422.

[20] Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) or Angiotensin Receptor-Neprilysin Inhibitor (ARNI) Therapy for Left Ventricular Systolic Dysfunction (LVSD) Measure Specifications. NQF #0081, CMIT ID #305. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=170&sectionNumber=1.

[21] Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Colvin, M. M., Drazner, M. H., Fillappatos, G. S., Fonarow, G. C., Givertz, M. M., Hollenberg, S. M., Lindenfeld, J., Masoudi, F. A., McBride, P. E., Peterson, P. N., Stevenson, L. W., & Westlake, C., (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. *Circulation*, *136*(60), 137-161. Retrieved from https://www.ahajournals.org/doi/10.1161/cir.000000000000509.

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 HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD measure includes all patients 18 or older with a principle diagnosis of HF and a documented LVEF lower than or equal to 40% or a narrative description of LVEF consistent with moderate or severe systolic dysfunction. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

All MS-DRG triggers apply, but this measure only applies to patients with LVSD.

The exclusions for this measure include patients:

- with a history of heart transplant
- with a left ventricular assist device

The exceptions for this measure include:

- Documentation of medical reason(s) for not prescribing ACE inhibitor or ARB or ARNI therapy (e.g., hospitalized patients who have experienced marked azotemia, allergy, or intolerance, hypotensive patients who are at immediate risk of cardiogenic shock, other medical reasons)
- Documentation of patient reason(s) for not prescribing ACE inhibitor or ARB or ARNI therapy (e.g., patient declined, other patient reasons)

Numerator

The numerator includes individuals in the previously defined denominator for whom qualified health professionals prescribed an ACE Inhibitor or ARB or ARNI at hospital discharge.

Measure Submission

BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get With The Guidelines (GWTG)®- Heart Failure Registry.

Revisions to the Published Specifications

There are no revisions from the current, published specifications.

Composite Quality Score

The HF: ACE Inhibitor or ARB or ARNI Therapy for LVSD 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
CBE #0081	https://p4qm.org/measures/0081
CMIT ID #305	https://cmit.cms.gov/cmit/#/MeasureView?variantId=170&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
CMS Quality Payment Program Measure Specifications	https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2022_Measure_005_MIPSCQM.pdf
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG®-Heart Failure	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-heart-failure

Quality Measures Fact Sheet

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 Therapy for Left Ventricular Systolic Dysfunction

Heart failure (HF) is a condition where the left ventricle is unable to pump well. Left ventricular systolic dysfunction (LVSD) is one form of the syndrome where the heart muscle is weakened. To diagnose and care for heart failure patients over time, clinicians typically conduct an echocardiogram to assess left ventricular ejection fraction (LVEF), a number which reflects the proportion of blood ejected with each heartbeat. Extensive evidence supports the use of beta blocker therapy for patients with an LVEF of less than 40 percent, which correlates to moderate to severe dysfunction.[22,23]

[22,] Yancy, C.W., Jessup, M., Bozkurt, B., Butler, J., Casey, D. E., Colvin, M. M., Drazner, M. H., Fillappatos, G. S., Fonarow, G. C., Givertz, M. M., Hollenberg, S. M., Lindenfeld, J., Masoudi, F. A., McBride, P. E., Peterson, P. N., Stevenson, L. W., Westlake, C. (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America, *Circulation*, *136*(60), 137-161. Retrieved from https://www.ahajournals.org/doi/10.1161/cir.0000000000000509.

[23] Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD) Measure Specifications. NQF #0083, CMIT ID # 306. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=181&sectionNumber=1.

CMS Innovation Center Rationale for Including the HF: Beta-Blocker Therapy for LVSD Measure in BPCI Advanced

Beta blockers carry a Class IA (Strong recommendation, High quality evidence) recommendation in the guidelines for management of heart failure.[24] Providers should initiate beta-blocker treatment as soon as a patient is diagnosed with LVSD and does not have low blood pressure, fluid overload, or recent treatment with an intravenous positive inotropic agent.[24] Beta-blockers have been shown to lessen the symptoms of HF, improve the clinical status of patients, reduce future clinical deterioration, and decrease the risk of mortality and the combined risk of mortality and hospitalization.[25] Moreover, beta-blocker use in elderly patients hospitalized with HF and LVSD was associated with lower risks of death and rehospitalization.[26] The CMS Innovation Center is promoting the HF: Beta-Blocker Therapy for LVSD measure because focusing on this medication offers an opportunity to improve the quality of services provided for patients with HF and decreased LVSD. CMS has used or is currently using the measure in the Quality Payment Program, Merit-based Incentive Payment System (QPP MIPS) and other reporting programs.

Applicable Clinical Episodes

The HF: Beta-Blocker Therapy for LVSD measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Congestive Heart Failure: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 291, 292, and 293

Measure Specifications

The HF: Beta-Blocker Therapy for LVSD measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0083, CMIT ID #306) measure specifications. The HF: Beta-Blocker Therapy for LVSD measure estimates the percent of HF patients aged 18 years and older, with a HF diagnosis and a current or prior LVEF lower than or equal to 40%, whose physician prescribed beta-blocker therapy at hospital discharge. 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 and then the

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[24] Stevenson, L. W., & Westlake, C., (2017). 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. *Circulation*, *136*(60), 137-161. Retrieved from https://www.ahajournals.org/doi/10.1161/cir.0000000000000509.

[25] Hobbs, F. D., Kenkre, J. E., Roalfe, A. K., Davis, R. C., Hare, R., & Davies, M. K. (2002). Impact of heart failure and left ventricular systolic dysfunction on quality of life. *European Heart Journal*, *23*(23), 1867-1876. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/12445536.

[26] Hernandez, A. F., Hammill, B. G., O'Connor, C. M., Schulman, K. A., Curtis, L. H., & Fonarow, G. C. (2009). Clinical effectiveness of beta-blockers in heart failure. *Journal of the American College of Cardiology*, *53*(2), 184-192. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3513266/.

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 HF: Beta-Blocked Therapy for LVSD measure includes all patients 18 or older with a principle diagnosis of HF and a documented LVEF lower than or equal to 40% or a narrative description of LVEF consistent with moderate or severe systolic dysfunction. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

All MS-DRG triggers apply, but this measure only applies to patients with LVSD.

The exclusions for this measure include patients:

- with a history of heart transplant
- with a left ventricular assist device

The exceptions for this measure include:

- Documentation of medical reason(s) for not prescribing beta blocker therapy (e.g., low blood pressure, fluid overload, asthma, patients recently treated with an intravenous positive inotropic agent, allergy, intolerance, other medical reasons)
- Documentation of patient reason(s) for not prescribing beta blocker therapy (e.g., patient declined, other patient reasons)

Numerator

The numerator includes individuals in the previously defined denominator who have documentation in the hospital record of being prescribed evidence-based beta blocker therapy either within a 12-month period when seen in the outpatient setting OR at each hospital discharge.

Measure Submission

BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get With The Guidelines (GWTG)® Registry.

Revisions to the Published Specifications

There are no revisions from the current published specifications.

Composite Quality Score

The HF: Beta-Blocker Therapy for LVSD 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
CBE #0083	https://p4qm.org/measures/0083
CMIT ID #306	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12574&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
CMS Quality Payment Program Measure Specifications	https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2022_Measure_008_MIPSCQM.pdf
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG®-Heart Failure	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-heart-failure

Quality Measures Fact Sheet

Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia Hospitalization (NQF #0468, CMIT ID #336)
National Quality Strategy Domain: Promote Effective Prevention

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Quality Measures Set: Alternate   *Data Source: Hospital Inpatient Quality Reporting Program*

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 Mortality Following Pneumonia Hospitalization

Pneumonia is a common reason for hospital admission, with over 20 million pneumonia hospitalizations in the United States between 2001 and 2014, and $85 billion in total charges for pneumonia hospitalizations in 2014 alone.[27] People aged 65 years and older are at an increased risk of death from pneumonia, with about 85 percent of all pneumonia deaths occurring in this age group.[28] Pneumonia mortality is a priority area for quality improvement as it is an outcome that is in part attributable to care processes and is important for patients.[29]

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[27] Hayes, B. H., Haberling, D. L., Bailey, S. R., Kennedy, J. L., Varma, J. K., Fry, A. M., & Vora, N. M. (2018). Burden of pneumonia-associated hospitalizations. *CHEST Journal*, *153*(2), 427-437. Retrieved from https://journal.chestnet.org/article/S0012-3692(17)32879-9/fulltext.

[28] Trends in pneumonia and influenza morbidity and mortality [PDF file]. (2015). Retrieved from https://www.lung.org/assets/documents/research/pi-trend-report.pdf

[29] Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia Hospitalization Measure Specifications. NQF #0468, CMIT ID #336. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=74&sectionNumber=1.

CMS Innovation Center Rationale for Including the RSMR Following Pneumonia Hospitalization Measure in BPCI Advanced

Hospitals and care teams should collaborate to optimize care for Medicare beneficiaries hospitalized for pneumonia and to reduce the risk of serious complications, including death. The CMS Innovation Center selected the Hospital 30-day, All Cause, Risk-Standardized Mortality Rate (RSMR) following Pneumonia Hospitalization measure for BPCI Advanced because it assesses the number of patients who die for any reason within 30 days of the index pneumonia admission. This measurement provides an important hospital-level perspective on care processes and transitions.[30] The RSMR Following Pneumonia Hospitalization measure has been used or is currently being used by the following Federal programs: the Hospital Inpatient Quality Reporting (IQR) Program and Value-Based Purchasing (VBP) Programs.

Applicable Clinical Episodes

The Hospital 30-day, All Cause, RSMR following Pneumonia Hospitalization measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Simple Pneumonia and Respiratory Infections: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 177, 178, 179, 193, 194, and 195

Measure Specifications

The Hospital 30-day, All Cause, RSMR following Pneumonia Hospitalization measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0468, CMIT ID #336) measure specifications. The measure estimates a risk-stratified hospital-level mortality rate for all Medicare fee-for-service (FFS) beneficiaries, aged 65 and older, hospitalized for pneumonia. This measure considers mortality as death from any cause within 30 days of the index pneumonia admission date. The CMS Innovation Center will calculate Acute Care Hospital (ACH) performance at the hospital level for all Medicare beneficiaries included in the denominator. For Physician Group Practices (PGPs), the CMS Innovation Center will calculate the measure as specified at the hospital level, then weight the measure based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode.

Denominator

The denominator for the Hospital 30-day, All Cause, RSMR following Pneumonia Hospitalization measure includes all Medicare FFS beneficiaries, aged 65 years and older, who are admitted to the hospital with a principal discharge diagnosis of pneumonia (including aspiration pneumonia), or a principal discharge diagnosis of sepsis (not including severe sepsis) with a secondary diagnosis of pneumonia (including

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[30] Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia Hospitalization Measure Specifications. NQF #0468, CMIT ID #336. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=74&sectionNumber=1.

aspiration pneumonia) coded as present on admission (POA) and no secondary diagnosis of severe sepsis coded as POA. Beneficiaries must also meet the following inclusion criteria:

- enrolled in Medicare FFS Part A and Part B for the 12 months before the date of index admission
- enrolled in Part A during the index admission
- not transferred from another acute care facility

All MS-DRG triggers apply, but this measure only applies to patients with pneumonia. The exclusions for this measure include patients:

- discharged alive on the day of admission or the following day and whose care team did not transfer them to another acute care facility
- who have inconsistent or unknown vital status or unreliable demographic (e.g., age, gender) data
- enrolled in the Medicare hospice program any time in the 12 months before the index admission, including the first day of the index admission
- discharged against medical advice

For beneficiaries with more than one admission for a given condition in a given year, the CMS Innovation Center will randomly select one index admission for that condition for inclusion.

