
CBE ID

0964

Title

Therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients

Project

Management of Acute Events, Chronic Disease, Surgery, and Behavioral Health

Endorsement Status

Endorsed

Is Under Review

No

Next Maintenance Cycle

Spring 2030

Previous Endorsement Cycle

Spring 2025

Initial Endorsement

Thu, 01/12/2012 - 16:11

Steward

American College of Cardiology

1.0 New or Maintenance

Maintenance

1.1 Measure Structure

Single Measure

1.3 Electronic Clinical Quality Measure (eCQM)

No

1.6 Measure Description

This is a process measure of the annual proportion of eligible patients ≥ 18 years of age, who were prescribed aspirin, P2Y12 inhibitor, and statin at discharge following PCI with or without stenting.

1.7 Measure Type

Process

1.8 Level of Analysis

Facility

1.9 Care Setting

Hospital: Inpatient

1.10 Measure Rationale

This composite measure is intended to assess the extent to which eligible patients receive evidence-based medications that are indicated at hospital discharge following percutaneous coronary intervention (PCI). Intracoronary stents, either drug eluting or bare metal, are used in the treatment of most patients who undergo PCI to improve symptoms related to their obstructive coronary artery disease. These stents have a dual function: to prevent abrupt closure of the treated artery (acute stent thrombosis) and reduce the need for repeat revascularization because of gradual recurrence of the coronary obstruction (in-stent restenosis) over time. While acute stent thrombosis is relatively uncommon, it manifests as acute myocardial infarction, usually with ST-segment elevation, and can be fatal. Recommended treatment therapy with dual antiplatelet therapy (DAPT: aspirin plus platelet P2Y12 receptor inhibitors) markedly lowers the risk of acute stent thrombosis and DAPT is included in this composite medication due to the evidence demonstrating that its use can reduce the risk of adverse outcomes such as MI or death after stenting (ATT Collaboration, 2002; ATT Collaboration, 2009; Palmerini, 2015; Khan, 2020). Statins are demonstrated to delay progression of atherosclerosis and prevent recurrent coronary events (CTT Collaboration, 2010; CTT Collaboration, 2019). The use of these three medication classes is strongly recommended by national consensus practice guidelines to reduce adverse events or death following PCI.

References:

Antithrombotic Trialists' Collaboration. Collaborative meta-analysis of randomised trials of antiplatelet therapy for prevention of death, myocardial infarction, and stroke in high risk patients [published correction appears in *BMJ* 2002 Jan 19;324(7330):141]. *BMJ*. 2002;324(7329):71-86. doi:10.1136/bmj.324.7329.71

Antithrombotic Trialists' (ATT) Collaboration, Baigent C, Blackwell L, et al. Aspirin in the primary and secondary prevention of vascular disease: collaborative meta-analysis of individual participant data from randomised trials. *Lancet*. 2009;373(9678):1849-1860. doi:10.1016/S0140-6736(09)60503-1

Cholesterol Treatment Trialists' (CTT) Collaboration, Baigent C, Blackwell L, et al. Efficacy and safety of more intensive lowering of LDL cholesterol: a meta-analysis of data from 170,000 participants in 26 randomised trials. *Lancet*. 2010;376(9753):1670-1681. doi:10.1016/S0140-6736(10)61350-5

Cholesterol Treatment Trialists' Collaboration. Efficacy and safety of statin therapy in older people: a meta-analysis of individual participant data from 28 randomised controlled trials. *Lancet*. 2019;393(10170):407-415. doi:10.1016/S0140-6736(18)31942-1

Khan SU, Singh M, Valavoor S, et al. Dual Antiplatelet Therapy After Percutaneous Coronary Intervention and Drug-Eluting Stents: A Systematic Review and Network Meta-Analysis. *Circulation*. 2020;142(15):1425-1436. doi:10.1161/CIRCULATIONAHA.120.046308

Palmerini T, Benedetto U, Bacchi-Reggiani L, et al. Mortality in patients treated with extended duration dual antiplatelet therapy after drug-eluting stent implantation: a pairwise and Bayesian network meta-analysis of randomised trials. *Lancet*. 2015;385(9985):2371-2382. doi:10.1016/S0140-6736(15)60263-X

