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PERFORMANCE AND QUALITY MEASURES

2025 AHA/ACC Clinical Performance and Quality Measures for Patients With Chronic Coronary Disease: A Report of the American College of Cardiology/American Heart Association Joint Committee on Performance Measures

Developed in Collaboration With the American College of Clinical Pharmacy, American Society for Preventive Cardiology, Preventive Cardiovascular Nurses Association, and the Society for Cardiovascular Angiography and Interventions

Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation, American Society of Nuclear Cardiology, Association of Black Cardiologists, and the Society for Cardiovascular Magnetic Resonance

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ABSTRACT: Chronic coronary disease (CCD) is the leading cause of death in the United States. There is an ongoing imperative to disseminate evidence-based and patient-centered care recommendations that further align the management of patients with CCD to updated evidence-based guidelines. The writing committee developed a comprehensive CCD measure set comprising 10 performance measures and 3 quality measures, the focus of which is to include practical steps to specifically advance care in the CCD population. The measure set begins with an assessment of tobacco use and evidence-based cessation interventions. Also included are topics such as antiplatelet therapy, lipid assessment and low-density lipoprotein cholesterol goals, and guideline-directed management and therapy for hypertension and reduced left ventricular dysfunction in patients with CCD. The measure set concludes with an emphasis on the importance of cardiac rehabilitation referral and patient education, including symptom management and lifestyle modification.

Key Words: Key Words: AHA Scientific Statements ■ chronic coronary disease ■ performance measures ■ quality indicators ■ quality measures

*Writing committee members are required to recuse themselves from voting on measures to which their specific relationships with industry may apply. †ACC/AHA Joint Committee on Performance Measures. ‡Preventive Cardiovascular Nurses Association representative. §AHA/ACC joint staff representative. ‖American Society for Preventive Cardiology representative. ¶Society for Cardiovascular Angiography and Interventions representative. #2023 AHA/ACC Chronic Coronary Disease Guideline liaison. **American College of Clinical Pharmacy representative.

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TABLE OF CONTENTS

TOP 10 TAKE-HOME MESSAGES FOR CHRONIC CORONARY DISEASE

1. This document describes performance measures for chronic coronary disease that are appropriate for public reporting or pay-for-performance programs.
2. The performance measures are from the "2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Guideline for the Management of Patients With Chronic Coronary Disease" and are selected from the strongest recommendations (Class 1 or 3).
3. Quality measures are also provided that are not yet ready for public reporting or pay for performance but might be useful to clinicians and health care organizations for quality improvement.
4. Improved patient outcomes and reduced use of health care are significant reasons for the inclusion of an assessment of patient smoking status and counseling for cessation that includes behavioral or pharmacologic intervention.
5. Several performance measures address appropriate antiplatelet therapy, medication selection for antihypertensive therapy, high-intensity statin use, and appropriate medical therapy for patients with chronic coronary disease with reduced ejection fraction.
6. A performance measure focusing on inappropriate invasive and noninvasive testing is included that addresses the overuse of testing in patients with otherwise stable chronic coronary disease.
7. A performance measure is included that reflects the expanding indications for cardiac rehabilitation, emphasizing the increasing importance of cardiac rehabilitation referral.
8. A quality measure examining low-density lipoprotein cholesterol targets is included to optimize control of low-density lipoprotein levels in chronic coronary disease by attaining a 50% reduction in low-density lipoprotein and low-density lipoprotein cholesterol levels of <70 mg/dL.

9. For all measures, if the clinician determines the care is inappropriate for the patient, that patient is excluded from the measure.
10. For all measures, patients who decline treatment or care are excluded.

PREAMBLE

The American College of Cardiology (ACC)/American Heart Association (AHA) performance measurement sets serve as vehicles to accelerate the translation of scientific evidence into clinical practice. Measure sets developed by the ACC/AHA are intended to provide practitioners and institutions that deliver cardiovascular services with tools to measure the quality of care and identify opportunities for improvement.

Writing committees are instructed to follow the methodology for performance development[1,2] and to ensure that the measures developed are aligned with ACC/AHA clinical practice guidelines. The writing committees are also charged with constructing measures that maximally capture important aspects of care quality, including timeliness, safety, effectiveness, efficiency, equity, and patient-centeredness, while minimizing, when possible, the reporting burden imposed on hospitals, practices, and practitioners.

Potential challenges related to performance measure implementation may lead to unintended consequences. How recommended measures are implemented is dependent on several factors, including the measure's design, data collection method, performance attribution, baseline performance rates, reporting methods, and incentives linked to these reports.

The ACC/AHA Joint Committee on Performance Measures (Joint Committee) distinguishes performance measures from quality measures. Performance measures are generally selected from the highest level of evidence, usually from Class 1 or 3 recommendations of clinical practice guidelines. They are commonly used for national quality improvement efforts, public reporting, and pay-for-performance programs. In contrast, quality measures have weaker or growing evidence for benefit (eg, Class 2a or 2b) and therefore *may* be useful for local quality improvement but are not yet appropriate for public reporting or pay-for-performance programs. New measures are initially evaluated for potential inclusion as performance measures. For those measures where evidence may be weak or further evaluation or testing is required to understand implementation challenges, the ACC/AHA writing committee members may recommend classifying them as quality measures. Over time and with more research and validation, quality measures may then be promoted to performance measure status. The published ACC/AHA guideline sets for performance measurement are important implementation tools for the transformation and dissemination of advancements in cardiovascular care.

Boback Ziaeian, MD, PhD, FACC, FAHA
Chair, ACC/AHA Joint Committee
on Performance Measures

1. INTRODUCTION

In 2024, the Joint Committee convened the writing committee to begin the process of updating the measures from the "ACCF/AHA/AMA–PCPI 2011 Performance Measures for Adults With Coronary Artery Disease and Hypertension."[3] The writing committee was also charged with the task of developing new measures to evaluate the care of patients with chronic coronary disease (CCD) in accordance with the "2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Guideline for the Management of Patients With Chronic Coronary Disease."[4]

This performance measure set addresses care of CCD in the outpatient setting, consistent with the CCD guidelines from which the measures were abstracted. The definition of CCD includes the following: patients discharged after admission for an acute coronary syndrome event or after coronary revascularization procedure and after stabilization of all acute cardiovascular issues; patients with left ventricular systolic dysfunction and known or suspected coronary artery disease or those with established cardiomyopathy deemed to be of ischemic origin; patients with stable angina symptoms (or ischemic equivalents such as dyspnea or arm pain with exertion) medically managed with or without positive results of an imaging test; patients with angina symptoms and evidence of coronary vasospasm or microvascular angina; and patients diagnosed with CCD based solely on the results of a screening study (stress test, coronary computed tomography angiography), and the treating clinician concludes that the patient has coronary disease.[4] All Class 1 (strong) and Class 3 (no benefit or harmful, and should be avoided) guideline-recommended processes were considered for inclusion as performance measures. The current Class of Recommendation and Level of Evidence guideline classification scheme used by the AHA and ACC in their clinical practice guidelines is shown in Table 1.

The writing committee developed a comprehensive CCD measure set that includes 13 measures: 10 performance measures and 3 quality measures. The measures for CCD included in the measure set are briefly summarized in Table 2, which provides information on the measure number, measure title, and care setting.

Table 1. Applying American College of Cardiology/American Heart Association Class of Recommendation and Level of Evidence to Clinical Strategies, Interventions, Treatments, or Diagnostic Testing in Patient Care* (Updated May 2019)

CLASS (STRENGTH) OF RECOMMENDATION	LEVEL (QUALITY) OF EVIDENCE‡
CLASS 1 (STRONG) — **Benefit >>> Risk** **Suggested phrases for writing recommendations:** • Is recommended • Is indicated/useful/effective/beneficial • Should be performed/administered/other • Comparative-Effectiveness Phrases†: – Treatment/strategy A is recommended/indicated in preference to treatment B – Treatment A should be chosen over treatment B	**LEVEL A** • High-quality evidence‡ from more than 1 RCT • Meta-analyses of high-quality RCTs • One or more RCTs corroborated by high-quality registry studies
CLASS 2a (MODERATE) — **Benefit >> Risk** **Suggested phrases for writing recommendations:** • Is reasonable • Can be useful/effective/beneficial • Comparative-Effectiveness Phrases†: – Treatment/strategy A is probably recommended/indicated in preference to treatment B – It is reasonable to choose treatment A over treatment B	**LEVEL B-R (Randomized)** • Moderate-quality evidence‡ from 1 or more RCTs • Meta-analyses of moderate-quality RCTs
CLASS 2b (WEAK) — **Benefit ≥ Risk** **Suggested phrases for writing recommendations:** • May/might be reasonable • May/might be considered • Usefulness/effectiveness is unknown/unclear/uncertain or not well-established	**LEVEL B-NR (Nonrandomized)** • Moderate-quality evidence‡ from 1 or more well-designed, well-executed nonrandomized studies, observational studies, or registry studies • Meta-analyses of such studies
CLASS 3: No Benefit (MODERATE) (Generally, LOE A or B use only) — **Benefit = Risk** **Suggested phrases for writing recommendations:** • Is not recommended • Is not indicated/useful/effective/beneficial • Should not be performed/administered/other	**LEVEL C-LD (Limited Data)** • Randomized or nonrandomized observational or registry studies with limitations of design or execution • Meta-analyses of such studies • Physiological or mechanistic studies in human subjects
Class 3: Harm (STRONG) — **Risk > Benefit** **Suggested phrases for writing recommendations:** • Potentially harmful • Causes harm • Associated with excess morbidity/mortality • Should not be performed/administered/other	**LEVEL C-EO (Expert Opinion)** • Consensus of expert opinion based on clinical experience

COR and LOE are determined independently (any COR may be paired with any LOE).

A recommendation with LOE C does not imply that the recommendation is weak. Many important clinical questions addressed in guidelines do not lend themselves to clinical trials. Although RCTs are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

* The outcome or result of the intervention should be specified (an improved clinical outcome or increased diagnostic accuracy or incremental prognostic information).

