



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 2377

Corresponding Measures:

De.2. Measure Title: Overall Defect Free Care for AMI

Co.1.1. Measure Steward: American College of Cardiology

De.3. Brief Description of Measure: The proportion of acute MI patients ≥ 18 years of age that receive "perfect care" based upon their eligibility for each performance measures

1b.1. Developer Rationale: This composite measure is vital as it shows that the patient received all of the treatments for care of AMI that are strongly recommended in national guidelines. While performance may be higher for some individual measures the data has shown that performance on total care of the MI patient can be greatly improved.

S.4. Numerator Statement: The number of perfect care opportunities met from all eligible acute MI patients

S.6. Denominator Statement: All acute MI patients (including STEMI and NSTEMI)

Note:

- Patients less than 18 years of age are not included in the denominator
- The guidelines-based care for STEMI and NSTEMI populations differ in some respects.

S.8. Denominator Exclusions: The exclusions for this measure were minimal and comprised: patients <18 years of age, hospital submissions that did not pass the NCDR quality check, and patients who were ineligible for defect free care measure (e.g., contraindications, clinical studies).

De.1. Measure Type: Composite

S.17. Data Source: Other, Registry Data

S.20. Level of Analysis: Facility

IF Endorsement Maintenance – Original Endorsement Date: Sep 08, 2014 **Most Recent Endorsement Date:** Jun 10, 2019

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? This measure is not a paired or grouped measure.

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[2377_nqf_evidence_attachment_7.1_11.7.18_final-636772686602699034.docx](#)

1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

Yes

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.

This composite measure is vital as it shows that the patient received all of the treatments for care of AMI that are strongly recommended in national guidelines. While performance may be higher for some individual measures the data has shown that performance on total care of the MI patient can be greatly improved.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. *(This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

See "2377 Main Submission Form Supplement" for the response to this question.

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

N/A

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. *(This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.*

The same disparities data shown below are also included in questions 2b4.2 in the testing form.

We attributed social risk factors at the hospital-level for the purposes of this analysis. We used Medicaid insurance status as an economic indicator of social risk. We also examined race/ethnicity, age, and gender to determine differences among these demographic indicators of social risk.

See " 2377 Main Submission Form Supplement" for further details/graphs associated with this question, or refer to the testing form.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4

N/A

1c. Composite Quality Construct and Rationale

1c.1. A composite performance measure is a combination of two or more component measures, each of which individually reflects quality of care, into a single performance measure with a single score.

For purposes of NQF measure submission, evaluation, and endorsement, the following will be considered composites:

- Measures with two or more individual performance measure scores combined into one score for an accountable entity.
- Measures with two or more individual component measures assessed separately for each patient and then aggregated into one score for an accountable entity:
 - all-or-none measures (e.g., all essential care processes received, or outcomes experienced, by each patient);

1c.1. Please identify the composite measure construction: [all-or-none measures \(e.g., all essential care processes received, or outcomes experienced, by each patient\)](#)

1c.2. Describe the quality construct, including:

- the overall area of quality
- included component measures and
- the relationship of the component measures to the overall composite and to each other.

The ChestPain-MI (CPMI) Registry, formerly known as the ACTION registry of the National Cardiovascular Registry captures data on the population with acute myocardial infarction (AMI). The population is further divided clinically into ST Elevation Myocardial Infarction (STEMI) and Non-ST Elevation Myocardial Infarction (NSTEMI). The registry collects data on and reports performance to participating sites on guideline-based measures for AMI endorsed by the American College of Cardiology (ACC) and the American Heart Association (AHA). A composite defect-free (all-or-nothing) performance measure for AMI has been constructed that includes following individual measures (Table 1):

For the STEMI population:

1. Aspirin at Arrival
2. Aspirin prescribed at Discharge
3. Beta-Blocker Prescribed at Discharge
4. Statin Prescribed at Discharge
5. Evaluation of LV Systolic Function
6. ACEI or ARB for LVSD at Discharge
7. Time to Fibrinolytic Therapy
8. Time to Primary PCI
9. Reperfusion Therapy
10. Adult Smoking Cessation Advice Counseling
11. Cardiac Rehabilitation Patient Referral From an Inpatient Setting