1.13 Data Dictionary

Attached

1.13a Attach Data Dictionary

[PCI_V5.0_DataDictionaryFullSpecifications__0.pdf](#)

1.14 Numerator

Patients who receive all medications for which they are eligible. 1. Aspirin prescribed at discharge (if eligible for aspirin as described in denominator) AND2. P2Y12 agent prescribed at discharge (if eligible for P2Y12 as described in denominator)AND3. Statin prescribed at discharge (if eligible for statin as described in denominator)

1.14a Numerator Details

Patients who are prescribed all three medications unless contraindicated:

- Aspirin
- P2Y12
- Statin

1.15 Denominator

Patients surviving hospitalization who are eligible to receive any of the three medication classes:1. Eligible for aspirin: Patients undergoing PCI who do not have a contraindication to aspirin documentedAND2. Eligible for P2Y12 agent: Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documentedAND3. Eligible for statin therapy: Patients undergoing PCI who do not have a contraindication to statin therapy.

1.15a Denominator Details

The following patients are included in the denominator:

- 18 years of age or older
- Undergoing PCI during the episode of care
- Eligible for at least one of the following medications: aspirin, statin, and P2Y12

Note:

- Eligibility for measures is determined by whether the PCI procedure included a stent (aspirin, statin, and P2Y12) or no stent (aspirin and statin) and whether patient had contraindication or was blinded to the medication

1.15b Denominator Exclusions

The exclusions for this measure include:

- No PCI during the admission
- Discharge status is deceased
- Discharge location of “other acute hospital, hospice, or against medical advice”

1.15c Denominator Exclusions Details

The exclusions for this measure include:

1. Patients without a PCI during the admission
2. Patients with a discharge status of deceased
3. Patients with a discharge location of “other acute hospital, hospice, or against medical advice”

Exceptions:

Each of the three medications incorporated into this composite may be coded as Yes (medication prescribed), No (medication not prescribed), Blinded (pt. involved in a clinical trial, medication type unavailable for data entry), and Contraindicated (e.g., bleeding, renal dysfunction).

NCDR distinguishes between absolute “Exclusions” (e.g., death) and relative “Exceptions”, (e.g., contraindications). Patients with exclusions are always automatically removed from the denominator and numerator; exceptions allow clinicians the opportunity to identify an intervention/process/medication as not clinically indicated based on the individual circumstances. Patients are removed from the denominator if they have a contraindication or are blinded across ALL medications for which they are eligible.

1.15d Age Group

Adults (18-64 years), Older Adults (65 years and older)

1.16 Type of Score

Rate/proportion

1.17 Measure Score Interpretation

Better performance = Higher score

1.18 Calculation of Measure Score

1. Remove patients who did not have a PCI during the admission
2. Remove patients whose discharge status is deceased or discharge location is other acute hospital, hospice, or against medical advice
3. Check if given patient is eligible for 1 of the 3 medication therapies.
4. If eligible for at least 1 medication, then keep this patient.
5. If not eligible for any of the 3 medications, then patient is removed from eligibility.

6. If eligible for Aspirin and given, then code "Yes"

If eligible for Aspirin and not given, then code "No, not given"

If eligible for Aspirin but contraindicated, then code "contraindicated/blinded"

If eligible for P2Y12 and given, then code then "Yes"

If eligible for P2Y12 and not given, then code "No, not given"

If eligible for P2Y12 but contraindicated, then code "contraindicated/blinded"

If eligible for statin and given, then code "Yes"

If eligible for statin and not given, then code "No, not given"

If eligible for statin but contraindicated, then code "contraindicated/blinded"

7. If any "No, not given" present, then performance not met. Else, performance met.

1.19 Measure Stratification Details

This measure is not stratified.

1.20 Types of Data Sources

Registries

1.21a Data Collection Tool URL(s)

<http://example.com>

1.25 Data Source Details

National Cardiovascular Data Registry (NCDR®) CathPCI Registry®

1.26 Minimum Sample Size

No minimum sample size is required.