† For comparative-effectiveness recommendations (COR 1 and 2a; LOE A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

‡ The method of assessing quality is evolving, including the application of standardized, widely-used, and preferably validated evidence grading tools; and for systematic reviews, the incorporation of an Evidence Review Committee.

COR indicates Class of Recommendation; EO, expert opinion; LD, limited data; LOE, Level of Evidence; NR, nonrandomized; R, randomized; and RCT, randomized controlled trial.

Detailed measure specifications can be found in the measure tables in Appendix A. The tables not only provide the information included in Table 2, but they also provide more detailed information, including the measure description, numerator, denominator (including denominator exclusions and exceptions), rationale for the measure, guideline recommendation that supports the measure, measurement period, source of data, and attribution.

The value (benefit relative to cost) of a process of care was also considered. If high-quality, published cost-effectiveness studies indicated that a Class 1 guideline recommendation for a process of care was considered a poor value by AHA/ACC standards, then it was not included as a performance measure.[5] No Class 1 recommended processes of care were judged to be of poor value. All AHA/ACC clinical practice guideline recommendations (including a limited number of Class 2 recommendations) were considered as potential quality measures. Ultimately, measures were selected based on their importance for health, the strength of data supporting the recommendations, existing gaps in patient care, ease of implementation, and risk for unintended consequences. The writing committee believes that implementation of this measure set by clinicians and health care facilities will enhance safe, cost-effective,

Table 2. 2025 AHA/ACC Chronic Coronary Disease Measures

Measure No.	Measure Title	Care Setting	Attribution	Measure Domain	COR/LOE
Performance Measures					
PM-1	Tobacco Use: Screening and Cessation Counseling	Outpatient	Individual practitioner, facility	Patient education, Treatment	COR: 1, LOE: A
PM-2	Antiplatelet Therapy Without Anticoagulation	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: A
PM-3	Lipid Measurement in Patients With CCD	Outpatient	Individual practitioner, facility	Monitoring, Treatment	COR: 1, LOE: A
PM-4	High-Intensity Statin Use	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: A
PM-5	Blood Pressure Control (<130/<80 mm Hg) in Patients With CCD	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: B-R
PM-6	Blood Pressure: Medical Management Therapy	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: B-R
PM-7	Beta-Blocker Therapy With LVEF ≤40%	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: A
PM-8	Use of RAAS Inhibitor Therapy With ACE Inhibitor or ARB Therapy for CCD With Hypertension, Diabetes, LVEF ≤40%, or CKD	Outpatient	Individual practitioner, facility	Treatment	COR: 1, LOE: A
PM-9	Avoidance of Routine Periodic Testing in Stable Patients (Invasive and Noninvasive)	Outpatient	Individual practitioner, facility	Monitoring	COR: 3, LOE: B-R COR: 3, LOE: B-NR
PM-10	Cardiac Rehabilitation Referral	Outpatient	Individual practitioner, facility	Treatment	COR:1, LOE: A; COR: 1, LOE: B-R; COR: 1, LOE: C-LD; COR: 1, LOE: B
Quality measures					
QM-1	Imaging for CCD	Outpatient	Individual practitioner, facility	Monitoring	COR: 1, LOE: B-NR
QM-2	Lipid Management in CCD	Outpatient	Individual practitioner, facility	Monitoring, Treatment	COR: 1, LOE: A; COR: 2a, LOE: B-R; COR: 2a, LOE: A
QM-3	Patient Education	Outpatient	Individual practitioner, facility	Patient education, Self-management	COR: 1, LOE: C-LD

ACC indicates American College of Cardiology; ACE, angiotensin-converting enzyme; AHA, American Heart Association; ARB, angiotensin-receptor blocker; CCD, chronic coronary disease; CKD, chronic kidney disease; COR, Class of Recommendation; LOE, Level of Evidence; LVEF, left ventricular ejection fraction; PM, performance measure; QM, quality measure; and RAAS, renin-angiotensin-aldosterone system.

patient-centered, and culturally sensitive care for individual patients.

1.1. Scope of the Problem

CCD is the leading cause of death in the United States with an estimated disease burden of 20.5 million patients.[6] Data demonstrate that patients are living longer with cardiovascular disease. However, there are recent trends indicating increasing mortality rates in patients with CCD.[7] In particular, there is a higher prevalence of cardiovascular risk factors among racial minorities and those of lower socioeconomic status, contributing to disparities in outcomes.[8] Despite improvements of cardiovascular care in recent years, there exists an ongoing need to disseminate evidence-based, patient-centered care recommendations to further align the management of patients with CCD to updated evidence-based guidelines. Academic leaders who specialize in heart failure place an emphasis on prioritizing the use of equitable risk factor reduction and guideline-directed therapies to prevent end-stage heart failure.[9] Multiple comorbidities contribute to the worsening of cardiovascular complications. Increasing rates of both physical inactivity and obesity are 2 of several comorbidities contributing to increased cardiovascular mortality. Several interventions help lower the risk of heart disease. The writing committee focused on measures that reduce cardiovascular risk, including tobacco screening and cessation, antiplatelet therapy, lipid assessment and statin therapy, blood pressure assessment and therapy, medical therapy for reduced systolic left ventricular function, cardiac rehabilitation referral, imaging optimization, lipid management, patient education, and appropriate invasive and noninvasive routine testing. Appropriate use of noninvasive testing can lead to improved use of health care resources in addition to reduction in harm that may result when patients undergo unnecessary testing. The mitigation of overtesting necessarily requires a multidisciplinary approach involving different stakeholders across the health system, including the government, policy makers, health professionals, patients, and the public.[10,11] The performance and quality measures

in this document are based on the 2023 AHA/ACC CCD guidelines[4] and the 2018 AHA/ACC cholesterol guidelines.[12] Our focus was to include practical and applicable measures to advance care. There are considerable practice differences across the United States and inconsistent application of guideline-based care as it relates to diagnosis (invasive and noninvasive) and drug therapy. The differences in current practice patterns can lead to wide variations in the use of medications and interventional or revascularization therapies. This difference leads to significant variations in care patterns and outcomes. Implementation of these recommendations may be potentially increased through the use of educational meetings, reminders, audits and feedback, formulation of working groups and advisory boards, as well as the establishment of care pathways, as has been previously documented.[13–15] The writing committee addressed several issues, including unintended consequences of recommended performance measures. The writing committee paid careful attention to numerator inclusions and denominator exclusions and finally agreed to the current measure set. See the Methodology section for the factors that were used to consider the proposed measures for inclusion in the measure set.

1.2. Disclosure of Relationships With Industry and Other Entities

The Joint Committee makes every effort to avoid actual, potential, or perceived conflicts of interest that could arise as a result of relationships with industry or other entities (RWI). Information about the ACC/AHA policy on RWI can be found online at https://www.acc.org/guidelines/about-guidelines-and-clinical-documents/relationships-with-industry-policy. All members of the writing committee, as well as those selected to serve as peer reviewers of this document, were required to disclose all current relationships and those existing within the 12 months before the initiation of this writing effort. The ACC/AHA policy also requires that the writing committee chair and at least 50% of the writing committee have no relevant RWI. Writing committee members are excluded from writing or voting on sections to which their specific RWI may apply.

Any writing committee member who develops new RWI during his or her tenure on the writing committee is required to notify staff in writing. These statements are reviewed periodically by the Joint Committee and by members of the writing committee. Author and peer reviewer RWI that are pertinent to the document are included in the appendixes: Appendix B for comprehensive writing committee RWI and Appendix C for comprehensive peer reviewer RWI.

Table 3. Associated AHA/ACC Clinical Practice Guidelines and Other Clinical Guidance Documents

2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4]
2023 AHA/ACC Coronary Artery Revascularization Performance Measures[16]
2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Cholesterol Guideline[12]
2019 AHA/ACC High Blood Pressure Performance Measures[17]
2011 ACC/AHA Coronary Artery Disease and Hypertension Performance Measures[3]

AACVPR indicates American Association of Cardiovascular and Pulmonary Rehabilitation; AAPA, American Academy of Physician Associates; ABC, Association of Black Cardiologists; ACC, American College of Cardiology; ACCP, American College of Clinical Pharmacy; ACPM, American College of Preventive Medicine; ADA, American Diabetes Association; AGS, American Geriatrics Society; AHA, American Heart Association; APhA, American Pharmacists Association; ASPC, American Society for Preventive Cardiology; NLA, National Lipid Association; and PCNA, Preventive Cardiovascular Nurses Association.

The work of the writing committee was supported exclusively by the ACC and the AHA without commercial support. The American College of Clinical Pharmacy, American Society for Preventive Cardiology, Preventive Cardiovascular Nurses Association, and the Society for Cardiovascular Angiography and Interventions served as collaborators on this project. Members of the writing committee volunteered their time for this effort. Meetings of the writing committee were confidential and attended only by writing committee members and staff from the ACC and AHA.

2. METHODOLOGY

2.1. Literature Review

In developing the CCD measure set, the writing committee reviewed evidence-based guidelines and statements that would potentially impact the construct of the measures. The clinical practice guidelines and scientific statements that most directly contributed to the development of these measures are shown in Table 3.

2.2. Definition and Selection of Measures

The writing committee considered a number of additional factors, which are listed in Table 4. The potential impact, appropriateness for public reporting and pay for performance, validity, reliability, and feasibility were considered. The writing committee examined available information on current gaps in care.

Table 4. ACC/AHA Joint Committee on Performance Measures: Attributes for Performance Measures[18]

1. Evidence Based	
High-impact area that is useful in improving patient outcomes	a) For structural measures, the structure should be closely linked to a meaningful process of care that in turn is linked to a meaningful patient outcome. b) For process measures, the scientific basis for the measure should be well established, and the process should be closely linked to a meaningful patient outcome. c) For outcome measures, the outcome should be clinically meaningful. If appropriate, performance measures based on outcomes should adjust for relevant clinical characteristics through the use of appropriate methodology and high-quality data sources.
2. Measure Selection	
Measure definition	a) The patient group to whom the measure applies (denominator) and the patient group for whom conformance is achieved (numerator) are clearly defined and clinically meaningful.
Measure exceptions and exclusions	b) Exceptions and exclusions are supported by evidence.
Reliability	c) The measure is reproducible across organizations and delivery settings.
Face validity	d) The measure appears to assess what it is intended to.
Content validity	e) The measure captures most meaningful aspects of care.
Construct validity	f) The measure correlates well with other measures of the same aspect of care.
3. Measure Feasibility	
Reasonable effort and cost	a) The data required for the measure can be obtained with reasonable effort and cost.
Reasonable time period	b) The data required for the measure can be obtained within the period allowed for data collection.
4. Accountability	
Actionable	a) Those held accountable can affect the care process or outcome.
Unintended consequences avoided	b) The likelihood of negative unintended consequences with the measure is low.