For the NSTEMI population:

1. Aspirin at Arrival
2. Aspirin prescribed at Discharge
3. Beta-Blocker Prescribed at Discharge
4. Statin Prescribed at Discharge
5. Evaluation of LV Systolic Function
6. ACEI or ARB for LVSD at Discharge
7. Adult Smoking Cessation Advice Counseling
8. Cardiac Rehabilitation Patient Referral From an Inpatient Setting

All of the care opportunities for which the patient is eligible must be fulfilled in order to satisfy the composite.

Composite performance measures have a variety of uses.

Data reduction. A large and growing array of individual indicators makes it possible for users to become overloaded with data. A composite measure reduces the information burden by distilling the available indicators into a simple summary.

Scope expansion. The information in a composite measure is condensed, making it feasible to track a broader range of metrics than would be possible otherwise. Composite measures have been described as a tool for making provider assessments more comprehensive.

Provider performance valuation. Performance indicators are used for various decisions about providers, including the allocation of pay-for-performance incentives, designation of preferred provider status, and assignment of letter grades and star rating categories. If a decision is to be based on multiple indicators instead of a single indicator, a method of translating several variables into a single decision is needed. Composite measures serve this function by assigning providers to 1 position on a scale of better-to-worse performance.

Given all these uses, NCDR believes that while we will continue to report these measures at the individual level there is a distinctive value of an NQF-endorsed composite measure to reflect the comprehensive care provided for AMI.

Empirical validity was tested and evaluated by assessing the correlation of the Defect Free Care measure with its components. The correlation coefficients between the overall defect free care measure and its components is listed in the testing form for question 2d1.2.

1c.3. Describe the rationale for constructing a composite measure, including how the composite provides a distinctive or additive value over the component measures individually.

Each individual measure characterizes individual guideline-recommended processes of care for AMI. However the construction of a composite measure encompassing all of the scientifically validated best practices allows for a holistic assessment of evidence-based AMI care.

1c.4. Describe how the aggregation and weighting of the component measures are consistent with the stated quality construct and rationale.

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.

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. ***Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.***

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):

Cardiovascular : Coronary Artery Disease, Cardiovascular : Coronary Artery Disease (PCI)

De.6. Non-Condition Specific(check all the areas that apply):

Care Coordination

De.7. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Populations at Risk

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

ACC does not have a measure specific webpage. However more information about the clinical registry that the measure is included in can be found at:<https://cvquality.acc.org/NCDR-Home/registries/hospital-registries/chest-pain-mi-registry>

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

S.2b. Data Dictionary, Code Table, or Value Sets (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: [action_v2_codersdictionary_2-4-2--rebranded-.pdf](#)

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

No, this is not an instrument-based measure Attachment:

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Not an instrument-based measure

S.3.1. For maintenance of endorsement: Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

No

S.3.2. For maintenance of endorsement, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

There have been no changes to the measure specifications since the last endorsement.

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The number of perfect care opportunities met from all eligible acute MI patients

S.5. Numerator Details (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

See attached data dictionary and algorithm details in question S.14.

All eligible care opportunities must be met in order for the composite measure to be achieved. There are 11 potential opportunities for the STEMI population and 8 potential opportunities for the NSTEMI population

S.6. Denominator Statement (Brief, narrative description of the target population being measured)

All acute MI patients (including STEMI and NSTEMI)

Note:

- Patients less than 18 years of age are not included in the denominator
- The guidelines-based care for STEMI and NSTEMI populations differ in some respects.

S.7. Denominator Details (All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

The denominator includes two populations, those who have had either a STEMI or NSTEMI.

- STEMI: STEMI or STEMI Equivalent= yes (4030)

OR

- NSTEMI: STEMI or STEMI Equivalent= no (4030) AND Positive cardiac markers within first 24 hours (10000)

Note: Please refer to the data dictionary attached for more information on the data elements.