2.1 Attach Logic Model

[0964 EM-Logic-Model.docx](#)

2.2 Evidence of Measure Importance

This clinical quality measure is based on two evidence-based clinical guidelines:

- 2025 ACC/AHA/ACEP/NAEMSP/SCAI guideline for the management of patients with acute coronary syndromes
- 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease

These guidelines explicitly recommended prescription of aspirin, P2Y12 inhibitors, and statins unless contraindicated at discharge for patients after a percutaneous coronary intervention (PCI). These medications provide an opportunity to decrease morbidity and mortality.

The following evidence statements are quoted verbatim from the referenced clinical guidelines:

2025 ACC/AHA/ACEP/NAEMSP/SCAI guideline for the management of patients with acute coronary syndromes (ACS)

In patients with ACS, an initial oral loading dose of aspirin, followed by daily low-dose aspirin, is recommended to reduce death and major adverse cardiovascular event (MACE). Class of Recommendation: 1 Level of Evidence: A

In patients with ACS who are not at high bleeding risk, DAPT with aspirin and an oral P2Y12 inhibitor should be administered for at least 1 year to reduce MACE. Class of Recommendation: 1 Level of Evidence: A

In patients with ACS, high-intensity statin therapy is recommended to reduce the risk of MACE. Class of Recommendation: 1 Level of Evidence: A

2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease (CCD)

In patients with CCD and no indication for oral anticoagulant therapy, low-dose aspirin 81 mg (75-100 mg) is recommended to reduce atherosclerotic events. Class of Recommendation: 1 Level of Evidence: A

In patients with CCD treated with PCI, dual antiplatelet therapy (DAPT) consisting of aspirin and clopidogrel for 6 months post PCI followed by single antiplatelet therapy (SAPT) is indicated to reduce MACE and bleeding events. Class of Recommendation: 1 Level of Evidence: A

In select patients with CCD treated with PCI and a drug-eluting stent (DES) who have completed a 1- to 3-month course of DAPT, P2Y12 inhibitor monotherapy for at least 12 months is reasonable to reduce bleeding risk. Class of Recommendation: 2a Level of Evidence: A

In patients with CCD, high-intensity statin therapy is recommended with the aim of achieving a $\geq 50\%$ reduction in LDL-C levels to reduce the risk of MACE. Class of Recommendation: 1 Level of Evidence: A

In patients in whom high-intensity statin therapy is contraindicated or not tolerated, moderate-intensity statin therapy is recommended with the aim of achieving a 30% to 49% reduction in LDL-C levels to reduce the risk of MACE. Class of Recommendation: 1 Level of Evidence: A

References:

Rao SV, O'Donoghue ML, Ruel M, Rab T, Tamis-Holland JE, Alexander JH, Baber U, Baker H, Cohen MG, Cruz-Ruiz M, Davis LL, de Lemos JA, DeWald TA, Elgendy IY, Feldman DN, Goyal A, Isiadinso I, Menon V, Morrow DA, Mukherjee D, Platz E, Promes SB, Sandner S, Sandoval Y, Schunder R, Shah B, Stopyra JP, Talbot AW, Taub PR, Williams MS. 2025 ACC/AHA/ACEP/NAEMSP/SCAI guideline for the management of patients with acute coronary syndromes: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. JACC. Published online February 27, 2025.

<https://doi.org/10.1016/j.jacc.2024.11.009>

Virani SS, Newby LK, Arnold SV, Bittner V, Brewer LC, Demeter SH, Dixon DL, Fearon WF, Hess B, Johnson HM, Kazi DS, Kolte D, Kumbhani DJ, LoFaso J, Mahtta D, Mark DB, Minissian M, Navar AM, Patel AR, Piano MR, Rodriguez F, Talbot AW, Taqueti VR, Thomas RJ, van Diepen S, Wiggins B, Williams MS. 2023 AHA/ACC/ACCP/ ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease: a report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. J Am Coll Cardiol. 2023;82:833-955.

2.4 Performance Gap

The median rate of performance for the discharge medications composite across all hospitals was 96.3%. There was variation in providing defect free care, ranging from 93.1% to 98.2% for the first and third quartiles of hospitals, respectively (Table 3). The distribution was left-skewed such that most hospitals scored between 90% and 100% on the discharge medication composite measure (Figure 1), yet the provision of discharge medications was at or under the first quartile rate (93.1%) for a total of 155 hospitals suggesting room for improvement.