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ACC indicates American College of Cardiology; and AHA, American Heart Association.

3. AHA/ACC CHRONIC CORONARY DISEASE MEASURE SET

3.1. Discussion of Chronic Coronary Disease Measure Set

After reviewing the existing guidelines, the writing committee discussed which measures required revision to reflect updated science related to CCD and they identified which guideline recommendations could serve as the basis for new performance or quality measures. The writing committee also reviewed existing publicly available measure sets.

These subsections serve as a synopsis of the revisions that were made to previous measures and a description of why the new measures were created for the outpatient setting.

3.1.1. Retired Measures

There were no measures that were retired.

3.1.2. Revised Measures

The writing committee reviewed and made changes to 7 measures from the 2011 ACC/AHA coronary artery disease and hypertension performance measures document,[3] as summarized in Table 5. Table 5 provides information on the updated measures, including the care setting, title, and a brief rationale for revisions made to the measures.

3.1.3. New Measures

The writing committee created a comprehensive list of measures addressing CCD. This set includes 13 measures: 10 performance measures and 3 quality measures. Six of the measures are new. Table 6 includes a list of the measures with information on the care setting and a brief rationale. Performance measures are typically those measures that target meaningful gaps in the quality of care and are based on Class 1 clinical practice guidelines. Other measures that are important but are not based on Class 1 clinical practice guidelines or are lacking in other important characteristics (eg, questions of feasibility, validity) are recommended as quality measures. If additional evidence supports the importance of the proposed quality measures, they may be changed to performance measures in the future. Performance and quality measures are designed to help clinicians reduce gaps in the quality of care that they provide to their patients.

The measures are structured in a typical format in which the goal is to seek a higher performance score, ideally nearing 100% in measures where interventions are encouraged and ideally nearing 0% in measures where interventions are discouraged.

Table 5. Revised Chronic Coronary Disease Measures

Measure No.*	Measure Title	Description of Revision	Rationale for Revision
1	Blood Pressure Control	Adjusted recommended blood pressure goals to BP from <140/<80 mm Hg to 130/80 mm Hg.	Additional clinical trial evidence.
2	Lipid Control	Adjusted LDL-C goals from <100 mg/dL to <70 mg/dL.	Additional clinical trial evidence.
5	Tobacco Use: Screening, Cessation, and Intervention	Screening for tobacco use with the offer of counseling for cessation that can include behavioral or pharmacologic intervention.	Additional clinical trial evidence.
6	Antiplatelet Therapy	Timeframe of within 12 mo of a diagnosis of CCD.	The writing committee recognized the evolving evidence for antiplatelet therapy with strong support for within 12-mo benefit.
7	Beta-Blocker Therapy: Prior Myocardial Infarction or Left Ventricular Systolic Dysfunction	Inclusion of with or without MI in the updated measure.	There is well-established evidence for efficacy.
8	ACE Inhibitor/ARB Therapy: Diabetes or Left Ventricular Systolic Dysfunction (LVEF <40%)	Expansion of patients with CCD for this metric to include those with hypertension, diabetes, and CKD in addition to systolic dysfunction.	The patient population is expanded in the measure, which is based on the updated guideline recommendation.
9	Cardiac Rehabilitation Patient Referral From an Outpatient Setting	Expansion of categories of which patients with CCD should participate in cardiac rehabilitation.	This measure adds patients after heart transplant and LVAD as well as those diagnosed with spontaneous coronary artery dissection.

*The measure numbers in the first column of the table correspond with the measures from the 2011 ACC/AHA coronary artery disease and hypertension performance measures document.

ACE indicates angiotensin-converting enzyme; ARB, angiotensin-receptor blocker; BP, blood pressure; CCD, chronic coronary disease; CKD, chronic kidney disease; LDL-C, low-density lipoprotein cholesterol; LVAD, left ventricular assist device; and LVEF, left ventricular ejection fraction.

For more detailed information on each measure's construct, refer to the specifications in Appendix A.

4. AREAS FOR FURTHER RESEARCH

The treatment of CCD continues to expand quickly with ongoing studies that have yet to be completed. The following list includes possible future areas of research:

- De-escalation or single agent platelet adenosine diphosphate receptor inhibition without aspirin after a short period of dual antiplatelet therapy after percutaneous coronary intervention.
- Ideal antiplatelet regimen for secondary prevention and post–acute coronary syndrome.
- Low-density lipoprotein goals in CCD.
- Personalized treatment plans based on genetic and phenotypic characteristics can further refine therapeutic strategies.
- Clarification on ambulatory blood pressure measurements (ie, home vs office, single vs multiple values) in the CCD population.

Table 6. New Measures

Measure No.	Care Setting	Measure Title	Rationale for Creating New Measure	Rationale for Designating as a Quality Measure vs a Performance Measure
PM-3	Outpatient	Lipid Measurement in Patients With CCD	Modifiable risk factor with significant benefits.	N/A
PM-4	Outpatient	High-Intensity Statin Use	Strong evidence showing the benefits of statin therapy in patients with CCD.	N/A
PM-6	Outpatient	Blood Pressure: Medical Management Therapy	This is an actionable process measure with data that demonstrate a benefit.	N/A
PM-9	Outpatient	Avoidance of Routine Periodic Testing in Stable Patients (Invasive and Noninvasive)	To address annual cardiac testing in otherwise stable patients with CCD without indications for routine testing.	N/A
QM-1	Outpatient	Imaging for CCD	To ensure appropriate evaluation in the setting of changing symptoms.	There may be nuances in clinical practice and patient preferences that can affect adherence to this measure.
QM-3	Outpatient	Patient Education	The ongoing education of patients with CCD is important in the management decisions between a health care professional and patient.	Difficult to measure objectively.

CCD indicates chronic coronary disease; N/A, not applicable; PM, performance measure; and QM, quality measure.

ACC/AHA JOINT COMMITTEE ON PERFORMANCE MEASURES

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ARTICLE INFORMATION

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Copies: This document is available on the websites of the American Heart Association (professional.heart.org) and the American College of Cardiology (www.acc.org). A copy of the document is also available at https://professional.heart.org/statements by selecting the "Guidelines & Statements" button. To purchase additional reprints, call 215-356-2721 or email Meredith.Edelman@wolterskluwer.com. The expert peer review of AHA-commissioned documents (eg, scientific statements, clinical practice guidelines, systematic reviews) is conducted by the AHA Office of Science Operations. For more on AHA statements and guidelines development, visit https://professional.heart.org/statements. Select the "Guidelines & Statements" drop-down menu near the top of the webpage, then click "Publication Development."

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Appendix A. Chronic Coronary Disease Measure Set

Performance Measures for Chronic Coronary Disease

Short Title: PM-1: Tobacco Use: Screening and Cessation Counseling

PM-1: Tobacco Use Screening With Cessation Counseling, Behavioral, or Pharmacologic Interventions Provided

Measure Description: Percentage of patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period who were screened for tobacco use and, if identified as a tobacco user, received tobacco cessation counseling and were offered behavioral or pharmacologic interventions	
Numerator	Patients who were screened for tobacco use* and who received tobacco cessation counseling intervention† if identified as a tobacco user
Denominator	Patients ≥18 y with a diagnosis of CCD seen within a 12-mo period
Denominator Exclusions	Patients who are in hospice care for any part of the measurement period
Denominator Exceptions	Documentation of patient reason(s) for not screening for tobacco use, or ordering tobacco cessation counseling or cessation interventions (eg, patient refusal, other patient reasons)
Measurement Period	Every patient encounter or every health care visit
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Use of tobacco products, particularly cigarette smoking, is a leading cause of CVD and is an independent risk factor for coronary heart disease.[20,21] Tobacco users who are counseled to quit by clinicians are more likely to quit after 6 mo compared with those who receive no advice.[20] Pharmacotherapy and behavioral therapy in combination can increase the success of smoking cessation.[22] Those who are able to stop using tobacco can lower their risk for heart disease, lung disease, and stroke.[23,24]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. Patients with CCD who regularly smoke tobacco should be advised to quit at every visit.‡[25] (Class 1, Level of Evidence: A) 2. In patients with CCD who regularly smoke tobacco, behavioral interventions are recommended to maximize cessation rates in combination with pharmacotherapy, including bupropion, varenicline, or combination long- and short-acting nicotine replacement therapy (NRT).‡[26–28] (Class 1, Level of Evidence: A)	

*Includes any type of tobacco (eg, cigarettes, cigars, smokeless tobacco products, vapes, e-cigarettes, nicotine gels, hookah tobacco, hookah pens, pipe tobacco, and so on).

†Cessation counseling intervention includes brief counseling (≤3 min) or pharmacotherapy (including but not limited to varenicline, bupropion, NRT, or referral to smoking cessation programs).

‡Modified from the 2019 AHA/ACC primary prevention of CVD guideline.[20]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; CVD, cardiovascular disease; EHR, electronic health record; NLA, National Lipid Association; NRT, nicotine replacement therapy; PCNA, Preventive Cardiovascular Nurses Association; and PM, performance measure.