Numerator

The numerator includes individuals in the previously defined denominator who die for any reason within 30 days of the index pneumonia admission after their health care teams discharged them from the ACH.

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare claims data and does not require any additional action or reporting by Model Participants, outside of claims submission. To better align with the performance years of the BPCI Advanced Model, the Model uses January 1 through December 31 for measure calculation. The date of discharge on the index admission will determine the calendar year in which the claim belongs.

Revisions to the Published Specifications

The BPCI Advanced version of this measure uses two calendar years of data instead of any 24-month period. In Model Year 7, the claims data will be collected from January 1, 2023 to December 31, 2024.

Composite Quality Score

The Hospital 30-Day, All-Cause, Risk-Standardized Mortality Rate (RSMR) Following Pneumonia Hospitalization 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
CBE #0468	https://p4qm.org/measures/0468
CMIT ID #336	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12575&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced

Quality Measures Fact Sheet

> ## Hospital Risk-Standardized Complication Rate following Implantation of Implantable Cardioverter-Defibrillator (ICD) Composite Measure (CMIT ID #1733)
> ### *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 Implantable Cardioverter-Defibrillator Implantation

An implantable cardioverter-defibrillator (ICD) is an electronic device that continuously monitors cardiac electrical activity, paces the heart when needed, and defibrillates the heart if it detects a life-threatening arrhythmia. Research shows that ICDs improve survival in patients at heightened risk of sudden cardiac death.[31] Complications following ICD implantation may include hematoma, infection, pneumothorax, and lead/pulse generator malfunction.[32]

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[31] Russo, A. M., Stainback, R. F., Bailey, S. R., Epstein, A. E., Heidenreich, P. A., Jessup, M., & … Stevenson, L. W. (2013). ACCF/HRS/AHA/ASE/HFSA/SCAI/SCCT/SCMR 2013 appropriate use criteria for implantable cardioverter-defibrillators and cardiac resynchronization therapy. *Journal of the American College of Cardiology, 61*(12), 1318–68. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23453819.

[32] Ezzat, V. A., Lee, V., Ahsan, S., Chow, A. W., Segal, O., Rowland, E., & Lambiase, P. D. (2015). A systematic review of ICD complications in randomized controlled trials versus registries: Is our 'real-world' data an underestimation? *Open Heart, 2*(1), e000198. Retrieved from https://openheart.bmj.com/content/2/1/e000198.

CMS Innovation Center Rationale for Including the Hospital Risk-Standardized Complication Rate Following Implantation of ICD Composite Measure in BPCI Advanced

ICD implantation is relatively common, and complications are relatively uncommon. However, care teams should work together to avoid complications and improve outcomes. The CMS Innovation Center is promoting the Risk-Standardized Complication Rate following Implantation of ICD composite measure because it identifies the number of patients who experience one or more complications following initial ICD implantation, focuses attention on patient safety during ICD implantation, and promotes improved outcomes.[33]

Applicable Clinical Episodes

The Hospital Risk-Standardized Complication Rate Following Implantation of ICD composite measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes:

- Cardiac Defibrillator Clinical Episode (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRG) 222, 223, 224, 225, 226, and 227
- Cardiac Defibrillator Clinical Episode (Outpatient): Healthcare Common Procedure Coding System (HCPCS) 33249, 33262, 33263, 33264, and 33270

Measure Specifications

The American College of Cardiology (ACC) National Cardiovascular Data Registry (NCDR®) ICD Registry™ specifications form the basis for the Risk-Standardized Complication Rate Following Implantation of ICD Composite measure. The measure identifies the number of patients who experience one or more complications following initial ICD implantation. 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. The registry will calculate Acute Care Hospital (ACH) level performance for all patients included in the denominator. 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 Hospital Risk-Standardized Complication Rate Following Implantation of ICD composite measure includes all patients aged 18 years or older who receive an inpatient or outpatient ICD. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

All MS-DRG triggers apply, but this measure only applies to patients with an implanted ICD.

The exclusions for this measure include patients:

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[33] National Quality Forum (2018). Measure Information: #0694 Hospital Risk-Standardized Complication Rate following Implantation of Implantable Cardioverter-Defibrillator (ICD). Retrieved from: http://www.qualityforum.org/QPS/694.

- with procedures involving leads only
- with procedures to place an epicardial lead
- with procedures to extract a lead

Numerator

The numerator includes individuals in the previously defined denominator with one or more of the following complications occurring in the hospital after ICD implantation: cardiac arrest, cardiac perforation, coronary venous dissection, hemothorax, device-related infection, lead dislodgement, mortality, myocardial infarction, pericardial tamponade, pneumothorax, stroke/transient ischemic attack, urgent cardiac surgery, hematoma, or set screw problem.

Measure Submission

BPCI Advanced Participants may submit data for this measure through the ACC NCDR® ICD Registry™.

Revisions to the Published Specifications

This measure as implemented in the ACC NCDR® ICD Registry™ does not have the exact same specification as the ICD complications Consensus-Based Entity (CBE)-endorsed measure. The ACC NCDR® ICD Registry™ version assesses in-hospital complications only, whereas the CBE version assesses complications 30 or 90 days post procedure. The BPCI Advanced Model will use the ACC NCDR® ICD Registry™ measure which assesses only in-hospital complications.

Composite Quality Score

The Hospital Risk-Standardized Complication Rate following Implantation of ICD composite 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
CMIT ID #1733	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12577&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR® ICD Registry™ Coder's Data Dictionary	https://cvquality.acc.org/docs/default-source/ncdr/Data-Collection/icd_v2_codersdatadictionary_2-2.pdf?sfvrsn=42748dbf_0
ACC Data Quality Checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolikit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
ACC ICD/CRT Appropriate Use Criteria App	https://www.acc.org/apps
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/ncdr-home/quality-payment-program
For a current list of participating hospitals; Find Your Heart a Home	https://www.cardiosmart.org/Resources/For-Hospitals

Quality Measures Fact Sheet

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 Total Hip Arthroplasty and Total Knee Arthroplasty Complications

Total Hip Arthroplasty (THA) and Total Knee Arthroplasty (TKA) procedures are common among the Medicare population and, over time, have become relatively efficient, with regimented steps to encourage safety and best practices. At the same time, complications from THA and TKA are burdensome to patients, impacting not only their length of recovery but their mobility as well.

CMS Innovation Center Rationale for Including the Hospital-Level RSCR Following Elective Primary THA and/or TKA Measure in BPCI Advanced

The entire process for THA and TKA from inpatient admission through recovery can be lengthy, and hospitals and care teams should collaborate to ensure that patients undergoing THA and TKA have a coordinated care process. The CMS Innovation Center has selected the Hospital-Level RSCR Following Elective Primary THA and/or TKA Measure for BPCI Advanced because reporting the complication rate will inform providers about opportunities to improve care. The measure will also highlight ways to

strengthen incentives for quality improvement and ultimately improve the quality of care received by Medicare beneficiaries. CMS has used, or is currently using this in the following Federal programs: CMS' Partnership for Patients and the Hospital Inpatient Quality Reporting (IQR) Program.

Applicable Clinical Episodes

The Hospital-Level RSCR Following Elective Primary THA and/or TKA measure is included in both the Administrative and Alternate Quality Measures Sets and applies to the following inpatient and outpatient Clinical Episodes:

- Double Joint Replacement of the Lower Extremity (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 461 and 462
- Major Joint Replacement of the Lower Extremity (Inpatient and Outpatient): MS-DRGs 469, 470, 521, and 522; Healthcare Common Procedure Coding System (HCPCS) 27447 and 27130

Measure Specifications

The Hospital-Level RSCR Following Elective Primary THA and/or TKA measure follows Consensus-Based Entity (CBE) (#1550, CMIT ID #350) measure specifications. This measure estimates a hospital-level RSCR associated with elective primary THA and TKA procedures for Medicare beneficiaries. Performance on the Hospital-Level RSCR Following Elective Primary THA and/or TKA measure is risk standardized and is the same as the Hospital IQR Program Hospital-Level RSCR Following Elective Primary THA and/or TKA measure reported on Hospital Compare, with the exception that the CMS Innovation Center adjusted the reporting period to the calendar year to align with the BPCI Advanced Model. The CMS Innovation Center will calculate Acute Care Hospital (ACH) performance at the hospital level for all Medicare beneficiaries included in the denominator. For Physician Group Practices (PGPs), the CMS Innovation Center will calculate the measure as specified at the hospital level, then weight the measure based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode.

Denominator

The denominator for the Hospital-Level RSCR Following Elective Primary THA and/or TKA measure includes all Medicare fee-for-service (FFS) beneficiaries aged 65 years and older who are hospitalized for elective primary THA and/or TKA procedures. These Medicare FFS beneficiaries must have 12 months of continuous Medicare Part A and B enrollment prior to the THA and/or TKA procedure.

All MS-DRG triggers apply, but this measure only applies to patients with an elective primary THA and/or TKA procedure. The exclusions for this measure include patients:

- without at least 90 days post-discharge enrollment in Medicare FFS
- discharged against medical advice
- who had more than two THA and/or TKA procedure codes during the index hospitalization

Numerator

The numerator includes individuals in the previously defined denominator who experience a complication with an elective primary THA and/or TKA procedure. If any Medicare beneficiary has a complication occurring during the index admission (not coded present on arrival), or during a

readmission up to 90 days post-date of the index admission, the measure will include them in the numerator.

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare claims data and does not require action or reporting by Model Participants beyond what is currently involved in the Hospital IQR Program. To better align with the performance years of the BPCI Advanced Model, the Model uses January 1 through December 31 for measure calculation. The date of discharge on the index admission will determine the calendar year in which the claim belongs.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a one-year period of data instead of a three-year period. In Model Year 7, the claims data will be collected from January 1, 2024 to December 31, 2024.

Composite Quality Score

The Hospital-Level RSCR Following Elective Primary THA and/or TKA 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
CBE #1550	https://p4qm.org/measures/1550
CMIT ID #350	https://cmit.cms.gov/cmit/#/MeasureView?variantId=11547&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
Inpatient Quality Reporting	https://www.cms.gov/newsroom/fact-sheets/cms-improve-quality-care-during-hospital-inpatient-stays
CMS/Medicare Learning Network Major Joint Replacement	https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/jointreplacement-ICN909065.pdf

Quality Measures Fact Sheet

Hospital-Wide All-Cause Unplanned Readmission Measure (NQF #1789, CMIT ID #356)
National Quality Strategy Domain: Communication and Care Coordination

Quality Measures Sets: Administrative and Alternate

Data Source: Hospital Inpatient Quality Reporting Program

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 Readmissions

Readmission after being discharged from the hospital is costly, disruptive to the Medicare beneficiary and their family, and often preventable. While some readmissions are unavoidable due to worsening illness, appropriate transitional care and clear, monitored discharge procedures can reduce the risk of readmission.

CMS Innovation Center Rationale for Including the Hospital-Wide All-Cause Unplanned Readmission Measure in BPCI Advanced

The CMS Innovation Center selected the Hospital-Wide All-Cause Unplanned Readmission measure to encourage hospitals and their care teams to collaborate and ensure that they provide appropriate discharge planning, instructions, and follow-up care to patients to help reduce the risk of readmission. The Hospital-Wide All-Cause Unplanned Readmission measure evaluates whether a patient has an unplanned readmission within 30 days. CMS has used, or is currently using, the measure in the following Federal programs: the Hospital Inpatient Quality Reporting (IQR) Program and the Medicare Shared Savings Program. CMS also reports this measure on the Hospital Compare website.