Table 1. Performance Scores by Decile

	Performance Gap												
	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Mean Performance Score	94.5%		80.4%	90.3%	93.1%	94.6%	96.6%	96.6%	97.4%	98.2%	98.9%	99.8%	
N of Entities	1688	168	169	169	169	169	169	169	169	169	168	169	
N of Persons / Encounters / Episodes	669,479												

2.4a Attach Performance Gap Results

[CBE #0964 - Tables and Figures_0.pdf](#)

2.6 Meaningfulness to Target Population

This measure was developed with input from a technical expert panel that included patient and caregiver representation. As regaining function and preserving and improving quality of life is the goal of most patients, increasing the rates of referrals to cardiac rehabilitation/secondary prevention programs is easily understood and will help patients in understanding the quality of care provided by facilities and in making decisions about where to receive their care.

3.1 Contributions Towards Closing Care Gaps

We attributed social risk factors at the hospital-level for the purpose of this analysis. We used Medicaid insurance status as the economic indicator of social risk. We also examined age, sex, and race/ethnicity to determine if there were differences in these demographic indicators of social risk.

Subgroups

This analysis was performed by stratifying disparities data based on race, gender, age, and proportion of patients who are insured through Medicaid. These are data collected by ACC/NCDR and apply to the entire sample of eligible hospitals. Each sub-group analysis is included below:

Proportion of Non-White

Hospitals (n=1,688) were stratified into quartiles by the proportion of non-White patients (median: 13.2% non-White, IQR: 6.2% to 24.6%). Hospital performance across quartiles was similar regardless of the proportion of non-White patients treated, with median performance ranging from 95.6% (Q1) to 96.2% (Q4), with those hospitals serving a higher proportion of non-White patients performing slightly better (Table 4, Figure 2).

Gender

The median hospital performance among female patients was 96.3% (IQR: 92.6% to 98.6%); among male patients it was the same at 96.3% (IQR: 93.1% to 98.3%)(Table 5, Figure 3).

Age

The median hospital performance among patients aged less than 65 years of age was 97.6% (IQR: 95.1% to 99.2%), slightly better than the performance among patients aged 65 years or older at 95.5% (IQR: 91.6% to 98.0%) (Table 6, Figure 4).

Race/Ethnicity

The distribution of hospital performance was examined among non-Hispanic White, non-Hispanic Black, Hispanic, and “Other Race” patients, comprising 77.2%, 8.4%, 7.4%, and 7.1% of eligible patients, respectively. The mean hospital performance was 95.9% (SD +/- 9.9%) for Hispanic patients, 95.4% for Black (SD +/- 9.9%), 94.1% for non-Hispanic White (SD +/- 7.8%), and 95.4% for “Other Race” (SD +/- 11.0%). The mean performance was similar across race/ethnicity subgroups (Table 7, Figure 5).

Insurance

Hospitals (n=1,688) were stratified into quartiles by their proportion of patients with Medicaid as the primary insurance (median: 11.5%, IQR: 7.0% to 17.2%). Hospital performance was similar across hospitals stratified by quartile based the proportion of patients with Medicaid insurance coverage. Median hospital performance ranged from 96.1% (Quartile 4, highest proportion of Medicaid) to 96.3% (Quartile 1, lowest proportion of Medicaid) (Table 8, Figure 6).

4.1a Data Structure and Availability

The data elements required to generate this measure are abstracted from a medical record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry). All data elements are available in defined fields in electronic clinical data (e.g., clinical registry). This measure uses clinical data from the NCDR CathPCI Registry. This measure has been in use for many years and as a result, while the CathPCI Registry continues to monitor the feasibility and data collection burden of this measure, minimal changes to how the data are collected and reported have been required in recent years. We outline the general process used by any hospital reporting to an NCDR registry below.

Availability:

Participating hospitals report patient demographics, medical history, risk factors, hospital presentation, procedural details, medications, laboratory values and in-hospital outcomes as the key activity of participating in the NCDR registries. All of the required data elements for this measure are routinely generated and acquired during the hospitalization. Electronic extraction of data recorded as part of the procedure expedites data collection. This strategy offers point of care data collection and minimizes time and cost. Institutions can manually report using a free web-based tool or automate the reporting by using certified software developed by third-party vendors.