S.8. Denominator Exclusions (Brief narrative description of exclusions from the target population)

The exclusions for this measure were minimal and comprised: patients <18 years of age, hospital submissions that did not pass the NCDR quality check, and patients who were ineligible for defect free care measure (e.g., contraindications, clinical studies).

S.9. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

N/A

S.10. Stratification Information (Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)

There is no stratification.

S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment)

No risk adjustment or risk stratification

If other:

S.12. Type of score:

Rate/proportion

If other:

S.13. Interpretation of Score (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Higher score

S.14. Calculation Algorithm/Measure Logic (Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)

For each individual measure if the denominator is met (patient eligible for care) and the numerator is met (the appropriate care is received) then increase the denominator opportunity and numerator care received each by 1. If the denominator is met but the care received is NOT met then only increase the denominator (eligibility). This logic is followed for 11 individual measures for STEMI and 8 individual measures for NSTEMI. Then if the care opportunities are equal to the number of times care is received then the numerator of the composite measure is increased by one. If the numerator and denominator are not equal the numerator is not increased.

DefectFreeCareCounter = 0

PMCareOpportunity = 0

PMTherapy = 0

CASE Population ID = 41 (STEMI)

IF(ASAArrivalPMInd denominator = 1 AND ASAArrivalPMInd numerator = 1)

increment PMCareOpportunity by 1, increment PMTherapy by 1

IF(ASAArrivalPMInd denominator = 1 AND ASAArrivalPMInd numerator = 0)

increment PMCareOpportunity by 1

IF(ASADischargePMInd denominator = 1 AND ASADischargePMInd numerator = 1)

increment PMCareOpportunity by 1, increment PMTherapy by 1

IF(ASADischargePMInd denominator = 1 AND ASADischargePMInd numerator = 0)

increment PMCareOpportunity by 1

IF(BBDischargePMInd denominator = 1 AND BBDischargePMInd numerator = 1)

increment PMCareOpportunity by 1, increment PMTherapy by 1

IF(BBDischargePMInd denominator = 1 AND BBDischargePMInd numerator = 0)

increment PMCareOpportunity by 1

IF(StatinDischargePMInd denominator = 1 AND StatinDischargePMInd numerator = 1)

increment PMCareOpportunity by 1, increment PMTherapy by 1

IF(StatinDischargePMInd denominator = 1 AND StatinDischargePMInd numerator = 0)

```
increment PMCareOpportunity by 1
IF(EvalLVSysFuncPMInd denominator = 1 AND EvalLVSysFuncPMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(EvalLVSysFuncPMInd denominator = 1 AND EvalLVSysFuncPMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(ACEARBDISchargePMInd denominator = 1 AND ACEARBDISchargePMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(ACEARBDISchargePMInd denominator = 1 AND ACEARBDISchargePMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(D2NPMElapsedTime denominator = 1 AND D2NPMLessThan30Ind numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(D2NPMElapsedTime denominator = 1 AND D2NPMLessThan30Ind numerator = 0)
    increment PMCareOpportunity by 1
IF(D2BPMElapsedTime denominator = 1 AND D2BPMLessThan90Ind numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(D2BPMElapsedTime denominator = 1 AND D2BPMLessThan90Ind numerator = 0)
    increment PMCareOpportunity by 1
IF(ReperfusionPMInd denominator = 1 AND ReperfusionPMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(ReperfusionPMInd denominator = 1 AND ReperfusionPMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(SmokePMInd denominator = 1 AND SmokePMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(SmokePMInd denominator = 1 AND SmokePMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(CardRehabPMInd denominator = 1 AND CardRehabPMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(CardRehabPMInd denominator = 1 AND CardRehabPMInd numerator = 0)
    increment PMCareOpportunity by 1

IF PMCareOpportunity = PMTherapy THEN
    increment DefectFreeCareCounter by 1
)
```