Applicable Clinical Episodes

The Hospital-Wide All-Cause Unplanned Readmission measure is in both the Administrative and Alternate Quality Measures Sets and applies to all inpatient and outpatient Clinical Episodes included in the BPCI Advanced Model.

Measure Specifications

The Hospital-Wide All-Cause Unplanned Readmission measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#1789, CMIT ID #356) measure specifications. The CMS Innovation Center will calculate Acute Care Hospital (ACH) performance at the hospital level for all Medicare beneficiaries included in the denominator. For Physician Group Practices (PGPs), the CMS Innovation Center will calculate the measure as specified at the hospital level, then weight the measure based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode. Performance on the Hospital-Wide All-Cause Unplanned Readmission measure is risk adjusted.

Denominator

The denominator for the Hospital-Wide All-Cause Unplanned Readmission measure includes all Medicare fee-for-service (FFS) beneficiaries aged 65 years and older who are hospitalized and are discharged alive from a Medicare-participating ACH. These Medicare FFS beneficiaries must have 12 months of continuous Medicare Part A enrollment prior to the index admission. Index admission refers to the first admission.

The exclusions for this measure include patients:

- admitted to Prospective Payment System-exempt cancer hospitals
- without at least 30 days post-discharge enrollment in Medicare FFS
- discharged against medical advice
- admitted for primary psychiatric diagnoses
- admitted for rehabilitation
- admitted for medical treatment of cancer

Numerator

The numerator includes individuals in the previously defined denominator who have a readmission for any cause, except for certain planned readmissions, within 30 days from the date of discharge from an eligible index admission. If a Medicare beneficiary has more than one unplanned admission (for any reason) within 30 days after discharge from the index admission, the measure only counts as one readmission. Note that readmissions do not have to be at the same hospital location as the index admission; a Medicare beneficiary who is readmitted to any hospital will count as a readmission.

This measure looks for a "yes" or "no" outcome of whether each admitted patient has an unplanned readmission within 30 days. However, if health care teams planned the first readmission after discharge, the measure does not count any subsequent unplanned readmission as an outcome for that index admission.

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare claims data and does not require action or reporting by Model Participants beyond what is currently involved in the Hospital IQR Program. To better align with the performance years of the BPCI Advanced Model, the Model uses January 1 through December 31 for measure calculation. The date of discharge on the index admission will determine the calendar year in which the claim belongs.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a one-year calendar period of data. In Model Year 7, the claims data will be collected from January 1, 2024 to December 31, 2024.

Composite Quality Score

The Hospital-Wide All-Cause Unplanned Readmission 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 downward by more than 10 percent, nor will it adjust the Negative Total Reconciliation Amount upward by more than 10 percent. More information is available at the BPCI Advanced website provided below.

Other Resources

Organization/Resource	Website Address
CBE #1789	https://p4qm.org/measures/1789
CMIT ID #356	https://cmit.cms.gov/cmit/#/MeasureView?variantId=1862&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
Hospital IQR Program Readmission Measures Methodology	https://www.qualitynet.org/inpatient/measures/readmission/methodology

Quality Measures Fact Sheet

In-Person Evaluation Following Implantation of a Cardiovascular Implantable Electronic Device (CIED) (NQF #2461, CMIT ID #398)
National Quality Strategy Domain: Health and Well-Being

Clinical Preventive Services

Quality Measures Set: Alternate   *Data Source: Claims*

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 In-Person Evaluation Following Implantation of a Cardiovascular Implantable Electronic Device

Clinical quality outcomes from cardiovascular implantable electronic devices (CIEDs) are varied and providers can improve them by employing key strategies. Early follow-up of patients who have undergone implantation of a CIED, such as a pacemaker, is important to assess for complications and to confirm appropriate device function.[34] Clinical guidance recommends that patients with pacemakers have an in-person follow-up appointment within two to 12 weeks following implantation and an annual in-person evaluation thereafter.

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[34] In-Person Evaluation Following Implantation of a Cardiovascular Implantable Electronic Device (CIED) Measure Specifications. NQF #2461, CMIT ID #398. Retrieved from
https://cmit.cms.gov/cmit/#/MeasureView?variantId=2507&sectionNumber=1.

CMS Innovation Center Rationale for Including the In-Person Evaluation Following Implantation of a CIED Measure in BPCI Advanced

Implantation of a CIED is associated with substantial morbidity, mortality, and financial cost, and the rate of infections is increasing.[35] The CMS Innovation Center selected the In-Person Evaluation Following Implantation of a CIED measure for BPCI Advanced because it tracks performance for ensuring that the initial two- to 12-week post-implantation evaluation occurs, either by the implanting provider's office or through coordination with the patient's primary cardiologist.

Applicable Clinical Episodes

The In-Person Evaluation Following Implantation of a CIED measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Pacemaker: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 242, 243, and 244

Measure Specifications

The In-Person Evaluation Following Implantation of a CIED measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#2461, CMIT ID #398) measure specifications. The CMS Innovation Center will calculate the measure at the Episode Initiator level, based on BPCI Advanced Beneficiaries treated during attributed Model Year Clinical Episode that ends during the calendar year. The term "BPCI Advanced Beneficiary" refers to a Medicare beneficiary eligible for the Model[36] who receives care from a clinician in an acute care hospital (ACH) or physician group practice (PGP) that participates in BPCI Advanced, and who triggers a Clinical Episode as specified in the "Applicable Clinical Episodes" section above. An Episode Initiator must have a minimum of 10 attributed Clinical Episodes that fit the criteria for the denominator to receive a score.

Denominator

The denominator for the In-Person Evaluation Following Implantation of a CIED measure includes all Model Year Clinical Episodes from the "Applicable Clinical Episodes" section above that end during the calendar year, involving BPCI Advanced Beneficiaries aged 18 and older, that CMS attributes to a BPCI Advanced Episode Initiator at reconciliation. CMS attributes Clinical Episodes to Episode Initiators based upon their CMS Certification Number if they are an ACH, or by their Taxpayer Identification Number if

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[35] Sohail, M. R., Henrikson, C. A., Braid-Forbes, J. M., Forbes, K. F., & Lerner, D. J. (2011). Mortality and cost associated with cardiovascular implantable electronic device infections. *Archives of Internal Medicine, 171(*20*),* 1821-1828.

[36] Medicare beneficiaries entitled to benefits under Part A and enrolled under Part B on whose behalf an Episode Initiator submits a claim to Medicare FFS for an Anchor Stay or Anchor Procedure. The term BPCI Advanced Beneficiary specifically excludes: (1) Medicare beneficiaries covered under United Mine Workers or managed care plans (e.g., Medicare Advantage, Health Care Prepayment Plans, or cost-based health maintenance organizations); (2) beneficiaries eligible for Medicare on the basis of an end-stage renal disease (ESRD) diagnosis; (3) Medicare beneficiaries for whom Medicare is not the primary payer; and (4) Medicare beneficiaries who die during the Anchor Stay or Anchor Procedure. A BPCI Advanced Beneficiary must meet this definition for the full duration of the Clinical Episode. (2023 BPCI Advanced Participation Agreement).

they are a PGP. The anchor end date of the Clinical Episode (the last date of the Anchor Stay or the date of the Anchor Procedure) will determine the calendar year to which the Clinical Episode belongs.

All MS-DRG triggers apply, but this measure only applies to patients who undergo CIED implantation.

The exclusions for this measure include patients:

- with Implantable Loop Recorders or Implantable Cardiovascular Monitors
- with pulse generator exchange only
- with prior CIED implantation

Numerator

The numerator includes all Clinical Episodes in the previously defined denominator where the BPCI Advanced Beneficiary has an in-person evaluation of their new CIED in two- to 12-weeks following implantation. For the purposes of this measure, an in-person interrogation device evaluation either with or without iterative adjustment, as clinically indicated, counts as an "in-person evaluation." Any trained physician or other qualified health care professional can perform the in-person evaluation in a designated CIED follow-up clinic, medical institution, or physician office. Current Procedural Terminology (CPT) codes 93288 and 93289 indicate receipt of an in-person evaluation.

CPT Code	Description
93288	Interrogation device evaluation (in person) with analysis, review, and report by a physician or other qualified health care professional; includes connection, recording and disconnection per patient encounter; single, dual, or multiple lead pacemaker system.
93289	Interrogation device evaluation (in person) with analysis, review, and report by a physician or other qualified health care professional; includes connection, recording and disconnection per patient encounter; single, dual, or multiple lead transvenous implantable defibrillator system, including analysis of heart rhythm derived data elements.

Billing departments can use these CPT codes with or without additional CPT codes which indicate the performance of programming device evaluations with iterative adjustments (93279, 93280, 93281, 93282, 93283 or 93284).

Measure Submission

The CMS Innovation Center will calculate this measure using Medicare Part B claims data and does not require any additional action or reporting by Model Participants, outside of claims submission utilizing appropriate coding. The CMS Innovation Center will calculate this measure for the calendar year period that aligns to the Model Year. Model Participants only need to make sure they are reporting the relevant codes listed above on their claims.

Revisions to the Published Specifications

BPCI Advanced calculates this version of the measure at the Episode Initiator level and limits the patient population to BPCI Advanced Beneficiaries, as opposed to all Medicare beneficiaries in the current CBE-endorsed specifications.

Composite Quality Score

The In-Person Evaluation Following CIED 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
CBE #2461	https://p4qm.org/measures/2461
CMIT ID #398	https://cmit.cms.gov/cmit/#/MeasureView?variantId=2507&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced

Quality Measures Fact Sheet

Patient-Centered Surgical Risk Assessment and Communication (QPP #358, CMIT ID #502)
National Quality Strategy Domain: Person and Caregiver-Centered Experience and Outcomes

Quality Measures Set: Alternate   **Data Source**: Quality Data Codes (Claims) or 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 Patient-Centered Surgical Risk Assessment and Communication

Informed consent and shared decision-making between physicians, patients, their families, and caregivers should have a structured approach. Use of a risk calculator provides more effective preoperative risk stratification and offers a personalized, empirically-based estimate of a patient's risk of post-operative complications.[37] This kind of process improves the quality of the informed consent/shared decision-making experience, while enhancing patient trust in providers.

CMS Innovation Center Rationale for Including the Patient-Centered Surgical Risk Assessment and Communication Measure in BPCI Advanced

The BPCI Advanced Model intends to promote streamlined, patient-centered care, and the Patient-Centered Surgical Risk Assessment Communication measure promotes informed consent and shared decision making to achieve that aim. Shared decision-making is critically important for preference-

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[37] Centers for Medicare and Medicaid Services (2019). Patient-centered surgical risk assessment and communication measure specifications. Retrieved from https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2021_measure_358_MIPSCQM.pdf.

sensitive issues. By quantifying this risk and making it a key part of surgical decision-making, a clinician can determine the most appropriate treatment modality that meets individual patient's goals.[38] The CMS Innovation Center has added the Patient-Centered Surgical Risk Assessment and Communication measure to the BPCI Advanced Model to promote realistic patient expectations and help them make informed decisions.