Sampling:

There is no sampling of patient data allowed within the contractual terms of participation in the NCDR registries. Section 2.b of the NCDR Master Agreement with participants includes 'Participant Responsibilities': "b. Use of ACCF Data Set and ACCF-Approved Software. Participant will submit a data record on each patient who receives medical care and who is eligible for inclusion in the Registries in which Participant is participating under this Agreement." Patients are selected for inclusion by reviewing existing medical records and no direct interaction with the patient is required outside of the normal course of care. There is no discrimination or bias with respect to inclusion on the basis of sex, race, or religion.

4.1b Implementation Costs and Burden

This measure was developed and designed to be used across other organizations and by other measure implementers. The fee and licensing information include below is specific to NCDR program requirements:

The NCDR provides evidence-based solutions for cardiologists and other medical professionals committed to excellence in cardiovascular care. NCDR hospital participants receive confidential benchmark reports that include access to measure macro specifications and micro specifications, the eligible patient population, exclusions, and model variables (when applicable). In addition to hospital sites, NCDR Analytic and Reporting Services provides consenting hospitals' aggregated data reports to interested federal and state regulatory agencies, multi-system provider groups, third-party payers, and other organizations that have an identified quality improvement initiative that supports NCDR-participating facilities. Lastly, the ACCF also allows for licensing of the measure specifications outside of the Registry.

Measures that are aggregated by ACCF and submitted for endorsement are intended for public reporting and therefore there is no charge for a standard export package. However, on a case-by-case basis, requests for modifications to the standard export package will be available for a separate charge.

4.1c Confidentiality

Each NCDR institution signs a Participant Agreement with the American College of Cardiology Foundation ("ACCF") including a Business Associate Agreement and Data Use Agreement. The NCDR requires the collection of protected health information as such term is defined by the Health Insurance Portability and Accountability Act of 1996 as amended ("HIPAA"). Submission of Protected Health Information is considered permissible as a healthcare operations disclosure not requiring a HIPAA authorization from individuals. Consistent with the requirements of HIPAA, ACCF has designed a comprehensive security program that protects the confidentiality, integrity and availability of protected health information through the implementation of administrative, physical, and technical safeguards. ACCF's security program was designed using the NIST Cybersecurity Framework. ACCF periodically conducts an independent control assessment to confirm alignment with the HIPAA Security Rule and NIST Cybersecurity Framework. This measure does not include a patient survey. There is no added procedural risk to patients through involvement in the NCDR and no testing, time, risk, or procedures beyond those required for routine care are imposed.

4.3 Feasibility Informed Final Measure

This measure has been in use for many years and as a result, while the CathPCI Registry continues to monitor the feasibility and data collection burden of this measure, minimal changes to how the data are collected and reported have been required in recent years.

4.4 Proprietary Information

Proprietary measure or components with fees

4.4a Fees, Licensing, or Other Requirements

External users who choose to use a performance measure must sign a licensing agreement with the ACCF. Depending on the circumstance ACCF may charge a licensing fee for such license.

5.1.1 Data Used for Testing

We used a clinical registry, namely the American College of Cardiology National Cardiovascular Data Registry's CathPCI Registry. This is a national quality improvement registry in which over 1600 hospitals participate. Some states and healthcare systems mandate participation in the registry. Rigorous quality standards are applied to the data and both quarterly and ad hoc performance reports are generated for participating sites to track and improve their performance.

Discharges between July 1, 2023 to June 30, 2024 were used. Hospital information about the proportion of patients with a primary payer source of Medicaid are derived from American Hospital Association 2010 data.

5.1.1a Dates of Testing Data

Field not required Spring 2025

5.1.2 Differences in Data

The datasets, dates, number of measure entities, and number of admissions for all forms of reliability and validity testing were from an uninterrupted 1-year period: 07/2023 to 6/2024 among all eligible sites (n=1,688).

5.1.3 Characteristics of Measured Entities

The overall measured entities, following the application of the exclusion criteria, are displayed in table 9 of the attached document.

5.1.4 Characteristics of Units of the Eligible Population

Descriptive statistics for the patients included in the data set are provided in table 10.