CASE Population ID = 42 (NSTEMI)

```
IF(ASAArrivalPMInd denominator = 1 AND ASAArrivalPMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(ASAArrivalPMInd denominator = 1 AND ASAArrivalPMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(ASAArrivalPMInd denominator = 1 AND ASADISchargePMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(ASAArrivalPMInd denominator = 1 AND ASADISchargePMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(BBDISchargePMInd denominator = 1 AND BBDISchargePMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(BBDISchargePMInd denominator = 1 AND BBDISchargePMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(StatinDISchargePMInd denominator = 1 AND StatinDISchargePMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(StatinDISchargePMInd denominator = 1 AND StatinDISchargePMInd numerator = 0)
    increment PMCareOpportunity by 1
IF(EvalLVSysFuncPMInd denominator = 1 AND EvalLVSysFuncPMInd numerator = 1)
    increment PMCareOpportunity by 1, increment PMTherapy by 1
IF(EvalLVSysFuncPMInd denominator = 1 AND EvalLVSysFuncPMInd numerator = 0)
```


increment PMCareOpportunity by 1
 IF(ACEARBDISchargePMInd denominator = 1 AND ACEARBDISchargePMInd numerator = 1)
 increment PMCareOpportunity by 1, increment PMTherapy by 1
 IF(ACEARBDISchargePMInd denominator = 1 AND ACEARBDISchargePMInd numerator = 0)
 increment PMCareOpportunity by 1
 IF(SmokePMInd denominator = 1 AND SmokePMInd numerator = 1)
 increment PMCareOpportunity by 1, increment PMTherapy by 1
 IF(SmokePMInd denominator = 1 AND SmokePMInd numerator = 0)
 increment PMCareOpportunity by 1
 IF(CardRehabPMInd denominator = 1 AND CardRehabPMInd numerator = 1)
 increment PMCareOpportunity by 1, increment PMTherapy by 1
 IF(CardRehabPMInd denominator = 1 AND CardRehabPMInd numerator = 0)
 increment PMCareOpportunity by 1

 IF PMCareOpportunity = PMTherapy THEN
 increment DefectFreeCareCounter by 1

S.15. Sampling (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.
 There is no sampling.

S.16. Survey/Patient-reported data (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.
 There is no survey or patient reported data for this composite measure.

S.17. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Other, Registry Data

S.18. Data Source or Collection Instrument (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

The data source is the Chest Pain- MI Registry, formerly known as the ACTION Registry, of the National Cardiovascular Data Registry of the American College of Cardiology.

S.19. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

Available at measure-specific web page URL identified in S.1

S.20. Level of Analysis (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility

S.21. Care Setting (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Inpatient/Hospital

If other:

S.22. COMPOSITE Performance Measure - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

2. Validity – See attached Measure Testing Submission Form

2377_testing_form_20180730_FINAL_Method_Panel_Review_8.16.18_FINAL.docx

2.1 For maintenance of endorsement

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the

measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

Yes

2.2 For maintenance of endorsement

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

Yes

2.3 For maintenance of endorsement

Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.

No - This measure is not risk-adjusted

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. Data Elements Generated as Byproduct of Care Processes.

Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score), Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims), Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)

If other:

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields) Update this field for **maintenance of endorsement**.

ALL data elements are in defined fields in electronic clinical data (e.g., clinical registry, nursing home MDS, home health OASIS)

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources. For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.

Attachment:

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing

demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

There were no difficulties that were noted with regard to data collection, availability of data, missing data, and the frequency of data collection, same patient confidentiality, time and cost of data collection, for other feasibility/implementation issues. However, the NCDR has a robust data collection process as outlined below.

Participating hospitals report patient demographics, medical history, risk factors, hospital presentation, initial cardiac status, procedural details, medications, laboratory values and in-hospital outcomes. The majority of the 19 required data elements are routinely generated and acquired during the delivery of standard cardiac care to this patient population. Electronic extraction of data recorded as part of the procedure expedites data collection. This strategy offers point of care 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. The data elements required for this measure are readily available within the patient's medical record or can be attained without undue burden within the hospital. Most data elements exist in a structured format within patient's electronic health record.

The NCDR Data Quality Program consists of 3 main components: data completeness, consistency, and accuracy. Completeness focuses on the proportion of missing data within fields, whereas consistency determines the extent to which logically related fields contain values consistent with other fields. Accuracy characterizes the agreement between registry data and the contents of original charts from the hospitals submitting data.

