



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 #: 0965

Corresponding Measures:

De.2. Measure Title: Discharge Medications (ACE/ARB and beta blockers) in Eligible ICD/CRT-D Implant Patients

Co.1.1. Measure Steward: American College of Cardiology

De.3. Brief Description of Measure: Proportion of patients undergoing ICD/CRT-D implant who received prescriptions for all medications (ACE/ARB and beta blockers) for which they are eligible at discharge.

1b.1. Developer Rationale: This measure is intended to assess the extent to which eligible patients receive evidence-based medications that are indicated at hospital discharge following ICD placement. This measure focuses on processes of care that are supported by guidelines for optimal care for patients undergoing ICD placement.

S.4. Numerator Statement: Generator patients who receive all medications for which they are eligible:

1. ACE/ARB prescribed at discharge (if eligible for ACE/ARB as described in denominator) AND
2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)

S.6. Denominator Statement: All generator patients surviving hospitalization who are eligible to receive either an ACE/ARB or beta blocker at discharge.

S.8. Denominator Exclusions: None

De.1. Measure Type: Composite

S.17. Data Source: Registry Data

S.20. Level of Analysis: Facility

IF Endorsement Maintenance – Original Endorsement Date: Feb 05, 2013 **Most Recent Endorsement Date:** Feb 19, 2016

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? N/A

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

[0965_evidence_7-1_11.21.2019.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 measure is intended to assess the extent to which eligible patients receive evidence-based medications that are indicated at hospital discharge following ICD placement. This measure focuses on processes of care that are supported by guidelines for optimal care for patients undergoing ICD placement.

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.*

Performance scores from the National Cardiovascular Data Registry's ICD Registry, a national quality improvement registry are provided below. Performance scores from 2017 and 2018 are provided from the US hospitals participating in the registry.

Measurement Year: 2017

Number of facilities: 1,674

Mean: 82.72%

Std Dev: 18.00%

100% Max: 100.00%

99%: 100.00%

95%: 100.00%

90%: 100.00%

75% Q3: 96.84%

50% Median: 87.56%

25% Q1: 74.29%

10%: 60.00%

5%: 48.39%

1%: 0.00%

0% Min: 0.00%

Measurement Year: 2018

Number of facilities: 1,574

Mean: 82.54%

Std Dev: 19.80%

100% Max: 100.00%

99%: 100.00%

95%: 100.00%

90%: 100.00%

75% Q3: 97.41%

50% Median: 87.95%

25% Q1: 75.00%

10%: 59.80%

5%: 46.67%

1%: 0.00%

0% Min: 0.00%

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.*

Performance scores from the National Cardiovascular Data Registry's ICD Registry, a national quality improvement registry are provided below. Performance scores from 2017 and 2018 stratified by gender, age, race/ethnicity, and dual eligibility are provided from the US hospitals participating in the registry.

Measurement Year: 2017

Number of facilities: 1,674

Gender - Male:

Mean: 82.88%

Std Dev: 18.50%

100% Max: 100.00%

99%: 100.00%

95%: 100.00%

90%: 100.00%

75% Q3: 97.30%

50% Median: 88.00%

25% Q1: 75.00%

10%: 60.24%

5%: 50.00%

1%: 0.00%

0% Min: 0.00%

Gender - Female:

Mean: 82.86%

Std Dev: 21.45%

100% Max: 100.00%

99%: 100.00%

95%: 100.00%

90%: 100.00%

75% Q3: 100.00%

50% Median: 90.00%

25% Q1: 75.00%

10%: 50.00%

5%: 40.00%

1%: 0.00%

0% Min: 0.00%

Age <65:

Mean: 84.18%

Std Dev: 20.33%

100% Max: 100.00%

99%: 100.00%

95%: 100.00%

90%: 100.00%

#0965 Discharge Medications (ACE/ARB and beta blockers) in Eligible ICD/CRT-D Implant Patients, Last Updated: Jul 31, 2020

75% Q3: 100.00%
50% Median: 91.04%
25% Q1: 76.92%
10%: 58.06%
5%: 50.00%
1%: 0.00%
0% Min: 0.00%

Age =>65:
Mean: 81.99%
Std Dev: 19.25%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 97.50%
50% Median: 86.96%
25% Q1: 72.73%
10%: 58.82%
5%: 44.44%
1%: 0.00%
0% Min: 0.00%

Hispanic:
Mean: 84.06%
Std Dev: 26.94%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 100.00%
25% Q1: 76.47%
10%: 50.00%
5%: 0.00%
1%: 0.00%
0% Min: 0.00%

White non-Hispanic:
Mean: 82.80%
Std Dev: 18.37%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 97.37%
50% Median: 87.87%
25% Q1: 73.68%
10%: 60.00%
5%: 50.00%
1%: 0.00%
0% Min: 0.00%

Black non-Hispanic:

Mean: 84.41%
Std Dev: 23.59%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 96.67%
25% Q1: 76.46%
10%: 50.00%
5%: 33.33%
1%: 0.00%
0% Min: 0.00%

Other:
Mean: 86.46%
Std Dev: 27.07%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 100.00%
25% Q1: 85.71%
10%: 50.00%
5%: 0.00%
1%: 0.00%
0% Min: 0.00%

Non-White:
Mean: 82.10%
Std Dev: 18.99%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 96.55%
50% Median: 87.50%
25% Q1: 73.53%
10%: 57.14%
5%: 46.54%
1%: 0.00%
0% Min: 0.00%

Dual Eligibility:
Mean: 82.68%
Std Dev: 16.24%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 95.74%
50% Median: 86.67%
25% Q1: 73.77%

#0965 Discharge Medications (ACE/ARB and beta blockers) in Eligible ICD/CRT-D Implant Patients, Last Updated: Jul 31, 2020

10%: 61.54%
5%: 50.00%
1%: 30.00%
0% Min: 0.00%

Measurement Year: 2018
Number of facilities: 1,574

Gender - Male:
Mean: 82.84%
Std Dev: 20.00%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 98.04%
50% Median: 88.89%
25% Q1: 75.00%
10%: 58.14%
5%: 47.62%
1%: 0.00%
0% Min: 0.00%

Gender - Female:
Mean: 82.43%
Std Dev: 22.90%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 91.43%
25% Q1: 75.00%
10%: 52.94%
5%: 33.33%
1%: 0.00%
0% Min: 0.00%

Age <65:
Mean: 85.22%
Std Dev: 20.87%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 92.98%
25% Q1: 78.00%
10%: 60.00%
5%: 50.00%
1%: 0.00%
0% Min: 0.00%

Age =>65:

#0965 Discharge Medications (ACE/ARB and beta blockers) in Eligible ICD/CRT-D Implant Patients, Last Updated: Jul 31, 2020

Mean: 81.78%
Std Dev: 20.91%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 98.33%
50% Median: 88.00%
25% Q1: 72.92%
10%: 55.17%
5%: 42.86%
1%: 0.00%
0% Min: 0.00%

Hispanic:
Mean: 84.76%
Std Dev: 26.16%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 100.00%
25% Q1: 77.42%
10%: 50.00%
5%: 0.00%
1%: 0.00%
0% Min: 0.00%

White non-Hispanic:
Mean: 82.68%
Std Dev: 20.47%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 98.53%
50% Median: 88.75%
25% Q1: 74.83%
10%: 58.33%
5%: 43.75%
1%: 0.00%
0% Min: 0.00%

Black non-Hispanic:
Mean: 84.84%
Std Dev: 24.60%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 100.00%
25% Q1: 78.42%

10%: 50.00%
5%: 33.33%
1%: 0.00%
0% Min: 0.00%

Other:

Mean: 86.02%
Std Dev: 28.28%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 100.00%
50% Median: 100.00%
25% Q1: 85.71%
10%: 50.00%
5%: 0.00%
1%: 0.00%
0% Min: 0.00%

Non-White:

Mean: 82.48%
Std Dev: 20.07%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 97.22%
50% Median: 88.46%
25% Q1: 75.00%
10%: 55.56%
5%: 42.11%
1%: 0.00%
0% Min: 0.00%

Dual Eligibility:

Mean: 83.04%
Std Dev: 15.94%
100% Max: 100.00%
99%: 100.00%
95%: 100.00%
90%: 100.00%
75% Q3: 96.15%
50% Median: 86.41%
25% Q1: 75.00%
10%: 61.54%
5%: 53.13%
1%: 33.33%
0% Min: 0.00%

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.

[This measure focuses on processes of care that recommended for optimal care for patients following ICD/CRT-D implantation. Each component of the measure has been shown in randomized clinical trials to impact clinical outcomes and represents a Class 1 guideline indication for the care of patients with left ventricular systolic dysfunction or prior myocardial infarction. Combining the individual process measures into a single composite provides patients, physicians, and hospitals with a perspective of the overall quality of medical therapy provided to patients undergoing ICD/CRT-D implantation. Hospitals with a gap in performance can investigate the individual components of the measure to identify specific opportunities for improvement. The content validity of this measure has been achieved by virtue of their consistency with strong guideline recommendations and the expertise of the individuals who developed this measure.](#)

[In addition, we conducted empiric analyses examining the association between performance on the composite measure and clinical outcomes including readmission and mortality at 6 months following device implantation \(see testing supplement for detailed results\). We found that patients who were discharged on appropriate medical therapy were less likely to experience adverse outcomes compared with patients who were not discharged on appropriate medical therapy. Furthermore, fewer patients treated at high performing hospitals as determined by this composite experienced adverse outcomes compared with those treated at low performing hospitals.](#)

[In addition, we conducted empiric analyses examining the association between performance on the composite measure and clinical outcomes including readmission and mortality at 6 months following device implantation \(see testing supplement for detailed results\). We found that patients who were discharged on appropriate medical therapy were less likely to experience adverse outcomes compared with patients who were not discharged on appropriate medical therapy. Furthermore, fewer patients treated at high performing hospitals as determined by this composite experienced adverse outcomes compared with those treated at low performing hospitals.](#)

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.

[This measure is intended to assess the extent to which eligible patients receive evidence-based medications that are indicated at hospital discharge following ICD/CRT-D implantation.](#)

[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 highly 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 having a composite measure endorsed at NQF.

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

Each of the components of this measure address appropriate medication prescribing at discharge for ICD/CRT-D patients.

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

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

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.)

N/A

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: [icd_v2_codersdatadictionary_2-2-637061353934779116-637088191497113357.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.

Yes

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.

The measure language was updated to further simplify and clarify the measure intent. Specifically, the denominator was expanded to also include cardiac resynchronization therapy defibrillator (CRT-D) implant patients and the exclusions for the measure were removed since they were duplicative to what is captured and calculated in the numerator. None of these changes were substantive and do not impact the measure calculation or results.

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).

Generator patients who receive all medications for which they are eligible:

1. ACE/ARB prescribed at discharge (if eligible for ACE/ARB as described in denominator) AND
2. Beta blockers prescribed at discharge (if eligible for beta blockers as described in denominator)

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).

If eligible for ACE/ARB and given, then code “Yes”

If eligible for ACE/ARB but contraindicated, then code “No – medical reason” or “No – patient reason”

If eligible for ACE/ARB and not given, then code “No, no reason”

If eligible for beta blocker and given, then code “Yes”

If eligible for beta blocker but contraindicated, then code “No – medical reason” or “No – patient reason”

If eligible for beta blocker and not given, then code “No, no reason”

If any “No, no reason” present, then performance not met. Else, performance met.

Note: Contraindicated and those participating in blinded studies are considered performance met. There are technically no exclusions or exceptions that would remove patients from the denominator.

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

All generator patients surviving hospitalization who are eligible to receive either an ACE/ARB or beta blocker at discharge.

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).

All generator patients surviving hospitalization who are eligible to receive any one of the two medication classes:

- 1) ACE/ARB: Patients who have an ejection fraction (EF) of <40%

OR

- 2) Beta blockers:

Patients have either:

- a. EF of <40% AND/OR
- b. Previous myocardial infarction (MI)

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

None

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.)

N/A

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.)

- 1) Check if given patient survived hospitalization and is eligible for 1 of the 2 medication therapies.
- 2) If eligible for at least 1 medication, then keep this patient.
- 3) If not eligible for any of the 2 medications, then patient is removed from eligibility.

If eligible for ACE/ARB and given, then code “Yes”

If eligible for ACE/ARB and not given, then code “No, no reason”

If eligible for ACE/ARB but contraindicated, then code “No – medical reason” or “No – patient reason”

If eligible for Beta Blocker and given, then code then “Yes”

If eligible for Beta Blocker and not given, then code “No, no reason”

If eligible for Beta Blocker but contraindicated, then code “No – medical reason” or “No – patient reason”

- 4) If any “No, no reason” present, then performance not met. Else, performance met.

Although ineligible cases are removed from the denominator population for the performance calculation, the number of patients with valid exceptions should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI.

If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure.

Missing data defaults to “performance not met” This measure assumes that missing documentation on the process results in a failure of meeting an evidence based therapy.

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.

N/A

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.

N/A

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

If other, please describe in S.18.

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.

National Cardiovascular Data Registry (NCDR) ICD Registry

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 in attached appendix at A.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.)

N/A

2. Validity – See attached Measure Testing Submission Form
0965_composite_testing_attachment_11.21.2019.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.

No

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 by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition, Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

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).

There is no eCQM specification for this measure.

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.

Availability:

Participating hospitals report patient demographics, medical history, risk factors, hospital presentation, initial cardiac status, procedural details, medications, laboratory values and in-hospital complications. All of the 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.

Sampling:

There is no sampling of patient data allowed within the contractual terms of participation in the ICD Registry in NCDR. 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 ICD implanted. 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:

Patient confidentiality is preserved as the data are in aggregate form. The ICD Registry dataset, comprised of approximately 320 data elements, was created by a panel of experts using available ACC-AHA guidelines, 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. The proposed measure does not include a patient survey. Physician and/or institutional confidentiality are maintained by de-identified dashboard reports. There is no added procedural risk to patients through involvement in the ICD 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 implement 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.

Time of Data collection:

1 Full time employee can enter on average roughly 1200 patient records per year (citation: ACC Marketing Intelligence Team).

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).

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.

It should be noted that the centers already have to participate in this specific registry for reimbursement purposes so that currently almost all hospitals that implant ICDs in Medicare populations already participate. Hence there is no additional cost.

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.

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

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 ICD Registry:

National quality improvement registry intended to improve the quality of care provided to patients receiving ICD therapy since its inception in 2005. 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 1,600 participating sites with 1,449,976 cumulative records as of Q2 2019.

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 ICD 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 ICD registry report on the following: patient demographics; provider and facility characteristics; adverse event rates; ICD performance measures and select quality measures and outcomes and 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.

The data elements are clear and are supported by the guidelines.

The benefits to these measures are they are supported by the guidelines and promote process improvement initiatives. The ICD registry has stringent coding requirements for the medications and thus improved documentation is required to support the coding of these measures.

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

The users reported that the ICD Registry helped them with the documentation at their sites and that enabled them to easily do quality improvement projects.

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.