5.2.1 Level(s) of Reliability Testing Conducted

Accountable entity level (i.e., measure score) (e.g., signal-to-noise analysis)

5.2.2 Method(s) of Reliability Testing

Split sample Methodology

We performed split sample methodology to assess the reliability of this measure for the following reasons. First, it minimizes bias by dividing a sample into two separate groups, which helps reduce the impact of systematic biases. Additionally, split sample methodology allowed for cross-validation, such that one sample developed the model while the other tested its accuracy. Furthermore, using two samples provides a more robust estimate of reliability, accounting for variability in responses and enhancing the generalizability of findings.

We also calculated the Cronbach's Alpha statistic, a reliability coefficient, by comparing the consistency of results between the two samples. Raw rates were calculated for the performance rates and social risk data and a Pearson correlation coefficient was computed in the split samples to assess reliability.

5.2.3 Reliability Testing Results

Split Sample Methodology (Table 11, Figure 7)

The split samples were calculated during the same timeframe to mitigate confounding factors that might exist because of time differences. The cohort was split into two random samples to compare measure scores. The results illustrate that the distribution of hospital performance was nearly identical in the two samples (Table 11), and there was a high correlation between hospital performance in the two samples (Pearson Correlation coefficient: 0.8276).

5.2.3a Attach Additional Reliability Testing Results

[CBE #0964 - Tables and Figures_1.pdf](#)

5.2.4 Interpretation of Reliability Results

Split Sample Methodology

The box and whisker plot of the distribution of hospital performance for CathPCI composite measure at discharge shows that hospitals were stratified by randomly split samples. The results show a similar percentage of use of the composite measure at discharge for both samples which demonstrates the reliability of the measure. The Figure from the split sample correlation shows a strong positive association between both samples.

Table 2. Accountable Entity Level Reliability Testing Results by Denominator, Target Population Size

Accountable Entity-Level Reliability Testing Results

	Overall	Minimum	Decile_1	Decile_2	Decile_3	Decile_4	Decile_5	Decile_6	Decile_7	Decile_8	Decile_9	Decile_10	Maximum
Reliability													
Mean													
Performance Score	94.5		80.4	90.3	93.1	94.6	96.6	96.6	97.4	98.2	98.9	99.8	
N of Entities	1688		168	169	169	169	169	169	169	169	168	169	
N of Persons													
/ Encounters	669,479												
/ Episodes													

5.3.1 Level(s) of Validity Testing Conducted

Accountable entity level (i.e., measure score) (e.g., criterion validity)

5.3.2 Type of Accountable Entity Level Validity Testing Conducted

Empirical validity testing at the accountable entity-level (e.g., criterion validity, construct validity, known groups analysis), Systematic assessment of face validity of the measure's performance score as an indicator of quality or resource use

5.3.3 Method(s) of Validity Testing

Face Validity (initial measure testing of this measure):

Face validity was achieved through having subject matter experts assist in the development of this measure. For this particular topic those individuals who were involved in identifying the key attributes and variables for this process measure were leaders and experts in the field of interventional cardiology. Serial phone calls were held to define the eligible population. These clinical leaders are noted below.

The NCDR Clinical Subworkgroup was a designated set of experts that oversaw the original NQF application. Prior to submission, this group ensured there is variation in care, disparities data, and that the measure is a true These members included Drs. Jephtha Curtis (Chair), Frederick Masoudi, John Rumsfeld, Issam Moussa, and David Malenka.

The NCDR Scientific Quality and Oversight Committee served as the primary resource for crosscutting scientific and quality of care methodological issues. These members included Drs. Frederick Masoudi (Chair) , David Malenka, Thomas Tsai, Matthew Reynolds, David Shahian, John Windle, Fred Resnic, John Moore, Deepak Bhatt, James Tcheng, Jephtha Curtis, Paul Chan, Matthew Roe, and John Rumsfeld.

Lastly the 16 member NCDR Management Board and 31 member ACCF Board of Trustees reviewed and approved this measure for submission to NQF.

The face/content validity of this measure has been achieved by virtue of the noted expertise of those individuals who developed this measure.

Empirical Validity (Re-endorsement testing):

Empirical validity was tested by determining if hospitals performed similarly on the composite discharge medication measure and its components. This was achieved by examining the distribution and correlation of the discharge medications composite and its components: therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients.