The Data Quality Report (DQR) consists of registry-specific algorithms that require predetermined levels of completeness and consistency for submitted data fields. Before entering the Enterprise Data Warehouse (EDW), all submissions are scored for file integrity and data completeness, receiving 1 of 3 scores that are transmitted back to facilities using a color coding scheme. A "red light" means that a submission has failed because of file integrity problems such as excessive missing data and internally inconsistent data. Such data are not processed or loaded into the EDW. A "yellow light" status means that a submission has passed the integrity checks but failed in completeness according to predetermined thresholds. Such data are processed and loaded into the EDW but are not included in any registry aggregate computations until corrected. Facilities are notified about data submission problems and provided an opportunity to resubmit data. Finally, a "green light" means that a submission has passed all integrity and quality checks. Such submissions are loaded to the EDW. After passing the DQR, data are loaded into a common EDW that houses data from all registries and included for all registry aggregate computations. In a secondary transaction process, data are loaded into registry-specific, dimensionally modeled data marts.

There is no sampling of patient data allowed within the contractual terms of participation in the CPMI Registry in NCDR. The registry is designed to include 100 percent of consecutive adult patients who have an acute MI at participating institutions. 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." Adult patients, ages 18 years and older, who have an acute MI. Patients are selected for inclusion by reviewing existing medical records and no direct interaction with the patient will be required outside of the normal course of care. There will be no discrimination or bias with respect to inclusion on the basis of sex, race, or religion.

Patient confidentiality is preserved as the data are in aggregate form. The CPMIRegistry dataset, comprised of approximately 157, data elements was created by a panel of experts using available ACC-AHA guidelines and performance measures, data elements and definitions, and other evidentiary sources. Private health information (PHI), such as social security number, is collected. The intent for collection of PHI is to allow for registry interoperability and the potential for future generation of patient-level drill downs in Quality and Outcomes Reports. Registry sites can opt out of transmitting direct identifiers to the NCDR, however, so inclusion of direct identifiers in the registry is at the discretion of the registry participants themselves. When using the NCDR web-based data collection tool, direct identifiers are entered but a partition between the data collection process and the data warehouse maintains the direct identifiers separate from the analysis datasets. The minimum level of PHI transmitted to the ACCF when a participant opts

out of submitting direct identifiers meets the definition of a Limited Dataset as such term is defined by the Health Insurance Portability and Accountability Act of 1996.

Data collection within the NCDR conforms to laws regarding protected health information. Patient confidentiality is of utmost concern with all metrics. The proposed measure does not include a patient survey. Physician and/or institutional confidentiality is maintained by de-identified dashboard reports. There is no added procedural risk to patients through involvement in the CPMI Registry. No testing, time, risk, or procedures beyond those required for routine care will be imposed. The primary risk associated with this measure is the potential for a breach of patient confidentiality. The ACCF has established a robust plan for ensuring appropriate and commercially reasonable physical, technical, and administrative safeguards are in place to mitigate such risks.

Data are maintained on secure servers with appropriate safeguards in place. The project team periodically reviews all activities involving protected health information to ensure that such safeguards including standard operating procedures are being followed. The procedure for notifying the ACCF of any breach of confidentiality and immediate mitigation standards that need to be followed is communicated to participants. ACCF limits access to Protected Health Information, and to equipment, systems, and networks that contain, transmit, process or store Protected Health Information, to employees who need to access the PHI for purposes of performing ACCF's obligations to participants who are in a contractual relationship with the ACCF. All PHI are stored in a secure facility or secure area within ACCF's facilities which has separate physical controls to limit access, such as locks or physical tokens. The secured areas are monitored 24 hours per day, 7 days per week, either by employees or agents of ACCF by video surveillance, or by intrusion detection systems.