Appendix A. Continued

Short Title: PM-2: Antiplatelet Therapy Without Anticoagulation

PM-2: Antiplatelet Therapy Without Anticoagulation

Measure Description: Percentage of patients age ≥18 y with CCD and not on oral anticoagulation who were prescribed low-dose aspirin (75-100 mg) or a $P2Y_{12}$ inhibitor within a 12-mo period	
Numerator	Patients who were prescribed* low-dose aspirin (75-100 mg) or a $P2Y_{12}$ inhibitor
Denominator	Patients age ≥18 y with CCD seen within a 12-mo period
Denominator Exclusions	Patients who are on chronic oral anticoagulation therapy, or those who had ACS or PCI within prior 12 mo
Denominator Exceptions	Documentation of medical reason(s) for not prescribing aspirin or a $P2Y_{12}$ inhibitor (eg, allergy, intolerance, bleeding disorder, other medical reasons) Documentation of patient reason(s) for not prescribing (eg, patient refusal, other patient reasons) Documentation of system reason(s) for not prescribing (eg, lack of drug availability, other reasons attributable to the health care system)
Measurement Period	Every patient encounter
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
The use of aspirin for secondary ASCVD prevention is well established for reduction in MACE, including vascular events, MI, and death.[29,30] As an alternative to low-dose aspirin, an oral $P2Y_{12}$ inhibitor (clopidogrel) may be used in individuals who cannot tolerate aspirin therapy, and many of the contemporary trials have used clopidogrel monotherapy after a short course of DAPT.[31,32] For patients with CCD and no recent ACS within 1 y or PCI within 6 mo, clopidogrel plus aspirin is no more effective than aspirin alone in reducing the rate of MI, stroke, or death from cardiovascular causes in patients at high risk for atherothrombotic events.[33]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD and no indication for oral anticoagulant therapy, low-dose aspirin 81 mg (75-100 mg) is recommended to reduce atherosclerotic events.†[29,30,34] (Class 1, Level of Evidence: A)	

*Prescribed may include: Outpatient setting: Prescription given to the patient for low-dose aspirin or $P2Y_{12}$ inhibitor at ≥1 visits in the 12-mo measurement period or patient already taking low-dose aspirin as documented in the current medication list.

†Modified from the 2016 ACC/AHA DAPT guideline focused update.[35]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; ACS, acute coronary syndrome; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; DAPT, dual antiplatelet therapy, EHR, electronic health record; MACE, major adverse cardiovascular events; MI, myocardial infarction; NLA, National Lipid Association; $P2Y_{12}$, platelet adenosine diphosphate receptor; PCI, percutaneous coronary intervention; PCNA, Preventive Cardiovascular Nurses Association; and PM, performance measure.

Appendix A. Continued

Short Title: PM-3: Lipid Measurement in Patients With CCD

PM-3: Lipid Measurement in Patients ≥18 y With CCD for Effective Prevention and Management

Measure Description: Percentage of patients age ≥18 y with CCD who undergo a fasting lipid panel test within a 12-mo period	
Numerator	Patients who undergo fasting lipid panel testing within a 12-mo period*
Denominator	Patients age ≥18 y with CCD seen within a 12-mo period
Denominator Exclusions	None
Denominator Exceptions	Documentation of medical reason(s) for not ordering a fasting lipid panel test (eg, already received or performed by another clinician, medical futility such as advanced cancer or where the results will not inform or change treatment plans, such as patients whose LDL-C has not changed over several years) Documentation of patient reason(s) for not ordering a fasting lipid panel test (eg, patient refusal) Documentation of system reason(s) for not ordering a fasting lipid panel test (eg, service or treatment to be provided by another physician, or lipid panel results requested by patient or clinician and not received)
Measurement Period	Period of care: 12 mo Measurement period: A fasting lipid panel test should be ordered at the first encounter or results from the preceding 12 mo should be available
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Elevated LDL-C levels are the primary cause of ASCVD and are the identified target for lipid management.[4,12,36] In patients with CCD, adherence to changes in lifestyle[36,37] and the effects of lipid-lowering medication should be assessed through the measuring of fasting lipid panel tests. Lipid measurement is crucial for assessing circulating lipoprotein levels, response to lipid-lowering therapy, and for tracking adherence and persistence with lifestyle modifications among patients with CCD, with periodic measurement over time.[4,20,38] Although fasting is not required, a fasting lipid panel remains a beneficial method for detection and diagnosis of hyperlipidemia, especially those with mixed hyperlipidemia with high triglyceride levels.[36] Lipid biomarkers are clearly associated with increased ASCVD risk, underscoring the need to measure and manage lipid levels to reduce the risk for MACE, especially because individual response in LDL-C can vary substantially.[4,12,20,36]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD, adherence to changes in lifestyle and effects of lipid-lowering medication should be assessed by measurement of fasting lipids in 4 to 12 weeks after statin initiation or dose adjustment and then every 3 to 12 months thereafter based on the need to assess response or adherence to therapy.†[39–42] (Class 1, Level of Evidence: A)	

*Documentation during outpatient visit that lipid panel testing was performed during hospital stay is sufficient, as long as the testing was performed within 12 mo of outpatient visit.

†Modified from the 2018 AHA/ACC cholesterol guideline.[12]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; EHR, electronic health record; LDL-C, low-density lipoprotein cholesterol; MACE, major adverse cardiovascular events; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; and PM, performance measure.

Appendix A. Continued

Short Title: PM-4: High-Intensity Statin Use

PM-4: High-Intensity Statin Use in Patients With CCD

Measure Description: Percentage of patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period without contraindications who are on a high-intensity statin	
Numerator	Patients who are on a high-intensity statin
Denominator	Patients ≥18 y with a diagnosis of CCD seen within a 12-mo period
Denominator Exclusions	Patients who are in hospice care for any part of the measurement period
Denominator Exceptions	Documentation of medical reason(s) for not prescribing high-intensity statin (eg, statin intolerance, drug-drug interactions, ESRD, or contraindication to statin therapy [eg, acute liver failure, decompensated cirrhosis, pregnancy, breastfeeding mothers]) Documentation of patient reason(s) for not prescribing high-intensity statin (eg, patient refusal)
Measurement Period	Every patient encounter
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Numerous randomized trials and meta-analyses have demonstrated that statin therapy, particularly high-intensity statin therapy, reduces MACE in patients with ASCVD.[4,12,39,43,44] The greater the LDL-C reduction, the greater the reduction in vascular events. High-intensity statin therapy is defined as use of atorvastatin 40-80 mg or rosuvastatin 20-40 mg, with a goal of ≥50% reduction in LDL-C level. Some patients may not tolerate high-intensity statin therapy, and a lower dose or less potent statin along with alternate or adjusted therapy (eg, ezetimibe, PCKS9 inhibitors, and so on) may be used.	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD, high-intensity statin therapy is recommended with the aim of achieving a ≥50% reduction in LDL-C levels to reduce the risk of MACE.*[39,43,44] (Class 1, Level of Evidence: A)	

*Modified from the 2018 AHA/ACC/Multisociety cholesterol guideline.[12]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASCVD, atherosclerotic cardiovascular disease; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; EHR, electronic health record; ESRD, end-stage renal disease; LDL-C, low-density lipoprotein cholesterol; MACE, major adverse cardiovascular events; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PCSK9, proprotein convertase subtilisin/kexin type 9; and PM, performance measure.

Appendix A. Continued

Short Title: PM-5: BP Control (<130/<80 mm Hg) in Patients With CCD

PM-5: CCD BP Assessment Rate (BP <130/<80 mm Hg)

Measure Description: Percentage of patients 18-85 y of age with CCD seen within a 12-mo period who achieve optimal BP control (BP <130/<80 mm Hg)	
Numerator	Patients who have most recent BP of <130/<80 mm Hg, which includes patients on GDMT for hypertension
Denominator	Patients 18-85 y of age with CCD who had at least 1 outpatient encounter during the first 12 mo of the measurement year
Denominator Exclusions	Autonomic dysfunction and white coat hypertension
Denominator Exceptions	Documentation of medical reason(s) for not prescribing optimal BP control (eg, drug allergy that precludes additive therapy, frailty, white coat hypertension, autonomic dysfunction) Documentation of patient reason(s) for not prescribing optimal BP control (eg, patient refusal or nonadherence)
Measurement Period	12-mo period of being seen in the outpatient setting
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Hypertension is a well-established risk factor for CVD and represents a highly prevalent comorbid condition among individuals with CCD, affecting >60% of this population. Those with CCD and concomitant hypertension face heightened risks of mortality and morbidity compared with their normotensive counterparts.[45–47]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In adults with CCD who have hypertension, a BP target of <130/<80 mm Hg is recommended to reduce CVD events and all-cause death.*[48–52] (Class 1, Level of Evidence: B-R)	

*Modified from the 2017 ACC/AHA/Multisociety high blood pressure guideline.[47]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; BP, blood pressure; CCD, chronic coronary disease; CVD, cardiovascular disease; EHR, electronic health record; GDMT, guideline-directed management and therapy; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; and PM, performance measure.

Appendix A. Continued

Short Title: PM-6: BP: Medical Management Therapy

PM-6: BP: Medical Management Therapy in CCD

Measure Description: Percentage of patients 18-85 y of age with CCD who have hypertension (SBP ≥130 or DBP ≥80 mm Hg) and who are treated with ACE inhibitors, ARB, or beta blockers as antihypertensive therapy	
Numerator	Patients who were prescribed* ACE inhibitor, ARB, or beta blockers
Denominator	Patients 18-85 y of age with ACC/AHA stage 1 HBP who had at least 1 outpatient encounter with a diagnosis of HBP during the first 12 mo of the measurement year
Denominator Exclusions	None
Denominator Exceptions	Documentation of medical reason(s) for not prescribing ACE inhibitor, ARB, or beta blocker (eg, intolerance, contraindication, other medical reasons) Documentation of patient reason(s) for not prescribing ACE inhibitor, ARB, or beta blocker (eg, patient refusal or nonadherence)
Measurement Period	ACE inhibitor, ARB, or beta-blocker therapy initiated within a 12-mo period of being seen in the outpatient setting
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Ramipril therapy in patients with CCD or at high risk for CVD reduced the risk of MI or stroke by 22% compared with placebo.[53] Therapy with ACE inhibitors has produced a 20% reduction in risk of CVD death, MI, or cardiac arrest in patients with CCD compared with placebo.[54] Beta blockers are particularly effective in patients with CCD, especially those with ongoing angina, given their ability to reduce angina, improve angina-free exercise tolerance, reduce exertion-related MI, and reduce risk of CVD events.[55–59] When beta blockers, ACE inhibitors, and ARB therapies do not sufficiently control BP, additional GDMT can be added, including thiazide diuretics, CCB, and MRAs.[47]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In adults with CCD and hypertension (systolic BP ≥130 and/or diastolic BP ≥80 mm Hg), in addition to nonpharmacological strategies, GDMT angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARB), or beta blockers[53,54,57] are recommended as first-line therapy for compelling indications (eg, recent MI or angina), with additional antihypertensive medications (eg, dihydropyridine calcium channel blockers [CCB], long-acting thiazide diuretics, and/or mineralocorticoid receptor antagonists) added as needed to optimize BP control.†[48,60] (Class 1, Level of Evidence: B-R)	

*Prescribed may include: Outpatient setting: Prescription given to the patient for ACE inhibitor, ARB, or beta blockers as therapy at ≥1 visits in the 12-mo measurement period or patient already taking ACE inhibitor, ARB, or beta blockers as documented in the current medication list.

†Modified from the 2017 ACC/AHA high blood pressure guideline.[47]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; ACE, angiotensin-converting enzyme; AHA, American Heart Association; ARB, angiotensin-receptor blocker; ASPC, American Society for Preventive Cardiology; BP, blood pressure; CCB, calcium channel blocker; CCD, chronic coronary disease; CVD, cardiovascular disease; DBP, diastolic blood pressure; EHR, electronic health record; GDMT, guideline-directed management and therapy; HBP, high blood pressure; MI, myocardial infarction; MRA, mineralocorticoid receptor antagonist; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PM, performance measure; and SBP, systolic blood pressure.

Appendix A. Continued

Short Title: PM-7: Beta-Blocker Therapy With LVEF ≤40%

PM-7: Beta-Blocker Therapy for CCD and LV Systolic Dysfunction, With or Without Previous MI

Measure Description: Percentage of patients age ≥18 y with CCD and LVEF ≤40% with or without previous MI who were prescribed beta-blocker therapy within 12-mo of diagnosis	
Numerator	Patients who were prescribed* beta-blocker therapy within 12 mo of diagnosis
Denominator	Patients age ≥18 y with a diagnosis of CCD who also have a current or prior LVEF ≤40% with or without previous MI
Denominator Exclusions	Heart transplant LVAD
Denominator Exceptions	Documentation of medical reason(s) for not prescribing beta-blocker therapy (eg, allergy, intolerance, other medical reasons) Documentation of patient reason(s) for not prescribing beta-blocker therapy (eg, patient refusal, other patient reasons) Documentation of system reason(s) for not prescribing beta-blocker therapy (eg, other reasons attributable to the health care system)
Measurement Period	Beta-blocker therapy initiated within a 12-mo period of being seen in the outpatient setting
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
For patients with CCD, multiple well-conducted RCTs from the precontemporary and modern eras have shown the efficacy of beta-blocker therapy in reducing cardiovascular death and MACE among patients with LV systolic dysfunction.[46,61–67] This benefit was found among patients with previous MI and those without history of MI. Given the unequivocal benefit of beta-blocker therapy, widespread use of these agents in this subset of patients has been recommended.[4,68] Nonadherence to cardioprotective medications is prevalent among outpatients with CCD and can be associated with a broad range of adverse outcomes, including all-cause and cardiovascular mortality, cardiovascular hospitalizations, and the need for revascularization procedures.[69–71] This measure is intended to promote beta-blocker use in select patients with CCD.	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD and LVEF ≤40% with or without previous MI, the use of beta-blocker therapy is recommended to reduce the risk of future MACE, including cardiovascular death.[61–63] (Class 1, Level of Evidence: A)	

*Prescribed may include: Outpatient setting: Prescription given to the patient for beta blockers as first-line therapy at ≥1 visits in the 12-mo measurement period or patient already taking beta blockers as documented in the current medication list.

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; EHR, electronic health record; LV, left ventricle; LVAD, left ventricular assist device; LVEF, left ventricular ejection fraction; MACE, major adverse cardiovascular events; MI, myocardial infarction; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PM, performance measure; and RCT, randomized controlled trial.

Appendix A. Continued

Short Title: PM-8: Use of RAAS Inhibitor Therapy With ACE Inhibitor or ARB Therapy for CCD With Hypertension, Diabetes, LVEF ≤40%, or CKD

PM-8: Use of RAAS Inhibitor Therapy With ACE Inhibitor or ARB Therapy for CCD With Hypertension, Diabetes, LVEF ≤40%, or CKD

Measure Description: Percentage of patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period who also have hypertension, CKD, diabetes, or a current or prior LVEF ≤40% and who were prescribed RAAS inhibitor therapy with either ACE inhibitor or ARB therapy	
Numerator	Patients who were prescribed* RAAS inhibitor with either ACE inhibitor or ARB therapy
Denominator	Patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period who also have hypertension, CKD, diabetes, or a current or prior LVEF ≤40%
Denominator Exclusions	Heart transplant LVAD
Denominator Exceptions	Documentation of medical reason(s) for not prescribing RAAS inhibitor with either an ACE inhibitor or ARB therapy (eg, allergy, intolerance, angioedema, pregnancy, hypotension, renal failure, diseases of the aortic or mitral valve, other medical reasons) Documentation of patient reason(s) for not prescribing RAAS inhibitor with either an ACE inhibitor or ARB therapy (eg, patient declined, other patient reasons) Documentation of system reason(s) for not prescribing RAAS inhibitor with either an ACE inhibitor or ARB therapy (eg, lack of drug availability, other reasons attributable to the health care system)
Measurement Period	ACE inhibitor or ARB therapy initiated within a 12-mo period of being seen in the outpatient setting
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Nonadherence to cardioprotective medications is prevalent among outpatients with coronary artery disease and can be associated with a broad range of adverse outcomes, including all-cause and cardiovascular mortality, cardiovascular hospitalizations, and the need for revascularization procedures. In the absence of contraindications, RAAS inhibitors are recommended for all patients with a diagnosis of coronary artery disease and diabetes, hypertension, or reduced left ventricular systolic function with LVEF ≤40%. The use of RAAS inhibitors has been shown to decrease the risk of death, cardiovascular events, and stroke.[53,68,72–77] Additional benefits of RAAS inhibitors include the reduction of diabetic symptoms and complications for patients with diabetes.[53,68,78] In patients with CCD and symptomatic HFrEF, ARN inhibitors are preferred over ACE inhibitors or ARB to reduce morbidity and mortality.[79–83]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD who also have hypertension, diabetes, LVEF ≤40%, or CKD, the use of ACE inhibitors, or ARBs if ACE inhibitor-intolerant, is recommended to reduce cardiovascular events.[72–74,76,77] (Class 1, Level of Evidence: A)	

*Prescribed may include: Outpatient setting: Prescription given to the patient for RAAS inhibitor with either ACE inhibitor or ARB therapy as first-line therapy at ≥1 visits in the 12-mo measurement period or patient already taking RAAS inhibitor with either ACE inhibitor or ARB therapy in the current medication list. Please note, ARB therapy is inclusive of ARN inhibitor.

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; ACE, angiotensin-converting enzyme; AHA, American Heart Association; ARB, angiotensin-receptor blocker; ARN, angiotensin receptor–neprilysin; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; CKD, chronic kidney disease; EHR, electronic health record; HFrEF, heart failure with reduced ejection fraction; LVAD, left ventricular assist device; LVEF, left ventricular ejection fraction; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PM, performance measure; and RAAS, renin-angiotensin-aldosterone system.

Appendix A. Continued

Short Title: PM-9: Avoidance of Routine Periodic Testing in Stable Patients (Invasive and Noninvasive)

PM-9: Avoidance of Routine Periodic Testing in Stable Patients (Invasive and Noninvasive)

Measure Description: Percentage of patients with CCD but no change in clinical or functional status who undergo stress testing, coronary CTA, or invasive coronary angiography *Because this is based on Class 3 guideline recommendations, for this performance measure, the goal should be 0%. For statistical calculations, exceptions are given for both numerator and denominator to appropriately reflect the percentage of patients not in accordance with the performance measure.*	
Numerator	Patients with CCD but no change in clinical or functional status who undergo stress testing, coronary CTA, or invasive coronary angiography
Denominator	Stable patients with CCD and no change in clinical or functional status
Denominator Exclusions	None
Numerator and Denominator Exceptions	Documentation of medical reason(s) for invasive or noninvasive routine testing (eg, acceptable reasons or indicated routine testing include: • New diagnosis of otherwise unexplained change in LVEF >10% in which progression of CAD is suspected as a possible etiology as the reason for stress testing coronary CTA or invasive coronary angiography • Preoperative assessment for an estimated elevated surgical risk and poor [<4 METs] or unknown exercise capacity, and only if documented that such test results will impact decision-making or perioperative care [as described in the 2024 AHA/ACC perioperative cardiovascular management for noncardiac surgery guideline[84]] • Part of a required preoperative assessment for solid organ [eg, liver, kidney, lung] or bone marrow transplant [as preoperative consensus documents and local practices often require such testing or imaging] • Required CAD evaluation as part of preoperative planning for noncoronary heart or ascending thoracic aortic surgery [eg, SAVR, TAVR, TAA repair]) Documentation of patient reason(s) for invasive or noninvasive routine testing (eg, to fulfill licensing requirements for a DOT examination, FAA requirement, or similar occupation-related licensing mandate)
Measurement Period	Every 12-mo period, beginning after the initial evaluation of suspected CAD, and any stress test, coronary CTA, or revascularization procedure associated with that initial evaluation
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
Routine periodic stress testing or coronary artery imaging (eg, coronary CTA or invasive coronary angiography) has not been shown to improve prognosis in patients with stable CCD and can be associated with patient personal costs, inappropriate use of limited societal resources, and patient risk (eg, contrast nephropathy, radiation exposure, vascular complications, stroke) without patient benefit. For example, the POST-PCI RCT found no difference in MACE at 2-y follow-up in those randomized to a strategy of routine functional stress testing compared with standard care alone, including patients with multivessel and left main coronary artery disease.[85,86] In the Japanese ReACT trial, routine follow-up invasive coronary angiography 8-12 mo post-PCI was of no clinical benefit compared with clinical follow-up alone.[87] Further, studies such as COURAGE and ISCHEMIA have demonstrated little if any benefit to routine revascularization in patients with stable CAD in terms of MI reduction or death, even (particularly for ISCHEMIA) when significant ischemia is demonstrated on stress testing.[88–90] In this contemporaneous era of GDMT secondary prevention, revascularization for occult, silent ischemia appears even more unlikely to confer any benefit as far as reduction in MI or death.[89,91–93] The main benefit of coronary revascularization for CCD is angina reduction, usually in patients with accelerated or unacceptable levels of angina in terms of QoL, and this performance measure applies to stable patients without any significant change in clinical or functional status. This performance measure is designed to complement the 2023 CCD guideline,[4] but it can be noted that in the 2023 Appropriate Use Criteria for CCD,[94] stress testing and imaging are labeled as "rarely appropriate" for patients <5 y after CABG and <2 y after PCI.	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD without a change in clinical or functional status on optimized GDMT, routine periodic testing with coronary CTA or stress testing with or without imaging is not recommended to guide therapeutic decision-making.[85,89,95] (Class 3–No Benefit, Level of Evidence: B-R) 2. In patients with CCD without a change in clinical or functional status, routine periodic invasive coronary angiography should not be performed to guide therapeutic decision-making.[87,96–99] (Class 3–Harm, Level of Evidence: B-NR)	

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; ACE, angiotensin-converting enzyme; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CABG, coronary artery bypass grafting; CAD, coronary artery disease; CCD, chronic coronary disease; COURAGE, Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation; CTA, computed tomography angiography; DOT, Department of Transportation; EHR, electronic health record; FAA, Federal Aviation Administration; GDMT, guideline-directed management and therapy; ISCHEMIA, International Study of Comparative Health Effectiveness with Medical and Invasive Approaches; LVEF, left ventricular ejection fraction; MACE, major adverse cardiac events; MET, metabolic equivalent; MI, myocardial infarction; NLA, National Lipid Association; PCI, percutaneous coronary revascularization; PCNA, Preventive Cardiovascular Nurses Association; PM, performance measure; POST-PCI, Pragmatic Trial Comparing Symptom-Oriented versus Routine Stress Testing in High-Risk Patients Undergoing Percutaneous Coronary Intervention; QoL, quality of life; RCT, randomized controlled trial; ReACT, Randomized Evaluation of Routine Follow-up Coronary Angiography after PCI; SAVR, surgical aortic valve replacement; TAA, thoracic aortic aneurysm; and TAVR, transcatheter aortic valve replacement.

Appendix A. Continued

Short Title: PM-10: CR Referral

PM-10: CR Patient Referral From an Outpatient Setting *(The CR performance measure is from the 2018 ACC/AHA CR performance measures[19] and the 2023 AHA/ACC coronary artery revascularization performance measures.[16])*

Measure Description: Percentage of patients age ≥18 y with CCD evaluated in an outpatient setting who within the previous 12 mo have experienced an acute MI, CABG surgery, PCI, cardiac valve surgery, LVAD, or cardiac transplantation, or who have stable angina and have not already participated in an early outpatient CR or secondary prevention program for the qualifying event or diagnosis and are referred to such a program	
Numerator	Patients with a qualifying event who have been referred to an outpatient CR program within 12 mo. Referral is defined as: 1. Documented communication* between the clinician and the patient to recommend an outpatient CR program AND 2a. Official referral order is sent to an outpatient CR program OR 2b. Documentation of patient refusal of a referral to a CR program Note: Performance is met if steps 1 AND either 2a or 2b (patient refusal documented in the patient's medical record) are completed and documented. This includes documentation during outpatient visit that the referral to a CR program occurred during a hospital stay.
Denominator	Patients age ≥18 y with CCD with acute MI, surgical or percutaneous coronary artery revascularization, cardiac valve surgery, LVAD or cardiac transplantation, or chronic stable angina who have not already participated in CR during the previous 12 mo
Denominator Exclusions	Patients who are already participating in a CR program
Denominator Exceptions	Documentation of medical reason(s) that precludes referral to CR (eg, patient deemed by a clinician to have a medically unstable, life-threatening condition or has other cognitive or physical impairments that preclude CR participation) Documentation of patient reason(s) that precludes referral to CR (eg, no traditional CR program available to the patient within 60 min travel time from the patient's home, patient has no means to get to a CR program, or patient does not have access to an alternative model of CR delivery that meets all criteria for a CR program) Documentation of system reason(s) that precludes referral to CR (eg, patient lacks medical coverage for CR)
Measurement Period	Period of observation: All cases accumulated over a 12-mo period
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
CR services have been associated with lower morbidity and mortality rates in patients who have experienced a recent coronary artery disease event, but these services are used in <30% of eligible patients.[100,101] A key component to outpatient CR program use is the appropriate and timely referral of patients. Generally, the most important time for this referral to take place is while the patient is hospitalized for a qualifying event or diagnosis (MI, CSA, CABG, PCI, and cardiac valve repair or replacement).[19] CR has been found to be beneficial even beyond 12 mo after PCI or CABG. This performance measure has been developed to help health care systems implement effective steps in their systems of care that will optimize the appropriate referral of a patient to an outpatient CR program.[19] This measure is designed to serve as a stand-alone measure or, preferably, to be included within other performance measurement sets that involve disease states or other conditions for which CR services have been found to be appropriate and beneficial (eg, after MI, CABG surgery). This measure is provided in a format that is meant to allow easy and flexible inclusion into such performance measurement sets.[19] Published evidence suggests that automatic referral systems accompanied by strong and supportive advice and guidance from a health care professional can significantly help improve CR referral and enrollment.[19,102]	

(*Continued*)

Appendix A. Continued

Short Title: PM-10: CR Referral Continued

Clinical Recommendation(s)
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4]
1. All patients with CCD and appropriate indications†‡§ should be referred to a cardiac rehabilitation program to improve outcomes.[88,89,103] (Class 1, Level of Evidence: A†; Class 1, Level of Evidence: B-R‡; Class 1, Level of Evidence: C-LD§)
2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization[104]
1. In patients who have undergone revascularization, a comprehensive cardiac rehabilitation program (home based or center based) should be prescribed either before hospital discharge or during the first outpatient visit to reduce deaths and hospital readmissions and improve quality of life.[105–108] (Class 1, Level of Evidence: A)
2014 AHA/ACC Guideline for the Management of Patients With Non–ST-Elevation Acute Coronary Syndromes[109]
1. All eligible patients with NSTE-ACS should be referred to a comprehensive cardiovascular rehabilitation program either before hospital discharge or during the first outpatient visit.[110–113] (Class 1, Level of Evidence: B)
2013 ACCF/AHA Guideline for the Management of Patients With ST-Elevation Myocardial Infarction[114]
1. Exercise-based cardiac rehabilitation/secondary prevention programs are recommended for patients with STEMI.[112,115–117] (Class 1, Level of Evidence: B)
AHA/ACCF Secondary Prevention and Risk Reduction Therapy for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2011 Update[59]
1. All eligible patients with ACS or whose status is immediately post coronary artery bypass surgery or post-PCI should be referred to a comprehensive outpatient cardiovascular rehabilitation program either prior to hospital discharge or during the first follow-up office visit.[112,118–120] (Class 1, Level of Evidence: A)
Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women–2011 Update[121]
1. A comprehensive CVD risk-reduction regimen such as cardiovascular or stroke rehabilitation or a physician-guided home- or community-based exercise training program should be recommended to women with a recent acute coronary syndrome or coronary revascularization, new-onset or chronic angina, recent cerebrovascular event, peripheral arterial disease (Class 1, Level of Evidence: A), or current/prior symptoms of heart failure and an LVEF ≤35%. (Class 1, Level of Evidence: B)
2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery[122]
1. Cardiac rehabilitation is recommended for all eligible patients after CABG.[112,118–120,123,124] (Class 1, Level of Evidence: A)
2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention[125]
1. Medically supervised exercise programs (cardiac rehabilitation) should be recommended to patients after PCI, particularly for patients at moderate to high risk, for whom supervised exercise training is warranted.[111,112,115,118–120,126–128] (Class 1, Level of Evidence: A)

*All communications must maintain appropriate confidentiality as outlined by HIPAA. All patient information required for enrollment should be transmitted to the CR program. Necessary patient information may be found in the hospital discharge summary. Patients who refuse a CR referral should not have their data transmitted to the receiving CR program against their will.

†After recent MI, PCI, or CABG.[88,89,103,129,130]

‡With stable angina[88,103,131,132] or after heart transplant.[133–138]

§After recent spontaneous coronary artery dissection event.[139–142]

ACC indicates American College of Cardiology; ACCF, American College of Cardiology Foundation; ACCP, American College of Clinical Pharmacy; ACS, acute coronary syndrome; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CABG, coronary artery bypass grafting; CCD, chronic coronary disease; CR, cardiac rehabilitation; CSA, central sleep apnea; CVD, cardiovascular disease; EHR, electronic health record; HIPAA, Health Insurance Portability and Accountability Act of 1996; LVAD, left ventricular assist device; LVEF, left ventricular ejection fraction; MI, myocardial infarction; NLA, National Lipid Association; NSTE-ACS, non–ST-segment–elevation acute coronary syndrome; PCI, percutaneous coronary intervention; PCNA, Preventive Cardiovascular Nurses Association; PM, performance measure; SCAI, Society for Cardiovascular Angiography and Interventions; and STEMI, ST-segment–elevation myocardial infarction.