Applicable Clinical Episodes

The Patient-Centered Surgical Risk Assessment and Communication measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes:

- Back and Neck Except Spinal Fusion (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 518, 519, and 520
- Back and Neck Except Spinal Fusion (Outpatient): Healthcare Common Procedure Coding System (HCPCS) 62287, 63005, 63011, 63012, 63017, 63030, 63040, 63042, 63045, 63046, 63047, 63056, and 63075
- Bariatric Surgery (Inpatient): MS-DRGs 619, 620, and 621
- Spinal Fusion (Inpatient): MS-DRGs 453, 454, 455, 459, 460, 471, 472, and 473

Measure Specifications – Claims Reporting

The Patient-Centered Surgical Risk Assessment and Communication measure selected for BPCI Advanced follows the measure specifications used in the CMS Quality Payment Program (QPP) #358 measure. Providers will report this measure through claims for the following Clinical Episodes, if selected:

- Back and Neck Except Spinal Fusion (Inpatient or Outpatient): MS-DRGs 518, 519, and 520; HCPCS 62287, 63005, 63011, 63012, 63017, 63030, 63040, 63042, 63045, 63046, 63047, 63056, and 63075
- Spinal Fusion (Inpatient): MS-DRGs 453, 454, 455, 459, 460, 471, 472, and 473

Risk calculators based on multi-institutional, validated clinical data are acceptable for this measure. The Society of Thoracic Surgeons (STS) and American College of Surgeons (ACS) offer risk calculators that will satisfy the measure requirements. Other risk calculators are also available and acceptable for this measure.

Providers should use a procedure and patient-specific, data-based risk calculator which relies on a validated, risk-adjusted statistical model predicting the 30-day postoperative complications detailed below for the patient's planned procedure. Providers should base risk calculations on preoperative patient-specific clinical data and should include the following groups of variables: patient demographic characteristics (e.g., age, gender); relevant lifestyle and clinical risk factors (e.g., smoking status, American Society of Anesthesiologists class, body mass index); patient comorbidities (e.g., diabetes, neurologic event/disease, disseminated cancer); and procedure type. Postoperative complications should include:

- 30-day risk-adjusted mortality

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[38] Lee, E., & Emanuel, E. J. (2013). Shared decision making to improve care and reduce costs. *New England Journal of Medicine*, *368*, 6-8. Retrieved from https://www.nejm.org/doi/full/10.1056/NEJMp1209500.

- 30-day risk-adjusted overall morbidity (superficial surgical site infection, deep incisional surgical site infection, wound dehiscence, pneumonia, deep venous thrombosis, pneumonia, renal failure, urinary tract infection, prolonged ventilator dependence, bleeding complications, sepsis, and pulmonary embolism)
- serious complications (cardiac arrest, myocardial infarction, pneumonia, progressive renal insufficiency, acute renal failure; pulmonary embolism, deep venous thrombosis, return to the operating room deep incisional surgical site infection, organ space surgical site infection, systemic sepsis, unplanned intubation, urinary tract infection, and wound dehiscence)
- surgical site infection
- average length of stay

The CMS Innovation Center will calculate the measure at the Episode Initiator level, limited to BPCI Advanced Beneficiaries treated during an attributed Model Year Clinical Episode that ends during the calendar year. The term "BPCI Advanced Beneficiary" refers to a Medicare beneficiary eligible for the Model[39] who receives care from a clinician in an acute care hospital (ACH) or physician group practice (PGP) that participates in BPCI Advanced, and who triggers a Clinical Episode as specified in the "Applicable Clinical Episodes" section above. An Episode Initiator must have a minimum of 10 attributed Clinical Episodes that fit the criteria for the denominator to generate a score.

Denominator

The denominator for the claims-based Patient-Centered Surgical Risk Assessment and Communication measure includes all Model Year Clinical Episodes listed under the "Measure Specifications – Claims Reporting" header that end during the calendar year, involving BPCI Advanced Beneficiaries aged 18 years or over, that CMS attributes to a BPCI Advanced Episode Initiator at reconciliation, and that do not meet the exclusion criterion below. CMS attributes Clinical Episodes to Episode Initiators based upon their CMS Certification Number if they are an ACH, or by their Taxpayer Identification Number if they are a PGP. The end date of the Clinical Episode (the Anchor Stay plus 90 days beginning the day of discharge, or the Anchor Procedure plus 90 days beginning on the day of completion of the outpatient procedure) will determine the calendar year that the Clinical Episode belongs to. The exclusion for this measure includes patients undergoing emergency surgery during the anchor event as indicated by the Current Procedure Terminology (CPT) II code below.

Description	CPT II Code
Emergency surgery	G9752

Numerator

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[39] Medicare beneficiaries entitled to benefits under Part A and enrolled under Part B on whose behalf an Episode Initiator submits a claim to Medicare FFS for an Anchor Stay or Anchor Procedure. The term BPCI Advanced Beneficiary specifically excludes: (1) Medicare beneficiaries covered under United Mine Workers or managed care plans (e.g., Medicare Advantage, Health Care Prepayment Plans, or cost-based health maintenance organizations); (2) beneficiaries eligible for Medicare on the basis of an end-stage renal disease (ESRD) diagnosis; (3) Medicare beneficiaries for whom Medicare is not the primary payer; and (4) Medicare beneficiaries who die during the Anchor Stay or Anchor Procedure. A BPCI Advanced Beneficiary must meet this definition for the full duration of the Clinical Episode and the 90-day lookback period. (2023 BPCI Advanced Participation Agreement.)

The numerator for the claims-based Patient-Centered Surgical Risk Assessment and Communication measure includes Clinical Episodes in the previously defined denominator where the BPCI Advanced Beneficiary has documentation of empirical, personalized risk assessment based on the patient's risk factors with a validated risk calculator using multi-institutional clinical data, the specific risk calculator used, and communication of risk assessment from a risk calculator with the patient and/or family. Health care teams indicate the use of a risk assessment tool by the Current Procedure Terminology (CPT) II code below. The CPT II code must be documented at any point in the three months prior to the surgery date and must be billed on a claim with a payable code.

Description	CPT II Code
Documentation of patient-specific risk assessment with a risk calculator based on multi-institutional clinical data, the specific risk calculator used, and communication of risk assessment from risk calculator with the patient or family	G9316

Measure Specifications – Registry Reporting

The Patient-Centered Surgical Risk Assessment and Communication measure selected for BPCI Advanced follows the measure specifications used in the CMS Quality Payment Program (QPP) #358 measure. Providers will report this measure through registries for the following Clinical Episodes if they select these:

Reported by ACS Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP)®

- Bariatric Surgery (Inpatient): MS-DRGs 619, 620, and 621

Risk calculators based on multi-institutional, validated clinical data are acceptable for this measure. The risk calculator must be appropriate and relevant for the Clinical Episode. The STS and ACS offer risk calculators that will satisfy the measure requirements. Other risk calculators are also available and acceptable for this measure.

Providers should use a procedure and patient-specific, data-based risk calculator which uses a validated, risk-adjusted statistical model predicting the 30-day postoperative complications detailed below for the patient's planned procedure. Providers should base risk calculations on preoperative patient-specific clinical data and should include the following groups of variables: patient demographic characteristics (e.g., age, gender); relevant lifestyle and clinical risk factors (e.g., smoking status, American Society of Anesthesiologists class, body mass index); patient comorbidities (e.g., diabetes, neurologic event/disease, disseminated cancer); and procedure type. Postoperative complications should include:

- 30-day risk-adjusted mortality
- 30-day risk-adjusted overall morbidity (superficial surgical site infection, deep incisional surgical site infection, wound dehiscence, pneumonia, deep venous thrombosis, pneumonia, renal failure, urinary tract infection, prolonged ventilator dependence, bleeding complications, sepsis, and pulmonary embolism)
- serious complications (cardiac arrest, myocardial infarction, pneumonia, progressive renal insufficiency, acute renal failure; pulmonary embolism, deep venous thrombosis, return to the

operating room deep incisional surgical site infection, organ space surgical site infection, systemic sepsis, unplanned intubation, urinary tract infection, and wound dehiscence)

- surgical site infection
- average length of stay[40]

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 eligible ACH where a PGP triggers an episode.

Denominator

The denominator for the registry-reported Patient-Centered Surgical Risk Assessment and Communication measure includes all patients 18 or older in the hospital who undergo non-emergency procedures included in the Clinical Episodes listed under the "Measure Specifications – Registry Reporting" header above, that Episode Initiators elect to participate in through the BPCI Advanced Model. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

Numerator

The numerator includes individuals in the previously defined denominator who meet the following criteria:

- prior to surgery, the surgeon assessed and documented a personalized risk of procedure-specific, 30-day postoperative complications
- the surgeon utilized a clinical data-based, patient-specific risk calculator and documented a personal discussion with the patient about surgical risks

Measure Submission

For the Clinical Episode categories where this measure is reported through claims, the CMS Innovation Center will calculate this measure using Medicare Part B claims data for the calendar year period that aligns to the BPCI Advanced Model Year. Model Participants only need to make sure they are reporting the relevant codes listed above on their claims.

For the Clinical Episode categories where this measure is reported through a registry, BPCI Advanced Participants must submit this measure through the through the registries specified above. Please note that depending on the mix of Clinical Episodes for which the Model Participant has opted into the alternative measure set, the Model Participant may need to report to both registries.

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[40] The ACS MBSAQIP® calculator does not include average length of stay, but this is an appropriate calculator for the Bariatric Surgery Clinical Episode.

Revisions to the Published Specifications

If reporting through the registry, there are no revisions to the measure from the published specifications.

If reporting through claims, BPCI Advanced calculates this version of the measure at the Episode Initiator level and limits the patient population to BPCI Advanced Beneficiaries, as opposed to all Medicare beneficiaries in the current CBE-endorsed specifications.

Composite Quality Score

Each version of the Patient-Centered Surgical Risk Assessment and Communication measure (claims-based or ACS MBSAQIP® registry) is treated as one component of the BPCI Advanced Composite Quality Score (CQS) calculation and will be weighted based depending on the number of the Episode Initiator's Clinical Episodes for which the version is relevant. 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

This table also includes examples of available risk calculators, but other risk calculators which meet the criteria listed above are acceptable for this measure.

Organization/ Resource	Website Address
QPP #358 Measure Specifications	https://qpp.cms.gov/docs/QPP_quality_measure_specifications/CQM-Measures/2021_measure_358_MIPSCQM.pdf
CMIT ID #502	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12582&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACS MBSAQIP®	https://www.facs.org/quality-programs/mbsaqip
ACS NSQIP®	https://www.facs.org/quality-programs/acs-nsqip
ACS NSQIP® Universal Risk Calculator	https://riskcalculator.facs.org/RiskCalculator/index.jsp
ACS MBSAQIP Bariatric Surgical Risk/Benefit Calculator	https://www.facs.org/quality-programs/mbsaqip/calculator
STS Adult Cardiac Surgery Risk Calculator	http://riskcalc.sts.org/stswebriskcalc/#/

Organization/ Resource	Website Address
BPCI Advanced Quality Measures Frequently Asked Questions	https://innovation.cms.gov/innovation-models/bpci-advanced/quality-measures-fact-sheets

Quality Measures Fact Sheet

Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention (NQF #0028, CMIT ID #596)
National Quality Strategy Domain: Community/Population Health

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 Tobacco Use and Cessation Intervention

Cigarette smoking is the leading preventable cause of mortality, and there is evidence that tobacco screening and brief cessation intervention (including counseling and/or pharmacotherapy) are effective in helping tobacco users quit.[41] Tobacco users who stop using tobacco lower their risk for heart disease, lung disease, and stroke.[42]

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[41] Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention Measure Specifications. NQF #0028, CMIT ID #596. Retrieved from https://cmit.cms.gov/cmit/#/MeasureView?variantId=2795&sectionNumber=1.

[42] Jha, P., Ramasundarahettige, C., Landsman, V., Rostron, B., Thun, M., Anderson, R. N., McAfee, T., & R. Peto (2013). 21st-Century Hazards of Smoking and Benefits of Cessation in the United States. *New England Journal of Medicine, 368*, 341-350. Retrieved from https://www.nejm.org/doi/full/10.1056/NEJMsa1211128.

CMS Innovation Center Rationale for Including the Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention Measure in BPCI Advanced

The Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention measure evaluates whether providers screen patients for tobacco use and deliver a smoking cessation intervention. The CMS Innovation Center aligned this measure to BPCI Advanced because it is important for providers and care teams to conduct a regular, holistic assessment of patients, including lifestyle factors such as tobacco use.[43] Tobacco cessation intervention is especially relevant for patients with Chronic Obstructive Pulmonary Disease (COPD) or stroke.

Applicable Clinical Episodes

The Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Stroke: MS-DRG 061, 062, 063, 064, 065, and 066

Measure Specifications

The Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0028, CMIT ID #596) specifications.[44] Providers who select the Stroke Clinical Episode will report this measure through a registry.

The registry will calculate Acute Care Hospital (ACH) level performance for all stroke patients included in the denominator. The term "patients" refers to people 18 years and older who have an inpatient stay for Stroke, 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 registry-reported Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention measure includes all patients 18 or older in the hospital who undergo procedures included in the Clinical Episodes listed under the "Measure Specifications – Registry Reporting" header above, that Episode Initiators elect to participate in through the BPCI Advanced Model. These patients must have a diagnosis for one of the following:

- ischemic stroke
- transient ischemic attack (TIA)

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[43] Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention Measure Specifications. NQF #0028, CMIT ID #596. Retrieved from
https://cmit.cms.gov/cmit/#/MeasureView?variantId=2795&sectionNumber=1.

[44] Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention Measure Specifications. NQF #0028, CMIT ID #596. Retrieved from
https://cmit.cms.gov/cmit/#/MeasureView?variantId=2795&sectionNumber=1.

- subarachnoid hemorrhage
- intracerebral hemorrhage
- any other unspecified stroke

This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

The exclusions for this measure include patients:

- whose stroke symptoms occurred after arriving in the hospital
- who are under comfort measures only (end-of-life care)
- whose physicians discharged/transferred them to hospice
- whose physicians discharged/transferred to another acute care facility
- who expire during hospitalization
- discharged against medical advice (AMA)
- who did not smoke cigarettes in the past year
- who have contraindications to smoking cessation advice or counseling
- who providers did not admit as inpatient
- who are in a clinical trial
- who are undergoing elective carotid intervention

Numerator

The numerator includes individuals in the previously defined denominator whose provider gave them smoking cessation advice or counseling during the hospital stay.

Measure Submission

For the Stroke Clinical Episode, BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get With The Guidelines (GWTG)® - Stroke Registry.

Revisions to the Published Specifications

There are no revisions from the current, published specifications.

Composite Quality Score

Each version of the Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention measure is one component of the BPCI Advanced Composite Quality Score (CQS) calculation and will be weighted based depending on the number of the Episode Initiator's Clinical Episodes for which the version is relevant. 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
CBE #0028	https://p4qm.org/measures/0028
CMIT ID #596	https://cmit.cms.gov/cmit/#/MeasureView?variantId=2795&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
QPP #226 Specifications	https://qpp.cms.gov/docs/QPP_quality_measure_specifications/Claims-Registry-Measures/2021_Measure_226_MedicarePartBClaims.pdf
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG®-Stroke Registry	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-stroke
BPCI Advanced Quality Measures Frequently Asked Questions	https://innovation.cms.gov/files/x/bpci-advanced-faqs.pdf

Quality Measures Fact Sheet

Risk Standardized Bleeding for Patients Undergoing Percutaneous Coronary Intervention (PCI) (NQF #2459, CMIT ID #1735)
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.[45] Fortunately, bleeding avoidance strategies such as radial arterial access and vascular closure devices can reduce this risk.[46]

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[45] 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 ACUITY trial. *Journal of the American College of Cardiology*, *49*(12), 1362-1368. Retrieved from http://www.onlinejacc.org/content/49/12/1362.

[46] 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 Episodes:

- 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 Consensus-Based Entity (CBE) (#2459, CMIT ID# 1735) 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.

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, or other between start of the procedure and 72 hours after the PCI). If a bleeding event is missing the date/time of occurrence it is considered to have occurred within the 72-hour timeframe
- hemorrhagic stroke
- cardiac tamponade
- red blood cell transfusion PCI or surgical transfusion for patients with a documented pre-procedure hemoglobin (Hgb) > 8 grams per deciliter (g/dL)
- absolute Hgb decrease from pre-PCI to post-PCI of greater than or equal to 4 g/dL for patients with pre-procedure 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
CBE #2459	https://p4qm.org/measures/2459
CMIT ID #1735	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12584&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR® CathPCI Registry® Data Coder's Dictionary v5.0	https://cvquality.acc.org/docs/default-source/ncdr/data-collection/cathpci_v5_codersdatadictionary_09172020.pdf
ACC Data Quality Checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolikit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/ncdr-home/quality-payment-program
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

Quality Measures Fact Sheet

Severe Sepsis and Septic Shock: Management Bundle Measure (NQF #0500, CMIT ID #678)
National Quality Strategy Domain: Patient Safety

Quality Measures Set: Alternate   **Data Source**: Hospital Inpatient Quality Reporting Program

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 Severe Sepsis and Septic Shock

Severe sepsis and septic shock involve an inflammatory immune response to infection and are associated with high rates of mortality. CMS aims to improve patient outcomes by encouraging proactive, comprehensive management of infection. Evidence demonstrates that following established guidelines for treatment of severe sepsis and septic shock is associated with lower hospital mortality.[47]

CMS Innovation Center Rationale for Including the Severe Sepsis and Septic Shock: Management Bundle Measure in BPCI Advanced

Patients with severe sepsis have little margin for error, and early goal-directed treatment improves survival.[48] The Severe Sepsis and Septic Shock: Management Bundle measure contains several elements, including measurement of lactate, obtaining blood cultures, administering broad spectrum

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[47]Severe Sepsis and Septic Shock: Management Bundle Measure Specifications. NQF #0500, CMIT ID #678.. Retrieved from https://cmit.cms.gov/cmit/#/MeasureView?variantId=778&sectionNumber=1.
[48] Vincent, J. L., Pereira, A. J., Gleeson, J., & De Backer, D. (2014). Early management of sepsis. *Clinical and Experimental Emergency Medicine*, *1*(1), 3-7. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5052825/.

antibiotics, fluid resuscitation, vasopressor administration, reassessment of volume status and tissue perfusion, and repeat lactate measurement. Success on the Severe Sepsis and Septic Shock: Management Bundle measure often requires protocol-driven, team-based practice. The Severe Sepsis and Septic Shock: Management Bundle measure has been used or is currently being used by the following Federal program: CMS' Hospital Inpatient Quality Reporting (IQR) Program. The CMS Innovation Center selected the measure for the BPCI Advanced Model because of the potential to reduce illness, mortality, and hospitalization.

Applicable Clinical Episodes

The Severe Sepsis and Septic Shock: Management Bundle measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Sepsis: Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 870, 871, and 872

Measure Specifications

The Severe Sepsis and Septic Shock: Management Bundle measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0500, CMIT ID #678) measure specifications and is also known as the Severe Sepsis and Septic Shock: Management Bundle (Composite Measure) under the Hospital IQR Program. It calculates the proportion of Medicare beneficiaries with severe sepsis or septic shock who received all the elements of the management bundle. The CMS Innovation Center will calculate Acute Care Hospital (ACH) performance at the hospital level for all Medicare beneficiaries included in the denominator. For Physician Group Practices (PGPs), the CMS Innovation Center will calculate the measure as specified at the hospital level, then weight the measure based on PGP Clinical Episode volume for each ACH where a PGP triggers an episode.

Denominator

The denominator for the Severe Sepsis and Septic Shock: Management Bundle measure includes all inpatients age 18 and over who have an International Statistical Classification of Diseases and Related Health Problems (ICD)-10-CM Principal or Other Diagnosis Code of sepsis, severe sepsis, or septic shock, not equal to U07.1 (COVID-19), as defined in the following table. This measure is not limited to BPCI Advanced Beneficiaries.

ICD-10-CM Code	Code Description
A021	Salmonella sepsis
A227	Anthrax sepsis
A267	Erysipelothrix sepsis
A327	Listerial sepsis
A400	Sepsis due to streptococcus, group A
A401	Sepsis due to streptococcus, group B
A403	Sepsis due to Streptococcus pneumoniae
A408	Other streptococcal sepsis
A409	Streptococcal sepsis, unspecified
A4101	Sepsis due to Methicillin susceptible Staphylococcus aureus
A4102	Sepsis due to Methicillin resistant Staphylococcus aureus
A411	Sepsis due to other specified staphylococcus
A412	Sepsis due to unspecified staphylococcus
A413	Sepsis due to Hemophilus influenzae
A414	Sepsis due to anaerobes
A4150	Gram-negative sepsis, unspecified
A4151	Sepsis due to Escherichia coli [E. coli]
A4152	Sepsis due to Pseudomonas
A4153	Sepsis due to Serratia
A4159	Other Gram-negative sepsis
A4181	Sepsis due to Enterococcus
A4189	Other specified sepsis
A419	Sepsis, unspecified organism
A427	Actinomycotic sepsis
A5486	Gonococcal sepsis
R6520	Severe sepsis without septic shock
R6521	Severe sepsis with septic shock

All MS-DRG triggers apply, but this measure only applies to Medicare beneficiaries with severe sepsis and septic shock.

The exclusions for this measure include patients:

- that do not have severe sepsis
- transferred in from another acute care facility
- receiving intravenous antibiotics for more than 24 hours prior to presentation of severe sepsis
- with a directive for comfort or palliative care within six hours of presentation of severe sepsis
- with an administrative contraindication to care within six hours of presentation of severe sepsis
- with an administrative contraindication to care within six hours of presentation of septic shock
- with a directive for comfort or palliative care within six hours of presentation of septic shock
- with septic shock whom providers discharged within six hours of presentation
- with severe sepsis whom providers discharged within six hours of presentation
- with a length of stay longer than 120 days
- included in a clinical trial

Numerator

The numerator includes individuals in the previously defined denominator who received all the following interventions (if applicable) for the early management of severe sepsis and septic shock: initial lactate levels, blood cultures, antibiotics, fluid resuscitation, repeat lactate level, vasopressors, and volume status and tissue perfusion reassessment. Additional requirements include the provision of the following services:

- severe sepsis
  - within three hours of presentation:
    - measure initial lactate level
    - draw blood cultures prior to antibiotics
    - administer broad spectrum or other antibiotics
  - within six hours of presentation:
    - repeat lactate level (if initial lactate > 2 mmol/L)
  - within three hours of initial hypotension:
    - administer 30 mL/kg crystalloid fluids
- septic shock
  - within three hours of presentation:
    - administer 30 ml/kg crystalloid fluids for hypotension or lactate = 4 mmol/L
  - within six hours of presentation:
    - apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP) = 65 mm Hg
    - reassess volume status and tissue perfusion in the event of persistent hypotension (MAP < 65 mm Hg) after initial fluid administration or initial lactate level = 4 mmol/L

Measure Submission

The CMS Innovation Center will calculate this measure using chart-abstracted data which BPCI Advanced Participants are already submitting for the Hospital IQR Program. To better align with the performance years of the BPCI Advanced Model, the Model uses January 1 through December 31 for measure

calculation. The date of discharge on the index admission will determine the calendar year in which the claim belongs.

Revisions to the Published Specifications

The BPCI Advanced version of this measure uses a one-year calendar period rather than any 12-month period. In Model Year 7, the data will be collected from January 1, 2024 to December 31, 2024.