Each participant who has access to the NCDR website must have a unique identifier. The password protected webpages have implemented inactivity time-outs. Encryption of wireless network data transmission and authentication of wireless devices containing NCDR Participant's information ACCF's network is required. Protected Health Information may only be transmitted off of ACCF's premises to approved parties, which shall mean: A subcontractor who has agreed to be bound by the terms of the Business Associate Agreement between the ACCF and the NCDR Participant.

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).

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 ACCF's program the National Cardiovascular Data Registry (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. For calendar year 2018 the annual pricing for hospitals, NCDR Analytic and Reporting Services, and licensing of measure specifications ranges from \$2,900-\$50,000. Measures that are aggregated by ACCF and submitted to NQF 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.

There is no added procedural risk to patients through their hospital's involvement in the CPMI Registry. No testing, time, risk, or procedures beyond those required for routine care will be imposed.

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)

4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

ACC's National Cardiovascular Data Registry (NCDR) Voluntary Hospital Public Reporting Program: Hospitals may opt to publicly report their measure results based on data from the National Cardiovascular Data Registry (NCDR). Hospitals that choose to participate have their results displayed on ACC's CardioSmart. Currently Hospitals can report on the following NQF-endorsed measures:

NQF #0965: Use of all recommended medications (ACEI or ARB and beta-blocker) to improve heart function and blood pressure after ICD implant.

NQF # 0964: Therapy with aspirin, P2Y12 inhibitor, and statin at discharge following PCI in eligible patients (composite measure)

NQF: 2377: Overall Defect Free Care Composite (identified on website as "Complete Heart Attack Care")

NCDR ChestPain-MI Registry:

The CPMI Registry patients who are diagnosed with STEMI and NSTEMI at participating hospitals. It provides a streamlined, consolidated method of collecting, monitoring and reporting clinically relevant cardiovascular data within a framework that ensures both hospital and patient confidentiality. This enables participants to better focus on ACC/AHA guideline-recommended care and to develop new ways for the registry to advance improvements in care and examine newer clinical questions. There are over 850 participating sites with 1.4 million cumulative records as of Q4 2017

ChestPain-MI Registry Achievement Award:

For the demonstration of achievement by sustaining performance measures in the treatment of acute myocardial infarction patients through the implementation of CPMI Registry® and in-hospital initiation of the American College of Cardiology/American Heart Association Clinical Guideline recommendations.

ACC Patient Navigator

The ACC has launched a national scale program, the Patient Navigator Program: Focus MI, to improve the care and outcomes of myocardial infarction patients and further reduce avoidable readmissions beyond 30 days. The ACC CPMI registry is a part of this program.

4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

N/A

4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

N/A

4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

Performance results are distributed to all CPMI registry participants as part of quarterly benchmark reports, which provide a detailed analysis of an institution's individual performance in comparison to 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.

4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

Results are provided as part of quarterly performance report which includes a rolling 4 quarters of data.

Participating hospitals in the CPMI registry report on the following: STEMI and NSTEMI patient demographics; provider and facility characteristics; adverse event rates; AMI performance measures and select quality measures and outcomes; medication dosing errors and risk adjusted metrics; transfer facility therapies and reperfusion strategies; compliance with ACC/AHA clinical guideline recommendations.

The majority of the required data elements are routinely generated and acquired during the delivery of standard cardiac care to this patient population. Electronic extraction of data recorded as part of the procedure expedites data collection. This strategy offers point of care 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. The data elements required for this measure are readily available within the patient's medical record or can be attained without undue burden within the hospital. Most data elements exist in a structured format within patient's electronic health record.

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

4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.

Describe how feedback was obtained.

Feedback is typically obtained through monthly registry site manager monthly calls, ad hoc phone calls tracked with salesforce software, and during registry –specific break-out sessions at the NCDR's annual meeting. Registry Steering Committee members may also provide feedback during regularly scheduled calls.

4a2.2.2. Summarize the feedback obtained from those being measured.

No other feedback was received.

4a2.2.3. Summarize the feedback obtained from other users

No other feedback was received from other users.

4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure

specifications or implementation, including whether the measure was modified and why or why not.

N/A Measure was not modified since the last endorsement.

Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

Performance rates for the composite measure have increased over time, corresponding to a growing denominator (Table 5). These 2011-2017 rates indicate that outcomes are improving, as more patients with MI are receiving defect free care over time.

Table 5: Performance Rates for Overall Defect Care Measure From 2011-2017

YEAR	DEN	NUM	%
2011	93437	62427	66.8
2012	113192	77592	68.6
2013	128010	90329	70.6
2014	142617	100536	70.5
2015	145622	100705	69.2
2016	157013	109495	69.7
2017	156074	110544	70.8

4b2. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

There were no unintended consequences to individuals or populations identified during test.

4b2.2. Please explain any unexpected benefits from implementation of this measure.

Sites have reported being able to develop process improvement mechanisms and improve their documentation practices as a result of implementing this measure.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are

compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.
Yes

5.1a. List of related or competing measures (selected from NQF-endorsed measures)

5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

Cannot save measures above.

These individual measures of the proposed composite measure have been previously endorsed:

0132 Aspirin on arrival for acute MI
0137 ACEI or ARB for left ventricular systolic dysfunction AMI patients
0142 Aspirin prescribed at discharge for AMI
0160 Beta-blocker prescribed at discharge for AMI
0163 Primary PCI received within 90 min of hospital arrival
0288 Fibrinolytic therapy received within 30 minutes of ED arrival
0639 Statin prescribed at discharge
0642 Cardiac rehabilitation patient referral from an inpatient setting

Not previously endorsed measures that are part of the proposed composite measure:

Evaluation of LVEF
Reperfusion Therapy
Adult smoking cessation/counseling at discharge

5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

Yes

5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

The ACC/AHA Task Force on Performance Measures were very careful to align their measures with the previously NQF endorsed AMI measures from CMS.

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

While the composite measure has no competing measure, there are competing measures at the individual level. However, the composite measure is superior because it encompasses the entire spectrum of care for MI patients.

Appendix
<p>A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.</p> <p>Available at measure-specific web page URL identified in S.1 Attachment:</p>
Contact Information
<p>Co.1 Measure Steward (Intellectual Property Owner): American College of Cardiology</p> <p>Co.2 Point of Contact: Jarrott, Mayfield, jmayfield@acc.org</p> <p>Co.3 Measure Developer if different from Measure Steward: American College of Cardiology</p> <p>Co.4 Point of Contact: Kristina, Blankinship, kblankinship@acc.org</p>
Additional Information
<p>Ad.1 Workgroup/Expert Panel involved in measure development</p> <p>Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.</p> <p>At the time of initial endorsement of this measure, the following groups oversaw the development of this measure: SQOC—Leadership committee that oversaw broad issues and approved submission of given metric to NQF. Fred Masoudi, David Malenka, Thomas Tsai, Matt Reynolds, David Shahian, John Windle, Fred Resnic, John Moore, Deepak Bhatt, James Tchong, Jephtha Curtis, Paul Chan, Matt Roe, John Rumsfeld</p> <p>Clinical SubWorkgroup-oversaw NQF application components Jephtha Curtis-chair Deepak Bhatt, James Jollis, John. Rumsfeld, Fred. Masoudi CHestPain-MI (formerly ACTION) Registry Committee-Provides strategic direction for the Registry and monitors research and clinical activities. James Jollis, Deepak Bhatt, Robert McNamara, Ivan Rokos, Michael Ross, Michael Kontos, Steve Manoukian, Harper Stone, Harry Dauerman, Gregg Fonarow, Martha Radford, James de Lemos, Tracy Wang</p>
<p>Measure Developer/Steward Updates and Ongoing Maintenance</p> <p>Ad.2 Year the measure was first released: 2008</p> <p>Ad.3 Month and Year of most recent revision: 2008</p> <p>Ad.4 What is your frequency for review/update of this measure? With dataset revisions and based on new evidence.</p> <p>Ad.5 When is the next scheduled review/update for this measure? 01, 2019</p>
<p>Ad.6 Copyright statement: American College of Cardiology Foundation All Rights Reserved</p> <p>Ad.7 Disclaimers:</p>
Ad.8 Additional Information/Comments: