



## 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 #: 0643**

**Corresponding Measures:**

**De.2. Measure Title:** Cardiac Rehabilitation Patient Referral From an Outpatient Setting

**Co.1.1. Measure Steward:** American College of Cardiology

**De.3. Brief Description of Measure:** Percentage of patients evaluated in an outpatient setting who in the previous 12 months have experienced an acute myocardial infarction or chronic stable angina or who have undergone coronary artery bypass (CABG) surgery, a percutaneous coronary intervention (PCI), cardiac valve surgery (CVS), or cardiac transplantation, who have not already participated in an early outpatient cardiac rehabilitation/secondary prevention program for the qualifying event, and who are referred to an outpatient cardiac rehabilitation/secondary prevention program.

**1b.1. Developer Rationale:** 1. Cardiac rehabilitation/secondary prevention programs (CR/SP) improve patient outcomes, including quality of life, function, recurrent myocardial infarction, and mortality.

2. CR/SP is underutilized with geographic variability and decreased participation by patients with economic disadvantages, women and older patients.

3. The CR/SP performance measures were developed for use in systematic quality improvement projects to close this treatment gap.

4. Use of systematic referral processes and tools have been shown to increase CR/SP referral.

5. Enrollment and participation in CR/SP, not referral, have been shown to improve patient outcomes. However, referral is necessary for patients to enroll and participate in CR/SP. The strength of provider referral to CR has been shown to correlate with participation in CR.

6. ACC recognizes previous comments from the NQF with regard to the inclusion of patients with Chronic Stable Angina (CSA) in this measure set. Measure authors have discussed these comments and have agreed to include CSA patients in this measure as many of these patients do improve from a symptomatic and functional perspective with exercise training/cardiac rehab. Also, referring patients with CSA to cardiac rehab is an accepted standard of care and is covered by CMS as well. Furthermore, measure authors are concerned that removing CSA from the measure may inadvertently send an incorrect message that it is not expected that providers refer patients to cardiac rehab.

**S.4. Numerator Statement:** Number of patients in an outpatient clinical practice who have had a qualifying event/diagnosis during the previous 12 months, who have been referred to an outpatient Cardiac Rehabilitation/Secondary Prevention (CR/SP) program. (Note: The program may include a traditional CR/SP program based on face-to-face interactions and training sessions or may include other options such as home-based approaches. If alternative CR/SP approaches are used, they should be designed to meet appropriate safety standards and deliver effective, evidence-based services.)

**S.6. Denominator Statement:** Number of patients in an outpatient clinical practice who have had a qualifying cardiovascular event in the previous 12 months and who do not meet any of the criteria listed in the denominator exclusion section below, and who have not participated in an outpatient cardiac rehabilitation program since the qualifying event/diagnosis.

**S.8. Denominator Exclusions:** Exceptions criteria require documentation of one or more of the following factors that may prohibit cardiac rehabilitation participation: Medical factors (e.g., patient deemed by provider to have a medically unstable, life-threatening condition). Health care system factors (e.g., no cardiac rehabilitation/secondary prevention (CR/SP) program available within 60 min of travel time from the patient's home).

The only exclusion criterion for this measure is noted below: Patients already referred to CR from another provider/facility and/or was participating in CR prior to encounter with provider at the current office/facility.(1) When the provider discusses CR/SP referral with the patient, if the patient indicates that he/she has already been referred to CR/SP, then that provider would not be expected to make another referral. However, the provider should document that information in the medical record.Exceptions criteria require documentation of one or more of the following factors that may prohibit cardiac rehabilitation participation: Medical factors (e.g., patient deemed by provider to have a medically unstable, life-threatening condition). Health care system factors (e.g., no cardiac rehabilitation/secondary prevention (CR/SP) program available within 60 min of travel time from the patient's home).

The only exclusion criterion for this measure is noted below: Patients already referred to CR from another provider/facility and/or was participating in CR prior to encounter with provider at the current office/facility.(1) When the provider discusses CR/SP referral with the patient, if the patient indicates that he/she has already been referred to CR/SP, then that provider would not be expected to make another referral. However, the provider should document that information in the medical record.

**De.1. Measure Type:** Process

**S.17. Data Source:** Electronic Health Records, Registry Data

**S.20. Level of Analysis:** Clinician : Group/Practice, Clinician : Individual, Integrated Delivery System

**IF Endorsement Maintenance – Original Endorsement Date:** May 05, 2010 **Most Recent Endorsement Date:** Sep 08, 2014

**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 is not a paired 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**

[0643\\_NQF\\_evidence\\_attachment\\_Sep2017.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.*

1. Cardiac rehabilitation/secondary prevention programs (CR/SP) improve patient outcomes, including quality of life, function, recurrent myocardial infarction, and mortality.
2. CR/SP is underutilized with geographic variability and decreased participation by patients with economic disadvantages, women and older patients.
3. The CR/SP performance measures were developed for use in systematic quality improvement projects to close this treatment gap.
4. Use of systematic referral processes and tools have been shown to increase CR/SP

referral.

5. Enrollment and participation in CR/SP, not referral, have been shown to improve patient outcomes. However, referral is necessary for patients to enroll and participate in CR/SP. The strength of provider referral to CR has been shown to correlate with participation in CR.

6. ACC recognizes previous comments from the NQF with regard to the inclusion of patients with Chronic Stable Angina (CSA) in this measure set. Measure authors have discussed these comments and have agreed to include CSA patients in this measure as many of these patients do improve from a symptomatic and functional perspective with exercise training/cardiac rehab. Also, referring patients with CSA to cardiac rehab is an accepted standard of care and is covered by CMS as well. Furthermore, measure authors are concerned that removing CSA from the measure may inadvertently send an incorrect message that it is not expected that providers refer patients to cardiac rehab.

**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 attachment in Appendix (A1).

**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.**

1. Thomas RJ, Miller NH, Lamendola C, Berra K, Hedbäck B, Durstine JL, Haskell W. National Survey on Gender Differences in Cardiac Rehabilitation Programs. Patient characteristics and enrollment patterns. J Cardiopulm Rehabil. 1996 Nov-Dec;16(6):402-12.
2. Centers for Disease Control and Prevention (CDC). Receipt of outpatient cardiac rehabilitation among heart attack survivors--United States, 2005. MMWR Morb Mortal Wkly Rep. 2008 Feb 1;57(4):89-94.
3. Suaya J, Shepard DS, Normand SL, Ades PA, Prottas J, Stason WB. Use of cardiac rehabilitation by Medicare beneficiaries after myocardial infarction or coronary bypass surgery. Circulation. 2007 Oct 9;116(15):1653-62.
4. Curnier DY, Savage PD, Ades PA. Geographic distribution of cardiac rehabilitation programs in the United States. J Cardiopulm Rehabil. 2005 Mar-Apr;25(2):80-4.
5. Grace SL, Gravely-Witte S, Bruhal J, Monette G, Suskin N, Higginson L, Alter DA, Stewart DE. Contribution of patient and physician factors to cardiac rehabilitation enrollment: a prospective multilevel study. Eur J Cardiovasc Prev Rehabil. 2008 Oct;15(5):548-56

**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.*  
See attachment in Appendix (A1).

**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**

According to a CR referral study in the MI patient population, referral rates improved across gender and racial/ethnic groups, but still remained higher in males and whites.

Beatty AL, Li S, Thomas L, et al. Trends in referral to cardiac rehabilitation after myocardial infarction: data from the National Cardiovascular Data Registry 2007 to 2012. J Am Coll Cardiol. 2014;63:2582-3.

Gaps in delivery of cardiac rehabilitation have been documented in the published literature. That gap is particularly pronounced in women, the elderly, and in racial/ethnic minority groups.

References:

Thomas RJ, Miller NH, Lamendola C, Berra K, Hedbäck B, Durstine JL, Haskell W.

National Survey on Gender Differences in Cardiac Rehabilitation Programs. Patient characteristics and enrollment patterns. J Cardiopulm Rehabil. 1996 Nov-Dec;16(6):402-12.

Suaya JA, Shepard DS, Normand SL, Ades PA, Prottas J, Stason WB. Use of cardiac rehabilitation by Medicare beneficiaries after myocardial infarction or coronary bypass surgery. Circulation. 2007 Oct 9;116(15):1653-62.

## 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, Cardiovascular : Coronary Artery Disease, Cardiovascular : Coronary Artery Disease (AMI), Cardiovascular : Coronary Artery Disease (PCI), Surgery : Cardiac Surgery

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

Primary Prevention

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

Elderly, Populations at Risk, Populations at Risk : Individuals with multiple chronic conditions

**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.)

<http://content.onlinejacc.org/article.aspx?articleid=1138518>

**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: [pinn\\_v1\\_datadictionaryfullspecifications\\_1-5.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 since our submission in 2012.

**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).*

Number of patients in an outpatient clinical practice who have had a qualifying event/diagnosis during the previous 12 months, who have been referred to an outpatient Cardiac Rehabilitation/Secondary Prevention (CR/SP) program. (Note: The program may include a traditional CR/SP program based on face-to-face interactions and training sessions or may include other options such as home-based approaches. If alternative CR/SP approaches are used, they should be designed to meet appropriate safety standards and deliver effective, evidence-based services.)

**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).*

All information required to collect/calculate the numerator, including all codes, logic, and definitions):

Qualifying events include all patients who within the past 12 months experienced myocardial infarction (MI), coronary artery bypass graft surgery (CABG), percutaneous coronary intervention (PCI), cardiac valve surgery, heart transplantation, and/or who have a current diagnosis of chronic stable angina. A referral is defined as an official communication between the healthcare provider and the patient to recommend and carry out a referral order to an outpatient CR program. This includes the provision of all necessary information to the patient that will allow the patient to enroll in an outpatient CR program. This also includes a written or electronic communication between the healthcare provider or healthcare system and the cardiac rehabilitation program that includes the patient's enrollment information for the program. A hospital discharge summary or office note may potentially be formatted to include the necessary patient information to communicate to the CR program (e.g., the patient's cardiovascular history, testing, and treatments). According to standards of practice for cardiac rehabilitation programs, care coordination communications are sent to the referring provider, including any issues regarding treatment changes, adverse treatment responses, or new nonemergency condition (new symptoms, patient care questions, etc.) that need attention by the referring provider. These communications also include a progress report once the patient has completed the program. All communications must maintain an appropriate level of confidentiality as outlined by the 1996 Health Insurance Portability and Accountability Act (HIPAA).

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

Number of patients in an outpatient clinical practice who have had a qualifying cardiovascular event in the previous 12 months and who do not meet any of the criteria listed in the denominator exclusion section below, and who have not participated in an outpatient cardiac rehabilitation program since the qualifying event/diagnosis.

**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).*

N/A

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

Exceptions criteria require documentation of one or more of the following factors that may prohibit cardiac rehabilitation participation: Medical factors (e.g., patient deemed by provider to have a medically unstable, life-threatening condition). Health care system factors (e.g., no cardiac rehabilitation/secondary prevention (CR/SP) program available within 60 min of travel time from the patient's home).

The only exclusion criterion for this measure is noted below: Patients already referred to CR from another provider/facility and/or was participating in CR prior to encounter with provider at the current office/facility.(1) When the provider discusses CR/SP referral with the patient, if the patient indicates that he/she has already been referred to CR/SP, then that provider would not be expected

to make another referral. However, the provider should document that information in the medical record. Exceptions criteria require documentation of one or more of the following factors that may prohibit cardiac rehabilitation participation: Medical factors (e.g., patient deemed by provider to have a medically unstable, life-threatening condition). Health care system factors (e.g., no cardiac rehabilitation/secondary prevention (CR/SP) program available within 60 min of travel time from the patient's home).

The only exclusion criterion for this measure is noted below: Patients already referred to CR from another provider/facility and/or was participating in CR prior to encounter with provider at the current office/facility. (1) When the provider discusses CR/SP referral with the patient, if the patient indicates that he/she has already been referred to CR/SP, then that provider would not be expected to make another referral. However, the provider should document that information in the medical record.

**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.)*

Exceptions:

All eligible patients who can participate in even a low intensity exercise program and who have the cognitive ability to carry out the individualized education and counseling to life-long secondary prevention efforts should be referred to cardiac rehabilitation/secondary prevention programs, because morbidity and mortality benefits extend to nearly all patient populations, regardless of age or co-morbidities. As a result, the exception examples included in the performance measure relate to either the patient's inability to attend an exercise program (due to physical or practical obstacles) or to cognitive deficits which make them unable to actively participate in exercise or to apply secondary prevention recommendations.

Examples, justification, and data collection issues for exceptions for this measure;

1. Medical factors (e.g., patient deemed by provider to have a medically unstable, life-threatening condition): Medically unstable, life-threatening conditions are contraindications to aerobic exercise and require medical efforts to stabilize and reverse those conditions, rather than efforts directed at secondary prevention of cardiovascular disease. Objective criteria for contraindications to exercise training are included in AHA, ACC, and AACVPR statements and guidelines, which are readily available to practicing clinicians and abstractors. After the condition has been stabilized or reversed, then referral to CR/SP is appropriate. Providers document the specific reason for this exception in clinical notes, summaries and problem lists, which can be abstracted.
2. Health care system factors (e.g., no cardiac rehabilitation program available within 60 minutes of travel time from the patient's home): Although some patients may do so, it is not practical to expect a patient to drive for 2 hours 2 or 3 times per week in order to attend a program that lasts for 1 to 2 hours and research has shown that distance to CR/SP is inversely correlated with attendance. We chose 60 minutes (assuming average 30 mph driving speed) based on published data showing that the adjusted odds ratio (OR) to attend CR/SP decreased as the distance from patient zip code to nearest CR/SP facility increased, with the greatest decline between 10.2 (6.5-14.9) miles (OR 0.58) to 31.8 (15.0-231.0) miles (OR 0.29). Although alternative delivery models such as those using telemedicine or home care may be developed in future to provide CR/SP, currently there is no reimbursement for these programs. Therefore, it is unreasonable to hold the provider responsible to refer a patient to a program that he/she is highly unlikely to attend. Providers can determine availability of CR/SP programs from on-line or local resources and document this exception in the medical record. Abstractors can verify the exceptions by cross-referencing the patient's address with publicly available lists of CR/SP program locations.

**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.)*

Measure was not stratified. Since all patient sub-groups are reported to have low referral rates and low utilization rates for cardiac rehabilitation services, there is no specific requirement to report data on this performance measure in a stratified format. However, medical centers are encouraged to utilize any stratification of their data as they use the performance measure to identify suboptimal processes and also subgroups at particular risk that are under their care. Such stratification could include stratification by gender, ethnicity, and/or age, since these variables have been found to identify subpopulations that are at particular risk for non-referral to CR/SP in some cities and regions.

**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.)

ACC PINNACLE Registry Calculation: Practice ID present= YES AND Provider NPI= YES AND Age at start of measurement period is 18 years or older= YES AND Encounter Date is in the reporting date= YES AND Qualifying Event: Myocardial Infarction (within 12 months) =YES OR Qualifying Event: Coronary Artery Bypass Graft (Within 12 months) = YES OR

Qualifying Event: Cardiac Valve Surgery (Within 12 months)= YES OR Qualifying Event: Heart Transplantation =YES OR Qualifying Event: Stable Angina (within 12 months) AND Current Diagnosis= YES OR Qualifying Event: PCI-stent (within 12 months)= YES OR Qualifying Event: PCI- other (non-stent) intervention= YES AND Yes, Patient already participating in rehab= NO AND Cardiac Rehab Referral or Plan for qualifying event/diagnosis in the past 12 months= YES And Referral Plan Documented= YES

AACVPR/ACC/AHA Cardiac Rehabilitation Referral Reliability Testing (CR3): Hospital ID present = YES AND Subject ID = YES AND \*Provider NPI = YES AND Age at start of measurement period is 18 years or older = YES AND Qualifying Event: Myocardial Infarction = YES OR Qualifying Event: Coronary Artery Bypass Graft = YES OR Qualifying Event: Cardiac Valve Surgery = YES OR Qualifying Event: Heart Transplantation = YES OR Qualifying Event: Stable Angina = YES OR Qualifying Event: PCI-stent = YES OR Qualifying Event: PCI-other intervention = YES AND Yes, documentation that patient was referred to CR for this event/diagnosis \*Since the data for the CR3 Project were processed through the NCDR-PINNACLE Center, NPI was used to help process the data in accordance with the software used at the Center, which requires an NPI on each report. However, since the purpose of the CR3 Project was to assess reliability of the chart abstraction process and not to assess the variability of CR/SP referral by providers, we opted to analyze the CR/SP

referral rates by site, and to use the site NPI for data processing purposes only.

**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.

This performance measure is not based on a sample.

**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.

This performance measure is not based on survey or patient-reported data

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

If other, please describe in S.18.

Electronic Health Records, 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.

American College of Cardiology PINNACLE registry and AACVPR/ACC/AHA Cardiac Rehabilitation Testing (CR3) Project.

**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)

No data collection instrument provided

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

Clinician : Group/Practice, Clinician : Individual, Integrated Delivery System

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

Outpatient Services

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**

[NQF\\_testing\\_attachment\\_Sep2017\\_NQF\\_0643-636469500187781709.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.*

No

### **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.**

[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**.

[Some data elements are in defined fields in electronic sources](#)

**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).**



ACC is in the process of developing a common data dictionary mapped to coded terminology standards with the intent of improving interoperability with EHRs and potentially creation of eMeasures

**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.

ACC PINNACLE Registry:

PINNACLE project managers with clinical backgrounds provide significant support to local practices collecting data for PINNACLE. Unfortunately even with this support, experience has shown that clinicians still do not document this measure even if a patient has been referred to CR. It is hoped that CMS through its various initiatives will incentivize clinicians to both ensure eligible patients are being referred to a rehabilitation facility AND to be sure they are properly document the measure correctly.

ACC Cardiology Practice Improvement Pathway:

Although this program is now sunsetted, we learned it is hard to capture the difference between those already participating in CR vs. those referred to CR because of the long measurement window.

AACVPR/ACC/AHA CR3 Project:

The CR3 Project found that data abstraction of the CR/SP performance measure for referral from an inpatient setting is highly reliable, valid and feasible. However, we learned something about the definition of referral that will be a focus of future study and consideration.

CR/SP Referral is defined as including these 3 components:

- 1.) Documentation that patient was referred
- 2.) Communication (electronic/written) that referral information was given to patient
- 3.) Communication (electronic/written) that the receiving CR site was given patient's referral information.

Current practices and existing registries have typically only required the first component (i.e., any documentation that the patient was referred) in order to meet the performance measure (option 1). Because of this fact, we performed our reliability testing and predictive validity testing using this definition of referral. However, we recognize that the use of a stricter definition of referral that includes all 3 components listed above may increase the predictive validity of the measure (i.e., may increase the percentage of referred patients who enroll in CR/SP). Going forward, with the advent of better data collection systems we expect to be able to test the hypothesis that a stricter definition of CR/SP referral will increase enrollment in CR/SP.

**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).**

None

## **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

PINNACLE Registry (URL: <http://www.ncdr.com/webncdr/pinnacle/>).

The PINNACLE Registry, part of the NCDR, is the largest ambulatory registry of its kind with over 26 million patient encounters from 8.9 million unique patients. It collects data from over 4,800 cardiologists, nurse practitioners (NPs), and physician assistants (PAs), largely using a system capable of directly extracting relevant information from electronic health records, as referenced above. The primary purpose of the PINNACLE Registry is facilitating improvement in outpatient cardiovascular care quality and, by extension, improving patient outcomes. Utilizing established guidelines and performance measures, the PINNACLE Registry was designed to drive care improvement by reducing inappropriate variations in care, eliminating gaps in care, and improving care coordination for patients with cardiovascular diseases. The PINNACLE Registry assists practices in understanding and improving care through on demand performance reports for data-submitting practices and physicians. These reports, covering all valid patient encounters, detail adherence to over 30 cardiovascular clinical measures at the physician, location, and practice levels across coronary artery disease, hypertension, heart failure, and atrial fibrillation.

URL: <https://qpp.cms.gov/> (Centers for Medicare and Medicaid Services):

The Merit-based Incentive Payment System (MIPS) is part of the quality payment program (QPP) which provides eligible Medicare professionals with a performance-based payment adjustment. In 2017, in order to be part of the QPP program, an eligible professionals would need to have billed Medicare more than \$30,000 in Part B allowed charges a year and provide care for more than 100 Medicare patients a year. The MIPS payment adjustment for eligible professionals is determined on the data submitted as well as the duration of the data being submitted. It is our understanding that CMS is also planning to move towards publicly reporting physician data via Physician Compare.

**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?)**

Physicians who opt in to report on this measure for QPP/MIPS, are by extension agreeing for it to be reported on Physician Compare.

We are continuously seeking opportunities to advocate for expanded use of this measure in government or other programs, including those intended for accountability or public reporting. The ACC, AHA and AACVPR do not have any policies that would restrict access to the performance measure specifications or results or that would impede implementation of the measure for any application. We would welcome its implementation in emerging applications such as accountable care organizations (ACO), Medicare Advantage insurance plans or health plans selling on the new insurance marketplace.

**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.)*

**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.**

Data are provided monthly via the PINNACLE Physician Dashboard to all PINNACLE participants. The dashboard provides a list of patients that met performance and did not meet performance on the measures. Algorithms and additional measure logic is available for the physician to review and understand how patients are captured. PINNACLE participants also work with client account managers to ensure that the data are being captured accurately from the electronic health record.

**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.**

Data are provided monthly via the PINNACLE Physician Dashboard. The dashboard provides a list of patients that met performance and did not meet performance. Algorithm and additional measure logic is available for the physician to review and understand how patients are captured. PINNACLE participants work with client account managers that work with the practice to ensure that the data are being captured accurately from the electronic health record.

PINNACLE Participants also have access to Quality Improvement Toolkits available at the QII website.

**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.**

No feedback was obtained.

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

No feedback was obtained.

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

No feedback was obtained.

**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

#### **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.**

There does not appear to be a demonstrated improvement with a performance rate change of cardiac rehab referral of 5.5% in 2015 to 5.4% 2016. However, a study conducted on trends in referral to cardiac rehab after myocardial infarction showed a statistically significant increase in referral rates from 2007 to 2012(1). Furthermore, a study from the Centers for Disease Control and Prevention that looked at the use of outpatient cardiac rehabilitation among heart attack survivors in various states, found that after a heart attack, patients using cardiac rehab were 53% less likely to experience cardiac-related mortality than were those who did not use cardiac rehab (2). Based on the literature, we believe that continued implementation of the measure will lead to greater awareness and accountability among providers and accelerate improvements in referral (and enrollment) rates.

**Citations:**

- (1) Beatty AL, Li S, Thomas L, et al. Trends in referral to cardiac rehabilitation after myocardial infarction: data from the National Cardiovascular Data Registry 2007 to 2012. J Am Coll Cardiol. 2014;63:2582-3.
- (2) Fang J, Ayala C, Luncheon C, et al. Use of Outpatient Cardiac Rehabilitation Among Heart Attack Survivors - 20 States and the District of Columbia, 2013 and Four States, 2015. MMWR Morb Mortal Wkly Rep. 2017;66:869-73.

**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.**

No unintended negative consequences have been identified via our testing projects nor have any been reported to us by users of the measure.

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

None.

**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.

No

**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.**

**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?**

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

**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:** [0643\\_NQF\\_Submissions\\_Outpatient\\_Supplemental\\_Materials\\_20171122\\_FINAL.pdf](#)

## Contact Information

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

**Co.2 Point of Contact:** Sana, Gokak, [comment@acc.org](mailto:comment@acc.org), 202-375-6596-

**Co.3 Measure Developer if different from Measure Steward:** American College of Cardiology

**Co.4 Point of Contact:** Esteban, Perla, [eperla@acc.org](mailto:eperla@acc.org), 202-375-6499-

## 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.**

Randal J. Thomas, MD, MS, FAHA, FACP, Chair; Marjorie King, MD, FACC, FAACVPR, member; Karen Lui, RN, C, MS, FAACVPR, member; Ileana L. Piña, MD, FACC, member; John Spertus, MD, MPH, FACC, member; Neil Oldridge, PhD, FAACVPR

The expert workgroup reviewed the available guidelines and other evidence, proposed and specified measures, responded to comments during peer review and public comment, continues to advise on additional specification of the measure and updates.

**Measure Developer/Steward Updates and Ongoing Maintenance**

**Ad.2 Year the measure was first released:** 2007

**Ad.3 Month and Year of most recent revision:** 09, 2010

**Ad.4 What is your frequency for review/update of this measure?** Approximately every 3 years or as needed if evidence changes or due to feedback from implementation

**Ad.5 When is the next scheduled review/update for this measure?** 06, 2016

**Ad.6 Copyright statement:** Copyright 2010, American Association for Cardiovascular and Pulmonary Rehabilitation, American College of Cardiology Foundation and the American Heart Association

**Ad.7 Disclaimers:** These measures and specifications are provided "as is" without warranty of any kind. Neither the AACVPR, the ACCF, nor the AHA shall be responsible for any use of these performance measures.

Limited proprietary coding is contained in the measure specifications (online data supplement) for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AACVPR, the ACCF, and the AHA disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT™) or other coding contained in the specifications. CPT™ contained in the online data supplement is ©2009 American Medical Association.

**Ad.8 Additional Information/Comments:** None