Composite Quality Score

The Severe Sepsis and Septic Shock: Management Bundle 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
CBE #0500	https://p4qm.org/measures/0500
CMIT ID #678	https://cmit.cms.gov/cmit/#/MeasureView?variantId=778&sectionNumber=1
Hospital IQR Program Measure Specifications	https://qualitynet.cms.gov/files/61b0df4330ffbc00229c36ba?filename=2a-b_SEP-List_v5.12.pdf
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
Centers for Disease Control and Prevention (CDC) Sepsis Guidelines	https://www.cdc.gov/sepsis/clinicaltools/index.html

Quality Measures Fact Sheet

STK-06: Discharged on Statin Medication
(NQF #0439, CMIT ID #212)
National Quality Strategy Domain: Effective Communication and Care Coordination

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 Stroke and Statin Medications

Strokes result when part of the brain is damaged because of an interruption of normal blood flow. They may result in significant morbidity and /or reduced quality of life and may be fatal. Statin medications lower cholesterol levels and stabilize existing atherosclerotic plaques. Unless there is a contraindication, clinicians should prescribe statin medications to stroke patients to prevent further strokes. Statins are important for secondary prevention of strokes in patients with clinically evident atherosclerotic cardiovascular disease (ASCVD), including:

- individuals with ischemic stroke due to large artery atherosclerosis;
- individuals with ischemic stroke due to intrinsic small vessel disease, and
- individuals with ischemic stroke not directly due to atherosclerosis, but with clinically evident atherosclerotic disease in an uninvolved cerebral or noncerebral bed.[49]

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[49] Stone, N. J., Robinson, J., Lichtenstein, A. H., Merz C. N. B., Blum, C. B., Eckel, R. H., Goldberg, A. C., Gordon, D., Levy, D., Lloyd-Jones, D.M., McBride, P., Schwartz, J. S., Shero, S. T., Smith, S. C., Watson, K., Wilson, P. W (2013), Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Disease in Adults: A

CMS Innovation Center Rationale for Including the STK-06: Discharged on Statin Medication Measure in BPCI Advanced

Patients who have already suffered a stroke are at increased risk of suffering a subsequent stroke. The CMS Innovation Center included the STK-06: Discharged on Statin Medication measure for BPCI Advanced because it encourages providers to prescribe statin medications to stroke patients, which reduces the likelihood of further ASCVD events.[50]

Applicable Clinical Episodes

The STK-06: Discharged on Statin Medication measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Stroke: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 061, 062, 063, 064, 065, and 066

Measure Specifications

The STK-06: Discharged on Statin Medication measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#0439, CMIT ID #212) measure specifications. 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 STK-06: Discharged on Statin Medication measure includes all patients 18 or older whose health care teams discharged them alive from the hospital following treatment for a stroke. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

The exclusions for this measure include patients:

- younger than 18 years of age
- whose length of stay greater than 120 days
- with 'Comfort Measures Only' documented
- enrolled in clinical trials
- admitted for elective carotid intervention
- discharged to another hospital
- discharged against medical advice
- who expired during the hospital stay
- discharged to home for hospice care

Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines, *Circulation*, *11*, 1-84. Retrieved from: https://www.ahajournals.org/doi/pdf/10.1161/01.cir.0000437738.63853.7a.

[50] The Joint Commission (2018), Specifications manual for Joint Commission national quality measures, stroke STK. Retrieved from: https://manual.jointcommission.org/releases/TJC2018B1/MIF0131.html.

- discharged to a health care facility for hospice care
- who have a Reason for Not Prescribing Statin Medication at Discharge

Numerator

The numerator includes individuals in the previously defined denominator for whom providers prescribed statin medication at hospital discharge.

Measure Submission

BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get With The Guidelines (GWTG)®-Stroke Registry.

Revisions to the Published Specifications

There are no revisions to the current published specifications.

Composite Quality Score

The STK-06: Discharged on Statin Medication 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
CBE #0439	https://p4qm.org/measures/0439
CMIT ID #212	https://cmit.cms.gov/cmit/#/MeasureView?variantId=3168&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
The Joint Commission Measure Specifications	https://manual.jointcommission.org/releases/TJC2021A/MIF0131.html
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG®-Stroke Registry	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-stroke

Quality Measures Fact Sheet

STS Coronary Artery Bypass Graft Composite Score
(NQF #0696, CMIT ID #1737)

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.[51] 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

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[51] 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.

CABG. As mortality has decreased[52], 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 Episode:

- Coronary Artery Bypass Graft (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 Consensus-Based Entity (CBE) (#0696, CMIT ID #1737) 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

- CBE #0119, CMIT ID #661 Risk-adjusted operative mortality for CABG

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

- CBE #0131 Risk-adjusted postoperative stroke/cerebrovascular accident
- CBE #0115, CMIT ID #175 Risk-adjusted postoperative surgical re-exploration
- CBE #0130 Risk-adjusted postoperative deep sternal wound infection
- CBE #0114, CMIT ID #172 Risk-adjusted postoperative renal failure
- CBE #0129, CMIT ID #174 Risk-adjusted postoperative prolonged intubation (ventilation)

Domain Three: Use of Internal Mammary Artery (IMA)

- CBE #0134, CMIT ID #176 Use of IMA in CABG

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

- CBE #0127 Preoperative beta blockade
- CBE #0117 Beta blockade at discharge

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[52] 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.

- CBE #0116 Anti-platelet medication at discharge
- CBE #0118 Anti-lipid treatment discharge

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.

Measure Submission

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

Important note: The BPCI Advanced Methodology calculates a scaled score percentile by comparing the quality measure raw score against the baseline period raw score distribution among the hospital cohort. This differs from the STS methodology for calculating composite star ratings using statistical significance testing (i.e., are your results significantly better or worse than expected?). STS composite star ratings will not be used for quality measure scores nor quality measure reporting in the Model. Please refer to the BPCI Advanced reconciliation specifications for more information on scaled score calculation.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a three-year period of data. In Model Year 7, data from January 1, 2022 through December 31, 2024 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
CBE #0696 Specifications	https://p4qm.org/measures/0696
CBE #0114 Specifications	https://p4qm.org/measures/0114
CBE #0115 Specifications	https://p4qm.org/measures/0115
CBE #0116 Specifications	https://p4qm.org/measures/0116
CBE #0117 Specifications	https://p4qm.org/measures/0117
CBE #0118 Specifications	https://p4qm.org/measures/0118
CBE #0119 Specifications	https://p4qm.org/measures/0119
CBE #0127 Specifications	https://p4qm.org/measures/0127
CBE #0129 Specifications	https://p4qm.org/measures/0129
CBE #0130 Specifications	https://p4qm.org/measures/0130
CBE #0131 Specifications	https://p4qm.org/measures/0131
CBE #0134 Specifications	https://p4qm.org/measures/0134
CMIT ID #1737	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12587&sectionNumber=1
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

Quality Measures Fact Sheet

Substance Use Screening and Intervention Composite
(NQF #2597, CMIT ID #862)

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 Substance Use Screening and Intervention Composite

Smoking and heavy alcohol use are associated with poor wound healing and pneumonia.[53] Additionally, in combination with other factors, smoking and alcohol use correlate with a higher risk of narcotic dependency.[54] Providers commonly prescribe medications to surgical patients for pain management, and one in 16 will become long-term users after surgery. Systematic substance use screening may identify patients at highest risk for opioid dependency and allow providers to modify pain management strategies. The long-term cost and quality implications of opioid addiction are significant.

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[53] Tønnesen, H., Nielsen P. R., Lauritzen, J. B., & Møller, A. M. (2009). Smoking and alcohol intervention before surgery: evidence for best practice. *British Journal of Anesthesia, 102*(3), 297-306. Retrieved from https://www.researchgate.net/publication/24011620_Tonnesen_H_Nielsen_PR_Lauritzen_JB_Moller_AMSmoking_and_alcohol_intervention_before_surgery_evidence_for_best_practice_Br_J_Anaesth_102_297-306.

[54] Webster, L. R., & Webster, R. M. (2005). Predicting aberrant behaviors in opioid-treated patients: preliminary validation of the opioid risk tool. *Pain Medicine*, *6*(6), 432–442. Retrieved from https://academic.oup.com/painmedicine/article/6/6/432/1853982.

CMS Innovation Center Rationale for Including the Substance Use Screening and Intervention Composite Measure in BPCI Advanced

The CMS Innovation Center selected the Substance Use Screening and Intervention Composite measure for the BPCI Advanced Model because systematic screening of, and intervention for those with substance use problems may prevent avoidable surgical complications. Screening can also identify beneficiaries at increased risk for opioid dependency before physicians formulate a postoperative pain regimen to dispense opioids. The CMS Innovation Center applied this measure to the Model to improve operative outcomes and is consistent with national efforts to stem the national opioid epidemic. Participants may satisfy this measure by administering an Opioid Risk Tool (ORT) (examples included, but are not limited to the tools indicated in the "Other Resources" table below) at the time of the patient's preoperative history and physical, documenting the patient's score on the chart, and indicating that they completed the screening to the pertinent registry.

Applicable Clinical Episodes

The Substance Use Screening and Intervention Composite measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes:

- Bariatric Surgery (Inpatient): Medicare Severity–Diagnosis-Related Groups (MS-DRGs) 619, 620, and 621
- Cardiac Valve (Inpatient): MS-DRGs 216, 217, 218, 219, 220, 221
- Coronary Artery Bypass Graft (CABG) (Inpatient): MS-DRGs 231, 232, 233, 234, 235, and 236

Measure Specifications

The Substance Use Screening and Intervention Composite measure selected for BPCI Advanced is based on Consensus-Based Entity (CBE) (#2597, CMIT ID #862) measure specifications. 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 Substance Use Screening and Intervention Composite measure includes all patients 18 or older who undergo procedures performed by surgeons participating in BPCI Advanced and submitting data to the registry. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

Numerator

The numerator includes individuals in the previously defined denominator who received a systematic substance use screening at the time of their preoperative history and physical, and who received an intervention for all positive screening results. Participants may satisfy this measure by administering a

substance use assessment instrument, like the ORT, at the time of the patient's preoperative history and physical, documenting the patient's score on the chart, and indicating that they completed the screening to the pertinent registry. Although other instruments are available, the CMS Innovation Center recommends tools like the ORT because members of the health care team can administer and score it in less than one minute.[55] The CMS Innovation Center expects providers to apply clinical judgment if their patients require substance use interventions, based on the following assessment areas:

- <u>tobacco use component</u>: Patients whose providers screened them for tobacco use and who received tobacco cessation intervention if identified as a tobacco user.
- <u>unhealthy alcohol use component</u>: Patients whose providers screened them for unhealthy alcohol use using a systematic screening method and who received counseling if identified as an unhealthy alcohol user.
- <u>drug use component</u> (nonmedical prescription drug use and illicit drug use): Patients whose providers screened them for nonmedical prescription drug use and illicit drug use using a systematic screening method and who received brief counseling if identified as a nonmedical prescription drug user or illicit drug user.

Measure Submission

BPCI Advanced Participants may submit this measure through the American College of Surgeons (ACS) Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP®) or the Society of Thoracic Surgeons (STS) National Database™, Adult Cardiac Surgery Database (ACSD) depending on the Clinical Episode.

The ACS MBSAQIP® will report on the following Clinical Episodes:
- Bariatric Surgery (Inpatient)

The STS National Database™ ACSD will report on the following Clinical Episodes:

- Cardiac Valve (Inpatient)
- CABG (Inpatient)

Revisions to the Published Specifications

CMS recommends using a screening tool that assesses risk for future opioid dependence in addition to current substance use disorders at the time of the patient's preoperative history and physical for a procedure that triggers an applicable Clinical Episode.