Exclusions:

The exclusions for this measure comprised: patients without a PCI during the admission, discharge status of deceased, discharge location of “other acute hospital, hospice, or against medical advice”. With the exception of excluding patients who did not undergo a PCI procedure during the admission, these exclusions were relatively rare and firmly supported by clinical rationale.

Identification of Statistically Significant & Meaningful Differences in Performance:

We examined variation in hospital performance for the composite measure based on overall performance, and stratified by subgroups of sex, age, race/ethnicity, and the proportion of patients who are insured through Medicaid to identify if there were meaningful differences in social risk.

Empirical Analysis to Support Composite Construction Approach:

We believe the content and face validity of this measure has been achieved by virtue of the noted expertise of those individuals who developed this measure. The individual components of the composite have already shown to impact clinical outcomes.

The empirical validity analysis demonstrated that the individual component measures fit the overall quality construct by assessing the Pearson correlation of the discharge medications composite measure with its components, including: aspirin, P2Y12 and statins.

We computed hospital-level measures for the three measure components individually and then correlated the results with the hospital-level composite results using Pearson correlation.

This is an all-or-none composite, thus no empirical analyses pertinent to aggregations or weighting were conducted. The components mentioned throughout the application are part of the composite measure indicator definition, not the composite of different measures.

5.3.4 Validity Testing Results

Face Validity

Face validity was achieved through consensus that the measure had strong clinical evidence and was reliable. Specifically, it is known that reducing LDL-c is associated with a decrease in mortality and morbidity for patients with coronary artery disease. Lipid-lowering therapy can reduce the risk of cardiovascular outcomes. Following PCI, both aspirin use and P2Y12 inhibitors, including clopidogrel and prasugrel, reduce the risk of ischemic events. This research demonstrates that this measure contributes to improved intermediate outcomes and important outcomes such as reductions in hospitalizations and mortality rates.

Empirical Validity

Results achieved from the empirical validity testing are displayed in Tables 12, 13, 14, and 15 of the attached document.

5.3.5 Interpretation of Validity Results

Face validity

The individual components have been associated with better outcomes across studies and are accepted quality measures in patient populations.

Empirical validity:

A correlation of 0.6 or higher is considered a “strong correlation”. The results of the empirical validity testing demonstrate a strong correlation between the discharge medication composite and all of its components, Aspirin, P2Y12, and Statin at discharge all contribute individually to the overall composite measure. The results also show that the components of the measure significantly explain variance in performance and prediction.

Reference:

Mukaka, M. M. (2012). Statistics corner: A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal*, 24(3), 69-71.

Exclusions

Importantly, there are no 'discretionary' exclusions in the composite measure. All exclusions are necessary for the accurate calculation of performance on the composite measure. For example, patients need to survive to discharge to be eligible for the measure. Similarly, it would be inappropriate to calculate the measure among patients discharged to another acute care facility or those who left the hospital against medical advice.

Considering the lack of randomized trials designed to evaluate the efficacy of clopidogrel (P2Y12 receptor blockers) in addition to aspirin compared to aspirin alone in STEMI patients treated with primary PCI, we feel no additional patients should be excluded from the composite measure. The value of including these patients and the potential for evaluating their outcomes in our bleeding and mortality measures outweighs the burden of increased data collection and analysis.

Indirect evidence of long-term benefit exists from trials PCI-CURE, CREDO, and CURE (Lancet. 2001;358(9281):527, J Am Coll Cardiol. 2006;47(5):939, N Engl J Med. 2001;345(7):494) of patients with non- STEMI in which P2Y12 receptor blockers were continued for 9 to 12 months. At 30 days after PCI, clopidogrel therapy was associated with a significant reduction in the primary endpoint of cardiovascular death, MI, or stroke (3.6 versus 6.2 percent, adjusted odds ratio 0.54, 95% CI 0.35-0.85).