Appendix A. Continued

Quality Measures for Chronic Coronary Disease

Short Title: QM-1: Imaging for CCD

QM-1: Imaging for CCD

Measure Description: Percentage of patients age ≥18 y with a diagnosis of CCD who undergo stress testing with imaging* within 1 y of a change in symptoms or functional capacity that persists despite GDMT†	
Numerator	Patients who were on GDMT† and who undergo stress testing with imaging* within 1 y of a change in symptoms or functional capacity
Denominator	Patients age ≥18 y with a diagnosis of CCD with a change in symptoms or functional capacity despite GDMT
Denominator Exclusions	Patients who undergo CTA or angiography
Denominator Exceptions	Documentation of medical reason(s) for not ordering imaging (eg, recent bleed) Documentation of patient reason(s) for not ordering imaging (eg, patient refusal)
Measurement Period	12-mo period of being seen in the outpatient setting for a change in symptoms of functional capacity
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Facility
Care Setting	Outpatient
Rationale	
In symptomatic patients with CCD, assessing the severity of ischemia may be useful to guide clinical decision-making regarding intensification of preventive and anti-ischemic therapy and whether there is an indication for invasive or noninvasive coronary angiography.[88,143–146]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD and a change in symptoms or functional capacity that persists despite GDMT, stress positron emission tomography/single photon emission CT myocardial perfusion imaging (PET/SPECT MPI), cardiovascular magnetic resonance (CMR) imaging, or stress echocardiography is recommended to detect the presence and extent of myocardial ischemia, estimate risk of major adverse cardiovascular events (MACE), and guide therapeutic decision-making.‡[143,145,147–167] (Class 1, Level of Evidence: B-NR)	

*Includes stress PET/SPECT MPI, CMR imaging, or stress echocardiography.

†Includes antianginal therapy, lipid-lowering therapy, and antiplatelet therapy.

‡Modified from the 2021 AHA/ACC chest pain guideline.[168]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; CMR, cardiovascular magnetic resonance; CT, computed tomography; CTA, computed tomography angiography; EHR, electronic health record; GDMT, guideline-directed management and therapy; MACE, major adverse cardiovascular events; MPI, myocardial perfusion imaging; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PET, positron emission tomography; QM, quality measure; and SPECT, single-photon emission computed tomography.

Appendix A. Continued

Short Title: QM-2: Lipid Management in CCD

QM-2: Managing Lipid Levels to Achieve Optimal Control of LDL-C

Measure Description: Percentage of patients age ≥18 y with CCD who have a ≥50% reduction in LDL-C levels compared with baseline and an LDL-C of <70 mg/dL	
Numerator	Patients with lipid testing that demonstrates a ≥50% reduction in LDL-C levels compared with baseline and an LDL-C of <70 mg/dL
Denominator	Patients age ≥18 y with CCD seen within a 12-mo period who undergo a lipid panel test
Denominator Exclusions	None
Denominator Exceptions	Documentation of medical reason(s) for not managing lipid levels (eg, drug-to-drug interactions, drug intolerance, allergy, ESRD*) Documentation of patient reason(s) for not managing lipid levels (eg, unable to afford medications, patient refusal or noncompliance)
Measurement Period	Period of care: 12-mo period Period of observation: All cases seen in the outpatient clinic accumulated over a 12-mo period
Sources of Data	EHR data Administrative data/claims (outpatient claims) Administrative data/claims expanded (multiple sources) Paper medical record
Attribution	Individual practitioner Outpatient health care facility
Care Setting	Outpatient
Rationale	
Controlled clinical trials of statin therapy have shown that intensive lipid lowering is associated with a reduced risk of adverse cardiovascular events in patients with coronary artery disease.[39,44] Additionally, the adjunct use of nonstatin agents in high-risk patients with persistently elevated LDL-C ≥70 mg/dL further reduces cardiovascular events.[169–171] Although these trials were not designed to compare different LDL goals, the studies collectively demonstrated that high-intensity therapies were associated with greater LDL reduction, with rates of adverse cardiovascular events being inversely proportional to levels of LDL achieved.[172] The 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA CCD guideline[4] recommends high-intensity statin therapy to achieve an LDL lowering of ≥50% from baseline. Although this goal is reasonable for patients with pretherapy LDL levels of <140 mg/dL, target goals that aim at a relative reduction in LDL may not lead to adequate control of LDL in patients with very high levels at baseline, and in these cases, an absolute threshold may be best. For this reason, the 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA CCD guideline[4] provides a 2a recommendation for the addition of a nonstatin agent to further lower LDL-C below 70 mg/dL in those patients not achieving optimal control. An LDL-C below 55 mg/dL can be considered in this high-risk population.[173]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. In patients with CCD, high-intensity statin therapy is recommended with the aim of achieving a ≥50% reduction in LDL-C levels to reduce the risk of MACE.†[39,43,44] (Class 1, Level of Evidence: A) 2. In patients with CCD who are judged to be at very high risk and on maximally tolerated statin therapy with an LDL-C level ≥70 mg/dL (≥1.8 mmol/L), ezetimibe can be beneficial to further reduce the risk of MACE.†[169,174–178] (Class 2a, Level of Evidence: B-R) 3. In patients with CCD who are judged to be at very high risk and who have an LDL-C level ≥70 mg/dL (≥1.8 mmol/L), or a non–high-density lipoprotein cholesterol (HDL-C) level ≥100 mg/dL (≥2.6 mmol/L), on maximally tolerated statin and ezetimibe, a PCSK9 monoclonal antibody can be beneficial to further reduce the risk of MACE.†[170,171,179–184] (Class 2a, Level of Evidence: A)	

*ESRD—insufficient clinical evidence of benefit.[185]

†Modified from the 2018 AHA/ACC cholesterol guideline.[12]

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CCD, chronic coronary disease; EHR, electronic health record; ESRD, end-stage renal disease; HDL-C, high-density lipoprotein cholesterol; LDL, low-density lipoprotein; LDL-C, low-density lipoprotein cholesterol; MACE, major adverse cardiovascular events; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; PCSK9, proprotein convertase subtilisin/kexin type 9; and QM, quality measure.

Appendix A. Continued

Short Title: QM-3: Patient Education

QM-3: Patient Education to Support Disease Self-Management of CCD

Measure Description: Percentage of patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period for whom there is documentation in the EHR of education on symptom management, lifestyle modification, medication indications and adherence, and SDOH (such as health care access, economic stability, and social context[4]) risk factors	
Numerator	Patients with EHR documentation (eg, progress notes, nursing notes, pharmacy notes, BPAs, after visit summary, patient education materials, and so on) of education about symptom management, lifestyle modification, medication indications and adherence, and SDOH risk factors
Denominator	Patients age ≥18 y with a diagnosis of CCD seen within a 12-mo period
Denominator Exclusions	None
Denominator Exceptions	None
Measurement Period	12 mo
Sources of Data	EHR data Paper medical record
Attribution	Individual practitioner (clinician, pharmacist, nurse, case manager, or social worker) Facility
Care Setting	Outpatient
Rationale	
Patient education improves patient knowledge about medications and symptom management in patients with CCD[186]; results in improvements in physical activity, dietary habits, and smoking cessation rates[22,186]; and may reduce mortality in the post-MI setting.[118] In addition, education about medications, particularly when pharmacist- or nursing-led, improves adherence rates.[187–189] Routine assessment of SDOH is recommended to inform treatment decisions and lifestyle changes.[190]	
Clinical Recommendation(s)	
2023 AHA/ACC/ACCP/ASPC/NLA/PCNA Chronic Coronary Disease Guideline[4] 1. Patients with CCD should receive ongoing individualized education on symptom management, lifestyle changes, and SDOH risk factors to improve knowledge and facilitate behavior change.[186] (Class 1, Level of Evidence: C-LD) 2. Patients with CCD should receive ongoing individualized education on medication adherence to improve knowledge and facilitate behavior change.[187–189] (Class 1, Level of Evidence: C-LD)	

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; BPA, Best Practice Advisory; CCD, chronic coronary disease; EHR, electronic health record; MI, myocardial infarction; NLA, National Lipid Association; PCNA, Preventive Cardiovascular Nurses Association; QM, quality measure; and SDOH, social determinants of health.

Appendix B. Author Relationships With Industry and Other Entities (Comprehensive)–2025 AHA/ACC Clinical Performance and Quality Measures for Patients With Chronic Coronary Disease

Committee Member	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
Marlene S. Williams, Chair	Johns Hopkins Bayview Medical Center–Associate Professor of Medicine; Clinical Director of Cardiology	Not relevant: • Haemonetics	None	None	None	None	None
Glenn N. Levine, Vice Chair	Baylor College of Medicine–Professor of Medicine-Cardiology; US Department of Veterans Affairs–Chief, Cardiology Section	None	None	None	None	Not relevant: • Elsevier	Not relevant: • Defendant, hospital death, 2023* • Defendant, hospital death, 2023*
Dinesh Kalra, *JCPM Liaison*	University of Louisville School of Medicine–Chief, Division of Cardiovascular Medicine; Professor of Medicine and Endowed Chair in Cardiovascular Innovation	Not relevant: • Sobi	None	None	Not relevant: • Akcea Therapeutics • Alnylam • Novartis	Relevant: • Canon Medical Systems USA (PI)* • Cleerly (PI)* • University of Louisville Research Foundation (PI)*	None
Anandita Agarwala	Texas A&M University College of Medicine–Clinical Assistant Professor, Center for Cardiovascular Disease Prevention, Baylor Scott & White The Heart Hospital - Plano	None	None	None	Not relevant: • NIH†	None	None
Diana Baptiste, *PCNA Representative*	Johns Hopkins School of Nursing–Associate Professor, Center for Cardiovascular and Chronic Care	None	None	None	None	None	None
Joaquin E. Cigarroa	Oregon Health and Science University–Professor of Medicine, Division of Cardiovascular Medicine, School of Medicine; Head of the Division of Cardiovascular Medicine	None	None	None	None	Not relevant: • AHA† • ASA† • *Catheterization and Cardiovascular Interventions,* Deputy Editor* • US FDA Circulatory Devices Panel, Chair • NIH‡ • SCAI†	None
Rebecca L. Diekemper§	AHA/ACC–Science and Health Advisor, Performance Measures	None	None	None	None	Not relevant: • AHA/ACC salaried employee	None
Marva V. Foster	Center for Health Optimization and Implementation Research–Clinician Investigator; Boston University Chobanian & Avedisian School of Medicine–Assistant Professor of Medicine, Department of General Internal Medicine; US Department of Veterans Affairs–Investigator/RN	None	None	None	None	None	None

(*Continued*)

Appendix B. Continued

Committee Member	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
Martha Gulati, *ASPC Representative*	Cedars Sinai, Smidt Heart Institute–Director, Preventive Cardiology	Relevant: • Eli Lilly • Esperion • Medtronic • Novartis • Zoll*	None	None	Not relevant: • Merck (DSMB)	Not relevant: • ASPC†	None
Timothy D. Henry, *SCAI Representative*	The Christ Hospital Physicians - Heart & Vascular–Interventional Cardiologist	Not relevant: • Neovasc • XyloCor Relevant: • Abbott Vascular • Boston Scientific • Chiesi	None	None	None	Not relevant: • Amgen	None
Dipti Itchhaporia	Hoag Heart and Vascular Institute–Eric & Sheila Samson Endowed Chair in Cardiovascular Health and Director of Disease Management; Newport Coast Cardiology–Physician	None	None	None	Not relevant: • General Prognostics	None	None
Jennifer S. Lawton	Johns Hopkins Medicine–Chief, Division of Cardiac Surgery; Professor of Surgery	None	None	None	None	None	None
L. Kristin Newby, *AHA/ ACC CCD Guideline Liaison*	Duke University–Professor of Medicine; Division of Cardiology and Duke Clinical Research Institute	Not relevant: • NHLBI Relevant: • Medtronic	None	None	Not relevant: • Bristol Myers Squibb (End Point Review Committee) • NIH (PI/Co–PI)* • NIH (DSMB)† • North Carolina DHHS* Relevant: • Medtronic (Co–PI)* • Roche Diagnostics (Co–PI)*	Not relevant: • AHA† • David H. Murdock Research Institute† Relevant: • AstraZeneca Healthcare Foundation† • Boehringer Ingelheim	None
Kelly C. Rogers, *ACCP Representative*	University of Tennessee College of Pharmacy–Professor of Clinical Pharmacy and Translational Science	None	None	None	None	None	None
Krishan Soni	University of California, San Francisco Medical–Associate Professor; Director of Quality and Safety for the Heart and Vascular Center; Program Director, Interventional, Cardiology Fellowship; Associate Clinical Professor, Division of Cardiology	Relevant: • Boston Scientific Corporation	None	None	Not relevant: • Hamilton Health Sciences Corporation (Co–PI)	None	Not relevant: • Plaintiff, coronary intervention complication, 2022*

(*Continued*)

Appendix B. Continued

Committee Member	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
Jacqueline E. Tamis-Holland	Cleveland Clinic–Interventional Cardiologist and Institute Director, Acute Coronary Care	None	Not relevant: • Ebix	None	Not relevant: • Concepts Medical‡ • Shockwave Medical†	Not relevant: • AHA† • Bronx Lebanon Hospital, Cardiology Fellowship Director • Cleveland Clinic Foundation, CORSIRA-II‡ • NYS† • PHRI • Shockwave Medical‡	None

This table represents all relationships of committee members with industry and other entities that were reported by authors, including those not deemed to be relevant to this document, at the time this document was under development. The table does not necessarily reflect relationships with industry at the time of publication. A person is deemed to have a significant interest in a business if the interest represents ownership of ≥5% of the voting stock or share of the business entity or ownership of ≥$5 000 of the fair market value of the business entity; or if funds received by the person from the business entity exceed 5% of the person's gross income for the previous year. Relationships that exist with no financial benefit are also included for the purpose of transparency. Relationships in this table are modest unless otherwise noted. Please refer to https://www.acc.org/guidelines/about-guidelines-and-clinical-documents/relationships-with-industry-policy for definitions of disclosure categories or additional information about the ACC/AHA Disclosure Policy for Writing Committees.

*Significant relationship.

†No financial benefit.

‡This disclosure was entered under the Clinical Trial Enroller category in the ACC's disclosure system. To appear in this category, the author acknowledges that there is no direct or institutional relationship with the trial sponsor as defined in the (ACCF or AHA/ACC) Disclosure Policy for Writing Committees.

§Rebecca Diekemper is an AHA/ACC joint staff member and acts as the Science and Health Advisor for the "2025 AHA/ACC Clinical Performance and Quality Measures for Patients With Chronic Coronary Disease." No relevant relationships to report. Nonvoting author on measures and not included/counted in the RWI balance for this committee.

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; A&M, Agricultural and Mechanical; ASA, American Stroke Association; ASPC, American Society of Preventive Cardiology; CCD, chronic coronary disease; CORSIRA-II, Coronary Sinus Reducer for the Treatment of Refractory Angina Trial; DHHS, Department of Health and Human Services; DSMB, data and safety monitoring board; FDA, Food & Drug Administration; JCPM, Joint Committee on Performance Measures; NHLBI, National Heart, Lung, and Blood Institute; NIH, National Institutes of Health; NYS, New York State; PCNA, Preventive Cardiovascular Nurses Association; PHRI, Population Health Research Institute; PI, principal investigator; RN, registered nurse; and SCAI, Society for Cardiovascular Angiography and Interventions.

Appendix C. Reviewer Relationships With Industry and Other Entities (Comprehensive)–2025 AHA/ACC Clinical Performance and Quality Measures for Patients With Chronic Coronary Disease

Reviewer	Representation	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
David Aguilar	ACC Official Reviewer	LSU Health New Orleans School of Medicine–Professor of Medicine	None	None	None	None	None	None
Nicole Bhave	ACC Official Reviewer	University of Michigan Medical School–Associate Professor of Medicine	• ACC*	None	• Doximity*	• Rednvia*	None	None
Yiannis Chatzizisis	AHA Official Reviewer	University of Miami–Chief, Division of Cardiovascular Medicine	None	None	• ComKardia Inc.	None	None	None
Leslie Cho	AHA/ACC JCPM Lead Reviewer	Cleveland Clinic–Section Head, Prevention and Cardiac Rehab	• Esperion	• Daiichi Sankyo	None	• Novartis (Co-PI, Executive Committee)	None	None
Shoa Clarke	AHA Official Reviewer	Stanford University School of Medicine–Assistant Professor	None	None	None	• Glycomine (DSMB)	None	None
James Coons	ACCP Official Reviewer	University of Pittsburgh School of Pharmacy–Professor, Department of Pharmacy and Therapeutics and the Center for Clinical Pharmaceutical Sciences	• AstraZeneca • Bristol Myers Squibb • Johnson & Johnson	None	None	None	None	None
Jane Linderbaum	PCNA Official Reviewer	Mayo Clinic–Associate Professor of Medicine, Co-Associate Vice-Chair of Cardiovascular Outpatient Practice	None	None	None	None	• PCNA	None
David Maron	ASPC Official Reviewer	Stanford University School of Medicine–Professor and Chief, Stanford Prevention Research Center	• Regeneron • Scilex Pharmaceuticals	None	• Ablative Solutions*	• Abiomed (MMC) • Cleerly, Inc. • NIH	None	None
Pamela Morris	AHA/ACC Content Reviewer	Medical University of South Carolina–Professor of Medicine	None	None	None	None	None	None
Issam Moussa	SCAI Official Reviewer	Carle Illinois College of Medicine, University of Illinois and Carle Health–Professor of Medicine	None	None	None	• Philips‡	None	None

(*Continued*)

Appendix C. Continued

Reviewer	Representation	Employment	Consultant	Speakers Bureau	Ownership/ Partnership/ Principal	Personal Research	Institutional, Organizational, or Other Financial Benefit	Expert Witness
Rushi Parikh	AHA/ACC Content Reviewer	UCLA Health–Associate Clinical Professor	• Nipro*	None	None	• Abbott Vascular* • Bayer Healthcare Pharmaceuticals* • Infraredx*	None	None
Sunil Rao	AHA/ACC Content Reviewer	NYU Langone Medical Center–Director, Interventional Cardiology	None	None	None	• PhaseBio (DSMB)† • PHRI (DSMB)†	None	None
Nadia Sutton	AHA/ACC Content Reviewer	Vanderbilt University School of Medicine–Assistant Professor	• Abbott Vascular* • Boston Scientific* • Philips • Radiaction*	• Zoll*	None	• ShockWave Medical*	None	None
Stephen Waldo	AHA/ACC Content Reviewer	Rocky Mountain Regional VA Medical Center–Director, Interventional Cardiology; VHA Office of Quality and Patient Safety–Clinical Director, CART Program; and University of Colorado–Professor of Medicine	None	None	None	• NIH* • VA HSR&D*	None	None

This table represents the relationships of reviewers with industry and other entities that were disclosed at the time of peer review. The table does not necessarily reflect relationships with industry at the time of publication. A person is deemed to have a significant interest in a business if the interest represents ownership of ≥5% of the voting stock or share of the business entity or ownership of ≥$5 000 of the fair market value of the business entity; or if funds received by the person from the business entity exceed 5% of the person's gross income for the previous year. Relationships that exist with no financial benefit are also included for the purpose of transparency. Relationships in this table are modest unless otherwise noted. Please refer to https://www.acc.org/guidelines/about-guidelines-and-clinical-documents/relationships-with-industry-policy for definitions of disclosure categories or additional information about the ACC/AHA Disclosure Policy for Writing Committees.

*Significant (>$5 000) relationship.

†No financial relationship.

‡This disclosure was entered under the Clinical Trial Enroller category.

ACC indicates American College of Cardiology; ACCP, American College of Clinical Pharmacy; AHA, American Heart Association; ASPC, American Society for Preventive Cardiology; CART, Clinical Assessment Reporting and Tracking; DSMB, data and safety monitoring board; HSR&D, Health Services Research & Development Service; JCPM, Joint Committee on Performance Measures; LSU, Louisiana State University; MMC, medical monitoring committee; NIH, National Institutes of Health; NYU, New York University; PCNA, Preventive Cardiovascular Nurses Association; PHRI, Population Health Research Institution; PI, primary investigator, SCAI, Society for Cardiovascular Angiography & Interventions; UCLA, University of California, Los Angeles; VA, Veterans Affairs; and VHA, Veterans Health Administration.