Composite Quality Score

The Substance Use Screening and Intervention Composite 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.

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[55] Opioid Risk Tool [PDF file]. (2005). Retrieved from
https://www.drugabuse.gov/sites/default/files/files/OpioidRiskTool.pdf.

Other Resources

Organization/Resource	Website Address
CBE #2597	https://p4qm.org/measures/2597
CMIT ID #862	https://cmit.cms.gov/cmit/#/MeasureView?variantId=3291&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
Opioid Risk Tool	https://www.drugabuse.gov/sites/default/files/files/OpioidRiskTool.pdf
National Institute on Drug Abuse: Screening and Assessment Tools Chart	https://www.drugabuse.gov/nidamed-medical-health-professionals/screening-tools-resources/chart-screening-tools
ACS MBSAQIP®	https://www.facs.org/quality-programs/mbsaqip
ACS NSQIP®	https://www.facs.org/quality-programs/acs-nsqip
STS National Database™	https://www.sts.org/registries-research-center/sts-national-database

Quality Measures Fact Sheet

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Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following Percutaneous Coronary Intervention in Eligible Patients (NQF #0964, CMIT ID #1739)

National Quality Strategy Domain: Prevention and Treatment

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<u>*Quality Measures Set*</u>*: Alternate*　　　　　　　　　　　　<u>*Data Source*</u>*: 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 Discharge Medications After Percutaneous Coronary Intervention

Percutaneous Coronary Intervention (PCI) is a catheter-based procedure that opens up narrowed or blocked coronary arteries to improve blood flow to the heart. Evidence-based guidelines support the use of several medications to prevent sudden closure of the treated area and to prevent future blockages in other sections of the coronary arteries.[56] Unless there is a specific contraindication, health care teams should discharge patients undergoing PCI on an aspirin, a statin, and a P2Y$_{12}$ receptor inhibitor.[57]

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[56] Weintraub, W. S., Mandel, L., & Weiss, S. A. (2013). Antiplatelet therapy in patients undergoing percutaneous coronary intervention. *Pharmacoeconomics, 31*(11), 959-970. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4816975.

[57] Levine, G. N., Bates, E. R., Blankenship, J. C., Bailey, S. R., Bitti, J. A., Cercek, B., & Ting, H. H. (2011). 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. *Journal of the American College of Cardiology, 58*(24), e44–e122. Retrieved from https://www.ahajournals.org/doi/pdf/10.1161/CIR.0b013e31823ba622.

CMS Innovation Center Rationale for Including the Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients Measure in BPCI Advanced

Extensive evidence demonstrates that several classes of post-discharge medications improve outcomes for patients who undergo PCI.[58] The CMS Innovation Center has added the Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients measure to the BPCI Advanced Model to track the rate of prescriptions at discharge. This tracking allows the CMS Innovation Center to see whether providers are following established clinical guidelines and taking steps to optimize patient outcomes. The Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients measure is a composite of all three medications.

Applicable Clinical Episodes

The Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients measure is included in the Alternate Quality Measures Set and applies to the following inpatient and outpatient Clinical Episodes:

- 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

Measure Specifications

The Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) #0964 measure specifications. 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 Therapy with Aspirin, P2Y$_{12}$ Inhibitor, and Statin at Discharge Following PCI in Eligible Patients measure includes all patients 18 years and older, discharged alive from a US hospital following PCI who are eligible to receive one or more of the following three medication classes:

- aspirin (ASA): Patients undergoing PCI with or without stenting
- P2Y$_{12}$ inhibitor (clopidogrel, prasugrel, ticlopidine, or ticagrelor): Patients undergoing PCI with stenting

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[58] Weintraub, W. S., Mandel, L., & Weiss, S. A. (2013). Antiplatelet therapy in patients undergoing percutaneous coronary intervention. *Pharmacoeconomics, 31*(11), 959-970. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4816975.

- statin therapy: Patients undergoing PCI with or without stenting

This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

All MS-DRG triggers apply, but this measure only applies to patients with PCI.

The exclusions for this measure include patients:

- with comfort measures only
- with a discharge status of deceased
- with a discharge location of "other acute hospital, hospice, or against medical advice"

The exception for this measure includes patients:

- who had a documented patient reason or medical reason for not receiving a prescription for aspirin, and statin, and all $P2Y_{12}$ inhibitors at discharge for which they are eligible.

Numerator

The numerator includes individuals in the previously defined denominator who receive all the medications for which they are eligible:

- patients with a stent placed whose physician prescribed aspirin, statin, and a $P2Y_{12}$ inhibitor at discharge, or;
- patients without a stent placed whose physician prescribed aspirin and statin at discharge

Patients with a medical or patient reason for not prescribing a medication will still meet the numerator requirements if their physician prescribed all other medication(s) for which they were eligible.

Patients who were not prescribed aspirin but were prescribed an anticoagulant and a $P2Y_{12}$ inhibitor will still meet the numerator if they are prescribed all other medications for which they were eligible.

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 to the current, published specifications.

Composite Quality Score

The Therapy with Aspirin, P2Y12 Inhibitor, and Statin at Discharge Following PCI in Eligible Patients 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
CBE #0964	https://p4qm.org/measures/0964
CMIT ID #1739	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12591&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
ACC NCDR® CathPCI Registry® Data Coder's Data Dictionary v3.0	https://cvquality.acc.org/docs/default-source/ncdr/data-collection/cpmi_v3-0_codersdatadictionary.pdf?sfvrsn=3bd180bf_2
ACC Data Quality Checklist	https://cvquality.acc.org/docs/default-source/public-reporting-toolkit/b15229_public_reporting_toolikit_checklist_v5a.pdf?sfvrsn=ae418fbf_2
ACC NCDR® BPCI Advanced	https://cvquality.acc.org/ncdr-home/quality-payment-program
For a current list of participating hospitals; Find Your Heart a Home	https://www.cardiosmart.org/Resources/For-Hospitals

Quality Measures Fact Sheet

Time to Intravenous Thrombolytic Therapy (NQF #1952, CMIT ID #1740) *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 Intravenous Thrombolytic Therapy

Intravenous thrombolytic therapy is a treatment that dissolves dangerous blood clots, restores blood flow in blocked blood vessels, and limits damage to tissues and organs. This therapy is a crucial treatment for specific types of stroke and often initiated by providers in the emergency department. Multiple studies demonstrate that rapid administration of intravenous alteplase to appropriate ischemic stroke patients is an effective treatment that restores blood flow and improves outcomes.[59]

CMS Innovation Center Rationale for Including the Time to Intravenous Thrombolytic Therapy Measure in BPCI Advanced

The CMS Innovation Center chose the Time to Intravenous Thrombolytic Therapy measure for BPCI Advanced because it focuses efforts on achieving door-to-needle (DTN) times within 60 minutes in ≥ 50% of acute ischemic stroke patients treated with intravenous alteplase.[60] The goal is to complete an

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[59] Time to Intravenous Thrombolytic Therapy Measure Specifications.: NQF #1952, CMIT ID #1740. Retrieved from: https://cmit.cms.gov/cmit/#/MeasureView?variantId=12592&sectionNumber=1.

[60] Powers, W. J., Rabinstein, A. A., Ackerson, T., Adeoye, O. M., Bambakidis, N. C., Becker, K., Biller, J., Brown, M., Demaerschalk, B. M., Hoh, B., Jauch, E. C., Kidwell, C. S., Leslie-Mazwi, T. M., Ovbiagele, B., Scott, P. A., Sheth, K. N., Southerland, A. M., Summers, D. V., Tirschwell, D. L. (2018). Guidelines for the early management of patients with acute ischemic stroke: a guideline for health care professionals from the American Heart Association/American

evaluation and initiate thrombolytic treatment within 60 minutes of the patient's arrival in the emergency department. Clinical trial evidence underscores the importance of minimizing total ischemic time and restoring blood flow as soon as feasible. For every 15-minute reduction of DTN time, there is a 5% decrease in the odds of in-hospital mortality.[61]

Applicable Clinical Episodes

The Time to Intravenous Thrombolytic Therapy measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Stroke: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 061, 062, 063, 064, 065, and 066

Measure Specifications

The Time to Intravenous Thrombolytic Therapy measure selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#1952, CMIT ID #1740) measure specifications. 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 Time to Intravenous Thrombolytic Therapy measure includes all patients 18 or older with a clinical diagnosis of ischemic stroke who received intravenous thrombolytic therapy at the hospital. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries.

The exclusions for this measure include patients:

- whose stroke systems occurred after hospital arrival (in the emergency department, while under observation, or as an inpatient)
- whose date or time of emergency department arrival or thrombolytic administration is blank, not documented, or not applicable
- who have a negative calculated time difference
- who have a 'Date Last Known Well', but no 'Time Last Known Well'
- who receive intravenous thrombolytic greater than 4.5 hours after 'Last Known Well'

Stroke Association, *Stroke*, 49, e46–e99. Retrieved from: https://www.ahajournals.org/doi/10.1161/STR.0000000000000158.

[61] Jauch, E. C., Saver, J. L., Adams, H. P., Bruno, A., Connors, J. J., Demaerschalk, B. M., Khatri, P., McMullan, P. W., Qureshi, A., Rosenfield, K., Scott, P. A., Summers, D. R., Wang, D. Z., Wintermark, M., Yonas, H.; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular Nursing, Council on Peripheral Vascular Disease, and Council on Clinical Cardiology (2013). Guidelines for the early management of patients with acute ischemic stroke: a guideline for health care professionals from the American Heart Association/American Stroke Association, *Stroke*, 44, 870–947. Retrieved from: https://www.ahajournals.org/doi/full/10.1161/STR.0b013e318284056a.

- who received intravenous thrombolytic at an outside hospital or by emergency medical services/mobile stroke unit
- who are in a clinical trial

The exceptions for this measure include patients:

- who received IV thrombolytic greater than 60 minutes after arrival and have a documented Eligibility or Medical Reason for delay in treatment

Numerator

The numerator includes individuals in the previously defined denominator who receive intravenous thrombolytic at a hospital within 60 minutes after triage.

Measure Submission

BPCI Advanced Participants may submit this measure through the American Heart Association® (AHA) Get With The Guidelines (GWTG)®- Stroke Registry.

Revisions to the Published Specifications

There are no revisions to the current published specifications.

Composite Quality Score

The Time to Intravenous Thrombolytic Therapy 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
CBE #1952	https://p4qm.org/measures/1952
CMIT ID #1740	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12592&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
AHA® GWTG®	https://www.heart.org/en/professional/quality-improvement
AHA® GWTG®-Stroke	https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-stroke

Quality Measures Fact Sheet

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Volume Weighted Aortic Valve Replacement and Aortic Valve Replacement + Coronary Artery Bypass Graft Composite Measures (NQF #2561 and #2563, CMIT ID #1736)
National Quality Strategy Domain: Making Care Safer by Reducing Harm Caused in the Delivery of Care

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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 Volume Weighted Aortic Valve Replacement and Aortic Valve Replacement + Coronary Artery Bypass Graft

CMS expects more Medicare beneficiaries to undergo cardiac valve procedures as the population continues to age. Goals for pursuing aortic valve replacement (AVR) and coronary artery bypass graft (CABG) procedures include enhancing quality of life, reducing angina and other coronary heart disease (CHD) symptoms, preserving or restoring cardiac function, and improving survival. As with any surgery, there is risk of complication for patients who undergo AVR and CABG procedures and health care teams may reduce that risk if managed effectively. These cardiac surgery patients experience variable quality and outcomes, particularly within the elderly population where the incidence of mortality and adverse events is significantly higher. Studies have shown that adequate post-operative care heavily influences morbidity.[62]

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[62] 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.