The measure language was updated to further simplify and clarify the measure intent but the changes were not substantive. Specifically, the denominator was expanded to also include cardiac resynchronization therapy defibrillator (CRT-D) implant patients and the exclusions for the measure were removed since they were duplicative to what is captured and calculated in the numerator. These changes did not generate any feedback from participants.

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.

While the mean rate of performance for this composite across participating facilities was greater than 80% for 2017 and 2018, opportunities for improvement across facilities continue to exist with some facilities demonstrating low performance scores (<50% in the 5th percentile). Progress toward improvements overall has been made when the current mean rate is compared to the mean rate of 74% when the measure was first released (2011-2012).

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 testing or implementation.

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)

0066 : Coronary Artery Disease (CAD): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy - Diabetes or Left Ventricular Systolic Dysfunction (LVEF < 40%)

0070 : Coronary Artery Disease (CAD): Beta-Blocker Therapy-Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF < 40%)

0070e : Coronary Artery Disease (CAD): Beta-Blocker Therapy-Prior Myocardial Infarction (MI) or Left Ventricular Systolic Dysfunction (LVEF < 40%)

0071 : Persistence of Beta-Blocker Treatment After a Heart Attack
0081 : Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)
0081e : Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) or Angiotensin Receptor-Neprilysin Inhibitor (ARNI) Therapy for Left Ventricular Systolic Dysfunction (LVSD)
0083 : Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)
0117 : Beta Blockade at Discharge
0236 : Coronary Artery Bypass Graft (CABG): Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
0594 : Post MI: ACE inhibitor or ARB therapy

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

Note also 0696: STS composite score. section 5.1a. Confirmed with the NQF Quality Positioning System that this measure is still endorsed.

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.

Measure #0965 is a subset of other measures and the measures are completely harmonized with the exception of one area. It appears that only one measure (#81e) currently includes prescribing of ARNI as an acceptable therapy in the numerator. We assume that the other measures be updated to reflect the current evidence and there is no need for further harmonization.

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.)

N/A

Appendix

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.

Attachment **Attachment:** [icd_v2_codersdatadictionary_2-2-637001858309276129-637061353942435374-637088191502603381.pdf](#)

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): American College of Cardiology

Co.2 Point of Contact: Jarrott, Mayfield, jmayfield@acc.org, 202-375-6572-

Co.3 Measure Developer if different from Measure Steward: American College of Cardiology Co.4 Point of Contact: Beth, Denton, bdenton@acc.org, 202-375-6631-
Additional Information
Ad.1 Workgroup/Expert Panel involved in measure development Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development. 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 electrophysiology. Serial phone calls were held to both define the eligible population and given process. These clinical leaders are noted below. NCDR Clinical Subworkgroup ensured the measure demonstrated an opportunity for improvement, had strong clinical evidence, and was a reliable and valid measure. These members included Drs. Jephtha Curtis (Chair), Frederick Masoudi, John Rumsfeld, Matt Reynolds, and Mark Kremers. NCDR Scientific Quality and Oversight Committee—a committee that 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.
Measure Developer/Steward Updates and Ongoing Maintenance Ad.2 Year the measure was first released: 2011 Ad.3 Month and Year of most recent revision: 02, 2015 Ad.4 What is your frequency for review/update of this measure? With dataset revisions and based on new evidence. Ad.5 When is the next scheduled review/update for this measure? 11, 2019
Ad.6 Copyright statement: American College of Cardiology Foundation All Rights Reserved Ad.7 Disclaimers: ACC realizes the various NCDR endorsed measures are not readily available on their own main webpage. However, ACCF plans to update their main webpage (acc.org) to include the macrospecifications of the NQF endorsed measures. ACC hopes to work collaboratively with NQF to create a consistent and standard format would be helpful for various end users. In the interim, the supplemental materials include the details needed to understand this model. In addition, interested parties are always able to contact comment@acc.org to reach individuals at the ACC Quality Measurement Team.
Ad.8 Additional Information/Comments: ACC appreciates the opportunity to submit measures for this NQF endorsement maintenance project.