5.4.1 Methods Used to Address Risk Factors

No risk adjustment or stratification

6.1.1 Current Status

In use

6.1.3 Current Use(s)

Quality Improvement with Benchmarking (external benchmarking to multiple organizations),
Quality Improvement (Internal to the specific organization)

6.1.3 Program Details

Name of the program and sponsor

CathPCI Registry®

URL of the program

<https://cvquality.acc.org/NCDR-Home/registries/hospital-registries/cathpci-regi...>

Purpose of the program

The CathPCI Registry® assesses the characteristics, treatments and outcomes of cardiac disease patients who receive diagnostic catheterization and/or percutaneous coronary intervention (PCI) procedures.

Geographic area and percentage of accountable entities and patients included

Geographic area is an estimated 90% of all US based cardiac cath labs. CathPCI Registry specific participants are around 1,800. Total patient records are over 22 million.

Applicable level of analysis and care setting

Facility level of analysis/hospital in-patient.

6.2.1 Actions of Measured Entities to Improve Performance

Performance results are provided as part of quarterly performance report which includes a rolling 4 quarters of data. These reports provide a detailed analysis of an individual institution's performance in comparison with the entire registry population from participating hospitals across the nation. Reports include an executive summary dashboard, at-a-glance assessments, and patient level drill-downs. Registry participants also have access to an outcome report companion guide which provides common definitions and detailed metric specifications to assist with interpretation of performance rates. This information along with the other process and outcome measures included in the CathPCI registry enable participants to identify interventions that will lead to improvement in in-patient mortality rates.

There are a number of methods used to educate and provide general support to registry participants.

These include the following:

- Registry Site Manager Calls are available for all NCDR participants. RSM calls are provided as a source of communication between NCDR and participants to provide a live chat Q and A session on a continuous basis.
- New User Calls are available for NCDR participants, and are intended for assisting new users with their questions.
- NCDR Annual Conference

The NCDR Annual Conference is a well-attended and energetic two-day program at which participants from across the country come together to hear about new NCDR and registry-specific updates. During informative general sessions, attendees can learn about topics such as transcatheter therapies, the NCDR dashboard, risk models, data quality and validation, and value-based purchasing. Attendees also receive registry updates and participate in advanced case studies covering such topics as Appropriate Use Criteria and outcomes report interpretation.

- Release notes (for outcomes reports)
- Clinical Support

The NCDR Product Support and Clinical Quality Consultant Teams are available to assist participating sites with questions Monday through Friday, 9:00 a.m. - 5:00 p.m. ET.

6.2.2 Feedback on Measure Performance

Health care facilities, physicians, data abstractors, registry steering committee members, and other stakeholders routinely provide feedback to the Registry support team via email or phone (i.e., Salesforce). Additional opportunities for detailed measure discussion can occur on bi-

monthly registry site manager calls or annually at the in-person NCDR Quality Summit conference where registry management and physician leadership will explore the measure in detailed followed by an open Q&A session.

Feedback varies from detailed comments on the measure criteria, reflections, and general questions about how end-point decisions were made. When stakeholders fully understand the measure, they have expressed it is valuable in helping to guide their quality-of-care improvement efforts.

Because this measure has been in use for many years, hospitals continue to monitor their performance on this measure but feedback or questions on the specifications and reporting have been minimal given the limited number of changes made to the measure in recent years.

6.2.3 Consideration of Measure Feedback

Any criticism of the observational data on performance are escalated to the applicable ACC team(s) (i.e., Registry management, Science leadership, Data Analytic Center) for consideration. If the feedback represents an opportunity for measure improvement, the Data Analytic Center is engaged to provide data insights. These data are reviewed by the Senior NCDR Leadership & Science Leadership team which may lead to updates. If an adjustment is needed the change is approved and cascades to the various teams and implemented. The opportunity for these types of refinements is always available.

6.2.4 Progress on Improvement

Illustrated in table 16 of the attached document are the trends of measure performance across the years. While the mean and median rates demonstrate small improvement in performance over time, those hospitals in poorer performance percentiles have improved markedly. For example, hospitals performing at the 5th percentile improved in measure performance from 79.9% to 83.3% to 84.9% from 2015/16 to 2021/22 to 2023/24, respectively.

6.2.5 Unexpected Findings

Because this is a well-established measure, we believe that the potential for unexpected findings are minimal but will continue to monitor any feedback that is received.

7.1 Supplemental Attachment

[CBE #0964 - Tables and Figures.pdf](#)

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Measure Developer POC

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The measure developer is different from the measure steward

No

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