CMS Innovation Center Rationale for Including the Volume Weighted AVR and AVR + CABG Composite Measures in BPCI Advanced

Through evidence-based, reliable and valid quality measurement, the CMS Innovation Center aims to measure performance and adjust payment based on the frequency of adverse outcomes. Average, risk-adjusted mortality rates for AVR and AVR + CABG procedures have continued to improve but evaluating provider performance in cardiac surgery based on a measure of mortality alone is suboptimal.[63] The CMS Innovation Center added the AVR and AVR + CABG Composite measures to the BPCI Advanced Model to provide a more complete perspective of quality by integrating six other post-operative adverse events across two domains.[64]

Applicable Clinical Episodes

The AVR and AVR + CABG Composite measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Cardiac Valve: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 216, 217, 218, 219, 220, and 221

Measure Specifications

The AVR and AVR + CABG Composite measures selected for BPCI Advanced follows Consensus-Based Entity (CBE) (#2561 and #2563, CMIT ID # 1736) measure specifications. Both the AVR and AVR + CABG measures include two domains consisting of a total of six data points:

- Domain 1 – Absence of Operative Mortality
- Domain 2 – Absence of Major Morbidity

The Society of Thoracic Surgeons (STS) National Database™ Adult Cardiac Surgery Database (ACSD) calculates a score for each of the two domains and then calculates an overall composite score by "rolling up" the two domain scores into a single number. The STS National Database™ ACSD will provide the CMS Innovation Center with a score for each of the two CBE measures (CBE #2561 and CBE #2563), along with a volume-weighted blend of the two scores at the hospital level for all patients included in the denominator.

The CMS Innovation Center will exclude BPCI Advanced Participants from the analysis if they have fewer than 25 AVR or AVR + CABG procedures in the patient population or if more than five percent of their data is missing on any of the five CBE-endorsed process measures detailed below.

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

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[63] AVR + CABG composite Measure Specifications. Retrieved from https://p4qm.org/measures/2561 and https://p4qm.org/measures/2563.

[64] Shahian, D., He, X., Jacobs, J. P., Rankin J. S., Welke, K. F., Filardo, G., Shewan, C. M., & O'Brien, S. M. (2012). The society of thoracic surgeons isolated aortic valve replacement composite score: a report of the STS quality measurement task force. *Annals of Thoracic Surgery*, *94*, 2166-2171. Retrieved from https://www.annalsthoracicsurgery.org/article–S0003-4975(12)02178-9/pdf.

registry will calculate the measure as specified at individual hospitals and 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 AVR or AVR + CABG measure includes all patients aged 18 years or older who undergo an AVR or AVR + CABG procedure in a non-federal hospital, regardless of payer status. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries. All MS-DRG triggers apply, but this measure only applies to patients with an AVR or an AVR + CABG procedure. The measure will include BPCI Advanced Participants in the analysis they have a minimum of 25 AVR or AVR + CABG procedures in the patient population.

Numerator

The method for calculating each domain score and combining them into an overall composite score is detailed below. The STS National Database™ ACSD will provide the CMS Innovation Center with a score for the AVR or AVR + CABG Composite measures that is comprised of two domains consisting of six individual data points:

- Domain 1 – Absence of Operative Mortality

  - The numerator is the proportion of patients (risk-adjusted) who do not experience operative mortality, which the measure defines as death before hospital discharge or within 30 days of the operation

- Domain 2 – Absence of Major Morbidity

  - The numerator is the proportion of patients (risk-adjusted) who do not experience any major morbidity, which the measure defines as having at least one of the following adverse outcomes and the measure scores as "any" or "none." The adverse outcomes used are the same morbidity outcomes included in CBE #0696 STS CABG Composite Score and are as follows:

    - postoperative stroke/cerebrovascular accident
    - postoperative surgical re-exploration
    - postoperative deep sternal wound infection rate
    - postoperative renal failure
    - postoperative prolonged intubation (ventilation)

Measure Submission

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

Important note: The BPCI Advanced Methodology calculates a scaled score percentile by comparing the quality measure raw score against the baseline period raw score distribution among the hospital cohort. This differs from the STS methodology for calculating composite star ratings using statistical significance testing (i.e., are your results significantly better or worse than expected?). STS composite star ratings will not be used for quality measure scores nor quality measure reporting in the Model. Please refer to the BPCI Advanced reconciliation specifications for more information on scaled score calculation.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a three-year period of data. In Model Year 7, data from January 1, 2022 through December 31, 2024 will be used to calculate the measure.

Composite Quality Score

The AVR and AVR + CABG Composite measures are 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
CBE #2561	https://p4qm.org/measures/2561
CBE #2563	https://p4qm.org/measures/2563
CMIT ID #1736	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12586&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
STS National Database™ ACSD Registry Specifications	https://www.sts.org/quality-safety/performance-measures/descriptions#AVRCABGComposite

Quality Measures Fact Sheet

> **Volume Weighted Mitral Valve Repair and Replacement and Mitral Valve Repair and Replacement + Coronary Artery Bypass Graft Composite Measures (NQF #3031 and #3032, CMIT ID #1738)**
> *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 Volume Weighted Mitral Valve Repair and Replacement and Mitral Valve Repair and Replacement + Coronary Artery Bypass Graft

The CMS Innovation Center expects more Medicare beneficiaries to undergo cardiac valve procedures as the population continues to age. Goals for pursuing mitral valve repair and replacement (MVRR) and coronary artery bypass graft (CABG) procedures include enhancing quality of life, reducing angina and other coronary heart disease symptoms, preserving or restoring cardiac function, and improving survival.[65] As with any surgery, there is risk of complication for patients who undergo highly invasive MVRR and CABG procedures and health care teams may reduce that risk if managed effectively.

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[65] Robert Moss et al (2003). Outcome of mitral valve repair or replacement. *American Heart Association Journal*, 108(10), 90-97. Retrieved from https://www.ahajournals.org/doi/full/10.1161/01.cir.0000089182.44963.bb.

CMS Innovation Center Rationale for Including the Volume Weighted MVRR and MVRR + CABG Composite Measures in BPCI Advanced

Patients experience variable quality and outcomes after cardiac surgery. Through evidence-based, reliable and valid quality measurement, the CMS Innovation Center aims to measure performance and adjust payment based on a composite outcome score. Average, risk-adjusted mortality rates for MVRR and MVRR + CABG procedures have continued to improve but evaluating provider performance in cardiac surgery based on a measure of mortality alone is suboptimal.[66] The CMS Innovation Center has added the MVRR and MVRR + CABG Composite measures to the BPCI Advanced Model to provide a more comprehensive perspective of overall quality by integrating six other post-operative adverse events across two domains.[67]

Applicable Clinical Episodes

The Volume Weighted MVRR and MVRR + CABG composite measure is included in the Alternate Quality Measures Set and applies to the following inpatient Clinical Episode:

- Cardiac Valve: Medicare Severity–Diagnosis-Related Groups (MS-DRG) 216, 217, 218, 219, 220, and 221

Measure Specifications

The Volume Weighted MVRR and MVRR + CABG Composite measures selected for BPCI Advanced follow Consensus-Based Entity (CBE) (#3031 and #3032 CMIT ID # 1738) measure specifications. The measures include two domains consisting of six data points:

- Domain 1 – Absence of Operative Mortality
- Domain 2 – Absence of Major Morbidity

The STS National Database™ Adult Cardiac Surgery Database (ACSD) will calculate a score for each of the two domains, and then calculate an overall composite score by "rolling up" the two domain scores into a single number. The STS National Database™ ACSD will provide the CMS Innovation Center with a score for each of the two CBE measures (CBE #3031 and CBE #3032), along with a volume-weighted blend of the two scores at the hospital level for all patients included in the denominator.

The CMS Innovation Center will exclude Participants from the analysis if they have fewer than 25 MVRR and MVRR + CABG procedures in the patient population or if more than five percent of their data is missing on any of the five CBE-endorsed process measures detailed below.

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

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[66] Rankin, J. S., Badhwar, V., He, X., Jacobs, J. P., Gammie, J. S., Furnary, A. P., Fazzalari, F. L., Han, J., O'Brien, S. M., and Shahian, D. M. (2017). The Society of Thoracic Surgeons mitral valve repair/replacement plus coronary artery bypass grafting composite score: a report of the STS Quality Measurement Task Force. *Annals of Thoracic Surgery*, *103*, 1475-1481. Retrieved from http://www.sts.org/sites/default/files/documents/STS_MVR-MVRR_CABG_CompositeScore.pdf.

[67] Consensus-Based Entity (CBE) MVRR+CABG composite measure specifications. Retrieved from https://p4qm.org/measures/3031 and https://p4qm.org/measures/3032.

to Medicare beneficiaries or BPCI Advanced Beneficiaries. For Physician Group Practices (PGPs), the registry will calculate the measure as specified at individual hospitals and 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 Volume Weighted MVRR and MVRR + CABG Composite measures includes all patients aged 18 years or older who undergo MVRR or MVRR + CABG with or without concomitant atrial septal defect and patent foramen ovale closures, tricuspid valve repair, or surgical ablation for atrial fibrillation in a non-federal hospital, regardless of payer status. This measure is not limited to Medicare beneficiaries or BPCI Advanced Beneficiaries. The measure includes BPCI Advanced Participants in the analysis if they have a minimum of 25 MVRR and MVRR + CABG procedures in the patient population.

All MS-DRG triggers apply, but this measure only applies to patients with an MVRR or an MVRR + CABG procedure.

Numerator

The method for calculating each domain score and combining them into an overall composite score is detailed below. The STS National Database™ ACSD will provide the CMS Innovation Center with a score for the MVRR or MVRR + CABG Composite measures comprised of two domains consisting of a total of six individual measures:

- Domain 1 – Absence of Operative Mortality

  - The numerator is the proportion of patients (risk-adjusted) who do not experience operative mortality, which the measure defines as death before hospital discharge or within 30 days of the operation.

- Domain 2 – Absence of Major Morbidity

  - The numerator is the proportion of patients (risk-adjusted) who do not experience any major morbidity, which the measure defines as having at least one of the following adverse outcomes and the measure scores as "any" or "none" for the following:

    - postoperative stroke/cerebrovascular accident;
    - postoperative surgical re-exploration;
    - postoperative deep sternal wound infection rate;
    - postoperative renal failure; and
    - postoperative prolonged intubation (ventilation)

Measure Submission

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

Important note: The BPCI Advanced Methodology calculates a scaled score percentile by comparing the quality measure raw score against the baseline period raw score distribution among the hospital cohort. This differs from the STS methodology for calculating composite star ratings using statistical significance testing (i.e., are your results significantly better or worse than expected?). STS composite star ratings

will not be used for quality measure scores nor quality measure reporting in the Model. Please refer to the BPCI Advanced reconciliation specifications for more information on scaled score calculation.

Revisions to the Published Specifications

The BPCI Advanced version of this measure is calculated using a three-year period of data. In Model Year 7, data from January 1, 2022 through December 31, 2024 will be used to calculate the measure.

Composite Quality Score

The MVRR and MVRR + CABG Composite measures are 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
CBE #3031	https://p4qm.org/measures/3031
CBE #3032	https://p4qm.org/measures/3032
CMIT ID #1738	https://cmit.cms.gov/cmit/#/MeasureView?variantId=12588&sectionNumber=1
BPCI Advanced	https://innovation.cms.gov/initiatives/bpci-advanced
STS National Database™ ACSD Registry Specifications	https://www.sts.org/quality-safety/performance-measures/descriptions#MVRRCABGComposite